



Evaluation Study to support the Fitness Check of the Birds and Habitats Directives

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Disclaimer: The information and views set out in this study are those of the authors and do not necessarily represent the official views of the Commission.

This Draft Final Study to support the Fitness Check of the Birds and Habitats Directives has been prepared by a consortium led by Milieu Ltd, and also comprised of the Institute for European Environmental Policy (IEEP), ICF International and Ecosystems Ltd. for the European Commission's Directorate General Environment under Service Contract number: ENV.B.3/ETU/2014/0014.

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Table of Contents

Executive summary	13
Acronyms and abbreviations	14
1 Introduction	15
1.1 Purpose of the evaluation	15
1.2 Scope of the evaluation	15
1.3 Structure of this report.....	16
2 Background to the Directives.....	17
2.1 Purpose of the Directives.....	17
2.2 History and evolution	17
2.3 Intervention logic	19
3 State of play	29
3.1 Introduction.....	29
3.2 Effective Status of implementation: key objectives	29
3.3 Implementation and Enforcement of the Nature Directives	36
4 Methodology.....	49
4.1 Evaluation questions	49
4.2 Evidence gathering	51
4.3 Collation and evaluation of evidence	59
4.4 Research limitations, challenges and lessons learned	65
5 Evaluation and analysis of effectiveness questions	69
5.1 S.1 - What progress have Member States made over time towards achieving the objectives set out in the Directive and related policy documents? Is this progress in line with initial expectations? When will the main objectives be fully attained? ...	70
5.2 S.2 - What is the contribution of the Directives towards ensuring biodiversity? In particular to what extent are they contributing to achieving the EU Biodiversity Strategy Objectives and Targets?	95
5.3 S.3 - Which main factors (e.g. implementation by Member States, action by stakeholders) have contributed to or stood in the way of achieving the Directive's objectives?.....	121
5.4 S.4 - Have the directives led to any other significant changes both positive and negative?.....	139
5.5 Conclusions concerning effectiveness of the Nature Directives.....	152
6 Evaluation and analysis of efficiency questions	153
6.1 Y.1 - What are their costs and benefits (monetary and non-monetary)?	154
6.2 Y.2 - Are availability and access to funding a constraint or support?.....	180
6.3 Y.3 - If there are significant cost differences between Member States, what is causing them?	194
6.4 Y.4 - Can any costs be identified (especially regarding compliance) that are out of proportion with the benefits achieved? In particular, are the costs of compliance proportionate to the benefits brought by the Directives?	201

6.5	Y.5 - Can good practices, particularly in terms of cost-effective implementation, be identified?.....	211
6.6	Y.6 - What are likely to be the costs of non-implementation of legislation? ..	230
6.7	Y.7 - Taking account of the objectives and benefits of the directives, is there evidence that they have caused unnecessary administrative burden?	237
6.8	Y.8 - Is the knowledge base sufficient and available to allow for efficient implementation?.....	250
6.9	Conclusions concerning efficiency of the Nature Directives	266
7	Evaluation and analysis of relevance questions	268
7.1	R.1 - Are the key problems facing species and habitats addressed by the EU nature legislation?	269
7.2	R.2 - Have the Directives been adapted to technical and scientific progress?....	289
7.3	R.3 - How relevant are the Directives to achieving sustainable development? ..	303
7.4	R.4 - How relevant is EU nature legislation to EU citizens and what is their level of support for it?	316
7.5	R.5 - What are citizens' expectations for the role of the EU in nature protection?.....	325
7.6	Conclusions concerning Relevance of the Nature Directives.....	330
8	Evaluation and analysis of coherence questions	331
8.1	C.1 - To what extent are the objectives set up by the Directives coherent with each other?.....	332
8.2	C.2 - To what extent are the Directives satisfactorily integrated and coherent with other EU environmental law e.g. EIA, SEA?	349
8.3	C.3 - Is the scope for policy integration with other policy objectives (e.g. water, floods, marine, and climate change) fully exploited?.....	363
8.4	C.4 - To what extent do the Nature Directives complement or interact with other EU sectoral policies affecting land and water use at EU and Member State level (e.g. agriculture, regional and cohesion, energy, transport, research, etc.)?.....	373
	C.5 - How do these policies affect positively or negatively the implementation of the EU nature legislation?.....	374
8.5	C.6 - To what extent do they support the EU internal market and the creation of a level playing field for economic operators?.....	428
8.6	C.7 - To what extent has the legal obligation of EU co-financing for Natura 2000 under Article 8 of the Habitats Directive been successfully integrated into the use of the main sectoral funds?	433
8.7	C.8 - Are there overlaps, gaps and/or inconsistencies that significantly hamper the achievements of the objectives?.....	444
8.8	C.9 - How do the directives complement the other actions and targets of the biodiversity strategy to reach the EU biodiversity objectives?	445
8.9	C.10 - How coherent are the directives with international and global commitments on nature and biodiversity?	451
8.10	Conclusions on Coherence.....	467
9	Evaluation and analysis of EU added value questions.....	469

9.1	AV.1 - What has been the EU added value of the EU nature legislation?	470
	A.V.2 - What would be the likely situation in case of there having been no EU nature legislation?.....	470
9.2	AV. 3 - Do the issues addressed by the Directives continue to require action at EU level?	497
9.3	Conclusions concerning EU added value in respect to the Nature Directives	511
10	Conclusions	512
10.1	What has worked well and what hasn't worked well?	512
10.2	Are the Directives fit for purpose?	518
10.3	Implementation issues – priority areas for improvement.....	520
	Annexes	521
	References.....	528

List of Tables

Table 1 - Nature Directives' intervention logic scheme & evaluation framework	20
Table 2 Evidence gathering questionnaires sent and received, by type of stakeholder	54
Table 3 The percentage of evidence gathering questionnaire responses allocated to each category of progress relating to the establishment of the SPA and SCI networks	76
Table 4 The percentage of evidence gathering questionnaire responses allocated to each category of progress relating to progress towards the achievement of the overall objectives of the Directives	90
Table 5 Online public consultation questionnaire responses by stakeholder on whether the Directives been effective in protecting nature	90
Table 6 Online public consultation questionnaire responses by stakeholder on effectiveness of the Directives to-date.....	91
Table 7 The number and proportion of threatened species directly protected by the Nature Directives.....	99
Table 8 Summary of evidence gathering questionnaire responses to the contribution that the Nature Directives are making to the EU's biodiversity target	104
Table 9 Summary of online public consultation responses to Question 20 "How significant are the benefits associated with the Directives?"	104
Table 10 Summary of progress on the Biodiversity Strategy to 2020 actions supporting Target 1	106
Table 11 Selected LIFE projects since 2002 that have focused on IAS	114
Table 12 Summary of strengths and weakness of Natura 2000 according to Crofts (2014)	124
Table 13 Average item scores and factor scores from a survey of conservation professionals in Europe about Natura 2000	125
Table 14-3 Factors affecting implementation of the Directives in the Member States	127
Table 15-4 Summary of respondents' responses to Question 18 on factors that have contributed to the Directives' successes.....	128
Table 16 Typology of costs resulting from the Nature Directives	155
Table 17 Typology of Benefits	168
Table 18 Per hectare benefits of Natura 2000 sites	170
Table 19 Synthesis of views on funding as a support or constraint in reaching the objectives of the Nature Directives, based on the evidence gathering questionnaire.	187
Table 20 Responses to Q19 on whether insufficient funding limits progress towards reaching the objectives of the nature Directives	191
Table 21 Cost differences	198
Table 22 Results of question 22 of the public consultation questionnaire.....	210
Table 23 Results of question 24 of the public consultation questionnaire.....	228
Table 24 Key knowledge requirements for implementation of the Birds and Habitats Directives	251
Table 25 Respondent's views on whether the knowledge base is sufficient and available to allow for efficient implementation	255
Table 26 Knowledge gaps identified by respondents to the stakeholder questionnaire and the percentage of respondents that identified each as a constraint on the implementation of the Directives	256
Table 27 - Overview of the provisions of the directives addressing key problems	286
Table 28 Stakeholder questionnaire responses relating to whether the Annexes should be updated	291
Table 29 The reasons given by stakeholder questionnaire for updating the Annexes	292

Table 30 Evidence gathering questionnaire responses to the contribution of the Directives to sustainable development.....	306
Table 31 Responses to whether or not the Directives contribute to sustainable development through biodiversity and ecosystem service benefits	307
Table 32 The number of respondents that said the Directives permit sustainable development.....	311
Table 33 - Percentage of Europeans that think the stated roles of the Natura 2000 network are either very important or somewhat important	317
Table 34 - Seriousness of specific aspects of biodiversity loss, according to Europeans	318
Table 35 - Reasons why it is important to halt biodiversity loss, according to Europeans	319
Table 36 – Europeans’ views on whether decisions on environmental protection should be made jointly within the EU or by national governments only	326
Table 37 - Measures that the EU should take to protect biodiversity, according to Europeans	327
Table 38 Overview of responses to online public consultation Q10 ‘Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?’ for Cohesion Policy	393
Table 39 Overview of responses to online public consultation Q10 ‘Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?’ for energy	401
Table 40 Overview of responses to online public consultation Q10 ‘Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?’ for the Fisheries and maritime sector	413
Table 41 Overview of responses to online public consultation Q10 ‘Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?’ for Research and innovation.....	420
Table 42 Overview of responses to online public consultation Q10 ‘Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?’ for Cohesion Policy	426
Table 43 Integration of biodiversity and Natura 2000 into EU sectoral funding priorities during the 2014-2020 funding period (Kettunen et al, 2014a).....	435
Table 44 Examples of good and failed practices in integration, identified by evidence gathering questionnaires and national missions	439
Table 45 Results of question 22 of the public consultation questionnaire.....	442

List of Boxes

Box 1 Definition of FCS for habitats and species of Community interest under the Habitats Directive	23
Box 2 Proposed key components of a coherent Natura 2000 network	24
Box 3 The underlying causes of problems with the Article 6(3) procedures.....	77
Box 4 Examples of initiatives to increase connectivity between protected areas	81
Box 5 Stakeholder engagement in nature conservation through the German Association for Landcare.....	132
Box 6 National estimates of the costs of implementing Natura 2000.....	157
Box 7 Costs of implementing the Directives in the Czech Republic	159
Box 8 Costs of public administration of the Directives in Malta.....	159
Box 9 Examples of conflicts between Natura 2000 and development	161
Box 10 Review of national statistics on developments and appropriate assessment.	162
Box 11 Opportunity costs of foregone minerals extraction.....	164

Box 12 Opportunity costs of Natura 2000 to the agriculture sector.....	165
Box 13 Opportunity costs in the forestry sector	165
Box 14 Most development applications are approved in Slovenian Natura 2000 areas	166
Box 15 Costs of damage caused by large carnivores	167
Box 16 Losses to aquaculture from protected species.....	167
Box 17 Natura 2000 delivers valuable ecosystem services	171
Box 18 Tool for Valuing Conservation Measures at Natura 2000 Sites.....	173
Box 19 Ecosystem services delivered by Natura 2000	174
Box 20 Types of jobs created by implementing the Natura 2000 network.....	176
Box 21 Natura 2000, Jobs and Skills in Greece	177
Box 22 Wildlife Tourism in Estonia, the UK, the Netherlands and Slovenia	177
Box 23 Benefits of Natura 2000 for agriculture and food production	178
Box 24 Assessment of financial costs to achieve German biodiversity targets	184
Box 25 Allocation of EAFRD funding to biodiversity objectives 2014-2020	184
Box 26 Factors affecting restoration costs in Estonia	196
Box 27 Examples of good practice in enhancing efficiency and timescales for AA	197
Box 28 Costs of national implementation – monitoring of coal-fired energy plant in the UK	199
Box 29 Comparisons of costs and benefits at Natura 2000 sites.....	203
Box 30 Benefits and costs of habitat conservation and restoration	203
Box 31 Engbertsdijkvenen, the Netherlands – Costs of controlling Nitrogen emissions	204
Box 32 Costs of species action	205
Box 33 Costs of implementation in Ireland.....	207
Box 34 Costs associated with plans and projects	207
Box 35 Disproportionate costs – findings from the national missions	208
Box 36 Factors giving rise to disproportionate costs in the UK	209
Box 37 Examples of cost-effective implementation in the UK.....	213
Box 38 The ports sector	215
Box 39 Renewables development in Slovenia, Ireland and Austria – the role of sensitivity mapping and strategic planning.....	215
Box 40 The extractive industries.....	216
Box 41 Hunters’ contributions	217
Box 42 Mapping tools in Malta.....	217
Box 43 SCANS – survey collaboration between Member States.....	217
Box 44 Streamlined data collection in the UK	218
Box 45 Examples of cost-effective use of technology and devices	218
Box 46 Institutional development in Germany	219
Box 47 France – Cost-effective approaches to site management.....	219
Box 48 Netherlands - Spatial development and land consolidation	220
Box 49 Good practice in AA and development permitting	220
Box 50 Austria: Streamlining of consultation and screening	221
Box 51 PCIs - enhancing the cost effectiveness of applying the Directives to energy infrastructure projects.....	222
Box 52 Nuclear infrastructure projects (NISP) in the UK – developing efficient approaches to evidence and assessment	222
Box 53 Strategic planning of infrastructure in Poland	223
Box 54 The Netherlands – cost-effective investment in tackling nitrogen deposition	224
Box 55 Multiple benefit initiatives in the UK and Netherlands	224
Box 56 Germany – Cost savings through joint action with the WFD and MSFD.....	225
Box 57 Species licencing in the UK.....	225
Box 58 Codes of conduct and common exemptions in the Netherlands and the UK..	226
Box 59 Bat Conservation Trust, UK	226
Box 60 Germany - Species protection can reveal cheaper solutions.....	227

Box 61 Volunteering in Germany, Estonia, Ireland and the UK.....	227
Box 62 Examples of the costs of inaction	233
Box 63 Possible consequences of non-implementation at Member State level – further examples from the evidence gathering questionnaires and national missions	234
Box 64 Administrative burdens related to species protection	243
Box 65 Unnecessary burdens caused by implementation problems.....	243
Box 66 Burdens associated with screening processes	244
Box 67 Administrative burdens related to EIA and SEA.....	245
Box 68 Burdens caused by scientific uncertainty	245
Box 69 Burdens caused by capacity constraints	246
Box 70 Examples of the administrative burdens of infrastructure development	246
Box 71 Administrative burdens of infrastructure development in Germany	247
Box 72 Administrative burdens caused by European reporting requirements	248
Box 73 Case example - knowledge gathering activities supporting the implementation of the Nature Directives in France	253
Box 74 Case example - knowledge gathering activities supporting the implementation of the Nature Directives in Germany	253
Box 75 The effect of biodiversity knowledge gaps on the London Array offshore wind development.....	258
Box 76 Issues affecting the quality and completeness of data used to assess the conservation status of habitats and species	260
Box 77 Examples of guidance documents of relevance to the implementation of the Nature Directives.....	264
Box 78 Member State reporting on pressures and threats for the period 2007-2012	270
Box 79 - The Natura 2000 Network and climate change.....	281
Box 80 - The interaction between the Directives and initiatives under other policy areas: The example of agriculture and forestry	282
Box 81 - Conservation measures can help reverse habitat fragmentation.....	283
Box 82 – The Directives as catalysers for actions against nitrogen pollution: Examples from the Netherlands and Belgium.....	283
Box 83 – The assessment of transportation and service infrastructure: Opportunities for project developers	284
Box 84 - Species protection and the case law of the CJEU: The example of hunting	285
Box 85 - Examples of benefits of protected area designation for non-target species, ie the umbrella effect	297
Box 86 Guiding Principles for Sustainable Development in the 2006 SDS	305
Box 87 Example of the contribution of biodiversity related land management actions to sustainable development in rural areas in Austria	308
Box 88 Example of the contribution of Natura 2000 to sustainable development in rural areas in the Czech Republic.....	309
Box 89 Example of the contribution of Natura 2000 to sustainable development through tourism and recreation in Germany	309
Box 90 The contributions of conservation measures for the Iberian Lynx to sustainable development through increased tourism in the Andújar region of Spain	309
Box 91 The contributions of conservation measures in a forest area to sustainable development through increased tourism, Greece	310
Box 92 The benefits of strategic planning and a strategic approach to the Via Baltica in Poland.....	313
Box 93 Key areas for improving implementation of the Directives in England, as identified in the UK HM Government Review of the Birds and Habitats Directives	313
Box 94 Views of the stakeholders on the coherence between the directives.....	336
Box 95 Positive examples from RGI	397
Box 96 Good practices in respect to wind farms.....	399
Box 97 Significant positive changes in managing marine biodiversity	408

Box 98 Example of a package of measures restricting damaging fishing practices in the Netherlands.	410
Box 99 EIP-AGRI focus group on organic farming	420
Box 100 Problems associated with improper implementation of environmental procedures	423
Box 101 Examples of EU research framework projects supporting implementation of the Natura 2000 network and/or wider objectives of the EU Nature Directives.....	435
Box 102 Transboundary nature of threats.....	472
Box 103 Flexibility in the actions required at the national and site level	473
Box 104 Examples of cooperation between Member States	474
Box 105 Common standards set out in nature legislation	475
Box 106 Examples of increases in surface of protected area	477
Box 107 Best practice – coherence of the network	478
Box 108 Conservation status of species protected by the Directives	479
Box 109 Examples of increased knowledge	482
Box 110 Examples of monitoring measures	482
Box 111 Examples of improved protection due to the Directives	484
Box 112 Examples of stronger protection systems due to the Directives	485
Box 113 Examples of the stakeholders in favour of common standards	487
Box 114 Examples of improved cooperation	487
Box 115 EU common negotiating position	488
Box 116 Examples of contribution towards global biodiversity conservation	489
Box 117 Impact on accessing countries	489
Box 118 Examples of increased public awareness initiatives	489
Box 119 Examples of the increased use of EU Funds	491
Box 120 Examples of integration of biodiversity in business planning	492
Box 121 Examples of positive conservation result	499
Box 122 Example of impact of EU enforcement on better transposition.....	501
Box 123 Examples of effective EU enforcement action	501
Box 124 Example of sectoral guidance	506
Box 125 Example of trans-boundary cooperation	506
Box 126 Examples on the impact of the Directives in promoting jobs and growth ...	507

List of Figures

Figure 1 Key milestones in the evolution of EU nature legislation	18
Figure 2 Cumulative surface area identified as pSCI or SCI or cumulative surface area of SPA.....	30
Figure 3 % of the terrestrial portion of a Member State designated as Natura 2000 (add EEA ref)	31
Figure 4 Conservation status by main type of habitats.....	34
Figure 5 Proportion of non-bird species assessments in conservation status class	34
Figure 6 – Share of reported breaches in the environmental sector per area (100% = 7866).....	38
Figure 7 - Sources of reported breaches (in % of total)	38
Figure 8 – Number of reported breaches under the Birds and Habitats Directives (per source)	39
Figure 9 - Number of reported breaches over time (per groups of Member States distinguished according to the time of their EU accession)*.....	41
Figure 10 – Types of breaches per source (in % of total)	42
Figure 11 – Shares of reported breaches under the Birds Directive among selected articles (100% = 103 reported breaches)	43

Figure 12 - Shares of reported breaches under the Habitats Directive among selected articles (100% = 266 reported breaches)	43
Figure 13 Overview of the total number of responses per evaluation question	54
Figure 14 Snapshot of the Consultation Information Management Tool	55
Figure 15 The overlap between IBAs and SPAs in the EU in 1993 and 2013.....	73
Figure 16 Sufficiency of the terrestrial Sites of Community Importance component of the Natura 2000 network.....	74
Figure 17 EU Biodiversity Strategy to 2020 targets and actions	96
Figure 18 The benefits and costs of Natura 2000 under different implementation scenarios: Illustrative schematic.....	231
Figure 19 Frequency (%) of overall Level 1 pressures reported for birds, non-bird species and habitats by Member States for the 2007-2012 reporting period.....	272
Figure 20 - Share of Europeans that believe their quality of life is affected by the state of the environment and by economic factors	319
Figure 21 Responses to question C.4 by policy sector addressed.....	375
Figure 22 Responses to question C.5 by policy sector addressed.....	375
Figure 23 General and specific objectives of the CAP	377

Executive summary

Six pages, per ToR

Per Guidelines for preparation of the SWD:

The executive summary should be a reader-friendly (for the unfamiliar reader) stand-alone document. Thus, a journalistic style should be applied, providing the full picture of the evaluation, and any technical terminology and jargon should either be adapted or explained.

To be prepared at the end, based on the executive summary of the emerging findings report.

Acronyms and abbreviations

(*Does not require definition on first use)

CAP	Common Agricultural Policy
CBD	Convention on Biological Diversity
CEF	Connecting Europe Facility
CFP	Common Fisheries Policy
CJEU	(Court of Justice of the EU) European Court of Justice
EIA	Environmental Impact Assessment*
EEA	European Environment Agency
ELD	Environmental Liability Directive 2004/35/EC
ETC-BD	European Topic Centre on Biological Diversity
EU	European Union*
ERDF	European Regional Development Fund
EFF	European Fisheries Fund
FCS	Favourable Conservation Status
FD	Floods Directive 2007/60/EC
MPAs	Marine Protected Areas
MSFD	Marine Strategy Framework Directive 2008/56/EC*
NEC	National Emission Ceilings Directive 2001/81/EC
NGO	Non-Governmental Organisation*
NEEI	Non-Energy Extractive Industries
PAFs	Prioritised Action Frameworks
PCIs	Projects of Common Interest
RDP	Rural Development Programme
REFIT	Regulatory Fitness and Performance Programme
RGI	Renewables Grid Initiative
SACs	Special Areas of Conservation*
SEA	Strategic Environmental Assessment*
SCIs	Sites of Community Importance*
SMEs	Small and Medium-sized Enterprises
SPAs	Special Protection Areas*
TEN-E	Trans-European Networks for energy
TEN-T	Trans-European Networks for transport
TFEU	Treaty on the Functioning of the European Union
WFD	Water Framework Directive 2000/60/EC*
WWF	World Wide Fund for Nature

1 Introduction

1.1 Purpose of the evaluation

This evaluation study has been commissioned by DG Environment and focuses on the following two pieces of EU legislation:

- **The Birds Directive (2009/147/EC)** is the codified version of Directive 79/409/EEC as amended. This Directive provides a legal framework for the conservation of all wild bird species naturally occurring in the EU.
- **The Habitats Directive (92/43/EEC)** aims to ensure the protection of species and habitat types of EU conservation concern.

These are the two main pieces of EU nature legislation, which provide a common framework setting the standard for nature protection across the Member States. They are collectively referred to as the 'Nature Directives'.

This report presents the results of a comprehensive policy evaluation (or Fitness Check) to assess the performance of the EU nature legislation against the following criteria: relevance, effectiveness, efficiency, coherence and EU added value. This retrospective exercise considers what has worked well or poorly, and compares actual performance to earlier expectations. The Fitness Check is one of many activities undertaken as part of the Commission's Regulatory Fitness and Performance Programme (REFIT). The REFIT programme is a continuous improvement process, which looks for ways to make EU legislative activities 'lighter, simpler and less costly'. It looks across the whole policy cycle – from the design of a piece of legislation to its implementation, enforcement, evaluation and, where justified, revision.

This evaluation study includes, in particular, an assessment of:

- Implementation and integration successes and problems.
- The costs of implementation and non-implementation of the legislation.
- The administrative burden of implementation, and the opportunities to reduce it without compromising the integrity of the purpose of the Directives.
- The implementation status and methods in different Member States.
- The views of key stakeholder groups.

1.2 Scope of the evaluation

The scope of the evaluation has been set forth in the Fitness Check mandate, which is published on the Commission's website for the Fitness Check¹. The mandate describes the scope of the Fitness Check in detail, and this has guided the interpretation of each of the evaluation questions (see section 4.1 for a more detailed explanation).

The evaluation covers the period of time from the adoption of each Directive – the Birds Directive in 1979 and the Habitats Directive in 1992 – to the present day. The evaluation is retrospective; it looks back at what has happened in the intervening years since the adoption of the Directives. At the same time, the results of the evaluation will be used to progress forward, to determine whether or not the legislation is fit for purpose, and to consider the changes, if any, that might be justified for the future. Consequently, the evaluation considers recent and upcoming developments (e.g. the 2014 revised EIA Di-

¹ The 'Fitness Check mandate for nature legislation' can be found at: http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/Mandate%20for%20Nature%20Legislation.pdf accessed 22 December 2015.

rective) as these will impact the interpretation of conclusions. The study does not, however, provide recommendations or suggestions for future action.

Geographically, the focus of the evaluation is on the implementation of the Directives in the EU. However, biodiversity has a global aspect, and the Directives operate within a framework of important international commitments. They also contribute to the global aspects of the EU Biodiversity Strategy; when relevant, therefore, the global perspective is also considered.

1.3 Structure of this report

The report is structured as follows:

- **Section 2: Background to the Directives.** This section details the purpose of the Directives, their history and evolution, and how they are intended to work in practice. It also includes the intervention logic for the Directives, which sets the basis for evaluating their performance.
- **Section 3: State of Play.** This section summarises the current situation with respect to implementation of the Directives.
- **Section 4: Methodology.** This section outlines the methodological approach used to collect, track and analyse data, including modes of extensive engagement with stakeholders. It also discusses the limitations of the research.
- **Sections 5 - 9: Evaluation and analysis of effectiveness, efficiency, relevance, coherence and EU added value.** These sections summarise the analysis for each of the evaluation questions, including details on the interpretation of the question and the main sources of information used to determine the response.
- **Section 10: Conclusions.** This section brings together the conclusions for each evaluation question.

2 Background to the Directives

2.1 Purpose of the Directives

The two main pieces of EU nature legislation – the 1979 Directive on the conservation of wild birds (Birds Directive) and the 1992 Directive on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) – provide a common EU framework that sets the standard for nature protection across the Member States.

The aim of the Nature Directives is to contribute to ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the EU. More specifically, the overall objective of the Habitats Directive is to maintain or restore habitats and species of EU conservation concern to Favourable Conservation Status (FCS), while the Birds Directive aims to achieve good conservation status for all wild bird species naturally occurring in the EU territory of the Member States. Both Directives are similarly designed and structured, requiring not only the conservation of species but also their habitats through a combination of site and species protection measures, supported by monitoring and research measures. One of the key ways to achieve the objectives has been the establishment of Natura 2000 – a network of areas of high biodiversity value across the EU.

The Birds and Habitats Directives are considered by the Commission to be the cornerstone of the EU's biodiversity policy. They have been endorsed by Heads of State and Government towards the EU 2020 target of halting and reversing the loss of biodiversity, as well as the long-term goal for 2050². The Commission has adopted an ambitious Biodiversity Strategy to achieve this objective, comprising six targets³. Target 1 of this Strategy is focused on 'Full implementation of EU nature legislation to protect biodiversity', and it requires a significant improvement in conservation status.

The implementation of EU nature legislation also contributes significantly to other targets of the biodiversity strategy, including Green infrastructure and restoration under Target 2, as well as integration with agriculture and forestry under Target 3, and sustainable management of fisheries under Target 4.

The Directives are also key tools to give effect to EU commitments under international conventions and agreements, such as the Convention on Biological Diversity, the Bern Convention on European Wildlife, the Convention on Migratory Species and the African Eurasian Waterbird Agreement.

2.2 History and evolution

The concept of protected areas of land has existed in Europe since the beginning of the 19th century, originally to facilitate the hunting interests of the local nobility, or for aesthetic reasons. Widespread acceptance of the concept of protecting areas based on scientific assessments of their value as habitats, or to support the conservation of rare or endangered species, is relatively recent, however, and took form in Europe with the 1979 adoption of the Birds Directive. The Bern Convention on the Conservation of European Wildlife and Natural Habitats was agreed and opened for signature in the same year.

² European Commission, The EU Biodiversity Strategy to 2020, European Union, 2011, available at: <http://ec.europa.eu/environment/nature/info/pubs/docs/brochures/2020%20Biod%20brochure%20final%20lores.pdf>

³ European Commission, DG Environment, 'EU Biodiversity Strategy to 2020', available at: http://ec.europa.eu/environment/pubs/pdf/factsheets/biodiversity_2020/2020%20Biodiversity%20Factsheet_EN.pdf.

At the time of the adoption of the Birds Directive, European-level environmental legislation was relatively rare, and environmental policy was not yet legally recognised as a Community competence. The adoption of the Birds Directive, which was legally based on Article 100 of the EEC Treaty referring to the establishment of the internal market, was complex and required a unanimous vote in the Council.

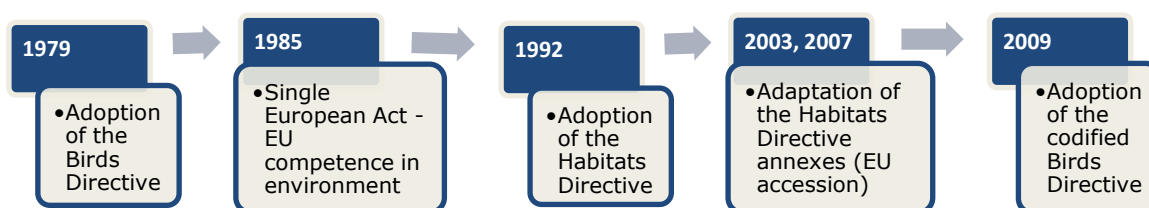
The Birds Directive was adopted in response to alarming information about the decline of birds, in particular migratory birds, and the status of conservation of wetlands in the EU, recognising their critical role as a habitat for birds. The Directive included a provision requiring Member States to take the necessary measures to preserve, maintain or re-establish a sufficient diversity and area of habitats for all birds by the creation of protected areas, and requiring Member States to pay particular attention to the protection of wetlands, particularly wetlands of international importance. However, progress on site designation was slow and the scope of the Directive was relatively limited in comparison to the Bern Convention. This led to recognition of the need for a complementary piece of legislation that would create a more systematic structure for the establishment of protected areas and broaden the scope to include non-bird species and their habitats.

The UN Conference on the Environment and Development held in Rio de Janeiro in 1992 generated the right mood for ambitious pieces of legislation such as the Framework Convention on Climate Change, the Convention on Biological Diversity (CBD) and, at the EU level, the Habitats Directive. The Habitats Directive was adopted in 1992, based on the TFEU provisions on environmental policy.

The Habitats Directive's innovative character can be best understood within its historical context. The Directive is anchored within the general objective of sustainable development, to which it expressly refers in the preamble as part of its aim to promote the maintenance of biodiversity while taking account of economic social, cultural and regional requirements. This predates the 1999 Treaty of Amsterdam requirement to integrate environmental protection into all EU sectoral policies with a view to promoting sustainable development. The preamble of the Birds Directive 2009/147/EC, adopted to codify substantial amendments to the 1979 Directive, also refers to the sustainable development objective.

The Nature Directives establish a flexible mechanism that has adapted over time, their Annexes being amended to reflect the biodiversity of Member States joining the EU. While the Habitats Directive was amended in 1997 by a technical adaptation Directive, the Birds Directive went through a codification procedure leading to the adoption of Directive 2009/147/EC. The annexes were further amended by the Environment Chapter of the 2003 Treaty of Accession and again in 2007 when Bulgaria and Romania joined the EU.

Figure 1 Key milestones in the evolution of EU nature legislation



2.3 Intervention logic

The intervention logic sets out how the Directives are designed to work, including their strategic, specific and operational objectives, the activities or inputs that would be required to achieve these objectives, and the outputs, outcomes (results) and impacts that should be achieved through their implementation. It includes general criteria that define the effectiveness of the legislation, as well as providing the basis for the design of the specific judgement criteria and indicators used for the analysis of each evaluation question (see section 4 for more detail). By first understanding how the legislation is *supposed* to work, the evaluation can more clearly assess the value of what has happened in practice.

Overall, the Directives aim to maintain and restore biodiversity in the EU and to address the threats to habitats and species (needs). While the Directives response to specific circumstances and threats might evolve (see question R.1), they are not in themselves problem-specific, but, rather, set up systems to achieve conservation objectives irrespective of the cause of biodiversity loss or decline. The Directives specify a hierarchy of objectives – strategic, specific and operational – with associated activities to which financial and human resources are allocated in order to achieve the objectives. The changes over time linked to these activities can be measured at different levels, corresponding to the three tiers of objectives, and have been assessed in the evaluation study according to the available evidence.

Outputs measure the immediate effect of the activities undertaken, and include, for example, the area of land designated as Natura 2000 and the number of sites with management plans, etc. A more extensive list of outputs linked to the operational objectives of the EU Nature Legislation is included in the intervention logic scheme below. These outputs are designed to achieve certain conservation outcomes (results), such as the maintenance or restoration of FCS. These can be measured through appropriate indicators, which can be used to assess progress against the specific objectives of the EU Nature Legislation. Finally, these outcomes should contribute to longer term impacts at the EU level, such as the overall conservation status of species and habitats, which relate to the overall strategic objectives.

The intervention logic for the evaluation is provided in detail in Table 1 below. On the left hand side, the objectives and activities or inputs specified by the Directives are detailed. On the right hand side are the expected outputs, outcomes and impacts that the Directives should achieve, defined by related criteria. More detail on how the objectives are implemented in practice is also provided in Table 1.

Table 1 - Nature Directives' intervention logic scheme & evaluation framework

Overall needs	To maintain biodiversity and address threats to habitats and species		To halt and reverse loss of species and habitats	
	Birds Directive	Habitats Directive		Criteria
Strategic Objectives / Aims 	Article 2: Maintain the population of all species of wild birds in the EU at a level which corresponds to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level.	Article 2: Contribute to the conservation of biodiversity by taking measures that aim to maintain or restore natural habitats and species of Community interest to FCS, taking into account economic, social and cultural requirements and regional and local characteristics.	Impacts 	• Bird populations maintained or restored to appropriate levels. • Habitats and species of Community interest in FCS.
Specific Objectives 	Article 3: Preserve, maintain or re-establish a sufficient diversity and area of habitats for birds, primarily by creating protected areas, managing habitats both inside and outside protected areas, re-establishing destroyed biotopes and creating new ones. Article 5: Establish a general system of protection for all birds. Article 7: Ensure hunting does not jeopardise conservation efforts and complies with the principles of wise use and ecologically balanced control of the species concerned.	Article 4: Establish Natura 2000 – a coherent network of SACs hosting habitats (Annex I) and species of Community interest (Annex II), sufficient to achieve their FCS across their natural range, and SPAs designated under the Birds Directive. Article 6: Ensure SCIs and SACs are subject to site management and protection. Articles 12-13: Ensure strict protection of species listed in Annex IV. Article 14: Ensure the taking of species listed in Annex V is in accordance with the maintenance of FCS. Article 22: Consider the desirability of reintroducing species listed in Annex IV that are native to their territory.	Outcomes 	• Sufficient diverse area of habitat protected, maintained and restored for birds. • Natura 2000 network is sufficient (percentage of protected land and sea) and coherent. • Natura 2000 sites protected from damaging developments. • Sites are under appropriate management. • Deterioration of habitats and disturbance of species is avoided. • Species protection measures in place (including national legal provisions). • Killing of protected species avoided. • Hunting / taking of species does not undermine the maintenance of populations' FCS. • Species reintroduced where appropriate.
Operational Ob-	Article 4: Designate SPAs for Annex I	Articles. 4 & 5: Select SCIs and SACs, in	Outputs	• SPA and SACs selected and

Objectives  	threatened species. Article 5 (a-e): Prohibit certain actions related to the taking or killing of wild birds. Article 6: Prohibit the sale of wild birds, except those species listed in Annex III/A, and, subject to consultation with the Commission, those listed in Annex III/B. Article 7: Avoid hunting of birds in the breeding season and migratory birds on their return to breeding grounds. Article 8: Prohibit the use of all means of large-scale or non-selective killing of birds, or methods capable of causing the local disappearance of species, especially those listed in Annex IV. Article 10: Encourage research into relevant subjects, especially those listed in Annex V. Article 11: Ensure introductions of non-native species do not prejudice local flora and fauna.	relation to scientific criteria in Annex III. Article 6(1): Establish necessary conservation measures for SACs. Article 6(2): Avoid the deterioration of habitats in, and disturbance to, Natura 2000 sites. Article 6(3/4): Ensure through an AA that plans or projects likely to have a significant effect on Natura 2000 sites are prohibited unless there are imperative reasons of overriding public interest. Article 6(4): Ensure compensatory measures are taken for unavoidable impacts. Article 8: Identify required financing to achieve FCS of priority habitats and species for the Commission to review and adopt a framework of aid measures. Article 10: Where necessary, encourage the management of landscape features to improve the ecological coherence of the Natura 2000 network. Article 11: Undertake surveillance of habitats and species of Community interest. Article 15: Prohibit indiscriminate means of capture and killing as listed in Annex VI. Article 18: Undertake research to support the objectives of the Directive. Article 22: Ensure that introductions of non-native species do not prejudice native habitats and species.	  designated. • Necessary conservation measures established. • Sites are under appropriate management and deterioration of habitats /disturbance to species is avoided. • Effective AAs avoid damage to Natura 2000 sites, particularly to their integrity. • Where required, effective compensation is achieved. • Establish systems of species protection and sustainable use. • Measures are in place to protect species from actions banned under the Directives. • Enforcement of prohibited activities is sufficient and effective. • Required financing is calculated and obtained. • National provisions are in place to manage landscape features where necessary. • Undertake surveillance and periodic reporting. • Required research and best practice reports are completed and published. • Species reintroductions do not harm existing native fauna. • Raising awareness and education on the importance of biodiversity and its conservation.

Inputs/Activities	This section covers all of the resources required to deliver the activities consistent with these operational objectives. The inputs here are financial, human and institutional resources and knowledge to support the activities. Financial resources include capital and operating expenditures; human resources include the administrative time devoted by authorities to administering the system and stakeholders in complying with the rules; institutional resources include the legal aspects that are not generally considered under financial or human resources. The activities align with the operational objectives and outputs.	• Resources for site management. • Resources for species management. • Resources and capacity for enforcement. • Research and Information sharing. • Financing mechanisms for sites, including EU funding. • Education and awareness.

2.3.1 Objectives and activities – how the Directives work in practice

2.3.1.1 Strategic objectives

The strategic objective (aim) of the Birds Directive, as defined in Article 2, is to maintain the population of all species of naturally occurring birds in the wild in the EU at a level according to the ecological, scientific and cultural requirements, while taking account of economic and recreational requirements. The Habitats Directive develops this concept further (Article 2(1)), aiming 'to contribute towards ensuring biodiversity through the conservation of natural habitats and of species of wild fauna and flora in the European territory of the Member States to which the Treaty applies'. In order to achieve these aims, the Directive requires Member States to adopt measures to maintain or restore natural habitats and species of Community interest to FCS (see Box below), taking into account economic, social and cultural requirements, as well as regional and local characteristics.

While the term 'favourable conservation status' is not explicitly mentioned in the Birds Directive, it is implied in the requirements of Article 2 (European Commission, 2008b). This obligation is analogous to the objective to 'maintain or adapt the population of species at the level that corresponds to the ecological, scientific or cultural requirements while taking into account the economic and recreational requirements'. As SPAs are part of Natura 2000 - whose objective is to enable habitats to be maintained or restore at an FCS in their natural range (Article 3(1) of the Habitats Directive) - FCS is also an objective of SPAs under the Birds Directive (Day, 2015).

The Directives do not aim to ensure biodiversity on their own, but, rather, they aim to contribute to conservation, together with other instruments (see question S.2 and section 5 on coherence). The conservation of biodiversity is a policy objective of the EU which goes beyond the Nature Directives (M. Clément, (Born et al, 2015))⁴.

Box 1 Definition of FCS for habitats and species of Community interest under the Habitats Directive

Under Article 1(e), the conservation status of a natural habitat will be taken as 'favourable' in the presence of all three of the following::

- Its natural range and areas it covers within that range are stable or increasing.
- The specific structure and functions which are necessary for its long-term maintenance exist, and are likely to continue to exist for the foreseeable future.
- The conservation status of its typical species is favourable, as defined in (i).

Under Article 1(i), the conservation status of a species will be taken as 'favourable' when all of the following are achieved:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats.
- The natural range of the species is neither being reduced, nor is likely to be reduced, in the foreseeable future.
- There is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

Source: Council Directive 92/43/1992, Article 1.

⁴ P.11.

2.3.1.2 Specific objectives

The strategic objectives of the Nature Directives lead to more **specific objectives** which together comprise a comprehensive protection framework, including both site and species protection aspects.

Site protection

The site protection provisions of the Directives focus on the establishment, protection and management of a coherent network of sites (the Natura 2000 network) for selected species and habitats of particular European conservation concern. The establishment of the network is a requirement under Article 3 of the Habitats Directive, which states that 'a coherent European ecological network of special areas of conservation should be set up under the title Natura 2000'. It states that the Natura 2000 network shall include the special protection areas classified by the Member States pursuant to the Birds Directive. The designation of SPAs stems from Article 3 of the Directive, under which 'Member States shall take requisite measures to preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Article 1' through, inter alia, the creation of protected areas.

The Natura 2000 network therefore comprises SACs hosting habitats (according to Annex I of the Habitats Directive) or species (Annex II of the Habitats Directive) of Community interest, and SPAs designated under the Birds Directive.

The quality and number of sites designated should provide a sufficient level of protection to achieve FCS across the habitats and species' natural range. Each Member State shall contribute to Natura 2000 in proportion to the representation of habitats and species of Community interest within their territory.

The Nature Directives require the establishment of a site management system for each Natura 2000 site and the development of a protection system to halt and prevent damage to Natura 2000 sites.

The concept of the Natura 2000 network is anchored in the notion of network coherence, which is referred to in both Directives. Article 3(1) of the Habitats Directive refers to a coherent network of SACs, and Article 4(3) of the Birds Directive states the need for SPAs to 'form a coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive applies'. However, neither of the Directives defines the meaning of 'network coherence'. Consequently, the practical implications for Member States of maintaining a coherent network have been the subject of some confusion and debate (Kettunen et al, 2007). At a minimum, it is clear that Natura 2000 should be more than a collection of isolated sites. A Commission study (Arcadis and IEEP, 2010) suggested that a coherent network should comprise sites that interact and complement each other to ensure that, as a whole, the network is adequate, representative, resilient and sufficiently connected (see Box 2 below).

Box 2 Proposed key components of a coherent Natura 2000 network

On the basis of a Commission workshop on the Island of Vilm⁵, and a review of relevant literature (most notably (Pritchard, 2007)[UNEP-WCMC, 2008; Carpenter et al. 2001]), a Commission study (Arcadis and IEEP, 2010) recommended that a coherent ecological network should have sufficient:

- Adequacy: The individual components of the networks are of sufficient size and shape with an appropriate distribution to ensure the ecological viability and integrity (i.e. FCS) of its habitats and species of Community interest.

⁵ The Commission organised a workshop on the requirements under Article 10 of the Habitats Directive, at the International Nature Conservation Academy on the Island of Vilm from May 9-13th 2005. It was not an official EU Commission workshop, but the subsequent report was provided as a background document to a meeting of the Scientific Working Group on 21st September 2005.

- **Representativity:** Provides for all the requirements of all habitat and species of Community interest over their annual cycle (e.g. breeding, roosting, feeding and migrating).
- **Resilience:** Enables the network's ability to 'undergo, absorb and respond to change and disturbance whilst maintaining its functions and controls'.
- **Connectivity:** To enable necessary movements of propagules (e.g. larvae and seeds) and individuals for breeding and dispersal, foraging, migration, climate change adaptation, and maintain ecological processes and linkages, etc.

Species protection systems

The Nature Directives require the establishment of a system of strict species protection, whereby activities affecting the conservation status of the species under protection are prohibited. Systems should also ensure that hunting does not jeopardise conservation efforts and that it complies with the principles of wise use and ecologically balanced control of the species concerned.

The Nature Directives also specifically require that Member States consider the reintroduction of native species, in order to ensure their effective re-establishment at an FCS.

2.3.1.3 Operational objectives and actions to be taken

The specific objectives are reflected in the operational objectives, which define the actions to be taken by Member States to implement the Directives.

1. Measures to implement the specific objective related to **site protection** (Natura 2000)

- **Member States are required to designate SPAs, SCIs and SACs as part of the Natura 2000 network** (Articles 3 and 4 of the Habitats Directive; Articles 3 and 4 of the Birds Directive).

The site designation process under the Habitats Directive is based on scientific criteria listed in Annex III and relevant scientific information following a biogeographic regional approach. It is a multi-step process whereby Member States propose a list of sites to ensure the protection of the species native to its territory. Once the SCIs are identified and selected jointly by the Member States and the Commission in the framework of the nine biogeographical regions, Member States are then required to designate them as SACs.

The Birds Directive requires the classification of SPAs for species under Annex I and for migratory birds. While the designation process is also based on scientific criteria, the process for site selection and designation of SPAs is simpler than that required by the Habitats Directive. Article 4 requires Member States to classify the most suitable territories in number and size as SPAs, within the area where the Directive applies, for the conservation of species listed in Annex 1. Member States must also take similar measures for regularly occurring migratory species in order to protect their breeding, moulting and wintering areas and staging posts along their migration routes within the area covered by the Directive. Member States communicate their selected sites to the Commission.

- **Member States are required to establish site protection measures in Natura 2000 sites:**

For each site, Member States must adopt conservation measures including management plans and appropriate statutory, administrative or contractual measures for the SACs (Article 6(1)) to maintain or restore biodiversity at its FCS. While all Natura 2000 sites

are subject to conservation measures, Member States have discretion to decide the most appropriate way to ensure site management. Those measures are generally adopted through a participatory process among all stakeholders concerned, include the possibility for economic activities to be carried out while respecting or supporting the site's conservation objectives.

These measures should aim to avoid, based on the precautionary principle, any deterioration of habitats and disturbance of the species for which the areas have been designated (Article 6(2)).

Measures should also ensure the respect of the conditions for authorising plans and projects likely to have a significant effect on SACs and on SPAs (as per Article 4 of the Habitats Directive). It requires an assessment of the implications of a project or a plan before it is approved for the site in view of its conservation objectives, in particular the potential effects on the particular habitat or species. It applies to plans or projects not only inside but also outside the Natura 2000 network that may have significant effects on the site. Such plans or projects can only be approved once it has been ascertained that they will not adversely affect the integrity of the site, and after public consultation, if appropriate. (Article 6(3) & (4) of the Habitats Directive).

- **The Habitats Directive includes specific measures to help to ensure the overall coherence of the Natura 2000 network** (in addition to the criteria for proposing and selecting sites).

Article 4 of the Birds Directive refers to the need for the protected areas for Annex I species and for migratory species to form a coherent whole which meets the protection requirements. Article 3(3) of the Habitats Directive is more specific and refers to the Natura 2000 as a coherent network stating, 'where they consider it necessary, Member States shall endeavour to improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora, as referred to in Article 10.' Article 10 further states that 'Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora.' Those features are important due to their structure or function as stepping stones and are critical to ensuring the ecological coherence of the network.

The Article 10 provisions are not considered to be mandatory, with decisions on how and where to implement connectivity measures remaining at the discretion of Member States. However, a DG Environment commissioned report (Kettunen et al, 2007) concluded that, in principle, Article 10 measures should be taken when Member States regard them as necessary to achieve the overall objectives of the Directives, especially for the maintenance or restoration of the species and habitats at FCS. As indicated in the State of Play chapter (section 3.2) few habitats and species are in FCS and it could be expected, therefore, that Member States should be taking some steps to implement Article 10 to some degree.

2. Measures to implement the strategic objective related to **species protection systems**

Under the Birds Directive

- **Member States are required to establish a general system of protection of all species of birds covered by the Directive** (Article 5 of the Birds Directive).
- In addition, Article 6 requires Member States to prohibit the sale of wild birds (including the transport, keeping or offering for sale) (Article 6), unless listed in Annex III/1

and provided the birds have been legally killed or captured or otherwise legally acquired. Further species listed in Annex III/2 may also be exempt from this prohibition by Member States, on a case-by-case basis and following consultation with the Commission.

- Article 7 allows the hunting of species listed in Annex II of the Directive (those listed in Annex II/1 (codified version Part A) may be hunted anywhere, but the species in Annex II/2 (codified version Part B in) may be hunted only in the Member States indicated in the Annex). Hunting must not jeopardise conservation efforts and Member States must ensure that hunting complies with the principles of wise use and ecologically balanced control of the species concerned. Member States should provide relevant information on the practical application of their hunting regulations to the Commission.
- Under Article 8(1) Member States are required to prohibit the use of all means of large-scale or non-selective killing of birds, or methods capable of causing the local disappearance of species, especially those listed in Annex IV(a). Under Article 8(2), they must prohibit hunting from modes of transport listed in Annex IV(b).
- In accordance with Article 9, where there are no other satisfactory solutions Member States may derogate from the prohibitions under Articles (5-8) for the following reasons:
 - In the interest of public health and safety.
 - In the interests of air safety.
 - To prevent serious damage to crops, livestock, forests, fisheries and water.
 - For the protection of flora and fauna.
 - For the purposes of research and teaching.
 - For repopulation or reintroduction.
 - To permit, under strictly supervised conditions and on a selective basis, the capture, keeping or other judicious use of certain birds in small numbers.
- Member States do not need to consult the Commission before applying derogations but are obliged to report annually to the European Commission on all derogations.

Under the Habitats Directive

- **Member States are required to establish a system of strict protection** (e.g. from killing, disturbance, keeping, transportation and sale) for animal species listed in Annex IVa (Article 12 of the Habitats Directive).
- They are also required to monitor the incidental capture or killing of the species' listed, and, if necessary, conduct research or conservation measures to ensure that incidental losses do not have a significant negative effect on the species. Similarly, under Article 13, Member States are required to establish a system for the strict protection of plants listed in Annex VIb.
- Under Article 14, in the light of surveillance results Member States may adopt measures (e.g. licensing systems and closed seasons), to ensure that taking in the wild of those species listed in Annex V of the Directive, as well as their exploitation, is compatible with their being maintained at FCS.
- Under Article 15, Member States must prohibit all indiscriminate means of capturing or killing wild fauna listed in Annex V(a) and any listed in IV(a), if capture or killing is permitted under a derogation that may result in their local disappearance or serious disturbance of their populations. More particularly, they must prohibit methods and means of capture and killing set out in Annex VI(a) and any form of capture or killing from the modes of transport listed in Annex VI(b).

- The species protection measures afforded by Articles 12–15 may be subject to derogations in accordance with Article 16, provided that there is no satisfactory alternative and they are not detrimental to the maintenance of the populations of the species at an FCS. Derogations are only allowed for specific reasons, similar to those listed under Article 9 of the Birds Directive (see above) and including other imperative reasons of overriding public interest. Member States must send a report on derogations to the Commission every two years, and the Commission must give an opinion on the derogations within 12 months.

3. Measures to implement both objectives: site protection and species protection systems

- **Member States must undertake monitoring of the conservation status of habitats and species of Community importance** (Article 11 of the Habitats Directive).

Until recently, monitoring of the performance of the Birds Directive has focused on the implementation of measures rather than the status of species. In contrast, the direct monitoring of the conservation status of all habitats and species of Community interest (inside or outside Natura 2000) is an explicit obligation arising from Article 11 of the Habitats Directive, and reports must be provided every six years in accordance with provisions under Article 17.

- **Member States should encourage research and scientific work**

Article 18 of the Habitats Directive requires Member States to encourage research and scientific work concerning the strategic objectives (Article 2) and the monitoring obligations. Article 10 of the Birds Directive also requires Member States to encourage research as a basis for the protection, management and use of the population of bird species.

- **Member States must ensure that introductions of non-native species do not prejudice native habitats and species** (Article 11 of the Birds Directive and Article 22 of the Habitats Directive).

These should be limited to native species not requiring site management measures (Annex IV of the Habitats Directive).

Financial, human and institutional resources and knowledge support the activities to achieve these operational objectives. Financial resources include capital and operating expenditures, human resources include the administrative time devoted by authorities in administering the system and stakeholders in complying with the rules, and institutional resources include the legal aspects that are not generally considered under financial or human resources. The activities required to achieve the objectives align with the operational objectives described.

3 State of play

3.1 Introduction

This section covers the status of implementation of the Nature Directives according to its objectives as described in section 2.3.1. It presents a description of the state of play in relation to the establishment of the Natura 2000 network, the main factors affecting the full implementation of a coherent network in the EU and the impact on the status of habitats and species. It continues by describing the status of implementation regarding the systems of species protection, the main factors influencing their establishment and the impact on the status of habitats and species of the EU.

The implementation of the Directives has been subject to extensive monitoring from all key players including the European Commission, Member States and citizens. The number of complaints to the European Commission regarding breaches of the Nature Directives' provisions has been very high since their adoption. This section presents an overview of the EU level enforcement of the Directives. It then summarises key lessons learnt on interpretation and implementation of the legislation from the EU case law and draws conclusions on the role of infringement actions in promoting better implementation of the Directives.

The State of Play represents an important part of the evidence base for the analysis of the evaluation questions and the conclusions of the study.

3.2 Effective Status of implementation: key objectives

The following section firstly provides a summary of the state of play with respect to the establishment of the Natura 2000 network, because this is a particularly important strategic objective of the Birds and Habitats Directive (see section 2) that has also been the main focus of action by most Member States until recently. An over-view of the conservation status of habitats and species covered by the Directives is then provided, based on the results of the 2006/07-2012 reporting by Member States, which reflects the impacts of the establishment of the Natura 2000 network and measures taken under the Directives, as well as other influences (e.g. national conservation measures, trends in land and sea use, other EU policies and external pressures). A more detailed evaluation of progress with respect to these strategic objectives (including the sufficiency of the Natura 2000 network) and the implementation of other more specific measures is provided in relation to effectiveness Question S.1 (see section 5.1). A summary of the results of the assessment of pressures and threats affecting EU protected habitats and species is included with the analysis under relevance Question R1 (see section 7.1).

3.2.1 The establishment of the Natura 2000 network

According to the last update published in the Natura 2000 Newsletter in June 2015⁶, the terrestrial network of Natura 2000 sites⁷ covers 788,477 km² (more than 18% of the EU's land surface) and 318,133 km² in the marine environment; and is the world's larg-

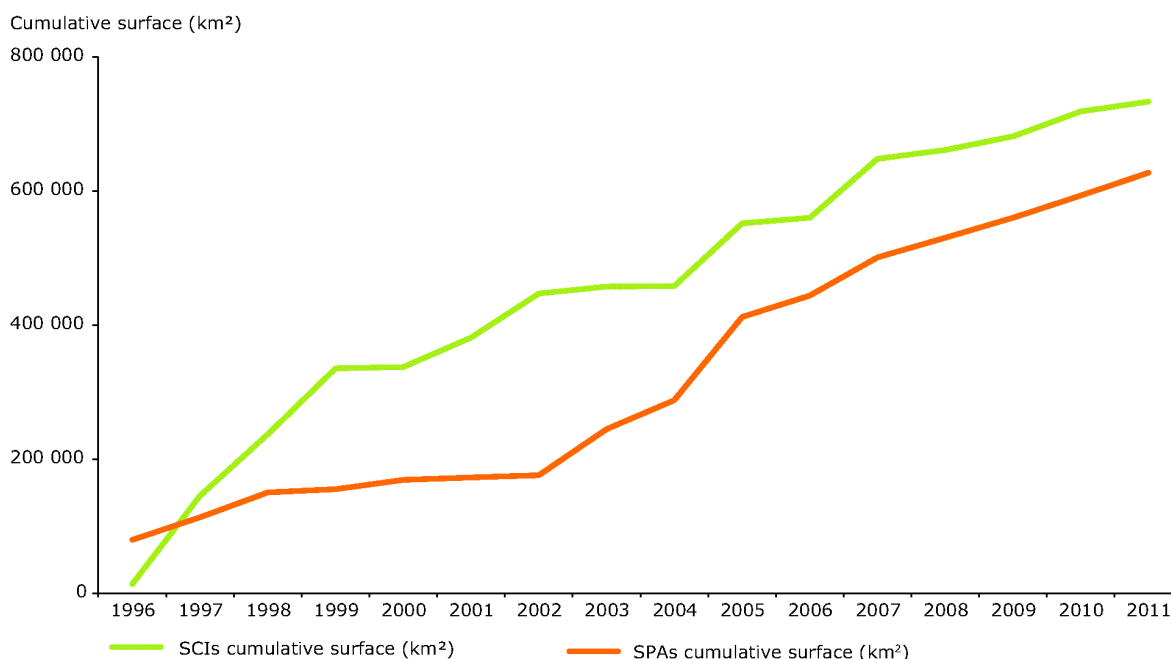
⁶ http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000news/nat38_en.pdf

⁷ sites designated as SPA and/or SCI, including SCIs already designated as SACs and potential SCIs submitted to the Commission

est co-ordinated network of nature conservation areas (EEA, 2015a). As further discussed in relation to Question S.1 (section 0), the terrestrial Natura 2000 network is now regarded by the Commission as largely complete (European Commission, 2011a; European Commission, 2014a). A substantial increase in the number of sites is required to complete the marine network, particularly for the offshore environment.

Figure 2 shows the cumulative terrestrial surface areas identified or designated as potential SCI, SCI and SPA between 1993 and 2012 (EEA, 2015a). This shows that, whilst there were notable jumps in 1998 when Finland and Sweden joined the EU, in 2004 when ten MS⁸ joined the EU, and 2007 when Romania and Bulgaria joined the EU, the cumulative area has also been consistently increasing as Member States proposed new sites.

Figure 2 Cumulative surface area identified as pSCI or SCI or cumulative surface area of SPA



The identification and designation of marine SCIs and SPAs has progressed substantially since 2006, with the marine area of SCI sites increasing by 127 192km² and marine SPA sites by 66 865km², particularly due to additions in France and the UK.

The percentage of each Member State's terrestrial area within the Natura 2000 network is shown in Figure 3. This shows that there are large differences between the proportion of land designated as Natura 2000 in each Member State, ranging from 38% of Slovenia's land area designated and 35% of Bulgaria down to 8% in Denmark and the UK⁹. This is in part due to the amount of natural and semi-natural habitat that remains in each country. But it is also in part because Member States have taken different approaches to the selection of terrestrial sites. Several Member States (e.g. such as Romania) have proposed mainly broadly delineated large Natura 2000 sites that include some areas of non-qualifying habitat (i.e. that are not listed in Annex I of the Habitats Directive or are habitats of European protected species), for example as areas in need of restoration or as 'buffer zones'. Others, such as the UK, have delineated their sites more exactly, focusing on the location of qualifying features habitat. Site size varies greatly

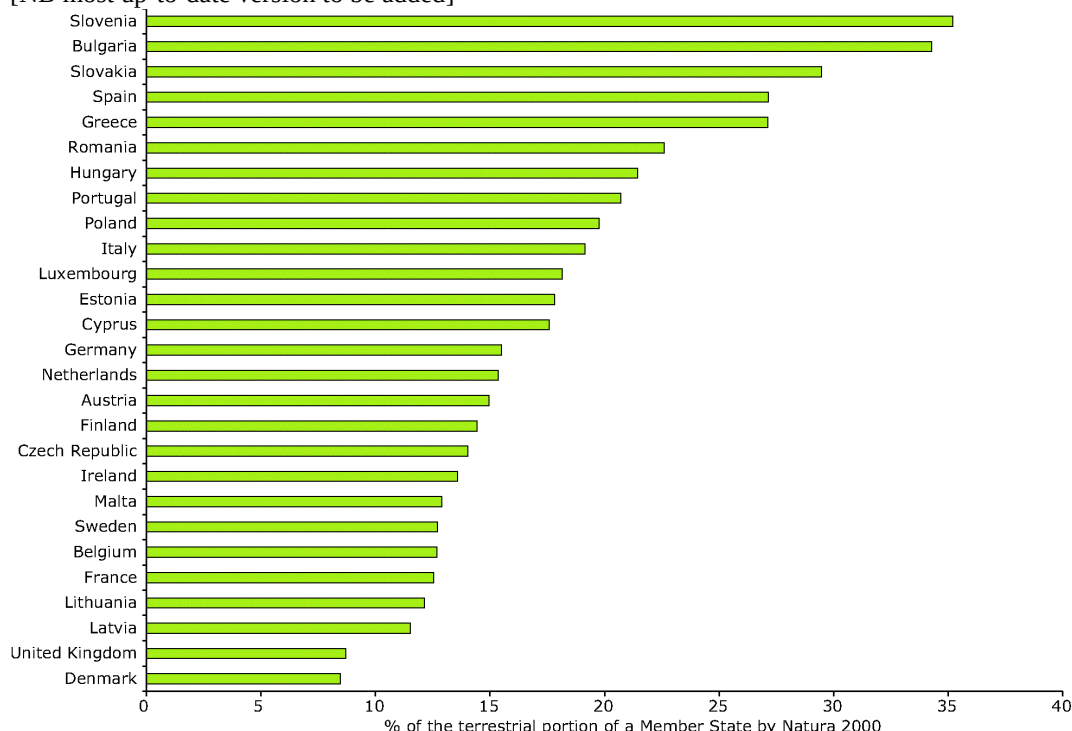
⁸ Czech Republic, Slovakia, Hungary, Slovenia, Poland, Latvia, Lithuania, Estonia, Malta and Cyprus

⁹ Terrestrial network status end 2014 in Natura 2000 barometer.

from less than 1 ha (for example some bat roosts and cave entrances) to 5,546 km²¹⁰, currently the largest terrestrial site.

Figure 3 % of the terrestrial portion of a Member State designated as Natura 2000 (add EEA ref)

[NB most up-to-date version to be added]



3.2.2 The overall status of European protected habitats and species in the EU

3.2.2.1 Monitoring and reporting requirements and processes

For the most recent Member States' reports (i.e. 2006 to 2012) under Article 12 of the Birds Directive, a reporting format was agreed that provides information on the status of bird populations according to their size and trend, over a short term period (i.e. 12 years, ideally 2001-2012) and a long term period (i.e. 32 years, ideally since 1980). On the basis of a compilation of these national datasets, bird populations were then assessed at EU-level as either secure, depleted, declining, near threatened, threatened or unknown, and their trend as either increasing, stable, fluctuating, decreasing, or unknown. In total, Member States provided 5,473 reports for breeding birds, covering 455 wild breeding bird taxa. They also produced 1,023 winter bird reports, covering 190 wintering bird taxa.

The Habitats Directive provides a definition of favourable conservation status (section 2), that has been used as the basis for assessing conservation status of habitats and species in each biogeographical region, both at the national biogeographical and the EU biogeographical level. In the most recent Member State reports (i.e. for 2007-2012) under

¹⁰ Vindelfjällen in Sweden

Article 17 of the Habitats Directive, conservation status is reported as either favourable, unfavourable-inadequate, unfavourable-bad, or unknown, and the trend is reported as either improving, stable, declining, or unknown. In total, the assessment included 6,759 Member State reports¹¹ on more than 1,250 taxa in the Habitats Directive, and 3,022 reports¹² on 231 habitat types.

3.2.2.1.1 The status of habitats and species

Birds: Overall, 447 bird taxa were assessed for population status, and 454 breeding bird taxa were assessed for short-term trends and 455 for long-term trends. The results for 2006-2012 were:

EU bird population status

52% of bird taxa assessed have a secure population in the EU, whilst 17% are threatened and 15% are near threatened, or have a declining or depleted population; the population status of 16% of the bird species in the EU is unknown

Breeding birds short-term trends (12 years)

30% of the short-term trends are decreasing, 28% are increasing, 21% are stable and 2% are fluctuating; the short-term trends of 19% of breeding bird taxa are unknown or uncertain

Breeding birds long-term trends (32 years)

27% of the long-term trends are decreasing, 31% are increasing, 11% are stable and 1% are fluctuating; the long-term trends of 30% of the breeding bird taxa are unknown or uncertain

Annex I bird taxa

The EU populations of 23% of the Annex I species are threatened, whilst 48% are secure; as expected, a relatively high proportion have a threatened population status, compared to EU birds overall.

40% of the breeding bird taxa in Annex I show increasing long-term population trends, compared to 31% of all breeding bird taxa, and a relatively low proportion of taxa have a decreasing population trend.

Annex II bird taxa (huntable species)

More than 40% of the huntable breeding bird taxa show a decreasing population trend, and 46% of the short-term trends are decreasing compared to 30% of all breeding bird taxa.

Habitats and non-bird species

The status of habitats and species under the Habitats Directive is assessed at the EU level within each biogeographical or marine region, resulting in from one to nine assessments for each habitat type and species, depending on how many regions they occur in. The EU level status in 2007-2012 was:

¹¹ No data were received from Greece in time for the assessment

¹² No data were received from Greece in time for the assessment

Non-bird species conservation status

23% of the 2,665 species assessments are favourable whilst 60% are unfavourable and 17% remain unknown; 42% are unfavourable-inadequate whilst 18% are unfavourable-bad.

The majority of species with unfavourable assessments are unfavourable-declining (22%) or unfavourable-stable (20%), whilst 4% are unfavourable-improving; the trends of 14% of unfavourable species assessments remain unknown.

Over 50% of marine species were reported as unknown; however it should be noted that the species number (around 60) is low compared to the terrestrial species (around 1,200), and many are only occasionally found in the EU.

Habitats conservation status

Over 16% of the 804 habitats assessments are favourable whilst 77% are unfavourable and 7% remain of unknown status; 47% are unfavourable-inadequate whilst 30% are unfavourable-bad.

The majority of habitats with unfavourable assessments are unfavourable-stable (33%) or unfavourable-declining (30%), whilst 4% are unfavourable-improving; 7% of unfavourable assessments have an unknown trend.

The share of unknown marine habitat assessments (0-50%) is substantially higher than unknown terrestrial habitats (2-10%).

3.2.2.1.2 Conservation status in biogeographical regions

The Alpine, Macaronesian and Steppic regions have comparatively high shares of favourable terrestrial habitat status assessments (from 25% to 50%), whilst the Atlantic and Boreal regions have fewer than 10% favourable habitat assessments.

In the majority of biogeographic regions, most of the unfavourable terrestrial habitat assessments are stable, but in the Boreal region almost half the habitats are unfavourable-declining.

The highest shares of favourable terrestrial species assessments were reported from the Black Sea and Alpine regions (exceeding 30%), whilst the highest shares of unfavourable-bad species assessments were reported in the Atlantic (32%) and Boreal regions (29%).

Only the Marine Macaronesian region (33.3%) and the Marine Black Sea region (14.3%) reported favourable marine habitat assessments, whilst the Marine Atlantic (71.4%) and Marine Baltic regions (42.9%) show the highest proportions of unfavourable-bad habitat assessments.

The Member State level reporting reveals some linkages between the relative proportions of favourable and unfavourable habitats and species within Member States, and in general indicates that northern and north-eastern countries have a larger share of favourable assessments. However, there are also some notable discrepancies, of which an indeterminate proportion is attributable to differences in data quality and use of methodology for assessing conservation status (as discussed under Question Y8 on knowledge gaps).

3.2.2.1.3 Variation in the conservation status of habitats and species groups

The EEA State of Nature Report (EEA, 2015a) breaks down the conservation status assessments according to some taxa groups (Figure 4) and provides detailed accounts of the status of habitats by group (Figure 5). [figures below to be replaced with high quality images – requested from the EEA]

Figure 4 Conservation status by main type of habitats

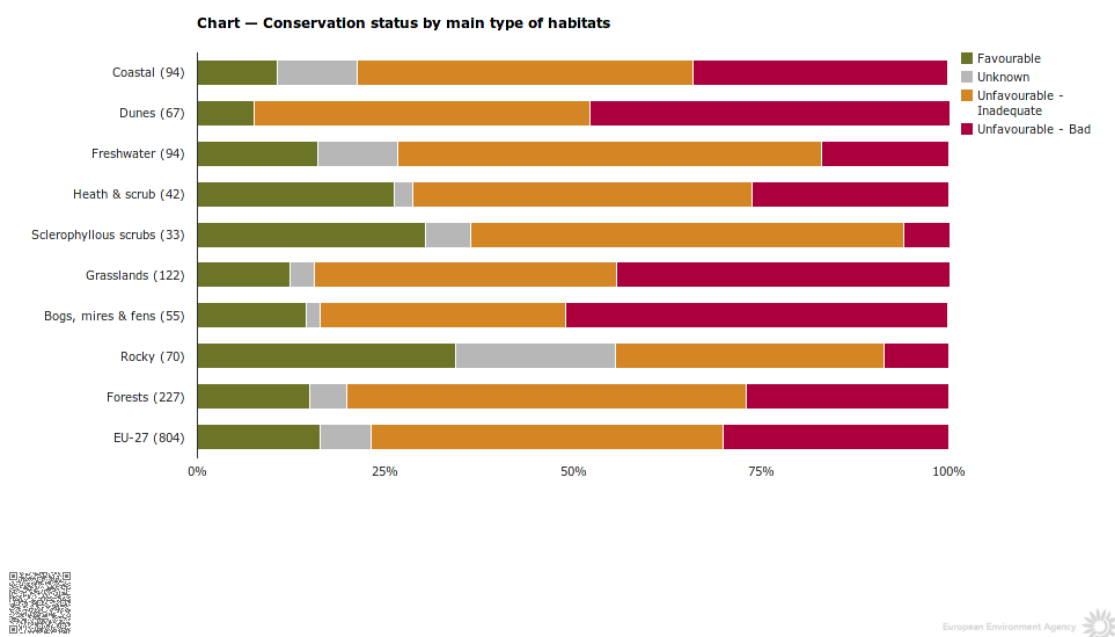
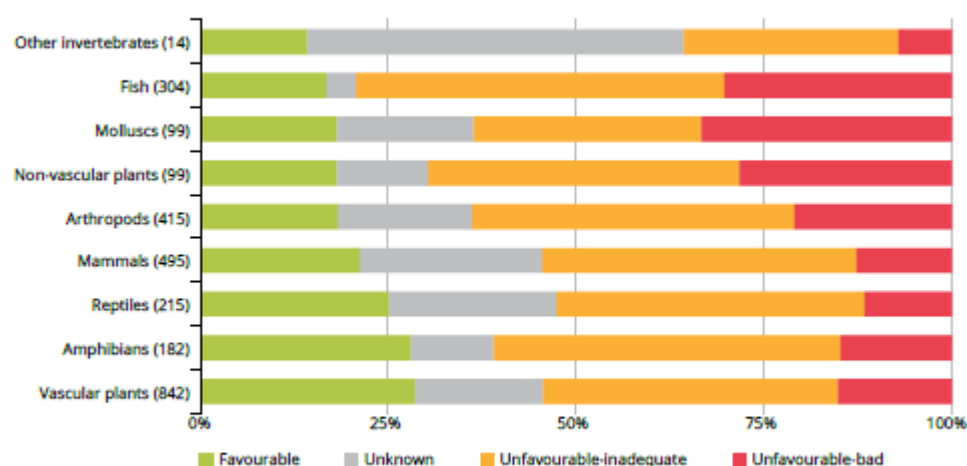


Figure 5 Proportion of non-bird species assessments in conservation status class

Figure 3.17 Proportion of non-bird species assessments in each conservation status class (FV, U1, U2, XX), per taxonomic group, 2007–2012



Notes: These are species from the Habitats Directive. The number of assessments is indicated in parentheses. The total number of assessments is 2 665.

Source: EEA, 2015b, Article 17 reports and assessments.

This reveals variations in conservation status amongst the various groups of species and habitats. Amongst the habitat groups, rocky habitats have the largest proportion of favourable habitat assessments, and heath and scrub, and sclerophyllous scrub¹³ with more than 25% of assessments being favourable. In contrast dunes had the lowest proportion of favourable assessments, with coastal habitats and grasslands also having particularly low favourable proportions. Dune habitats and bogs, mires and fens also had a high proportion of assessments in the unfavourable-bad category. The State of Nature Report also revealed that a particularly high proportion of the latter habitat group, and grasslands, are further declining or deteriorating.

The species comparisons suggest that there is less variation in the proportion of favourable assessments amongst species groups than habitats, ranging from xx% in vascular plants down to xx% in invertebrates (other than molluscs and arthropods). However, there is more variation in the proportion of unfavourable assessments that are bad, with fish, molluscs and non-vascular plants having high proportions in this category. Furthermore, a particularly high proportion of fish with an unfavourable status are declining.

Recent assessments of extinction risk according to IUCN Red List criteria also reveal that a substantial proportion of some taxa are threatened in the EU-27:

- 47.3% of European / globally protected¹⁴ vascular plant taxa (Bilz et al, 2011)
- Approximately 15% of dragonfly species are threatened, whilst for 12%, information remains too limited to define trends (Kalkman et al, 2010)
- Nearly 14% of the assessed selection of saproxylic beetles are threatened, whilst it was not possible to assess the status or trends of 28% of the species (Nieto and Alexander, 2010)
- 50% of species of freshwater molluscs (Cuttelod et al, 2011)
- At least 39% of freshwater fish (Freyhof and Brooks, 2011)
- Nearly a quarter of amphibians (Temple and Cox, 2009)
- Approximately one fifth of reptiles (Cox and Temple, 2009)

¹³ I.e. shrubs and small trees with small evergreen, thick and leathery leaves that are typical of the Mediterranean

¹⁴ Plant taxa listed in the Habitats Directive, Bern Convention, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and/or EU Wildlife Trade Regulation

3.3 Implementation and Enforcement of the Nature Directives

Effective implementation and enforcement of legislation are crucial to achieving objectives and delivering benefits (European Parliament, 2013 [1861], European Commission, 2013 [1864], European Commission, 2015 [Better Regulation COM (2015)215]).

Several decades after the adoption of the Birds Directives (Directive 79/409/EEC and Directive 2009/147/EC) and the Habitats Directive (Directive 92/43/EC), this section provides an overview of their implementation and enforcement, including through judicial proceedings before the CJEU.

In addition to information identified through the general literature review carried out for this study, this section draws on publically available information concerning infringement procedures launched by the Commission between 1981 and 2015, and which had been closed by May 2015¹⁵. In this context, the term 'reported breaches' used throughout this chapter refers to the alleged breaches identified by the Commission, as well as those signalled by the European Parliament and by complainants, regardless of the procedural steps taken.

This section first describes the key players in the implementation and enforcement of the Directives, taking into account the role of civil society's participation in the implementation of the Nature Directives. It then provides a brief overview of the overall transposition and implementation of the Nature Directives across the EU, highlighting where the full potential of the Directives was hindered by delayed transposition and implementation. Finally, it underlines the evolution of the interpretation of the Nature Directives based on landmark rulings from the CJEU on their overall implementation.

3.3.1 Key players on the implementation and enforcement of the Directives

Implementation and enforcement of Union law is based on the distribution of powers enshrined in the Treaties. Member States and the Commission have a shared responsibility for implementing and enforcing Union law, which is also recognised by the CJEU¹⁶. According to the Treaty on European Union (TEU)¹⁷, Member States shall take any appropriate measure, general or particular, to ensure fulfilment of the obligations arising out of the Treaties or resulting from the acts of the institutions of the Union. Furthermore, Member States and the Union are required to assist each other in carrying out tasks arising from the Treaties.

The Commission monitors implementation by Member States and enforces Union law once a breach has been identified. As guardian of the Treaties, the Commission's role is to ensure the correct application of those obligations and '...oversee the application of Union law under the control of the Court of Justice of the European Union'¹⁸. Over time however, the Commission has developed an EU policy on implementation and enforcement of EU law which is not only based on infringement procedures specified in Article 258 of the TFEU, but includes tools to assist Member States with implementation, such as guidelines, implementation plans, networks and committees. The main monitoring tools developed are scoreboards and barometers, conformity checking studies and sys-

¹⁵ European Commission, Search tool on infringement decisions: http://ec.europa.eu/atwork/applying-eu-law/infringements-proceedings/infringement_decisions/

¹⁶ Case C-365/97, *Commission v Italy* [1999] ECR I-7773.

¹⁷ Article 4(3) TEU.

¹⁸ Article 17(1) TEU.

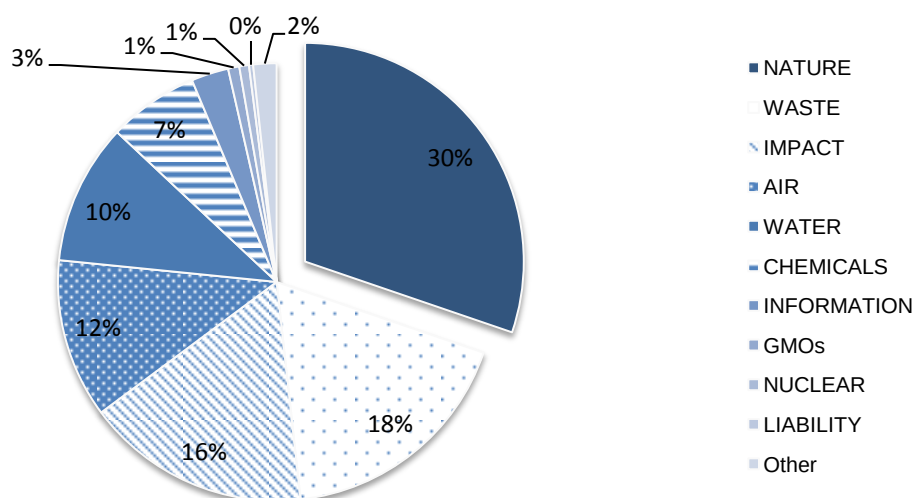
tems of privileged dialogue between the Commission and Member States under 'EU Pilot' established in 2007 (European Commission, 2007 [1865]).

Delays or incorrect application of European law weakens the system itself, reduces the chance to fully achieve policy goals and deprives citizens and businesses of potential benefits. Non-action over breaches of EU law may have costs beyond the economic, such as harming citizens' health, putting lives or biodiversity at risk.

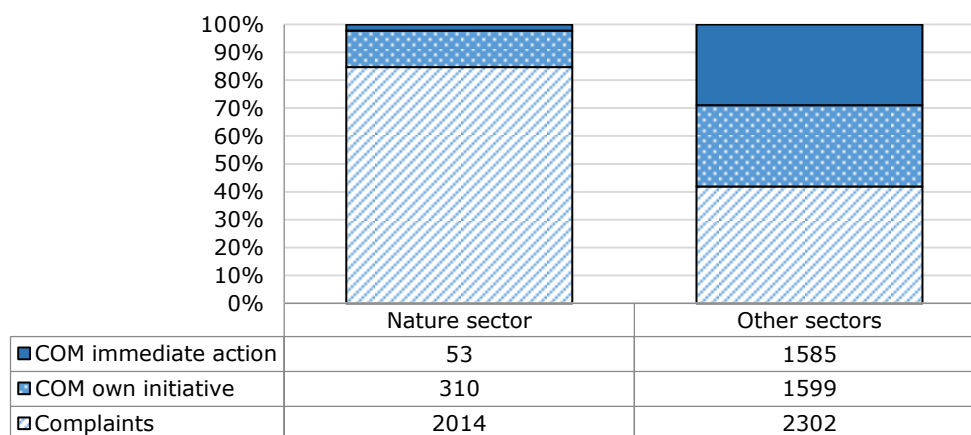
Ultimately, all mandatory EU measures have to be applied and enforced by national authorities by the established date. The provisions of the Directives generally set out a two year time limit, subject to adaptation depending on the date of accession of Member States to the EU, within which the transposition of national or sub-national legislation must be adopted. They often include additional obligations 'of result' to be complied with by specific deadlines. The EU must, therefore, rely on national political, administrative and judicial structures to correctly transpose, apply and enforce EU law. This reliance is significant given the current lack of inspections and investigations powers by the Commission.

However, Member States' lack of compliance with their EU legal obligations remains an unresolved issue. In its 2014 Annual Report on monitoring the application of Union law, the Commission reports the launch of 893 new infringement procedures. The most infringement-prone policy areas are: Environment (19%), Mobility & transport (19%), Health & consumers (15%) and Internal market (13%). Data provided by the Commission on reported breaches of EU law allows further examination of the situation in the **environmental sector**. According to this data, the number of breaches reported on nature related matters (beyond the Nature Directives)¹⁹ since 1981 is the highest of all environmental sectors, with 2,374 cases (30.2%) out of 7,866 (Figure 6).

¹⁹ Besides the Nature Directives, the breaches related to nature legislation encompass 46 breaches of other European environmental legislation, namely Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment; Directive 75/442/EEC on waste; Directive 2006/12/EC on waste; Directive 91/689/EEC on hazardous waste; Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment; Directive 2006/113/EC on the quality required of shellfish waters; Regulation (EEC) 2080/92 instituting a Community aid scheme for forestry measures in agriculture; Directive 83/129/EEC concerning the importation into Member States of skins of certain seal pups and products derived therefrom; Directive 89/370/EEC amending Directive 83/129/EEC concerning the importation into Member States of skins of certain seal pups and products derived therefrom; Directive 86/609/EEC on the approximation of laws, regulations and administrative provisions of the Member States regarding the protection of animals used for experimental and other scientific purposes; Directive 1999/22/EC relating to the keeping of wild animals in zoos; Regulation (EC) 338/97 on the protection of species of wild fauna and flora by regulating trade therein; Regulation (EC) 939/97 laying down detailed rules concerning the implementation of Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein; Council Decision 82/72/EEC concerning the conclusion of the Convention on the conservation of European wild-life and natural habitats; Regulation (EEC) 3626/82 on the implementation in the Community of the Convention on international trade in endangered species of wild fauna and flora; Directive 2006/105/EC adapting Directives 73/239/EEC, 74/557/EEC and 2002/83/EC in the field of environment, by reason of the accession of Bulgaria and Romania; Directive 2013/17/EU adapting certain directives in the field of environment, by reason of the accession of the Republic of Croatia.

Figure 6 – Share of reported breaches in the environmental sector per area (100% = 7866)

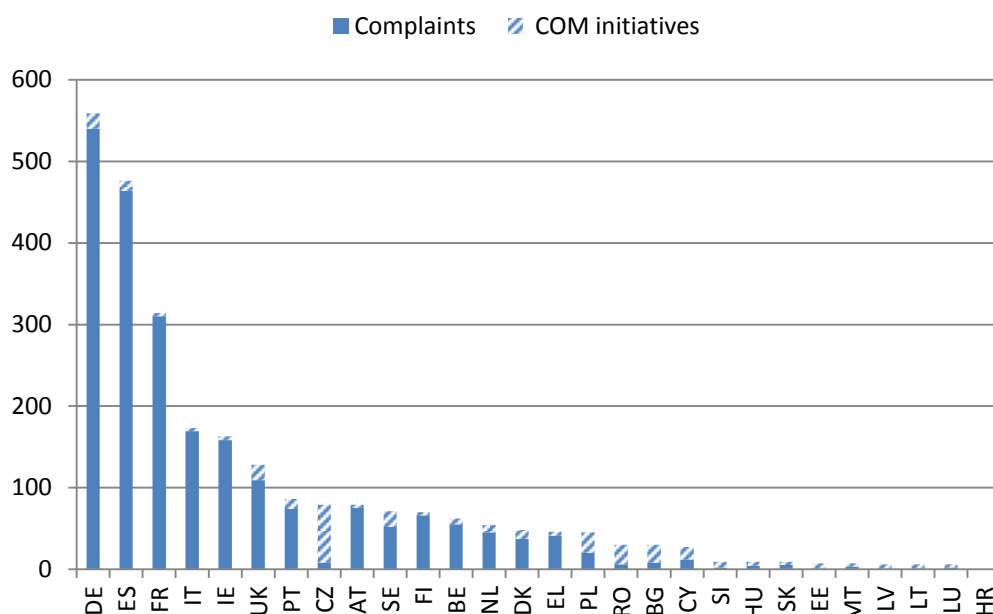
A peculiarity of this area is the remarkably high involvement of citizens, as illustrated by a high share of complaints (Figure 6). Strikingly, out of the 2,374 reported infringements in the 'Nature' area, 85% of the cases were based on complaints, with only 15% initiated by the Commission or signalled by the European Parliament (Figure 7). This contrasts sharply with the sources of reported breaches for all other environmental areas, where 58% were own-initiative (Figure 7). When considering only the number of breaches identified by the Commission or reported by the European Parliament, the main areas are the 'Waste' (25% of breaches), 'Air' (22%), 'Chemicals' (14%) and 'Water' (13%) areas.

Figure 7 - Sources of reported breaches (in % of total)²⁰

Under the Birds and Habitats Directives, the share of complaints varies considerably across the different Member States: in Germany, 97% of reported breaches come from complaints, compared with only 54% in the Netherlands. Similarly, in Italy, complaints account for 98% of the reported breaches, with a figure of 0% in Latvia. The share of complaints is not proportionate to the number of reported breaches (

Figure 8).

²⁰ Under the classification applied by the Commission, 'COM immediate action' refers to situations where the case was triggered immediately as an infringement (Letter of Formal Notice sent). 'COM own initiative' means that the case is either based on an MEP question/petition or COM initiative (e.g. designation or reporting cases). 'Complaints' refers to complaints.

Figure 8 – Number of reported breaches under the Birds and Habitats Directives (per source)²¹

The number of reported breaches under the Birds and Habitats Directives illustrates the longstanding problems of implementation and enforcement that were acknowledged for EU (environmental) law in general by the European Parliament in its study on “Tools for ensuring implementation and application of EU Law and evaluation of their effectiveness” (European Parliament, 2013 [1861]).

3.3.2 Implementation of the Directives

Within the framework of the Nature Directives the European Commission has developed numerous guidance documents to support implementation²² and monitors regularly the establishment of the Natura 2000 network through the Natura 2000 Barometer²³. In addition, the Commission is actively promoting implementation of the Directives through the infringement procedure to ensure that deadlines for specific obligations established in the Directives are complied with and addressing cases of incorrect application mainly responding to complaints from citizens.

The Birds Directive was adopted in 1972. One of the features of this early piece of environmental legislation is the lack of specific timelines for the implementation of specific obligations. There are only two provisions establishing obligations subject to deadlines: Article 18 provides a two year deadline for transposition of the Directive and Article 12 requires reporting on the implementation every three years (although the reporting period has been modified to align with the Habitats Directive). Under the Habitats Directive the situation is different. Pursuant to Article 23 of the Habitats Directive, Member States had two years after its entry into force in 1992 to complete transposition of its provisions in their national legal framework. Thereafter, Member States must report every six years to the Commission on the progress made in the implementation of the Directive (Article 17 of the Habitats Directive). Regarding the designation of habitats under Articles 4 and 5 of the Habitats Directive, Member States were required to list and report to the Com-

²¹ In this graph ‘COM initiative’ refers to both COM immediate action (where the case was triggered immediately as an infringement (Letter of Formal Notice sent)) () and to COM own initiative (where the cases were either based on an MEP question/petition or COM initiative (e.g. designation or reporting cases)).

²² http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

²³ http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm

mission those sites proposed as eligible for identification as SCIs three years after notification of the Directive. Within six years of the entry of a site onto the Commission list of SCIs, Member States must designate the site as an SAC (Article 4(4) of the Habitats Directive). This timeframe was adapted for each successful wave of accession of countries to the EU²⁴. For instance, the 10 countries that joined in 2004 had to submit their list of eligible sites to the Commission by 2007. In general, the established deadlines for transposition and for implementation were not complied with and not a single Member State effectively transposed or implemented the above obligations on time. This situation led to several important waves of reported breaches (WWF, 2001 [1867]; (Born et al, 2015)) (Figure 9).

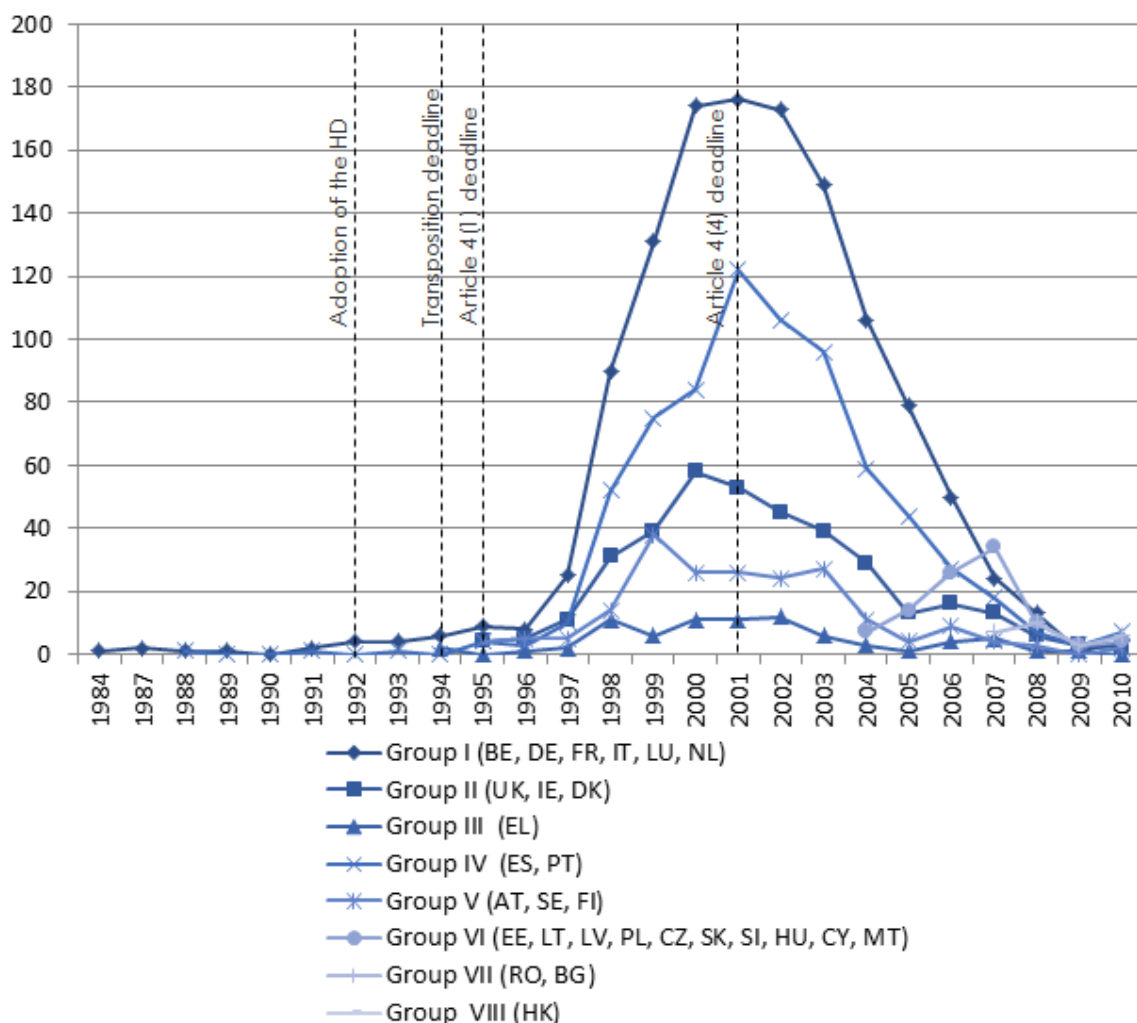
The number of breaches of implementation in all Member State groups (according to their accession dates) peaked once the deadlines for **Article 4 (1) of the Habitats Directive** – identification of important sites to be submitted to the Commission three years after the notification of the Directive, and **Article 4(4)** – designation of listed SCI as SAC, were passed. Article 4(1) deadline was 1995 for the 'older' Member States (Groups I, II, III, IV and V on the figure below) and 2007 for States that joined the Union in 2004 (Group VI in the figure below). Article 4(4) deadline was at 2001 for the 'older' Member States and 2013 for the Member States joining the EU in 2004(. The deadlines were not met, and numerous cases were subsequently brought to the CJEU under both the Birds Directive²⁵ and the Habitats Directive²⁶. Following this wave of proceedings and the warning issued by the Commission that funding under the Structural Funds might not be granted to non-compliant Member States, the number of SPA designations increased substantially from the late 1990s (Born et al, 2015).

²⁴ While transposition is usually required by the time the accession treaties are ratified, transitional periods may apply with regards to other obligations. The timelines may therefore differ from the ones originally laid down in the Habitats Directive. See accession treaties of Bulgaria, Romania and Croatia.

²⁵ E.g. Cases C-166/97 (Commission v. France), C-96-98 (Commission v. France), C-117/00 (Commission v. Ireland), C-240/00 (Commission v. Finland), C-202/01 (Commission v. France), C-378/01 (Commission v. Italy), C-166/04 (Commission v. Greece), C-235/04 (Commission v. Spain), C-334/04 (Commission v. Greece).

²⁶ E.g. Cases C-3/96 (Commission v. Netherlands), C-67/99 (Commission v. Ireland), C-71/99 (Commission v. Germany), C-220/99 (Commission v. France).

Figure 9 - Number of reported breaches over time (per groups of Member States distinguished according to the time of their EU accession)*



*The deadlines on the graph are the ones applicable to the groups of 'older' Member States (Groups I, II, III, IV and V)

Non-designation of sites is, however, not the only cause of non-compliance. Alongside these missed deadlines, the Commission reported cases of **non-transposition or non-conformity of the transposition** of the Nature Directives into Member State law in two main waves:

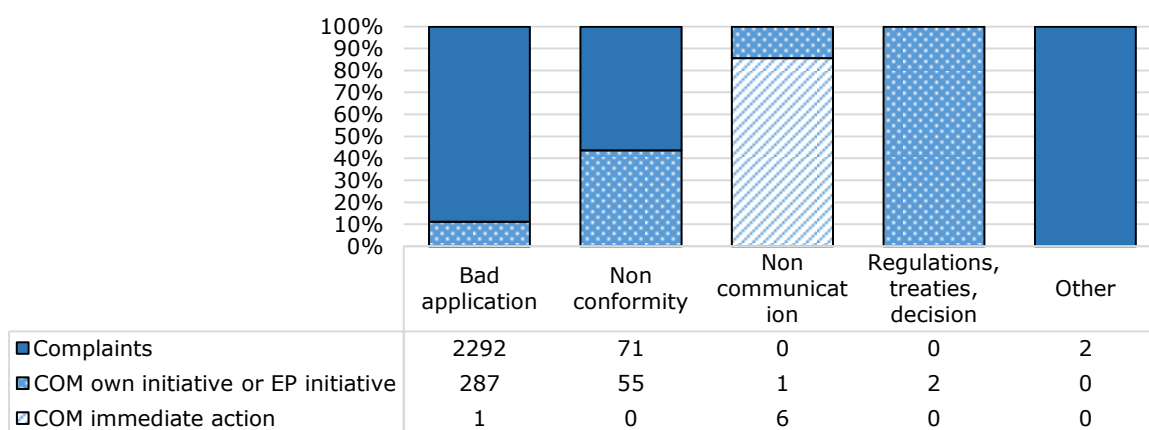
- 12 cases between 1998 and 2000, and
- 38 cases between 2005 and 2008

The data shows that while the Commission allowed some time for Member States to transpose effectively the Directives, action was generally taken four years after the 1994 deadline. Despite this first wave of action, about five years later new action was taken: only in 2006 there were 29 reported breaches against 20 Member States. This last wave illustrates that more 15 years after the adoption of the Habitats Directive, the adequate legislative framework required by the Nature Directives was still not in place in Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania, Slovenia, Slovakia and United-Kingdom.

In this context, it can be assumed that the lack of effective and correct transposition would affect practical implementation of the Directives limiting the potential for the Directives to achieve their objectives of nature conservation and protection.

While enforcing the practical implementation of the Directives is potentially more complex than enforcing procedural obligations with fixed deadlines - given the lack of inspection powers of the Commission - , bad application of the Directives accounts for 83% of breaches reported by the Commission or the Parliament (Figure 10).

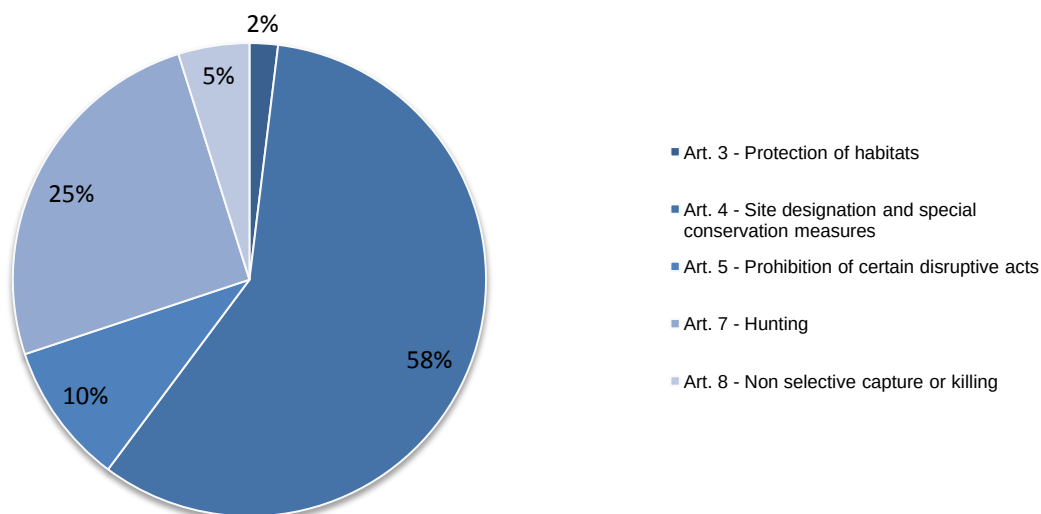
Figure 10 – Types of breaches per source (in % of total)



For those breaches reported as bad application, only a limited analysis of their legal basis was possible. Indeed, only a small share of reported breaches clearly displayed the legal basis of the alleged breach in the information provided by the Commission. Given these limitations, only certain articles were further scrutinised, namely, under the Birds Directive, Articles 3, 4, 5, 7 and 8, as well as Articles 3, 4, 6, 9, 12 and 16 of the Habitats Directive.

On the basis of this limited sample (i.e. 369 reported breaches), it appears that, under the Birds Directive, site designation and special conservation measures required under Article 4 of the Directive, led to the highest share of reported breaches (58%), followed by the regulation of hunting under Article 7 (25%), and the prohibition of disruptive acts listed in Article 5 (10%).

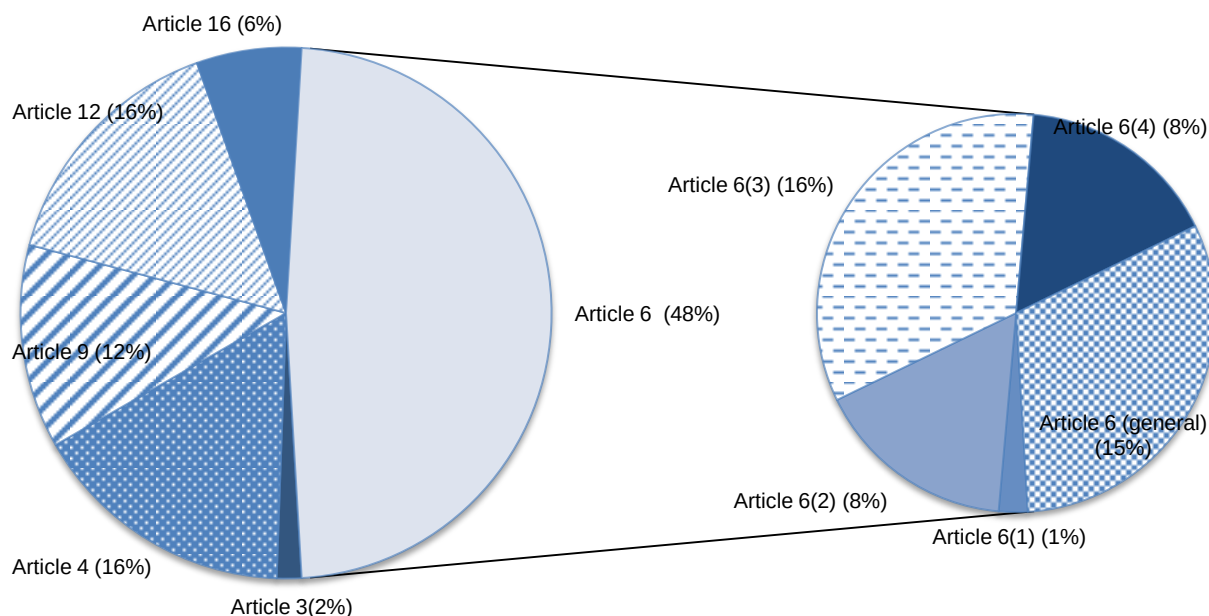
Figure 11 – Shares of reported breaches under the Birds Directive among selected articles (100% = 103 reported breaches)



* The identification of cases relied on the explicit mention of an article in the description of the incriminated fact as summarized in the extract from the information provided by the Commission. Those extracts not referring to the legal basis of the infringement are excluded and double count for cases with more than one legal basis is possible. The data used excludes all cases that have not been closed by May 2015.

For implementation of the Habitats Directive, Article 6 is the legal basis for 48% of examined breaches. Site designation comes second, also under Article 4 (16%), followed by the (lack of) measures adopted pursuant to Article 12 (16%).

Figure 12 - Shares of reported breaches under the Habitats Directive among selected articles (100% = 266 reported breaches)



* The identification of cases relied on the explicit mention of an article in the description of the breach summarised in the extract from the information provided by the Commission. Those extracts not referring to the legal basis of the infringement are excluded. A double count is possible for cases with more than one legal basis. The data used excludes all cases that remained open as at May 2015.

It is noteworthy that implementation of the Directives - including the articles listed above - evolved substantially over time, following the interpretation made by the CJEU. The next section examines landmark rulings that shaped the implementation of the Nature Directives.

3.3.3 Lessons learnt from the case law by the CJEU

This section examines landmark rulings from the CJEU on the Nature Directives. Given the considerable number of cases, the section focuses on the following areas: listing and designation of sites, protection of undesignated SPAs, necessary conservation measures, avoidance of deterioration and disturbance, AAs, hunting and species protection.

Overall, the CJEU, in interpreting key provisions of the Directives, has contributed significantly to reducing the legal uncertainty surrounding certain provisions along with, in certain cases, trimming the discretionary margin that was originally left to Member States.

Designation of sites under the Birds Directives

While the wording of the Birds Directive left discretionary margin to the Member State regarding the designation of sites according to ecological and scientific requirements, while considering economic and social impacts, the CJEU adopted a strict interpretation of the Directives in several landmark cases that considerably circumscribed the margin of the Member States (Born et al, 2015). Firstly, in the *Leybucht Dykes* case²⁷ the CJEU held that, under the Birds Directive, Member States do not have the same discretion for modifying or reducing the extent of already designated SPAs as they do for designating new SPAs. The power of the Member States to reduce the extent of SPAs can be justified only on exceptional grounds corresponding to a general interest which is superior to the general interest represented by the ecological objective of the Directive. In that context, the economic and recreational requirements referred to in Article 2 have no role. Secondly, the ruling of the CJEU in the *Santoña Marshes* case²⁸ indicated that Member States might have a limited margin of discretion when ornithological elements substantially support the need for designation of certain sites as SPAs. The *Lappel Bank* case²⁹ went further, finding that ornithological criteria alone were deemed acceptable to guide Member States in the designation of the boundaries of SPAs. This landmark ruling was later confirmed in Case C-3/96³⁰.

Listing and designation of sites under the Habitats Directives

The CJEU took a similar approach for the Habitats Directive. Here, they held that taking economic, social and cultural requirements into account as well as regional and local characteristics when establishing the initial list of candidate SCIs could jeopardise the overall objective of achieving a coherent European ecological network of SACs³¹. This interpretation was reiterated in the *Stadt Papenburg* case³² in the context of the designation of SACs (Born et al, 2015).

This interpretation must be placed in the overall functioning of the Habitats Directive. In contrast with the strict interpretation for the listing and designation of sites, the Habitats

²⁷ Case C-57/89, Commission v. Germany [1991] ECR I-883.

²⁸ Case C-355/90, Commission v. Spain [1993] ECR I-4221.

²⁹ Case C-44/95, Regina v. Secretary of State for the Environment [1996] ECR I-3605.

³⁰ Case C-3/96, Commission v. Netherlands [1998] ECR I-3031.

³¹ Case C-371/98, The Queen v Secretary of State for the Environment (First Corporate Shipping) [2000] ECR I-9235.

³² Case C-226/08, Stadt Papenburg v. Germany [2010] ECR I-131.

Directive includes a derogation mechanism which allows damaging projects to be developed in or near Natura 2000 sites if such projects satisfied the conditions established in Article 6 (3) and (4). Pursuant to those articles, the projects cannot be authorised if the AA confirms that they negatively affect the integrity of the site, unless there are no reasonable alternatives and the project corresponds to imperative reasons of overriding public interest. In such cases, compensatory measures are compulsory. The Habitats Directive, therefore, included from the outset a mechanism designed to provide Member States with some flexibility once sites had been designated.

Protection of undesignated SPAs

For the sites that it regulates, given that neither economic nor recreational requirements could justify changing the environment³³, Article 4(4) of the Birds Directive did not allow Member States the flexibility described by Article 6(4) of the Habitats Directive (Born et al, 2015). Designation of SPAs thus amounted to more significant constraints on future projects than their equivalent under the Habitats Directive. Article 7 of the Habitats Directive harmonised the situation of classified sites by replacing the obligations of the Birds Directive with the obligations of Article 6 (2), (3) and (4) of the Habitats Directive. The situation was left unclear for sites that should have been designated as SPAs, but for which the Member State had not yet met its designation obligations.

The CJEU adopted an approach guided by the conservation and protection purposes enshrined in the Birds Directive. In the *Basses Corbieres* case³⁴, the Court took the view that Member States should not in any way be rewarded for failure to designate a site. In the view of the Court, such a reward would be granted if Member States could benefit from the flexibility mechanisms foreseen by the Habitats Directive even for sites that should have been designated but had not been yet. Those areas not yet classified as SPAs - but that should have been so classified - continue to fall under the regime governed by Article 4(4) of the Birds Directive. The Court's reasoning was two-fold. Firstly, the objective of effective protection should prevail when no explicit derogation (overriding public interest) was foreseen. Secondly, the potential to benefit from the flexibility mechanisms of the Habitats Directive once a site has been designated as SPA was seen by the Court as an additional incentive for Member States to finally comply with their designation obligations (Born et al, 2015).

Necessary conservation measures and avoidance of deterioration and disturbance

While much of the early case law of the Court related to site selection and designation of sites, since 2000 an increasing number of landmark rulings relate to obligations under Articles 6 and 12-16 of the Habitats Directives, which require, once sites have been designated, regular action and monitoring from Member States. Site designation – even if supported by necessary conservation measures – does not suffice in halting the slow but continuous shrinking of habitats and nature protection sites, especially in Western Europe, partly due to declassification of sites (Born et al, 2015), and partly to intense farming, urbanisation, infrastructure construction, irrigation, holiday and leisure activities (European Commission, 1995 [1872]; (Fahrig, 2003)). In this context, obligations under Article 6 continuously gained importance, and the Court provided significant guidance on the interpretation of its four paragraphs.

Firstly, the adoption of necessary conservation measures under Article 6(1) is, according to the Court, a systematic obligation that leaves no latitude to Member States³⁵ for the adoption of necessary, adapted and sufficient measures³⁶. Regarding Article 6(2) and

³³ Case C-57/89, *Commission v. Germany* [1991] ECR I-883.

³⁴ Case C-241/08, *Commission v. France* [2010] ECR I-1967.

³⁵ Case C-508/04, *Commission v. Austria* [2007] ECR I-3787.

³⁶ Case C-293/07, *Commission v. Greece* [2008], ECR I-182.

(3), Member States must adopt measures preventing deterioration, which cover all types of disturbances that are significant in relation to the objectives for which the SACs are designated³⁷.

The Court went further and specified that activities, like recreational activities such as fishing or hunting, could not be generally regarded as not causing disturbance, to justify the systematic exclusion of these activities from the obligation to avoid deterioration and disturbance of species or to assess their impacts on Natura 2000 sites under Article 6(3) of the Habitats Directive³⁸.

AAs and conditions imposed on projects that received negative assessments

Linked to the question of allowed activities within protected areas, is the issue of permitting projects that have impacts on protected areas. Drafted against the backdrop of the *Leybucht Dykes* case, Article 6(3) and (4) of the Habitats Directive embedded flexibility for economic considerations to prevail over nature conservation and protection. Article 6(3) requires AAs of the implications for the site of all projects likely to have a significant effect, in view of the site's conservation objectives. Should an AA be negative, the project must stop unless it satisfies the triple condition of Article 6(4). Member States were keen to take full advantage of the flexibility and relative vagueness of Article 6(3). The CJEU, therefore, had an essential role in refining the obligations of Article 6(3) and (4).

With regards to the scope of the obligation, the Court provided abundant case law on the plans and projects that are covered by the wording of Article 6(3). Many justifications put forward by Member States for the exclusion of certain activities from the scope of Article 6(3) were considered irrelevant or insufficient, e.g. the existence of periodically issued permits³⁹, the limited use of water passing through the site⁴⁰, the location of the project (inside or outside the site)⁴¹, the small size of the project⁴², the low value of the project⁴³ or the type of work⁴⁴. The Court also clarified the correct interpretation of the term 'likely to have a significant effect'. In Case C-127/02, the Court ruled that a project should be considered likely to have a significant effect, whenever the plan or project is likely to undermine the conservation objectives of the site concerned. As stated above, the Court clarified in case C-241/08 that exempting systematically harmful activities such as fishing or hunting from the protection regime for Natura 2000 sites would seriously jeopardize the Habitats Directive's objectives.

The wording of the Habitats Directive remained vague on the content and methodology required for the conduct of AAs. Addressing abuses of that flexibility, the Court specified those requirements which AAs are expected to fulfil. To begin with, the Court asserted that AAs must be based on the best scientific knowledge in the field⁴⁵. In the same ruling, the Court further strengthened the conditionality of obtaining positive assessment by ruling that competent authorities must approve a plan or project only when no reasonable scientific doubt remains as to the absence of adverse effect on the integrity of a site⁴⁶. In a later judgment, the Court specified that the integrity of a site was considered not to be adversely affected where a plan or project did not present risks of lasting harm to the ecological characteristics of sites hosting priority natural habitat types⁴⁷. In defin-

³⁷ Case C-75, *Commission v. Luxembourg* [2003] ECR I-1585.

³⁸ Case C-241/08, *Commission v. France* [2010] ECR I-1967.

³⁹ Case C-127/02, *Waddenvereniging and Vogelbeschermingsvereniging* [2004], ECR I-7405.

⁴⁰ Case C-98/03, *Commission v. Germany* [2006], ECR I-53.

⁴¹ Case C-98/03, *Commission v. Germany* [2006], ECR I-53.

⁴² Case C-6/04, *Commission v. United-Kingdom* [2005], ECR I-9017.

⁴³ Case C-256/98, *Commission v. France* [2000] ECR I-2487.

⁴⁴ *Id. Ibidem*. Regarding maintenance work that require AA, see Case C-226/08, *Sdadt Papenburg v. Germany* [2010] ECR I-131. Regarding work included in Natura 2000 conservation contracts see Case C-241/08, *Commission v. France* [2010] ECR I-1697.

⁴⁵ Case C-127/02, *Waddenvereniging and Vogelbeschermingsvereniging* [2004], ECR I-7405.

⁴⁶ Case C-127/02, *Waddenvereniging and Vogelbeschermingsvereniging* [2004], ECR I-7405.

⁴⁷ Case C-258/11 *Peter Sweetman and Others v An Bord Pleanála* (2013).

ing best scientific knowledge in order to remove all reasonable scientific doubts, the AAs must contain complete, precise and definitive findings and conclusions⁴⁸ based on reliable and up-to-date data⁴⁹.

The Habitats Directive allows for Member States to derogate the obligation of prohibiting plans or projects that receive a negative assessment. Conditions are imposed by three cumulative tests: (i) the absence of alternative solutions; (ii) the existence of imperative reasons of overriding public interest ("IROPI") for the project; and (iii) the adoption of all compensatory measures necessary to ensure the protection of the overall coherence of the Natura 2000 network. The Court rendered judgements on each of these tests. On the absence of alternative solutions, the Court asserted that use of derogation to the general rule entails a strict interpretation of its implementing conditions; therefore consideration of alternative solutions by competent authorities must be demonstrable⁵⁰. On reasons of overriding public interest, the Court held that 'the implementation of a plan or project must be both "public" and "overriding", meaning that it must be of such importance that it can be weighed up against the Directive's objective of the conservation of natural habitats and wild fauna and flora'⁵¹. Finally, on compensatory measures, the Court stated that the extent and scale of the works involved in the project are factors that must be taken into account in order to identify not only the adverse effect of the project, but also the necessary compensatory measures.⁵²

Hunting and species protection

Both Directives require specific measures to be taken to ensure the protection of species, including the surveillance of protected habitats and species under Article 11 of the Habitats Directive, and a system to prevent the incidental capture and killing of animal species listed in Annex IV(a) of the Habitats Directive. Despite the margin of discretion left to Member States by way of possible derogations under Article 9 of the Birds Directive and Article 16 of the Habitats Directive, these aspects of nature protection often seem to be either overlooked or poorly applied by many Member States. The Commission reported in 2003 that only 'some' national legislations were strict on the implementation of Article 11 of the Habitats Directive, with little compliance on the systems of species protection (European Commission, 2003)⁵³.

The CJEU produced several judgements, particularly with regard to the use of derogations. Article 9 of the Birds Directive allows Member States to derogate from the prohibitions and other provisions concerning marketing and hunting. Such derogations are possible on three cumulative conditions: (i) no other satisfactory solution exists (Article 9(1)); (ii) the derogation is based on one of the reasons listed in Article 9(1); (iii) the formal conditions of Article 9(2) are complied with. The Court specified that such derogation should not be so general that it does not reflect the higher-ranking interests of public health and security. Rather, such derogations must be specific and limited in scope⁵⁴. One of the grounds for derogations listed in Article 9(1) is the judicious use of certain birds in small numbers under strictly supervised conditions and on a selective basis. In this regard, the Court held that 'the capture and sale of wild birds with a view to keeping them for use as live decoys or for recreational purposes in fairs and markets may constitute judicious use'. However, the Court added that such derogation would only be allowed 'if there is no other satisfactory solution. The breeding and reproduction of protected species in captivity may constitute such a solution if they prove to be possible.'

⁴⁸ Case C-304/05, *Commission v. Italy* [2007], ECR I-7495.

⁴⁹ Case C-43/10, *Commission v. Greece* (Nomarchiaki Aftodioikisi Aitolokarnanias e.a) [2012]; Case C-404/09, *Commission v Spain* [2011] ECT I-11853.

⁵⁰ C-239/04 *Commission v. Portugal* [2006] ECR I-10183.

⁵¹ C-182/10 *Solvay and Others v. Region Wallonne* [2012].

⁵² C-43/10 *Commission v. Greece* (Nomarchiaki Aftodioikisi Aitolokarnanias e.a) [2012].

⁵³ European Commission, Report on the implementation of the Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, COM(2003) 845 final, available at: http://ec.europa.eu/prelex/detail_dossier_real.cfm?CL=en&DosId=187958

⁵⁴ Case C-247/85, *Commission v. Belgium* [1987] ECR I-3029.

Local interests are not among the reasons that could justify derogations⁵⁵. Based on Article 9, the Court held that derogations must always cover specific situations and comply with the mentioned requirements. For example, if the stated conditions are met, derogations would be possible for species specified in national legislation which 'cause serious damage to crops and orchards or are responsible for pollution and noise in towns or certain regions'⁵⁶.

In addition to Article 7(4) of the Birds Directive which prohibits hunting during rearing periods and the various stages of reproduction and dependency and, in the case of migratory species, during their return to their rearing grounds, which the CJEU has interpreted as seeking to 'secure a complete system of protection in the periods during which the survival of wild birds is particularly under threat'. On this basis, the Court held that 'protection against hunting activities cannot be confined to the majority of the birds of a given species, as determined by average reproductive cycles and migratory movements'. With respect to Article 12 of the Habitats Directive, which prohibits inter alia the deliberate disturbance of animal species listed in Annex IV(a) and the deterioration or destruction of breeding sites or resting places, the Court held that the existence of measures on the use of a marine park is not necessarily sufficient to prevent the deliberate disturbance of protected species⁵⁷. The Court strongly emphasised the importance of the preventive character of the measures taken and the lack of impact of the unintentional character of the disturbance⁵⁸. This position was reiterated with respect to Article 15 of the Habitats Directive⁵⁹ and also for Article 16⁶⁰.

3.3.4 Conclusions on the role of enforcement

The margin of uncertainty regarding the interpretation and implementation of the Nature Directives has been drastically reduced by numerous judgements of the CJEU. This considerably helps Member States and private entities to understand their legal obligations under the Nature Directives. Notwithstanding this evolution, a compliance deficit remains as highlighted by the high share of court cases (European Commission, 2015 [1873]) in this field, as well as the significant number of reported breaches under those Directives.

Ultimately, the quality of implementation remains a competence and duty of the Member States and their national administrations. Failure to comply with the obligations, limits the potential of the Nature Directives to achieve their full benefit. This makes enforcement a critical issue. The Commission, as guardian of the treaties, took formal action against non-compliant Member States. Alongside this is the remarkable long standing involvement of citizens, who report numerous breaches to the European institutions. It seems that guidance offered by the Commission for the transposition and implementation of the Directives together with enforcement, and clarifications on the interpretation of the legislation have slowly led to better transposition, to an increased number of listed and designated sites, and, a more systematic application of the obligation to undertake and take into account AAs.

⁵⁵ Case C-10/96, Ligue royale belge pour la protection des oiseaux et Société d'études ornithologiques AVES / Région wallonne, [1996] ECR I-6775.

⁵⁶ Case C-247/85, Commission v. Belgium [1987] ECR I-3029.

⁵⁷ Case C-103/00, Commission v. Greece [2002], ECR I-1147.

⁵⁸ Case C-183/05, Commission v. Ireland [2007] ECR I-137.

⁵⁹ Case C-6/04, Commission v. United-Kingdom [2005] ECR I-9017.

⁶⁰ Case C-98/03, Commission v. Germany [2006] ECR I-53.

4 Methodology

The methodology for carrying out the evaluation study was developed by the consortium in close cooperation with the Commission, taking into account the need for a transparent and robust examination of the best available evidence. In response to these needs a very wide-ranging review of documents, together with an extensive stakeholder consultation, were carried out. The methods used to gather, collate and analyse information are presented in this section, as well as limitations to the research and the specific challenges encountered.

The methodology was developed and carried out in close cooperation with the Commission – DG Environment unit B.3 as the Fitness Check and contract manager, as well as the Fitness Check Steering Group⁶¹. DG Environment coordinated contributions from the Secretariat General to the final design of the methodology and to concrete outputs of the project, such as the evidence gathering questionnaire and the online public consultation questionnaire). The Steering Group met at regular intervals and provided written feedback on the main study deliverables – the inception and interim reports (including the evaluation methodology), the emerging findings report for the conference and the draft versions of the final report.

4.1 Evaluation questions

The primary purpose of this study is to evaluate the implementation of the Nature Directives according to the evaluation questions given in the Fitness Check mandate. The questions address the five mandatory evaluation criteria for Fitness Checks: effectiveness, efficiency, relevance, coherence and EU added value. The interpretation and approach to each of these criteria is presented in section 4.3.2.

For ease of recognition each evaluation question has a unique number, which also facilitates cross-referencing throughout the study from one question to another. The numbered questions analysed in sections 5 – 9 of this report are shown in the list below.

While the wording of all questions remains faithful to the evaluation mandate, some of the questions have been combined or broken down for the purposes of assessment. In the evidence gathering questionnaire, this ensured that stakeholders specifically addressed each question component: Y.3, Y.4 and Y.5 under efficiency; C.2/C.3 and C.4/C.5 under coherence; and AV.1 and AV.2 under EU added value. In each case the analysis and reporting were subsequently carried out for each element individually and they are presented this way in the study, with the exception of AV.1/AV.2 and C.4/C.5 which have been analysed together. The question C.8 is responded through the analysis in each coherence question.

Effectiveness

- S.1. What progress have Member States made over time towards achieving the objectives set out in the Directives and related policy documents? Is this progress in line with initial expectations? When will the main objectives be fully attained?
- S.2. What is the contribution of the Directives towards ensuring biodiversity? In particular, to what extent are they contributing to achieving the EU Biodiversity Strategy objectives and targets?

⁶¹ The Steering Group for this Fitness Check was based on the pre-existing Biodiversity Inter-service Group but was limited to the relevant services: DGs AGRI, CLIMA, ENER, ENTR (GROW), HRC, MARE, MOVE, REGIO, SG, SJ as well as representatives of the evaluation and impact assessment unit in DG ENV.

- S.3. Which main factors (e.g. implementation by Member States, action by stakeholders) have contributed to, or stood in the way of, achieving these objectives?
- S.4 Beyond these objectives, have the Directives led to any other significant changes, both positive and negative?

Efficiency

- Y.1. What are the costs and benefits (monetary and non-monetary) associated with compliance with the Directives in the Member States and in the EU?
- Y.2. Are availability and access to funding a constraint or support in the implementation of the Directives?
- Y.3. If there are significant cost differences between Member States, what is causing them?
- Y.4. Can any costs be identified that are out of proportion with the benefits achieved? In particular, are the costs of compliance proportionate to the benefits brought by the Directives?
- Y.5. Can good practices, particularly in terms of cost-effective implementation of the Directives in Member States, be identified?
- Y.6. What are likely to be the costs of non-implementation of legislation?
- Y.7. Taking account of the objectives and benefits of the Directives, is there evidence that they have caused unnecessary administrative burden?
- Y.8. Is the knowledge base sufficient and available to allow for efficient implementation of the Directives?

Relevance

- R.1. Are the key problems and concerns facing species and habitats of EU conservation concern still addressed by the EU nature legislation?
- R.2. Have the Directives been adapted to technical and scientific progress?
- R.3. How relevant are the Directives to achieving sustainable development?
- R.4. How relevant is EU nature legislation to EU citizens and what is their level of support for it?
- R.5. What are citizens' expectations for the role of the EU in nature protection?

Coherence

- C.1. To what extent are the objectives set up by the Directives coherent with each other?
- C.2. To what extent are the Directives satisfactorily integrated and coherent with other parts of EU environmental law/policy, including environmental impact assessment (EIA) and strategic environmental assessment (SEA)?
- C.3. Is the scope for policy integration with other policy objectives (e.g. water management, flood protection, marine, and adaptation to climate change) fully exploited?
- C.4. To what extent do the Nature Directives complement or interact with other EU sectoral policies affecting land and water use at EU and Member State level (e.g. agriculture, regional and cohesion, energy, transport, research, etc.)?
- C.5. How do these policies affect positively or negatively the implementation of the EU nature legislation?
- C.6. To what extent do they support the EU internal market and the creation of a level playing field for economic operators?
- C.7. To what extent has the legal obligation of EU co-financing for Natura 2000 under Article 8 of the Habitats Directive been successfully integrated into the use of the main sectoral funds?
- C.8. Are there overlaps, gaps and/or inconsistencies that significantly hamper the achievements of the objectives?

- C.9. How do the Directives complement the other actions and targets of the EU Biodiversity Strategy to reach biodiversity objectives?
- C.10. How coherent are the Directives with international and global commitments on nature and biodiversity?

EU added value

- AV.1. What has been the EU added value of the EU nature legislation?
- AV.2. What would be the likely situation in case of there having been no EU nature legislation?
- AV.3. Do the issues addressed by the Directives continue to require action at EU level?

4.2 Evidence gathering

The evidence gathering process aimed to ensure that the evaluation was based on the best available evidence, including both factual and opinion-based information. The transparency of the process was a key objective all along this methodology phase. Between January and July 2015, the study team gathered information and data from different sources and stakeholders across the EU⁶². A variety of methods were used, including desk research, distribution of an evidence gathering questionnaire to stakeholders, meetings and focus groups, an online public consultation and a high-level conference.

4.2.1 Desk research

A two-phase process of desk research, including the review of legal and policy documents, studies, reports, datasets and other written evidence, formed a major basis for the analysis. It comprised an initial review of literature during the first phase of the project (November 2015 – February 2015), which provided the team with a strong evidence base to refine the analytical approach for each evaluation question. The initial desk research enabled the development of a first list of relevant literature which was made available to the public in the Commission's website for transparency purposes and to facilitate contributions. A second, more targeted review of literature was carried out during the evaluation phase to verify and complement the information gathered through the stakeholder consultation.

The literature was identified from the following sources:

- Documents mentioned in the tender specifications for the contract.
- European Commission (contributions from DGs).
- Existing databases held by team members.
- An online bibliographic search (which identified over 600 publications on the Birds Directive and/or Habitats Directive and/or the Natura 2000 sites).
- Stakeholders' responses to the evidence gathering questionnaire.
- Literature provided by the public via the Commission's website for this Fitness Check based on the first draft list which was made available for this purpose.

During the project the relevant documents (over 1,800) were tracked in the Reference Database, an online tool accessible from various locations. The Reference Database

⁶² The main sources of evidence used in the evaluation, including a working list of reference documents and all evidence gathering questionnaires received by the consultants, can be found on the Commission's website for the Fitness Check, at: http://ec.europa.eu/environment/nature/legislation/fitness_check/

enabled tracking and categorisation (e.g. by key word or relevant evaluation question) of the documents for easy reference by the evaluation team. The Reference Database also facilitated citations within the study report and the development of the reference list in the report.

4.2.2 Stakeholder consultation

A broad-ranging and multi-faceted stakeholder consultation was carried out, given the complex, multi-disciplinary and multi-sectoral nature of the topic. The stakeholder consultation was designed and planned by the evaluation team - in close consultation with the Commission and the steering group - and it followed the requirements of the Tender specifications. Together, this team set objectives, mapped stakeholders and designed the specific methods and tools to be used. A webpage was set up by DG Environment⁶³ and maintained with information about consultation activities and results.

The objectives of the consultation derived from the mandate⁶⁴ for the Fitness Check, which cited the need to assess the views of key stakeholder groups as one of its overall aims. Based on this, the specific objectives of the consultation were to:

- Reach key stakeholders in all EU Member States, as well as EU level organisations including the Commission.
- Collect views from a variety of perspectives (e.g. governmental authorities responsible for nature, as well as sectors that interact with the Nature Directives; business/private sector; and civil society groups).
- Address stakeholders in a transparent and clear manner, allowing them to provide views on all aspects of the evaluation according to their knowledge and experience.
- Encourage evidenced responses to the extent possible (as opposed to opinions) and solicit additional documentary evidence, where required.
- Allow for clarification requests where responses were not completely understandable or where useful additional information or evidence might be available.
- Entail a manageable process within the time and resources available for the evaluation.
- Enable meaningful synthesis and analysis of the responses received.
- Demonstrate confidence - both within the study team and externally - that the evaluation is based on the best available evidence and that all stakeholders had the opportunity to input to the process.

Based on this challenging set of objectives, the following consultation strategy focusing on five complementary activities was designed:

- **A targeted stakeholder consultation**, addressing selected stakeholders in all Member States and at EU level through a specifically designed 'evidence gathering questionnaire'.
- **Missions to 10 Member States**, to follow up on the questionnaires and to broaden the scope of consultations with a representative set of 10 Member States.
- **Focus group and Commission meetings**, with EU level organisations and with key Commission services to enable deeper discussion of important themes.

⁶³ http://ec.europa.eu/environment/nature/legislation/fitness_check/

⁶⁴ Available at:

http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/Mandate%20for%20Nature%20Legislation.pdf
http://ec.europa.eu/environment/nature/legislation/fitness_check/

- **An online public consultation**, to enable the interested public, as well as stakeholders who were not part of the targeted consultation, to express their views.
- **A high-level conference**, attended by approximately 400 stakeholders, to present emerging findings and collect feedback from stakeholders and high-level officials at national and EU level.

Each of these activities is described in more detail below.

4.2.2.1 Targeted stakeholder consultation

The targeted stakeholder consultation addressed key stakeholders from all 28 Member States, as well as the relevant EU level organisations, giving them the opportunity to directly address each of the evaluation questions in writing through an 'evidence gathering questionnaire'. Selection of stakeholders to receive the evidence gathering questionnaire was carried out by the Commission, with input from the evaluation team. While an absolutely comprehensive group was impossible if the project was to be manageably resourced, the stakeholder group was composed of a representative sample of authorities, sectors and interests.

Four stakeholders were selected from each Member State to receive the questionnaire: the statutory nature protection authority, one other public authority from a relevant sector (e.g. agriculture, energy, etc.), one nature conservation NGO, and one representative of the private sector. The targeted stakeholders in each Member State were selected based on the relevance of a sector or industry for the Member State, with an effort to represent all relevant sectors and industries across the total group of targeted stakeholders. The evidence gathering questionnaire was also sent to a range of EU level stakeholders, including representatives of various industries, civil society organisations and other interested parties.

The evidence gathering questionnaire used for the targeted stakeholder consultation was co-developed by the evaluation team and the Commission. It consisted of the evaluation questions from the mandate, with a short interpretation of each question to demonstrate the relevant issues at stake and the type of evidence requested. Stakeholders were requested to provide internet links to or directly attach relevant documentary evidence to support their answers. Stakeholders were also encouraged to coordinate their responses to the questionnaire with other relevant organisations in their area of activity where possible (e.g. national level authorities with lower governmental level authorities; groups of conservation NGOs) and to indicate where this was done. Although the ToR for the study had envisaged the consultation as primarily face-to-face, telephone or web-based interviews or focus groups, it was decided to provide stakeholders with the questionnaire in writing, in order to provide them with the opportunity to consult with others and to facilitate provision of links to documentary evidence. Follow-up interviews were held in some cases, and focus groups were also held with EU level stakeholders, as described below.

The evidence gathering questionnaire was sent to 159 stakeholders, of whom 102 responded. Thirteen other stakeholders sent unsolicited responses, which were also taken into account. A total of 115 completed questionnaires was received. The process was carried out during March – July 2015. Stakeholders were initially given five weeks to respond to the questionnaire, but many required extensions in order to facilitate coordination among institutions or groups of organisations. This proved challenging for the management of the consultation process, and also impacted the time available for evaluation of responses; these limitations and challenges are discussed in section 4.4

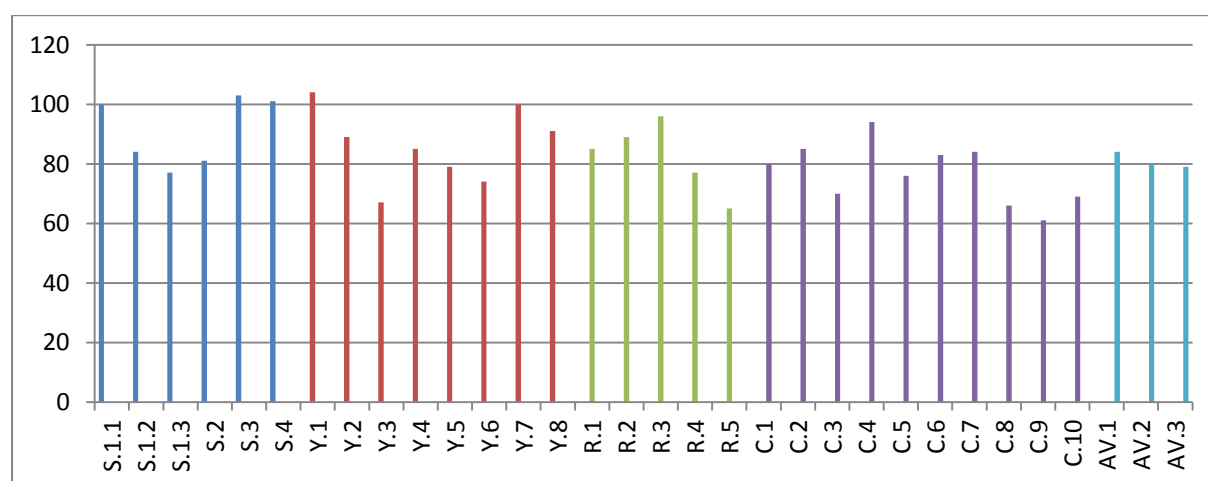
Stakeholders were not obliged to respond to all questions, but, rather, those they considered relevant to their country or area of activity. It specifically requested that answers be supported by evidence, and that the evidence should be quantitative, where available. The exact breakdown of responses is shown in Table 2 below:

The actual responses received were evenly spread across the evaluation questions, as shown in the table below. Most stakeholders answered a large number of questions: in total nearly 75% of questions were answered by the stakeholders (2,658 question responses were received out of a possible 3,565 across the 115 questionnaires). All completed evidence gathering questionnaires were made available online via the Commission's website for the Fitness Check⁶⁵.

Table 2 Evidence gathering questionnaires sent and received, by type of stakeholder

Type of stakeholder		Number of questionnaires sent	Responses received (% of total)	Non-responses (% of total)
Member State stakeholders	Nature protection authority	28	25 (89%)	3 (11%)
	Other public authority	28	15 (54%)	13 (46%)
	Private sector	28	12 (43%)	16 (57%)
	NGO	28	27 (96%)	1 (4%)
Total		112	79 (71%)	33 (29%)
EU level organisations	Industry	20	7 (35%)	13 (65%)
	Agriculture and forestry	13	4 (31%)	9 (69%)
	Sustainable users	7	5 (71%)	2 (29%)
	NGOs	7	7 (100%)	0 (0%)
Total		47	23 (49%)	24 (51%)
Unsolicited contributions		N/A	13	N/A
GRAND TOTAL		159	102 (64 %⁶⁶) + 13 = 115	57 (36%)

Figure 13 Overview of the total number of responses per evaluation question



The targeted stakeholder consultation was successful in reaching a large number of various types of stakeholders, most of whom provided considerably detailed information in response. The volume of data received represented a challenge in tracking and

⁶⁵ http://ec.europa.eu/environment/nature/legislation/fitness_check/evidence_gathering/index_en.htm, accessed on 16 December 2015.

⁶⁶ Percentage does not include unsolicited contributions.

managing all of the information received, including requests for clarification and further evidence from the evaluation team. The team therefore developed the 'Consultation Information Management Tool' (CIMT) to manage the evidence gathering questionnaire responses. CIMT, an Excel-based tool accessible via an online platform, enabled storage, categorisation and presentation of the information received. Responses to each individual question were logged into the tool with specific identifying data (e.g. evaluation question number, Member State, type of stakeholder, etc.).

Throughout the consultation process, CIMT allowed the data collection team to track responses, send reminders, track requests for additional information from stakeholders, and log and store additional information received. The tool later proved invaluable in enabling the team to streamline and analyse the breadth of information received in developing responses to the evaluation questions (see section 4.3). A snapshot of the tool showing how responses were logged is presented in Figure 14 below.

Figure 14 Snapshot of the Consultation Information Management Tool

Question	Country / region	Name of the stakeholder	Type of the stakeholder	Sector	Response	Reference Database cited document Code
R.2	AT	ASFINAG	MS authority or agency	transport	The Annexes to the Directives are a reflection of technical and scientific progress and should therefore be regularly updated. Updates are currently made in one direction, namely as new member states join the EU. Adjustments should be made in both directions. In 1997, for instance, the Great Cormorant (<i>Phalacrocorax carbo</i>) was taken out from the Annex I of the Birds Directive, after its population in had strongly grown in Europe (http://ec.europa.eu/environment/nature/cormorants/faq.htm). 'Besides, the Annexes do not present the newest scientific knowledge. For example, in the Annex II of the Habitats Directive, "Myotis blythii" is cited. According to new findings, this species can only be found in India. (Spitzenberger et al 2001).	1052
R.2	AT	WWF, Member Organisations of the Umweltverbund and (BirdLife Austria and 38 other Austrian NGOs)	nature conservation charity	environment	Conclusion: The Annexes have been sufficiently adapted to technical and scientific progress to serve their purpose. Due to the checks and balances provided by the consideration of habitats and species, and of species of different taxonomic groups, the system as a whole is buffered against minor gaps in the Annexes. To this date at least in Austria the effects of insufficient implementation of the Directives are much more relevant than the possible effects of gaps in the Annexes. However the quality of the adaptations in the course of the enlargement of the EU depends on the proposals provided by the respective joining Member States. Future adaptations may need more guidance by the European Commission. Moreover, more regular taxonomic revisions of the Annexes of the Birds and Habitats Directives are needed to avoid confusion of stakeholders without sufficient taxonomic expertise. EVIDENCE: SEE QUESTIONNAIRE TEXT FOR FULL TEXT https://milieu-be.box.com/s/dz7vplcgstjcd6bqg56jm8sy6x4zv4	1052, 20, 1216, 870, 1057, 1059, 1058, 1050
R.2	AT	Copa-Cogeca: LKOE	Business or industry	Agriculture, forestry, fisheries	No. The legislation should have been adapted at the moment when Member States from Central Europe joined the EU. Additional climatic regions came into the EU and some protected species are now causing problems (e.g. wolf, beaver, otters, cormorants, heron).	none
R.2	BE	Agency for Nature and Forests, Government of Flanders; Public Service of Wallonia, Directorat-General of Agriculture and Natural Resources (DGARNE), Department for Nature and Forests (DNF)	MS authority or agency	environment	https://milieu-be.box.com/shared/static/w08szv4k2y45oq1kdn8yktk3sfxgmaku.docx	

4.2.2.2 Missions to ten Member States

Missions to 10 selected Member States took place during April-June 2015 in order to examine the experience of implementation of the Nature Directives in more detail. This also provided the opportunity to consult with a wider range of stakeholders than those targeted by the evidence gathering questionnaire.

The 10 Member States were selected based on availability of relevant data, and with the aim of ensuring a balance of size, geography, different administrative structures, older and newer Member States and different approaches to implementation. The Member States were selected jointly by the evaluation team and DG Environment, with the selection approved by the Fitness Check Steering Group.

Prior to each of the 10 missions, the team prepared an individual standardised Country Sheet, to ensure effectiveness and provide structure. The missions were organised by the respective Member State nature protection authority, each of whom who took a different approach. Some organised a series of individual issues-driven meetings, while others were structured by types of stakeholder. One Member State limited the participation in the meetings to those stakeholders who had provided a response to the evidence gathering questionnaire, thereby enabling a more in-depth analysis of the key issues already raised in the responses. Following each of the missions, those present from the team developed an internal mission note, which was shared with the entire evaluation team for consideration in developing responses to the evaluation questions.

4.2.2.3 Focus groups and Commission meetings

To gain deeper insight into the issues from an EU level perspective, including from the Commission Services, the team organised a series of focus groups. These events enabled the EU level organisations that received the evidence gathering questionnaire to present their views in more detail, debate them with their peers, and respond to follow-up questions from the evaluation team and DG Environment. A total of 30 EU level organisations participated in the focus groups, more than the 23 that responded to the evidence gathering questionnaire.

Four meetings were organised for different types of organisations:

- **Nature conservation NGOs:** representatives of the civil society sector working on nature conservation, including EEB and WWF, among others.
- **Sustainable users:** landowners, hunters, aquaculture producers, including ELO, FACE and FEAP, among others.
- **Infrastructure development and extractive industry:** representatives of cement, minerals, aggregates, and mining industries, including CEMBUREAU, UEPG, and Euromines, among others.
- **Agriculture and forestry:** including Copa-Cogeca and EUSTAFOR, among and others.

The four focus groups were held in March 2015, towards the beginning of the data collection phase of the study. They enabled the team to explore different ideas and obtain a better understanding of the issues at stake, including the complexities surrounding the positions of various stakeholder groups.

In addition to the four focus groups, the evaluation team organised meetings with those Commission Services from the Steering Group who indicated their interest in inputting to the evaluation study, including links to documentary evidence (others provided input through Steering Group meetings and feedback procedures). Meetings were held with the following DGs: AGRI, GROW, MARE and REGIO. Other DGs participated through the Steering Group process.

The meetings were chaired and facilitated by DG Environment and the evaluation team, with specific questions raised for each group, based in part on priority issues that participants indicated in advance. Internal notes from the meetings were shared across the evaluation team.

4.2.2.4 Online public consultation

The Fitness Check required a 12-week online public consultation to get the views of citizens and civil society according to the Commission principles and standards set out in

the Better Regulation Guidelines⁶⁷. The consultation was open to all, and aimed at reaching the broadest possible range of stakeholders.

The consultation questionnaire, based on the mandate for the Fitness Check, was developed in close collaboration with DG Environment, input and agreement from the members of the Steering Group and strong involvement of the Secretariat General. The aim was to design an accessible and user-friendly questionnaire to allow for an inclusive approach. The complexity of the issues at stake, however, made it challenging to design a questionnaire that would appeal to both interested non-experts, and also those with detailed relevant information on different aspects of the issue. To resolve this, the questionnaire was designed in two parts: Part I was aimed at the general public, comprising questions not requiring extensive knowledge or direct experience of the Directives, and Part II covered the issues in more depth. Both parts of the questionnaire were based on the five evaluation criteria as presented in the mandate for the Fitness Check. All questions were multiple-choice, except for the final question, which offered participants an opportunity to comment freely on any issues they wanted to discuss in more detail.

The questionnaire was available online in all 23 official EU languages for 12 weeks between 30 April and 26 July 2015. The launch of the online public consultation was advertised through different mailing lists, DG Environment's website dedicated to Fitness Check, two subsequent issues of the Natura 2000 Newsletter⁶⁸, Green Week 2015 (3 June 2015)⁶⁹, 'Your voice in Europe' website, LIFE website⁷⁰, and IMPEL website⁷¹.

The online public consultation for this Fitness Check received an unprecedented level of interest from a wide range of individuals and organisations across the EU and beyond. In total, 552,472 replies were received, the largest response the Commission has ever received to one of its online consultations.

Several interest groups organised campaigns to generate large numbers of responses to the online public consultation, with at least 12 such campaigns identified. In many cases, these campaigns also provided proposals on how to answer specific questions. The campaigns were highly successful and generated over 90% of the total responses received. Although it was not possible to link individual responses to campaigns, the Nature Alert! campaign organised by a group of environmental NGOs, claims on its website to have generated around 520,000 or 94% of total replies⁷². This campaign guided participants on how to reply to the questions in Part I of the questionnaire – they identified themselves as 'individuals' interested in 'nature'. This had a significant impact on the results of the overall responses to Part I of the questionnaire. Another significant campaign came from the German Aktionsbündnis Forum Natur AFN, and took a critical view of the Directives. Analysis of responses suggests that around 6,200 replies came from this campaign from participants interested in 'agriculture', 'forestry' and 'hunting'. Participants in this campaign also responded to Part II of the questionnaire and are estimated to comprise around 38% of the replies to that section.

⁶⁷ http://ec.europa.eu/smart-regulation/guidelines/toc_guide_en.htm

⁶⁸ See issues number 37

(http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000news/nat37_en.pdf) and 38 (http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000news/nat38_en.pdf), accessed on 20 December 2015.

⁶⁹ See: http://ec.europa.eu/commission/2014-2019/vella/announcements/introductory-speech-commissioner-vella-green-week-2015_en, accessed on 20 December 2015.

⁷⁰ See: <http://ec.europa.eu/environment/life/news/newsarchive2015/may/index.htm#nat2000consult>, accessed on 20 December 2015.

⁷¹ E.g.: <http://impel.eu/news/public-consultation-as-part-of-the-fitness-check-for-eu-nature-legislation/>, accessed on 20 December 2015.

⁷² <https://www.naturealert.eu/en>, accessed on 20 December 2015.

An extensive analysis of the online public consultation results was published in a report on the Fitness Check website⁷³. This provides greater detail about the types of respondents, the nature and suspected influence of the campaigns, and a detailed analysis of the responses to every question by type of respondent and other factors.

The results of the online public consultation have also been considered within the evaluation study. However, in doing so the evaluation team has taken a very cautious approach in interpreting the results and allowing them to influence judgements.

When the Part I responses are reduced to percentages, they reflect the responses proposed by the Nature Alert! campaign (particularly for the category of 'individuals') to a significant degree, presenting a very positive view of the Directives. For example, 93% of Part I respondents agreed that the benefits of the implementing the Directives far exceed the costs. Part II, aimed at those with greater expertise and experience, was not addressed by the Nature Alert! campaign, which may explain why it often appears to give contrasting views to Part I. This likely reflects the higher proportion of Part II respondents identified as 'business' and also the impact of the Aktionsbündnis Forum Natur AFN campaign in this part of the questionnaire. For example, 60% of Part II respondents consider that major administrative costs are associated with the implementation of the Directives. The evaluation team has, therefore, had to consider these results very carefully, in combination with other, more concrete and specific evidence in order to draw overall conclusions.

4.2.2.5 Nature Directives Fitness Check Conference

As part of the Fitness Check the European Commission organised a high-level conference⁷⁴ on 20 November 2015 in Brussels to present and discuss with stakeholders the preliminary conclusions emerging from the evaluation study. The conference was attended by approximately 400 participants, representing all EU Member States. Participants came from national, regional and local governments, from the EU institutions, from environmental and other sectoral authorities, from industry and other private sector organisations, from civil society and other institutions.

Preliminary results of the evaluation were distributed in a conference report prior to the event. These 'emerging findings' were presented in a series of four panels at the conference, followed by reactions from panellists representing each of the four stakeholder groups addressed by the targeted consultation, i.e. nature authority, other sectoral authority, the private sector and civil society. Each session ended with questions and statements from the audience.

The conference generally found that there were no major gaps in the emerging findings, although additional specific examples of good implementation practice were frequently noted, along with challenges for the future. The conference was an important opportunity for stakeholders - many of whom had already participated in the consultation activities - to review and verify the results of the study before they were finalised.

73

http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/consultation/public%20consultation_FI_NAL.pdf, accessed on 16 December 2015.

⁷⁴ All conference presentations and speeches, as well as the background document presenting the consultants' emerging findings and a conference summary report, are available online at: http://ec.europa.eu/environment/nature/legislation/fitness_check/conference_en.htm.

4.3 Collation and evaluation of evidence

The team used systematic methods to collate and evaluate all of the evidence received, and applied a range of analytical methods to develop conclusions. These are described in this section.

4.3.1 Collation of evidence

The extensive evidence gathering process carried out for this evaluation required a comprehensive and systematic approach to managing all of the information gathered. As the information came from a variety of sources and formats (e.g. literature review, quantitative datasets, meeting notes, questionnaire responses, etc.) a method was needed to store, log, track, categorise and filter the evidence, as well as share it among team members working in different organisations and locations. To manage this, the team used the Reference Database and CIMT tools described in the previous section. These tools not only enabled efficiency in the process of synthesising and analysing the information, but also made sure that it was all dealt with systematically, with nothing omitted.

Evaluators were able to process all the information from the targeted stakeholder consultation in the evidence gathering questionnaires through the CIMT. The cataloguing of all responses to the individual evaluation questions allowed for responses to each question to be filtered, summarised, and linked to the full responses (where lengthy) or supplementary documents in the Reference Database. To supplement the analysis, the responses could also be filtered by key words, by sector, by Member State and other criteria. Draft meeting notes from the Member State missions and focus groups were shared among the team of evaluators through CIMT as draft notes for internal review and not for distribution.

Together, the Reference Database, CIMT, meeting notes and online public consultation report were the main documented sources of evidence that the team reviewed, synthesised and analysed in developing detailed answers to the evaluation questions and proposing overall conclusions. This process is described in the following sections.

4.3.2 The evaluation framework

A framework for analysing the evaluation questions was developed in the technical proposal for the evaluation. This framework evolved throughout the process of conducting the evaluation through a detailed 'scoping sheet' for each question⁷⁵. For each question, the framework included the following:

- **Sub-questions:** They reformulate the questions in an operational way.
- **Judgement criteria:** These clearly define the actual issues that need to be assessed in an objective way, in order to effectively answer the evaluation question. (These are specified for each evaluation question in Annex 3).
- **Indicators:** These specify the (quantitative and qualitative) data that needs to be collected in order to assess the judgement criteria.
- **Required information and analysis:** This sets out the information that must be gathered, both quantitative (e.g. data) and qualitative (e.g. legal provisions, programme results, experience and perspectives) and the analysis of that

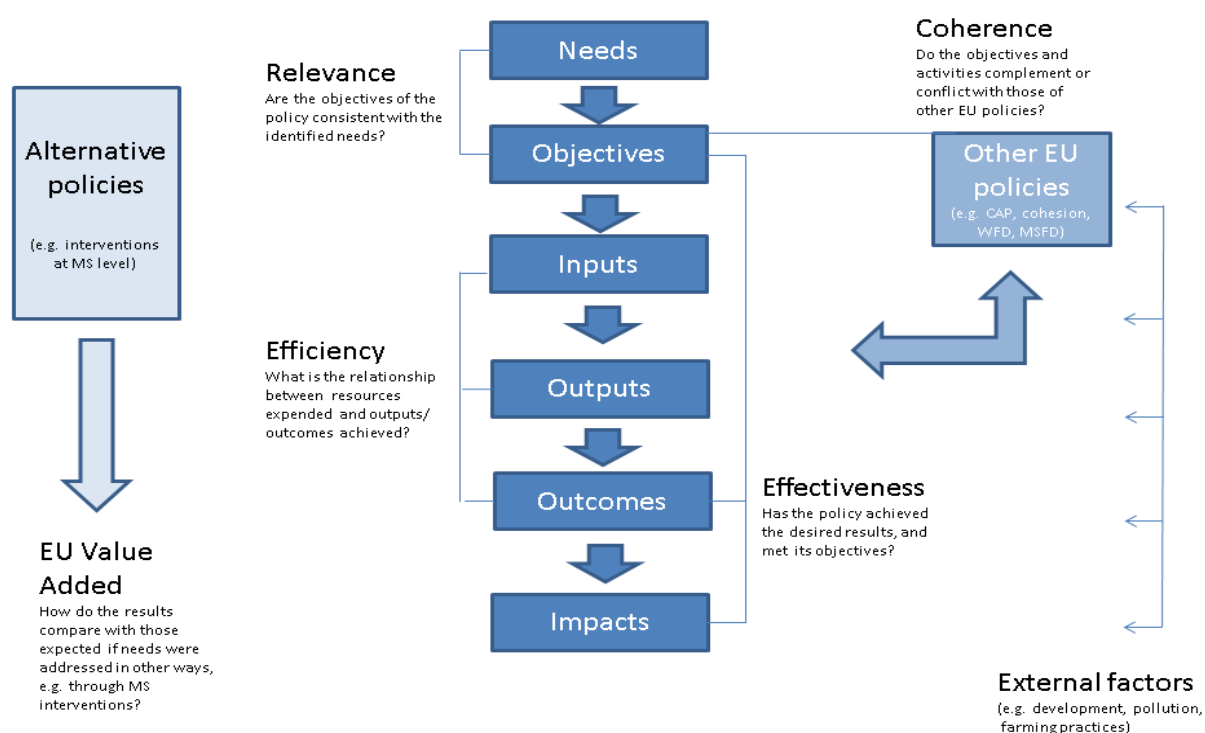
⁷⁵ A full in-progress version of the scoping sheets for each evaluation question was provided in the final version of the project Inception Report. These formed the basis of the question responses included in sections 5 – 9 of this study.

information required to answer the question. It has guided the content of the data collection and analysis tasks.

- **Data collection tools and analysis methods:** This allows for planning and tracking the methods used to collect and analyse the data. It guides the expectations from the research and allows the evaluator to modify research techniques based on the scope and type of information available. The analysis methods define approaches to synthesise, triangulate and interpret data and information from various sources, in order to develop sound, evidence-based conclusions.

The evaluation framework was developed in greater detail for each evaluation question through a scoping sheet. The scoping sheet was used mainly during the first phase of the project to record the results of the initial review of literature and to refine the judgement criteria and indicators further, so that they would provide an accurate framework for answering the question during the evaluation phase. The judgement criteria for each evaluation question were agreed upon by the Commission (DG Environment, Steering group and Secretariat General) at the inception phase and are reflected in the 'introduction and approach' section for each question in sections 5 – 9 of the study. In essence, the criteria provided the specific points on which the responses to the questions would need to focus. This kept the research and evaluation within scope and to-the-point. At the same time, the criteria were broad enough to allow relevant sub-issues to emerge based on the contents of the evidence assessed. The first drafts of the scoping sheets allowed the evaluators to explore the meaning of the criteria further, based on literature and internal team discussions. It also allowed the team to formulate expectations from the stakeholder consultation and detailed reviews of legal and policy documents and additional literature.

The evaluation framework and its application have been closely linked to the intervention logic model presented in section 2.3 above. Each of the evaluation criteria – effectiveness, efficiency, relevance, coherence and EU added value – has logical links to the various stages of the intervention logic, as shown in the model below. This has informed the entire evaluation process from research to synthesis and analysis.



4.3.3 Analysis methods

The evaluation framework formed the basis for the detailed review of evidence and analysis of each evaluation question. The main analytical method used for most questions has been content analysis via the Reference Database and the CIMT tools, with further sorting of the evidence to reduce the large amounts of unstructured textual content into thematic data relevant to the evaluation questions and each judgement criterion.

Evaluators used an Excel sheet to map the nature of the evidence gathering questionnaire responses to each judgement criterion as positive, negative or somewhere in-between. This 'thematic coding' method⁷⁶ worked well for questions and criteria that lent themselves to a relatively straightforward positive/negative classification of the response. For example, the number of stakeholders considering that the Directives give rise to unnecessary administrative burdens (question Y.7) was logged, with the numbers of respondents citing different causes of such burdens (e.g. species protection rules, AA procedures, etc.) also recorded. For others, such as the coherence questions, where there is significant evidence on both sides, this quantification practice was less reliable and has not been reported in the analysis results. It was nevertheless an important way of reviewing and classifying the large amount of information, as well as noting good points and examples for follow-up and inclusion in the analysis for illustrative purposes. The results of this analysis, combined with the initial literature review and results of the missions and focus groups, enabled the development of preliminary conclusions, which were then tested against further literature review. This allowed, in many cases, the triangulation of evidence from different perspectives and sources.

To further aid the processing of information, evaluators noted the nature of each piece of evidence, according to a typology as follows:

1. An opinion is given, but without relevant supporting evidence.
2. Case examples with unknown representativeness (e.g. costs of an AA, or benefits from one habitat type).
3. Complete survey or representative sample-based surveys, comparisons before and after interventions, or amongst areas - but no controls (e.g. SPA area data, Conservation Status data).
4. Before After Control Impact studies - randomised control studies (e.g. Donald et al comparison of bird trends in EU Member States and outside, and in relation to SPA coverage).
5. Independent Systematic Review (meta-analysis) of at least the majority of relevant evidence.

These did not necessarily reflect the overall weight or strength of evidence, as it also depends on their relevance to the issue in question and its representativeness with respect to the area and the time period being considered by the evidence source.

The interpretation and weighing of the best available evidence is a complex issue, relying, in the main, on professional judgement, such as triangulating evidence where possible (i.e. checking the consistency among multiple sources). The following criteria have been used as a guide for evaluating each item of evidence:

- **Internal validity of the evidence:** i.e. its precision and reliability. Less weight is given to opinions, for example, than to well-designed studies more likely to provide a precise and unbiased estimate. However, a number of similar opinions expressed by different stakeholders has been accorded greater weight. Expressed opinions have been summarised and referred to, even though they may not have influenced the overall assessment of each judgement criterion.

⁷⁶ http://betterevaluation.org/evaluation-options/content_analysis

- **Sample size and representativeness:** is the evidence based on an adequate number of cases / samples (in proportion to significance)? Particular care has been taken to note where a case or example is illustrative, or where it is representative of many cases in many countries.
- **Temporal relevance:** is the evidence up-to-date? Does it represent the period being considered, and, in particular, have changes in circumstances occurred that might now invalidate its results (e.g. a major political or legislative change)?
- **Geographic relevance:** what is the relevance of the evidence to the area being considered (e.g. the EU as a whole, a Member State or an entire habitat)?
- **Independence of source:** how affected is the source by the implications of the evidence? This has been particularly important for sources that could benefit in some way (e.g. financially or politically).

All judgements made as part of the study have been based on the best available evidence, even if, in some cases this has been based on opinions where these were the only available evidence on the issue in question. In such cases the reliability of the evidence and its implications have been described in the report.

4.3.3.1 Evaluating costs and benefits

For the efficiency questions, a typology of costs and benefits was prepared. This was included in the evidence gathering questionnaire and helped to guide respondents on the types of costs and benefits and the range of evidence being sought.

The questions on costs and benefits sought to gather overall evidence of the costs and benefits of the Directives (question Y.1), to examine cost differences between Member States and the reasons for such differences (question Y.3), to examine the balance of costs and benefits and identify any examples of costs which are disproportionate to benefits (question Y.4), to gather examples of cost-effective implementation (question Y.5), to examine the costs of non-implementation (question Y.6), and to collect evidence on administrative burdens and assess the extent to which the Directives give rise to unnecessary burdens (question Y.7).

As far as possible, quantitative evidence of the monetary value of costs and benefits was sought. However, while there is good quantitative evidence of some of the costs and benefits (particularly implementation costs and benefits of Natura 2000), quantitative evidence of other costs and benefits is more limited (e.g. opportunity costs, administrative burdens, benefits of species conservation). Qualitative evidence was found to be valuable, including case studies of cost-effective implementation of the Directives. In some cases, an element of judgement was needed in the analysis, for example to examine whether costs could be considered disproportionate or administrative burdens unnecessary. These judgements were informed by the views and experiences of stakeholders, as well as any quantitative evidence provided.

The analysis relied on a combination of existing literature, evidence gathering questionnaires, insights from the 10 Member State missions, and results from the online public consultation. Existing literature proved to be the most valuable source of quantitative evidence of the costs and benefits of the Directives, providing the most complete and robust evidence. The evidence gathering questionnaires proved useful in signposting relevant studies, particularly within the Member States, and also provided case study examples and some original quantitative information (though often in relation to individual case examples). The Member State missions helped to uncover additional evidence and to interpret it in a national context and from the perspective of different stakeholder groups. The online public consultation results proved more problematic, offering less robust evidence, particularly given the considerable influence of stakeholder campaigns on the responses.

The analysis gathered evidence that was as up-to-date as possible. While many of the available studies of costs and benefits have been completed recently, some are now a few years old. For example, the Gantioler et al estimates of the costs of implementation of Natura 2000 are based on evidence gathered in 2009/10. Insofar as possible, more recent evidence was used to examine the continued validity of older studies. For example, a number of more recent estimates of Natura 2000 costs are available through PAFs and other national studies, and these were compared with the Gantioler et al estimates. While more recent evidence generally lends support to the assessment by Gantioler et al, a comprehensive analysis is not possible because of the fragmented nature of more recent data.

4.3.3.2 Establishing a counterfactual and limitations of this method

In line with Chapter VI, Section 2 of the Better Regulation Guidelines⁷⁷, the evaluation is a tool to assess the actual performance of EU interventions compared to initial expectations. It requires a critical examination of whether or not EU activities are fit for purpose and deliver the desired changes at minimum cost.

The evaluation therefore needs to look critically at the actual performance of the Nature Directives, with estimates of expected changes or benefits from the legislation. Such retrospective analysis, however, is challenging for this evaluation as the Nature Directives were adopted without an ex-ante impact assessment that could inform these assumptions. The Commission requirement to assess the impact of any legislative proposal, including the subsidiarity principle to determine the most effective level of action, was established before the Nature Directives were adopted. Adoption of neither the Habitats Directive nor the Birds Directive were preceded by an impact assessment defining the results expected to be achieved in comparison to the existing situation based on different national laws. The lack of such ex-ante impact assessment means that the baseline or expected results from the adoption of EU legislation that would add value to a situation based on existing national legislation for biodiversity conservation was not formally established at the time of preparation of the legislation.

While some ideas might be obtained from the preambles of the Directives, the basis for the analysis has been the established objectives of the Directives, limited by the lack of clear ultimate expectations for each of them, such as, for example, the expected extent of protected areas in the EU.

In this evaluation process, the assessment of the Directives' EU added value is a crucial point which draws from several other questions related to effectiveness, efficiency and added value. As the quantitative assessment of the actual EU added value of legislation is considered a difficult task (European Parliament, 2010, p7), evaluation literature (Paul et al, 2011) suggests that a mainly qualitative assessment of a counterfactual is an appropriate alternative (i.e. an examination of the situation had the EU laws not been adopted).

However, the Commission's Better Regulation Guidelines note that 'it is particularly difficult to identify a robust counterfactual situation'⁷⁸. As a means of establishing the hypothetical situation in the absence of legislation, the above-mentioned evaluation literature recommends using qualitative 'comparison' examples that could reproduce the counterfactual. This approach is mainly proposed for the analysis of funding programmes, where the counterfactual can be more accurately drawn on the basis of a baseline properly established in advance. The use of a counterfactual for the evaluation of legislation is more challenging, as concrete baselines and expectations of results

⁷⁷ European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.

⁷⁸ European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.

showing the EU added value are generally not as carefully designed from the start. This is particularly the case for the nature legislation, which was adopted without the kind of formal ex-ante impact assessment required for the adoption of EU legislation today.

For example, the analysis of the net costs and benefits of the Directives considered the comparison to a counterfactual in which the Directives did not exist. It therefore sought to examine the added costs and benefits of the Directives compared to national conservation laws, and to assess the consequences of non-implementation. However, the information was limited to the benefits of Natura 2000 sites (as protected areas in general) without considering added benefits that the EU rules could deliver (e.g. in terms of maintaining benefits that would otherwise be at risk, or enhancing benefits through sympathetic management). Where evidence of the additional or net costs and benefits was lacking, suitable caveats had to be applied to the discussion and analysis.

On the other hand, question Y.6 addressed the question of the counterfactual directly, by examining the costs of non-implementation. In this case, much of the analysis relied on the examples and judgement provided by stakeholders, as well as the judgement of the evaluators, in the light of evidence of the existing benefits of the Directives.

The analytical approach taken for this study has not been based, therefore, on systematic use of the counterfactual as a means of evaluating the Directives' performance against a baseline. Instead, illustrative examples have been selected to reflect transformational changes or trends triggered by the Directives in relation to their stated objectives and the needs to be addressed, and which would not have happened in their absence. The examples are taken from literature, experts and stakeholders' responses to the evidence gathering questionnaires and online public consultation.

The assessment, including the definition of the counterfactual (i.e. the situation that would be in place had the EU laws not been adopted) – is based on the analysis of the effects of the Nature Directives on the different objectives, based on changes identified and determining what part of those changes can be attributed to the Directives, and comparing them, where possible to a situation in the absence of the Directives.

In order to establish the causality of the changes generated and the situation that would exist in the absence of the Nature Directives, the following approaches and sources of evidence were used:

- **Comparisons of observed transformational changes:** assessing the transformational changes from observed results and impacts, and examining the causal link with the transposition and implementation of the Directives.
- **Temporal comparisons:** the assessment is based on evidence of the situation at the time of EU accession (and/or transposition of the Directives in Member States) which is compared with the current implementing situation.
- **Spatial comparisons:** these comparisons are based on evidence of the situation in analogous countries and regions that are not subject to the measures under the Directives.
- **Implementation comparisons:** these comparisons assess evidence of differences in outputs, outcomes and impacts according to the degree of implementation in the different Member States.

For example, the extent of the protected areas surface, both terrestrial and marine, that have been triggered by the implementation of the Directives is considered to be transformational change. This assessment is made when comparing the evidence of the current implementing situation and the one existing at the time of the adoption of the Directives (or EU accession). It is highlighted under the effectiveness S.1 question and the EU added value questions (AV.1/AV.2) of this study.

The level of protection against illegal hunting in the EU is also compared with the existing situation in analogous countries all along the Adriatic Flyway.

The level of awareness and involvement of stakeholders in decisions on the management of Natura 2000 areas varies in different EU Member States according to their commitment to establish information structures or initiatives that facilitate the implementation of the Directives. That has generated a difference in effectiveness of implementation highlighted in questions AV.1/AV.2.

To conclude, the evaluation of the Nature Directives looks critically at the actual performance of the Nature Directives, presenting the current situation regarding stated objectives of the nature legislation by comparison with a counterfactual or to other temporal, spatial or implementing situations that illustrate transformational changes triggered by the Directives.

4.4 Research limitations, challenges and lessons learned

There was considerable interest in the Fitness Check of the Nature Directives from the start of the process. The issue of nature protection is complex and cuts across many areas of policy-making, directly impacting a wide range of stakeholders, from civil society to economic operators to supporters of recreational activities. Nature and biodiversity are deeply valued by European citizens. In short, people have very passionate and often contradictory perceptions, beliefs, feelings and experiences related to nature conservation and the Nature Directives. This made the task of gathering the best available evidence especially challenging. All evaluations should be open and transparent, but the sensitivity and complexity of the issues involved in this evaluation has meant that the process has had to take particular care to avoid any hint of bias and to ensure that all who wanted to participate were given the chance to do so in some capacity. This created a particular challenge for the research as it had to be both inclusive and participatory but also capable of gathering the type of concrete evidence required to develop and justify credible evaluation conclusions. It also had to be feasible within the human, financial and time resources available.

Due to this, and other issues - such as the availability of certain types of data and information - the research is marked by certain limitations. It also produced some learnings which can be of particular use for future high-profile, complex and broad-ranging evaluations and Fitness Checks.

4.4.1 Scope and length of the stakeholder consultation process

The objectives for the stakeholder consultation were ambitious in scope and approach: a priority was to include as many stakeholders as possible from different perspectives and from across the Member States. Through five different activities (stakeholder questionnaire, missions to 10 Member States, EU level focus groups, online public consultation and the conference), the consultation reached a very large number of stakeholders. At the same time, the breadth of the stakeholder consultation process, and unexpected complexities involved in many of the steps, considerably reduced the time available for data synthesis and analysis against an already tight timetable.

For the targeted consultation, stakeholders were initially given five weeks to provide their main responses to the evidence gathering questionnaires. This was too short a period to allow for meaningful consultation with other colleagues or institutions in order to provide a complete response across all the areas of the lengthy questionnaire. Extensions had to be granted in order to obtain as many complete responses as possible, and some questionnaires were received months after the initial deadline. This impacted the

subsequent consultation activities (i.e. missions to Member States) and tightened the timeframe for review and analysis of the full body of evidence, and to develop valid findings in time for the conference. It also made it difficult to request clarifications when responses to questions were unclear or lacking concrete evidence.

4.4.2 Quality and usefulness of stakeholder input

Despite the careful planning and significant breadth of the stakeholder consultation, not all of the information received was suitable for use. The consultation methods selected were very effective in providing a forum for a relatively large number of stakeholders to feel as though they'd had the opportunity to express their opinion based on their experience with the Nature Directives. The methods were not, however, as effective at collecting the very specific data and concrete evidence that are required to develop and justify solid conclusions about the performance of the Directives. The team, therefore, frequently relied on legal and policy analysis and existing studies in order to back up the analysis presented in the report. The most useful aspect of the stakeholder consultation were the evidence gathering questionnaires, which enabled stakeholders to submit detailed explanations and documentary evidence supporting their responses. The quality and usefulness of the stakeholder input received through the different consultation steps is presented below.

Within the targeted consultation, stakeholders were given freedom to respond to the evaluation questions in an open manner, with only short explanations of the questions provided, in order to avoid the introduction of any bias or 'leading' of stakeholders into certain types of responses. This also gave stakeholders the opportunity to provide a large amount of information, should they choose to do so. However, as discussed in more detail below, it also posed some challenges with regard to the usefulness of the answers as an evidence base for the evaluation.

The understanding of each question was often inconsistent across the stakeholders, with some questions misunderstood. For example, in some cases, stakeholders provided general information about biodiversity or nature conservation or environmental policy not necessarily specific to the Directives (e.g. the costs and benefits of nature protection more generally, or problems generally with EIA for infrastructure projects).

The questions did not request answers in a standard format. This often made it difficult to categorise and quantify the responses and draw general conclusions.

As stakeholders were free to respond only to those questions relevant to their experience, some questions or parts of questions received a limited number of responses. Some questions with multiple parts (e.g. C.4 and C.5 on coherence with the different sectoral policies) may have benefitted from being broken down into different components to encourage more comprehensive responses.

In some cases, stakeholders provided partial answers to questions (e.g. giving information about costs or administrative burdens but not always demonstrating that costs were disproportionate or burdens unnecessary) or opinions without any evidence or examples to support their claims. Some stakeholders made a clear effort to provide cases or examples supporting their statements which justifies that the study refers more often to those stakeholders. Much of the data and evidence provided related to one-off case examples, and it was difficult to deduce the extent which they represented the true average situation. Triangulation of evidence from other sources was not always possible, and further complicated by the fact that similar sources were quoted repeatedly. It was sometimes unclear whether each stakeholder response constituted an additional piece of evidence in instances where many quoted the same study.

The missions to the Member States were useful for putting evidence from the literature in context and understanding the precise details of complex implementation situations in a particular Member State. They often enabled better interpretation of the responses and evidence given in the questionnaires, and frequently led to the provision of additional evidence. The missions also had the benefit of directly engaging many stakeholders in the process, giving them a chance to present their views directly to the evaluation team and the Commission, rather than simply completing a questionnaire. The value of these events was constrained, however, by the broad scope of the evaluation and the limited time frame for meetings in each country.

Similarly, the focus groups were very helpful in setting up the exercise and building engagement of stakeholders at an early point in the process. Although they did not provide concrete evidence directly, they did seem to have benefits in terms of establishing the process by which evidence was later provided. For many of the questions, the evidence gathering questionnaires from the EU level organisations were some of the most detailed and evidence-based of all received. This may be due to the fact that through the focus groups, these stakeholders had the chance to better understand the specific aims and orientation of the Fitness Check and tailored their responses accordingly.

The online public consultation also gave the chance for many to add their voices to the Fitness Check. However, the heavy influence of interest-group campaigning in the consultation process had a significant impact on the eventual value of the consultation results as evidence for the evaluation, as discussed in section 4.2.2.4.

Finally, the Fitness Check conference held at the end of the process provided an excellent opportunity to re-engage many of the stakeholders who participated in the evidence gathering process, and give them the opportunity to see the outcomes of their work before it was made final. For the process of the evaluation, it provided a chance to determine whether there were any major gaps, omissions or misrepresentations in the findings. As the evaluation criteria and questions were analysed one-by-one, the conference also gave the evaluation team a good opportunity to begin putting together more synthetic, higher-level conclusions and consider the most relevant and important aspects of the information gathered, in order to develop intermediate conclusions. The participation of high-level officials at the EU (Commissioner, Director-General, Director) and Member State (Ministers, representatives of current and future EU presidencies) levels gave greater weight to the issue and generated significant interest in the event.

4.4.3 Availability of information/evidence

Information in a credible, quotable form as concrete evidence was not always available to support the evaluation. Some of the specific issues addressed by the evaluation questions lacked a significant body of documented research or even published opinions. This was the case, for example, with question S.4 on 'other changes' triggered by the Directives, with question C.6 on internal market, with coherence with some of the sectors in questions C.4 and C.5, and with some aspects of the assessment of relevance. As a result, the evaluation had to rely primarily upon the stakeholder views in order to evaluate the questions and substantiate any conclusions. As these were limited by many of the considerations discussed above, conclusions were sometimes necessarily based on 1) analysis of the relevant legal and policy documents alone (e.g. in the case of coherence), and 2) a reporting of stakeholder opinions, illustrated by examples.

In some instances, the evidence was purely qualitative, even with respect to questions of efficiency which depend on quantitative assessment. It was not possible to gather additional data sets on costs or administrative burden through the consultation activities, due to their broad and general nature (see 4.4.2), although the evidence gathering questionnaires did provide data in the form of particular case studies and examples. The majority of the quantitative data and analysis used to support the conclusions was, therefore, taken from previous relevant studies.

For some of the questions, useful data, information and examples tended to come only from a few countries – frequently the UK, Netherlands and Germany, and other more advanced countries from the North and the West of Europe. This resulted in the inclusion of a larger number of examples from those countries, particularly in the efficiency section 6, as these countries have made more efforts to streamline the approach to implementing the Directives in order to cut costs. On the other hand, for some issues such as the availability of EU funding, or coherence with Cohesion Policy and other sectoral policies involving funding instruments, more examples have been available from the East and the South of Europe. Efforts were made by the team to diversify the evidence base and gather illustrative examples, in order to gain a representative picture of the implementation experience across the entire EU.

By contrast, a very large amount of potentially relevant information was available from the questionnaires and literature in some cases. This required time-consuming screening to determine its relative value for inclusion as evidence. Examples include the added value questions or some of the efficiency questions, such as Y.1 on costs and benefits and Y.5 on cost-effective implementation.

5 Evaluation and analysis of effectiveness questions

This section focuses on assessing the extent to which the objectives of the Birds and Habitats Directives have been met, and any significant factors that may have contributed to, or inhibited progress towards, meeting those objectives. By 'objectives', we refer not only to the overall aims of the Directives, but also the strategic and specific/operational objectives under other articles of both Directives (as set out in section 2.3). 'Factors contributing to or inhibiting progress' can relate to the Nature Directives themselves (e.g. the clarity of definitions) or be external factors such as lack of political will, resource limitations, lack of cooperation of other actors, lack of scientific knowledge, or other external factors.

5.1 S.1 - What progress have Member States made over time towards achieving the objectives set out in the Directive and related policy documents? Is this progress in line with initial expectations? When will the main objectives be fully attained?

5.1.1 Interpretation and approach

This element of the evaluation considers the progress to date towards achieving the objectives of the Birds and Habitats Directives. The Habitats Directive's overall aim, as set out in Article 2, is to maintain or restore natural habitats and species of Community interest to FCS. The assessment of progress towards this is facilitated by the definition of FCS within the Directive (Article 1) as indicated in Box 1 (section 2.3.1) and the associated requirements for surveillance, monitoring and reporting on the status of habitats and species of Community importance (Articles 11 and 17). Although care needs to be taken with the interpretation of changes to the status of EU protected habitats and species, the latest conservation status assessments summarised in the State of Play (chapter 4) provide an opportunity to assess progress, objectively and quantitatively, with respect to the achievement of FCS.

Assessing progress towards achievement of the Birds Directive's overall aim is less straightforward, as the Directive's objectives are not as clearly defined (there is no defined FCS) and monitoring requirements under the Directive were not precisely set out. Nevertheless, some scientific evidence of bird trends and the impacts of the Birds Directive is available. Monitoring and reporting has been brought into line with that under the Habitats Directive, and Member States have recently provided information on the population and range of each species, as well as their short- and long-term trends, as summarised in the State of Play (see section 3).

As indicated in Section 2.3, there are a large number of provisions (under specific articles) in both Directives that aim to contribute to the overall objectives of the Directives and they also have more specific objectives against which progress can be individually assessed. However, most of these provisions do not have clearly defined and measurable objectives, making assessment of progress against these objectives a more subjective evaluation. The articles in both Directives relate to a smaller set of strategic objectives, or operational objectives, that form the following groups: site designation, site protection, site management, landscape measures that aim to contribute to the coherence of the Natura 2000 network, species protection, management of non-native species, reintroductions and supporting provisions (i.e. research, education and awareness, financing, monitoring and reporting). This assessment primarily considers progress towards the objectives that fall under these groups, rather than considering each article individually.

5.1.2 Main sources of evidence

The assessment of progress on the overall aims of the Nature Directives, as well as other provisions that can be objectively assessed and quantified, such as the establishment of the Natura 2000 network, is primarily based on published evidence:

- Member State reports for 2001-2006, and 2007-2012, in accordance with Article 17 of the Habitats Directive on conservation status of habitats and species of Community importance – summarised in the 2015 State of Nature report (EEA, 2015a).
- Member State reports for 2008-2012, in accordance with Article 12 of the Birds Directive on population size and trends of bird species – summarised in the 2015 State of Nature report.
- The Commission's / ETC-BD's assessment of the adequacy of the Natura 2000 network.
- Member State reports on relevant implementation issues.
- Scientific studies, such as those assessing the impact of the Directives on conservation status and trends, including any added value provided by the Directives.

These sources of evidence were identified through literature searches, consultations with Commission and Member State experts and other stakeholders, as well as in the responses to the evidence gathering questionnaire and supporting evidence.

The implementation of some provisions, however, is not well documented. In these cases, the evaluation of progress has primarily relied on the views expressed in the evidence gathering questionnaire and any supporting evidence. The responses to question S.1 varied in nature and degree of quantification. However, it was possible to allocate many to the following four progress-related categories: 'no significant progress', 'little progress', 'substantial progress', and 'objective achieved or largely achieved'. Some answers indicated that steps were being taken to implement the measures, but did not provide sufficiently clear information to reliably judge the degree to which the objectives are currently met, and these responses were categorised as 'some progress but amount uncertain'.

The opinions expressed in the online public consultation are primarily used to support the assessment of subjective aspects of the evaluation of progress, such as the expected rate of progress.

5.1.3 Analysis of the question according to available evidence

5.1.3.1 What progress have Member States made over time towards achieving the objectives set out in the Directives and related policy documents?

Site designation provisions and objectives

As described in section 2.3 a key objective of the Nature Directives is the establishment of Natura 2000, which comprises a coherent network of SPAs designated under the Birds Directive (for species listed in Annex I of the Directive and regularly occurring migratory species), and SACs hosting habitats (according to Annex I of the Habitats Directive) or species (Annex II of the Habitats Directive) of Community interest.

The Birds Directive requires Member States to select the 'most suitable territories' as SPAs on the basis of ornithological criteria. For example, the Directive refers to wetlands of international importance, providing a link to ornithological selection criteria under the Ramsar Convention. However, the Birds Directive does not set out explicit criteria for the identification of SPAs. To assist with the identification of SPAs, the Commission has supported the development of science-based criteria and the compilation of ornithological information since the early 1980's, which contributed to the publication in 1989 of an inventory of Important Birds Areas (IBAs) in Europe, produced by BirdLife International (Grimmett and Jones, 1989). In the absence of national scientific references, these served as key references to inform SPA identification, a fact that was recognised in a CJEU ruling⁷⁹ in 1998 on the adequacy of the Netherlands' SPA network. This confirmed that, although not legally binding on Member States, the IBA inventory represents a list of most suitable territories for the conservation of wild birds in the EU. In that case it was used to assess whether or not the Netherlands had fulfilled its obligation to classify SPAs. BirdLife published an updated its list of IBAs in 2000 (Heath and Evans, 2000) and the Commission has continued to use the IBA inventory as a scientific reference list, which led to several written warnings to Member States and infringement procedures (see further discussion below under section 5.1.3.2).

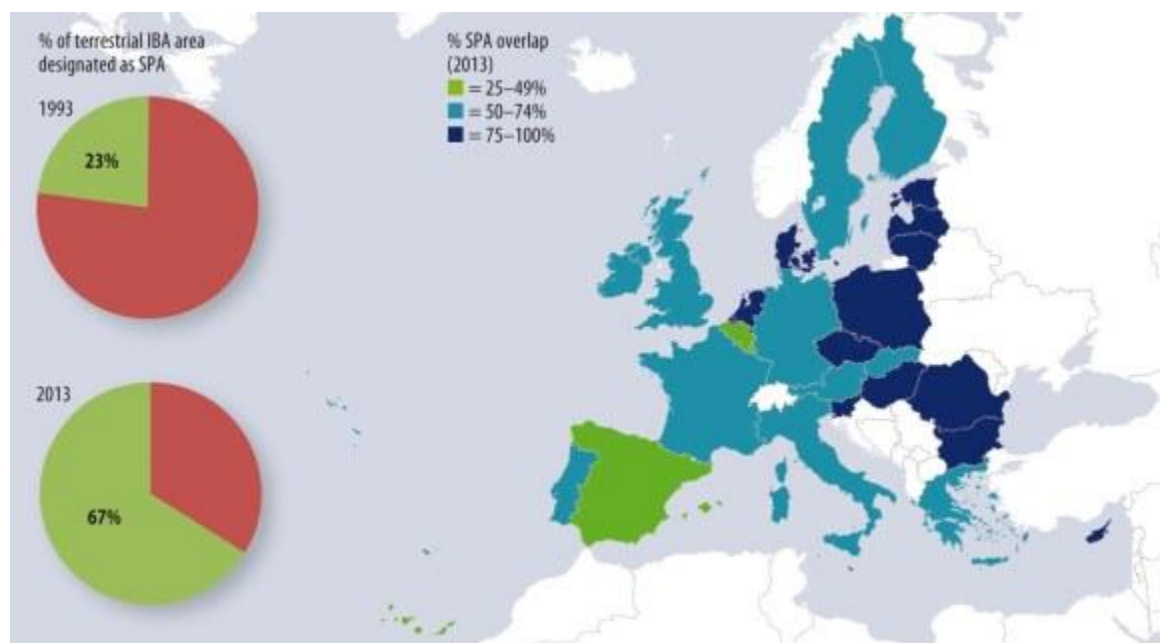
Thus the adequacy of the SPA network can, to some extent, be judged by its coverage of the IBA network, although the IBA list is not legally binding. Up-to-date, detailed and comprehensive data on IBA coverage by SPAs does not appear to be readily available, but a BirdLife assessment in 2013 found that 67% of IBAs were classified as SPAs (Birdlife International, 2013). However, as indicated in Figure 15, many countries at that time had less than 75% coverage, with two (Spain and Belgium) having less than 25% coverage. This demonstrates that, despite some problems and the slow identification and designation of SPAs (see further discussion below), substantial progress has been made towards the objectives of Articles 3 and 4 of the Birds Directive. Although it appears that further expansion of the SPA network probably remains necessary, it should be borne in mind that the IBA criteria are not entirely consistent with SPA identification requirements. For example, some IBA trigger species are neither Annex I listed species of the Birds Directive nor migratory species (e.g. Siberian Jay), and some IBA thresholds are also lower than those used for SPAs. Some IBA boundaries are also only approximately delineated. Consequently, comparisons between IBA and SPA designations need to be

⁷⁹ C-3/96, Commission v. Netherlands.

treated with caution, and this information does not allow for reliable quantification of the area of additional SPA coverage currently required.

Figure 15 The overlap between IBAs and SPAs in the EU in 1993 and 2013

Source: (Birdlife International, 2013)



The selection of SCIs has a more standardised, coordinated and biogeographical approach⁸⁰, with criteria for the selection of SCIs provided in Annex III of the Habitats Directive. These criteria relate to two stages. Stage 1 is an assessment at national level of the relative importance of sites for each Annex 1 habitat and Annex 2 species. Stage 2 is an assessment of the nationally proposed SCIs in relation to their importance within biogeographical regions and for the EU area as a whole.

As a result of the Directive's objectives and the site selection process, the evaluation of the sufficiency of the SCI network in each Member State and across biogeographical regions is complex, and cannot be tested by simple indicators such as area or percentage coverage. Instead, the assessment of sufficiency is primarily through expert judgement and negotiation between the Commission (with assistance from the ETC-BD) and Member States, supported through biogeographical seminars. Therefore, although the State of Play chapter indicates that the terrestrial Natura 2000 area now covers 18% of the EU, with 4% of the EU's seas covered by marine Natura 2000 sites (EEA, 2015a), the principal criterion for assessing progress towards the achievement of Article 4 of the Habitats Directive, is whether or not the Commission judges the SCI network to be sufficient.

The Commission provides a graphical illustration of the sufficiency of the network in its Natura Newsletter (expressed as the percentage of species' and habitats' networks in each Member State that are considered to be complete), the latest of which (June 2015) provides an assessment of the situation for terrestrial habitats and species in December 2013⁸¹, as reproduced here in Figure 15. This indicates that 16 Member States had ter-

⁸⁰ Sites are selected with the aim of maintaining or restoring the FCS of habitats and species within the following nine biogeographical regions: Alpine, Atlantic, Black Sea, Boreal, Continental, Macaronesian, Mediterranean, Pannonian and Steppic. See http://ec.europa.eu/environment/nature/natura2000/sites_hab/biogeog_regions/index_en.htm

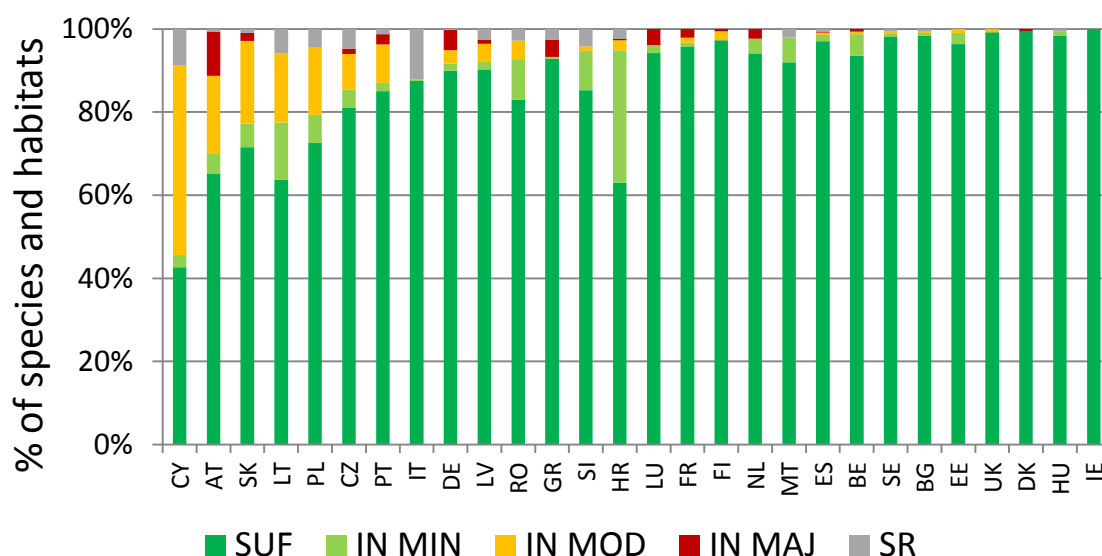
⁸¹ http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat38_en.pdf

restrial SCI coverage deemed sufficient, or with minor insufficiencies, for more than 85% of habitats and species. Four countries had coverage judged sufficient, or with minor insufficiencies, for less than 85% of terrestrial habitats/species of Community interest: Poland, Lithuania, Slovakia, Slovenia and Cyprus. In these countries additional sites are needed to address moderate insufficiencies for 16% (Poland) to 46% (Cyprus) of habitats/species. Notably, Austria has yet to designate any sites (i.e. has major insufficiencies) for 11% of habitats/species.

[Commission – please can you provide us with more up to date data on sufficiency assessments for terrestrial and marine sites]

Figure 16 Sufficiency of the terrestrial Sites of Community Importance component of the Natura 2000 network

KEY: **SUF** = **Sufficient** (i.e. the network is sufficient for that species/habitat type). **IN MIN** = **Minor Insufficiency** (i.e. sufficiency could be achieved by adding the species/habitat type as a qualifying feature to existing sites). **IN MOD** = **Moderate Sufficiency** (i.e. additional sites still need to be proposed or existing sites extended for that species/habitat type). **IN MAJ** = **Major Insufficiency** (i.e. none of the sites where the species/habitat occurs have been proposed so far). **SR** = **Scientific Reserve** (i.e. additional research is needed to identify the best sites).



Source: European Commission data relating to December 2013, except for Poland, Italy, Austria and Finland, whose data are from 2011 or earlier.

Not surprisingly, given the ongoing development of the marine network, two gap analysis studies found that offshore marine habitats (i.e. more than 12 nautical miles from the shore) are under-represented in the Natura 2000 network (Evans et al, 2011; EEA, 2013a)[Ref details missing from SNR report].

On the basis of the SCI biogeographical seminar process, the 2015 State of Nature Report (European Commission, 2015a) [p.119] notes that 'the terrestrial component of the network is considered close to complete, while further marine sites are required'. The objective of establishing the Natura 2000 network under Article 4 of the Habitats Directive has, therefore, largely been achieved on land, at least in terms of coverage of habitats and species of Community interest.

It is a requirement under Article 4(4) of the Habitats Directive for Member States to designate their SCIs within six years of their adoption by the Commission. As the first lists of SCIs were produced over 10 years ago, a substantial proportion should now be SACs. However, according to an analysis by the EEA in the 2015 State of Nature Report, based

on information reporting the state of play before the end of 2012, 48% of current SCIs had not yet been designated as SACs. Four Member States had designated all their SACs (Slovenia, Latvia, Luxembourg and Hungary) and four more had designated over 90% of their SCIs (Denmark, Sweden, the UK and Estonia). But 14 of the EU-27 have designated less than 50% of the SCIs, and seven Member States reported no designated SACs (Ireland, Italy, Finland, Bulgaria, Romania, Poland and Malta). In some cases these sites have national designations, but in other cases the sites have no other protection.

Detailed updated information submitted to the Commission by the 15 Member States for which the six-year deadline first expired⁸² has confirmed that SAC designation has advanced in recent years in these Member States, but it is still far from being complete⁸³. In particular, only five of these 15 Member States have designated all the sites for which the deadline has expired (Denmark, Greece, Luxembourg, Sweden and the UK), while another five have designated less than 50% of the sites for which the deadline has already expired (Belgium, Germany, Ireland, Italy and Portugal).

According to a number of evidence gathering questionnaire responses, delays in the designation of SACs was often due to uncertainties over the legal requirements for designation and/or the generally slow or inappropriate transposition of the Directives (as discussed in section 3.3). One CJEU ruling was issued in September 2011 for the Macronesian region of Spain, with the court upholding the Commission's complaint that Spain had failed to designate its SCIs as SACs within six-years⁸⁴. In 2015 the European Commission opened new infringement cases against eight Member States⁸⁵ for insufficient progress in the designation of SACs and the establishment of conservation objectives and measures in several biogeographical regions.

A further important consideration of this evaluation is whether or not the Nature Directives resulted in an increase in protected area coverage beyond that which would have occurred in their absence. A comparison of the observed increase in protected areas with such a counterfactual scenario is difficult, and, to our knowledge, has not been investigated comprehensively. However, there is evidence that substantial increase in protected area coverage occurred in several Member States after the Directives came into force or the country acceded to the EU, including Croatia, Estonia, Spain and the UK (EEA, 2012; Underwood et al, 2014). The issue is discussed further in questions AV.1 and AV.2.

The responses on the extent to which the objectives relating to the establishment of the SPA network under the Birds Directive, and the SCI network under the Habitats Directive are being achieved, are set out in Table 3 below. Most respondents considered the objectives to be achieved or largely achieved, although some noted that a few more terrestrial and significantly more marine sites need to be added, particularly to the SCI network. There appears to be no difference in response between the NGO and nature authorities. These results are consistent with the evidence discussed above, and many of the responses refer to the Member State implementation reports and the 2015 State of Nature Report as supporting evidence.

⁸² The 15 EU Member States for which the six-year deadline first expired were Austria, Belgium, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK.

⁸³ Noelia Vallejo, pers. comm. DG Environment.

⁸⁴ Case C-90/10, Commission v. Spain.

⁸⁵ Infringement cases No: 2014/2260 against Greece; 2014/2262 against Germany; 2015/2002 against Portugal; 2015/2003 against Spain; 2015/2006 against Ireland; 2015/2007 against Belgium; 2015/2030 against the United Kingdom; and 2015/2163 against Italy.

Table 3 The percentage of evidence gathering questionnaire responses allocated to each category of progress relating to the establishment of the SPA and SCI networks

	Birds Directive Article 4(1)				Habitats Directive Article 4			
	Nature Protection Authority	Other public authority	NGO	Private Enterprise/ Industry	Nature Protection Authority	Other public authority	NGO	Private Enterprise/ Industry
Number with a clear answer to the question	7	1	6		7	2	6	
No significant progress	0%	0%	0%		0%	0%	0%	
Little progress	0%	0%	0%		0%	0%	0%	
Substantial progress	29%	0%	21%		43%	50%	27%	
Objective achieved or largely achieved	57%	100%	21%		43%	0%	13%	
Some progress but amount uncertain	14%	0%	0%		14%	50%	0%	

The results from the online public consultation were not so consistent with the assessments and literature. According to the report on the online public consultation (Table 27), the majority of respondents to Question 15 consider that the Directives have been 'somewhat' effective in establishing an EU-wide network of protected areas (53%). But 33% considered they have been 'very effective', whilst only 7% think they were 'not very effective' and 4% regarded them as 'not at all effective'. Care needs to be taken with the interpretation of the online public consultation results due to the large differences in the number of responses from the various interest/activity groups. For example, comparisons of the results amongst the groups (Table 63) indicates that NGOs had a more positive assessment than other groups, with the majority (56%) considering that the Directives had been very effective in establishing a protected area network. The majority of respondents in each of the other groups considered that they had been somewhat effective. The reasons for these answers are not known, but they might reflect the slow identification of sites (and slow designation of SCIs as SACs) and the current deficiency in marine sites.

Site protection provisions and objectives

Member States have taken a number of approaches to ensuring the protection of SACs and SPAs, in accordance with requirements under Article 6(2) of the Habitats Directive. The 13 countries which have joined the EU since April 2004 have often achieved a substantial integration of their Natura 2000 areas into their protected area system through regulation, sometimes by creating new national designations. By contrast, most of the EU-15 countries (i.e. the older EU Members) have half or more of their Natura 2000 network outside their nationally-designated protected area network, using contractual and/or administrative means rather than legal instruments to protect sites. Croatia has only recently starting establishing its Natura 2000 network, and is exploring different approaches to designating and managing Natura 2000 sites (Underwood et al, 2014).

Both SCIs and designated SACs and SPAs are also legally protected from damage to their protected habitats and species from new plans or projects by the provisions of Articles 6(3) and 6(4) of the Habitats Directive. Articles 6(2), (3) and (4) also apply to SPAs. As discussed in section 3.3, there has been considerable controversy and confusion over the interpretation and implementation of these measures, particularly regarding Article 6(3), resulting in transposition problems and numerous interventions from the Commis-

sion and CJEU cases. Article 6(3) was the subject of 16% (43) of examined breaches of the Habitats Directive ([Figure 9, section 3.3.2]). Particular problems occurred with respect to the required quality of AAs and the application of the precautionary principle (i.e. the need to remove all reasonable scientific doubt over a potential impact)⁸⁶ (European Commission, 2006; IEEP, 2011). Other issues that have resulted in CJEU cases have included the relationship between Article 6(2) and Article 6(3), the plans or projects that are subject to Article 6(3), the significance of the effects in view of a sites conservation objectives, interpretation of adverse effects on the integrity of the site, the consideration of alternatives, interpretation of the term 'imperative reasons of overriding public interest' and the requirements for compensatory measures.

In response to these problems, the Commission produced a number of general Guidance documents to help to clarify these issues (European Commission, 2001; European Commission, 2007a; European Commission, 2014b), as well as a series of sector specific Guidance documents⁸⁷, and reviews of the CJEU rulings on Article 6, the most recent of which was published in 2014 (Sundseth and Roth, 2014) and which summarises the legal jurisprudence that has been built up over the years. Many of the respondents considered these to be very helpful in terms of clarifying areas of uncertainty and providing examples of good practice. To identify and tackle remaining issues concerning AA, the Commission carried out a fact finding study in 2013, which gathered and reviewed information on the nature, extent and significance of the problems and burden associated with the Article 6(3) permitting procedure (Sundseth and Roth, 2013). Information was gathered through a literature review and interviews with authorities, economic operators and NGOs in 10 Member States⁸⁸, as well as representatives involved at an EU level. The study's report also provided recommendations for improving the efficiency of the procedure and a range of examples of good practice.

The study found that there have been problems with the implementation of article 6(3), the most frequent of which are listed in Box 3, although their relevance varies among the Member States and their regions. Many of the most significant problems are now historical problems, but Sundseth and Roth note that 'This legacy of the past unfortunately remains set in people's minds today, even though many of the initial problems have since been resolved, at least in the number of countries.'

Box 3 The underlying causes of problems with the Article 6(3) procedures

Historical problems (putting the system in place)

- An uncertain legal framework caused by slow designation of sites.
- Getting used to new procedures.
- Poor or incomplete transposition into national law.

Ongoing problems

- Poor quality AAs.
- Lack of skills/knowledge/capacity on the Article 6(3) procedure.
- Poor/inadequate knowledge base on which to assess impacts.
- Problems during screening.
- Lack of assessment of cumulative and in-combination effects.
- Poor understanding of key concepts and legal terms.
- Lack of dialogue and integrated planning.
- The ineffectiveness of AAs for plans.
- Public opposition.
- Lack of coordination between permits.
- Inconsistent use of Article 6(4).

Source: based on headings used in chapter 5 of Sundseth and Roth (2013)

⁸⁶ E.g. Case C-127/02, Waddenvereniging and Vogelbeschermingsvereniging (concerning the Waddenzee.

⁸⁷ http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm#art6

⁸⁸ Austria, Czech Republic, Germany, France, Ireland, Netherlands, Slovenia, Spain, Sweden and the UK.

In general, among the 10 Member States studied, AA procedures are now working well and where problems occur they can normally be dealt with relatively easily. These findings are broadly consistent with conclusions from a DEFRA UK (HM Government, 2012), review of the implementation of the Habitats Directives, which included a detailed appraisal of AA procedures, the only recent national assessment of the procedures that have been published. The DEFRA study concluded that 'in the large majority of cases the implementation of the Directives is working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained.' As further discussed in question R.3 on sustainable development (see section 7.3), the findings also support the view that Natura 2000 does not, on the whole, act as a blanket ban on developments within these sites.

The study identified some remaining problems and, although these vary considerably from case to case, the most typical issues related to:

- Poor quality of the AA undertaken.
- Lack of skills/ knowledge /capacity in the Article 6(3) procedure.
- An inadequate knowledge base on which to assess impacts.
- Inconsistent screening of plans and projects.
- Lack of understanding of key concepts and legal terms.
- Persistent lack of assessment of cumulative effects.
- Confusion with the EIA/SEA procedure.
- Lack of early dialogue.
- Lack of effectiveness of AA in plans.
- Problems during public consultation.

Under Article 6(4) of the Habitats Directive, plans or projects that may have detrimental impacts on a Natura 2000 site may go ahead if there imperative reasons of overriding public concern (the so called 'IROPI test') and if there are no alternatives. Member States are also required to compensate for residual impacts to maintain the overall coherence of the network. As discussed in section 3.3.2 there have been a number of infringement cases relating to Article 6(4), comprising 8% of the breaches examined in this study [Figure 9, section 3.3]. The resulting case law has clarified a number of issues, including the need for demonstrable assessments of alternatives, the nature of the IROPI test, and the factors that must be taken into account in considering compensation requirements.

Three legal studies have cast some doubt on the correct application of Article 6(4) by Member States and scrutinised by the Commission. Krämer (2009) examined the opinions which the Commission had issued under Article 6(4) and the Member States' reasoning for justifying the derogation under the Article in the light of CJEU rulings, and concluded that 'probably not one of the cases submitted would have been accepted by the Court'. From a review of CJEU and Commission opinions and guidance on the IROPI test, and its application in the UK, Clutten and Tafur (2012) found that an increasingly wide interpretation is being taken of the meaning of IROPI, and neither the CJEU nor the Commission appear to be preventing this. Similarly, a study by McGillivray (2012) also suggested that the problems concerning Article 6(4) may have been exacerbated by weak enforcement by the Commission. The study analysed 15 publicly issued opinions by the Commission in relation to the Article, finding that the opinions lacked transparency and that there were concerns regarding the Commission's responses to compensation functionality, proponent bias, monitoring and enforceability and economic influence.

The current effectiveness of Article 6(4) measures relating to the appropriate interpretation of the IROPI test and the implementation of compensatory measures to maintain

the integrity of the Natura 2000 network, is very difficult to assess as clear information on its application is lacking. Although Member States are required under Article 6(4) to inform the Commission of any compensatory measures they take in relation to projects which have a significant negative residual impact on Natura 2000 sites, most do not appear to have done so (European Commission, 2008a). According to the Commission, the information that was provided on Article 6(4) measures between 2004-2006 was often 'partial, vague and insufficient'. Despite the lack of clarity in the information provided, the reports raised concerns that some of the compensatory measures proposed were not compensation measures (instead being mitigation measures that may have only partially reduced impacts), were not related to the impacts caused by the project, or were not able to offset its impacts on the negatively affected habitats and species. Some compensatory measures were simply actions that should be normal practice under the Birds and Habitats Directives in any case (such as the preparation of management plans).

Subsequently, the Commission provided its guidance on Article 6(4) (European Commission, 2007a) and this included a standard form for submitting information. As a result, the latest Commission report summarising implementation of Article 6(4) from 2007-2011 (European Commission, 2012a) notes that there has been an improvement in the quality of the information provided. However, only six Member States submitted reports (Germany, France, Italy, Poland, Spain and the UK) and it seems unlikely that compensation measures would not have been required in other Member States during the reporting period.

Despite improvement in the information provided, the Commission concluded that it remained incomplete in the areas of the project's estimated potential adverse effects (including cumulative impacts), mitigation measures, the assessment of alternatives to the project and the justification for allowing the project to go ahead on the grounds of it being of imperative overriding reasons public interest. The compensatory measures were reasonably well described in broad terms, and appeared to address the habitats and species that were negatively affected in most of the cases. However, as a result of other shortcomings, the Commission concluded that 'it was not always possible to assess how the proposed measures will compensate the adverse effects on the integrity of the site and how the coherence of the Natura 2000 network will be preserved'. The Commission also noted that most of the reports did not describe the existing conditions in the compensatory areas, nor the techniques and methods that would be used to carry out the compensation. This made it 'difficult to assess their actual feasibility and possible effectiveness'. One possible reason for this is that the European Commission's 2007 guidance does not indicate how losses/gains should be measured, e.g. metrics, or how equivalency of gains and losses should be determined.

The evidence, indicates that the implementation of the Directives has to an increasing extent, resulted in protection of Natura 2000 sites and compensation for unavoidable residual impacts on EU protected habitats and species. However, it is also important to consider whether such protection would have occurred in the absence of the Directives. As the counterfactual scenario is difficult to reliably define, so too an assessment of the added value of the Directives is also difficult. Evidence from some studies and responses to the evidence gathering questionnaire, however, suggests that the protection now given to Natura 2000 sites is considerably greater than that given to the protected areas that existed at the time in many Member States, such as in the UK and the Netherlands (Underwood et al, 2014).

Seven respondents commented on the extent to which the specific objectives of Articles 6(3) and 6(4) of the Habitats Directive are addressed, and only four gave answers that could be reliably interpreted in terms of the amount of progress being made (nature NGOs from the UK and nature authorities from Cyprus and the Czech Republic). Each of these indicated that the related objectives have been fully met, but it might be they were primarily referring to effective transposition of the articles, rather than the efficacy of the measures. The other responses indicated that progress was being made towards the objectives but it was not possible to quantify this.

The combined results of the online public consultation do not correspond to either the literature or the responses to the evidence gathering questionnaire. Of the 16,815 responses to Question 15 (Table 27), 'How effective have the Directives been in regulating the impact of new plans and projects on Natura 2000 sites?' the majority (49%) considered them to be 'not very effective', 6% considered them to be 'not at all effective', 18% 'somewhat effective' and 22% 'very effective'. However, these combined responses mask significant differences in the views of the different interest / activity groups. As indicated in Table 63 of the online consultation report, those from agriculture and forestry, and angling, fish farming, fishing and hunting all stated that they had 'not been very effective' (76% and 64% respectively). In contrast, the majority of those from nature and environment, and construction, extractive industry and transport groups considered that they have been 'very effective' (47% and 48% respectively). It is not known why these views differ so much, but the response from the agriculture and forestry sector may reflect the fact that AA procedures tend to be applied to construction and extraction industry projects and plans, and not to land use related developments.

Site management provisions and objectives

Once designated as an SAC, Member States are required to proactively take positive conservation measures on the sites. Under Article 6(1) of the Habitats Directive they must establish the necessary conservation measures involving, if necessary, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the habitat types and species for which the site has been designated. The starting point for the development of effective site management should be the establishment of conservation objectives for each of EU protected habitats and species for which the site was designated. Without clearly defined conservation objectives it is not possible to identify and prioritise appropriate protection, management and monitoring requirements. Conservation objectives should normally be defined both at the site level and at a higher level, e.g. the regional or national government level and/or for the biogeographical zone/region (European Commission, 2012b; Louette et al, 2011).

Member States have a considerable degree of flexibility in terms of how they establish the required conservation measures within each site. A study by IEEP (Underwood et al, 2014) and responses from the evidence gathering questionnaires indicate that a variety of approaches have been taken in this regard. Although it is not mandatory, the Commission strongly recommends the development of management plans, as they provide a useful and transparent tool for defining conservation objectives and agreeing management measures and priorities, in consultation with landowners and other stakeholders (European Commission, 2014b). Although many Member States have adopted the use of management plans, the recent implementation reports by Member States indicated that 55% of SPAs⁸⁹ and 41% of SCI/SACs⁹⁰ had established or were preparing plans at the end of 2012 (EEA, 2015a). This might be expected, however, as good plans take time to develop, in part because they require adequate stakeholder consultations and participation.

Some Member States have made good progress with the establishment of management measures, but it is apparent from a number of studies, Member State implementation reports, and responses from the evidence gathering questionnaires, that effective conservation measures have yet to be fully put into place, often as a result of the slow progress on the development of management plans (see question S.3 for further discussion, section 5.3). Of the 12 respondents that provided an indication of progress with the Habitats Directive Article 6(1) and 6(2), 25% thought little progress had been made,

⁸⁹ 1,624 SPAs with plans and an additional 1,360 plans in preparation in the EU-27 at the end of 2012 out of a total 5,432 SPAs.

⁹⁰ 9,271 sites with plans and an additional 4,229 plans in preparation in EU-27 at the end of 2012, out of a total 22,808 reported SCIs.

although 33% thought substantial progress was made. Most (42%) indicated that progress was being made, but they did not clearly quantify this.

The views from the online public consultation on the effectiveness of management and restoration measures were more positive than on other measures. The majority response (61%) considered the Directives had been 'somewhat effective' in managing and restoring Natura 2000 sites. However, an analysis of the responses from different interest / user groups (Table 63) indicates that a sizable proportion of those from nature and environment, and construction, extractive industry and transport groups considered them to have been 'very effective' (39% and 43% respectively). By contrast, no more than 4% thought they had been 'very effective' among those from the agriculture and forestry, and angling, fish farming, fishing and hunting groups.

Provisions and objectives relating to the enhancement of the coherence of the Natura 2000 network

As discussed in relation to the Directives' objectives (section 2.3), both the SPA network and the overall Natura 2000 network (including SPAs) should be coherent, and the Habitats Directive includes specific measures to achieve this, in particular through the criteria for proposing and selecting sites. In addition, under Articles 3(3) and 10 of the Habitats Directive, Member States should, where necessary, improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora. Although the need for action on this is, to some extent discretionary, a DG Environment commissioned report concluded that such measures should be taken where it is necessary to achieve FCS of habitats and species (Kettunen et al, 2007a). As habitat fragmentation is a widespread pressure that contributes to the unfavourable status of many habitats and species, there is a need for further action to address this and increase the coherence of the network.

A number of studies, including two reports for the Commission, have found that the measures in Articles 3 and 10 have been weakly implemented in many Member States (IEEP and Alterra, 2010; Kettunen et al, 2007a). There is little evidence to suggest that the situation has changed, despite the new EU Biodiversity Strategy and the increasing recognition of the value of Green infrastructure and its potential to deliver economic benefits while also helping to maintain and increase ecological connectivity (Mazza et al, 2012). While some countries have initiatives to develop ecological networks (Bennett and Mulongoy, 2006; Catchpole et al, 2009; Jongman and Pungetti, 2004)(see Box 4), these often predate the Habitats Directive, have a broad range of ecological, environmental / ecosystem service and social objectives, and are implemented to varying degrees (IEEP and Alterra, 2010). Their impacts are also poorly monitored, making it impossible to ascertain the extent to which existing ecological networks contribute to Natura 2000 coherence requirements.

Box 4 Examples of initiatives to increase connectivity between protected areas

- The German ecological network concept identifies core areas of national biodiversity significance, areas with high restoration potential, and nationally and internationally significant corridors, which should cover at least 10% of the land area. At the moment protected core areas cover around 5.3% of the land, and a recent analysis has identified 22 areas where there are significant gaps. In addition, the ecological network requires the establishment of corridors of extensively managed agricultural or forest land on around 4.5% of the land area. The Länder share equal responsibility for this, but the level of implementation and ambition varies significantly between the Länder.
- The Netherlands has published a recent government vision, with aims for an ecological network which uses systematic spatial planning to better link existing protected areas with agricultural areas under 'nature-friendly' management.

- France has recently passed national legislation that establishes a legal framework for an ecological network. The strategy envisages an expanding role for the national and regional nature reserves as core areas of the network, i.e. improving the connectivity of the protected areas with the greatest focus on biodiversity protection.
- The Estonian green network concept was developed in the early 1980s, based on a strong land-use planning tradition with wilderness and areas of conservation value considered to be core areas interlinked by natural and semi-natural landscapes. The Act on Planning and Building provides the legal background for the implementation of the network through the national spatial planning process.

Source: Underwood et al (2014)

The opinions expressed in the online public consultation are consistent with these findings on the implementation of measures to maintain and increase the coherence of the Natura 2000 network. Under Question 15, 62% of responses considered that the Directives had not been very effective in 'encouraging the management of landscape features outside Natura 2000 sites' (Table 27). This was the majority view of all of the field of interest / activity groups, except for those related to construction, extractive industry and transport, who mainly considered the Directives to have been somewhat effective in this respect.

The assessment of the overall progress in terms of the coherence of the network is also difficult to evaluate because neither of the Directives defines the meaning of 'coherence' (see Box 1 in section 2.3.1). Neither has the coherence of the network been comprehensively measured or assessed, although a number of modelling studies of connectivity have been carried out (Estreguil et al, 2013; Estreguil and Caudullo, 2013; Mazaris et al, 2013; Mullins et al, 2015; Opermanis et al, 2012).

Verschuuren (2013) suggests that while the Habitats Directive aims to establish a 'coherent ecological network', the above provisions do not necessarily lead to the creation of a real network, which the author considers to be 'a network that consists of interlinked areas.' However, this is in part the result of a narrow definition of coherence and a misunderstanding that connectivity needs to be through an unbroken physical connection, such as through corridors. But functional connectivity is more important, and that can also be provided by habitat patches (such as Natura 2000 sites) that act as stepping stones, or by ensuring that the wider matrix of habitats between sites is not a barrier to movement (Crooks and Sanjayan, 2006; Donald and Evans, 2006; Estreguil et al, 2013). In fact, because many European protected species have specialist habitat requirements, corridors such as hedgerows, may not significantly facilitate movements. When a recent review of the protected area network in England (Lawton et al, 2010) concluded that it was not sufficiently resilient and coherent, it recommended the following broad types of action in order of priority:

- Improve the quality of current sites by better habitat management.
- Increase the size of current wildlife sites.
- Enhance connections between, or join up, sites, either through physical corridors, or through 'stepping stones'.
- Create new sites.
- Reduce the pressures on wildlife by improving the wider environment, including through buffering wildlife sites.

Despite the lack of empirical evidence of the coherence of the Natura 2000 network, it is inevitable that the substantial increase in coverage of protected areas that has occurred since the Directives came into force will have increased its coherence to some extent. This is because an increase in the number and area of protected sites would be expected to increase their diversity of habitats, habitat conditions and species, due to the well-documented species-area relationship (Connor and McCoy, 1979; MacArthur and Wilson,

1967). Thus, they are more likely to provide the full set of ecological requirements of the target species (and others). Functional connectivity will also increase because the average distances between sites will inevitably decline, thereby facilitating movement between them (e.g. for feeding, migration, and emigration and colonisation) (Estreguil et al, 2013). The increase in sites will also increase the number of stepping stones, and larger sites are more likely to support viable and resilient populations (Lawton et al, 2010) that will provide sources of emigrants that may, for example, help to maintain important meta-populations (Hanski, 1999).

In conclusion, while it is not currently possible to quantify the degree to which the Natura 2000 network is achieving its objective of being coherent, it can be reliably predicted that progress is being made towards it. Consequently, protected areas such as Natura 2000 sites form the backbone of the EU's green infrastructure (Estreguil et al, 2013).

Protection measures for species

As described in section 2.3.1, in order to complement the conservation of particularly important sites for European protected habitats and species, both Directives include a second pillar of measures which focus on the protection of species wherever they occur across the entire natural range of the species in the EU (i.e. inside and outside Natura 2000 sites). This pillar aims to ensure that hunting, or other forms of taking, are sustainable, with the Birds Directive referring to the principles of wise use and ecologically balanced control of the species concerned. In particular, Member States are to ensure that birds are not hunted during their breeding season, and that migratory birds are not hunted during their return to their breeding sites (in order to reduce the risk of significant population-level impacts). The Habitats Directive (unlike the Birds Directive) also has measures that aim to ensure the strict protection of selected animals (Article 12) listed in Annex IVa and the strict protection of plant species (Article 13) listed in Annex IVb. Both the Birds and Habitats Directives have derogation provisions from the species protection provisions, that can be used by Member States in specific circumstances (e.g. to protect human health, crops, forests) but only if there are no alternatives.

It is clear that the Birds Directive has changed hunting practices in most Member States, primarily through limiting the number of huntable species, shorter hunting seasons, and restrictions on hunting methods. Initially these changes resulted in numerous problems and conflicts, which resulted in infringement proceedings and CJEU cases (European Commission, 2006). In response, the Commission launched a Sustainable Hunting Initiative in 2001 and, with other stakeholders, prepared a series of management plans⁹¹ for huntable species (i.e. those on Annex II) that are considered to have an unfavourable conservation status. Despite these measures, a study of the status of birds in the EU in 2004 (Birdlife International, 2004) indicated that the status of Annex II species had worsened, with 46% having an unfavourable conservation status. To address this, the two main organisations representing hunters and bird conservationists in Europe, the Federation of Associations for Hunting and Conservation of the EU (FACE) and BirdLife International, and with the encouragement of the Commission, signed an agreement in October 2004, on sustainable hunting. At the same time, the Commission also produced guidance on hunting under the Birds Directive, which was updated in 2008 in response to important CJEU judgements (Batáry et al, 2007).

Responses to the evidence gathering questionnaires indicated considerable agreement among conservation organisations (including BirdLife International) that in all Member States current bird and mammal hunting-related conservation problems are much lower now than before the Nature Directives came into force in all Member States (Hirschfeld and Heyd, 2005; Magnin, 1991). Of the 11 respondents who provide a clear answer on progress towards achieving the species protection objectives under the Birds Directive,

⁹¹ http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/managt_plans_en.htm

45% thought that substantial progress had been made and 18% thought the objectives had been largely achieved. 36% indicated that progress had been made, but it was not possible to deduce the amount from their response. The responses on species protection measures under the Habitats Directive was less clear. Of the 10 respondents, 60% indicated that progress had been made but it was not possible from the responses to quantify this further. One respondent considered little progress to have been made, and three responses suggested that they felt the objectives had been fully met.

Some respondents noted that in some countries hunting is no longer considered to cause any conservation problems. Also, some Member States have prohibited hunting in all Natura 2000 sites, even though the Directives do not require the automatic exclusion of hunting in Natura 2000 sites. This has led to some conflicts with hunting organisations, bringing the Directives in to unjustified disrepute among some hunters.

Despite the improvements noted above, there are ongoing problems with the implementation of the Directives' species protection measures. Significant illegal hunting and related persecution and other forms of illegal killing and disturbance of species are continuing in many countries. A 2011 report by BirdLife International for the Council of Europe found that, at the time, the illegal hunting and taking of birds was widespread and affected all countries, although it was more intense in the Mediterranean region and South-East Europe. They concluded that the most important threats from illegal killing were poisoning, illegal trade and the violation of the hunting seasons and protected areas regimes that exclude hunting. A more recent study by BirdLife International (Birdlife International, 2015a) provides estimates of annual illegal killing in a number of Mediterranean countries: 5.4 million in Italy, 2.3 million in Cyprus, 0.7 million in Greece, 0.5 million per year in each of Croatia and France. It was not possible to examine the methods used to arrive at these estimates at the time of writing this report, as the underlying scientific report (Brochet et al, in review) had not been published, making the accuracy and reliability of these estimates uncertain. Given the scale of the estimates, however, it is clear that substantial levels of illegal killing are still taking place in some countries in the EU.

A further concern is that the recent Article 12 reports on birds have revealed that the short-term population trends of 46% of the breeding bird taxa in Annex II are decreasing, a figure notably higher than the 30% that are decreasing across all breeding bird taxa (EEA, 2015a). Although a previous study has suggested that hunting contributes to population declines of some species (Raine, 2007), the extent of this effect is unknown. Many of the species concerned are affected by other pressures, such as agricultural intensification and land use changes or by factors operating in Europe and in their wintering grounds in Africa (Kirby et al, 2008; Vickery et al, 2014) (see section 7.1).

There are also documented cases of the ongoing persecution of birds of prey, with the intention of protecting game and livestock. For example, recent studies have provided evidence of the illegal poisoning of raptors in Ireland (NPWS, 2013a) and the Hen Harrier in the UK (Natural England, 2008), which is considered to be responsible for the species absence from large areas of suitable habitat (Potts, 1998). Similarly, persecution is constraining the further recovery of some large carnivore populations, which has occurred in part due to their protection from hunting (Chapron et al, 2014). There are many documented cases of illegal killing of large carnivores, and evidence that in Scandinavia it is limiting the recovery of Wolves (Liberg et al, 2012).

These problems appeared to be reflected in the online public consultation results, as 49% of the respondents to question 15 (Table 27) considered the Directives to be 'not at all effective' in 'ensuring that species are used sustainably (e.g. hunting and fishing)'. However, there were large differences between the responses from different interest/user groups (Table 63). Of the agriculture and forestry, and angling, fish farming, fishing and hunting groups, 75% and 74% respectively considered that the Directives had been 'not at all effective'. By contrast, the most frequent responses from the nature

and environment, and construction, extractive industry and transport groups were that they were 'somewhat effective' (37% and 58% respectively).

Despite the ongoing cases of illegal killing, no respondents to the evidence gathering questionnaire suggested that the species protection provisions within the Directives are the underlying cause of the problem. Instead, many noted that the key issue is ineffective implementation, in particular insufficient enforcement of the existing provisions, combined with inadequate penalties for illegal activities (see question S.3 for further discussion).

Under the Habitats Directive, Member States are also required to establish a system of strict protection for animal species (Article 12) and plants (Article 13) listed in Annex IV. Although detailed information on the implementation of these measures is not available for most Member States, responses to the evidence gathering questionnaire suggested that the measures have been implemented and appear to be generally working satisfactorily. This was also found in a study of 10 Member States⁹², although it appears that the interpretation of the provisions varies across the countries (McConville and Tucker, 2015). In Germany, Estonia, Belgium (Flanders) and France, individual specimens did not necessarily have to be protected, provided it could be demonstrated that local and national conservation status would not be adversely affected. An alternative approach is adopted by Sweden, which adopts strict protection of each individual specimen. As a result, developments which would result in the death of individuals, or loss of breeding and roosting sites, are frequently refused permission and required to find alternative locations.

Problems have occurred in some countries, primarily in relation to animal species that are relatively common, in at least some parts of their range (such as the Great Crested Newt). In addition, some Annex IV species (such as some amphibians and reptiles) are attracted to disturbed habitats (such as gravel workings) and this can create conflicts with industry. Protecting these species in these situations can result in high costs and burdens, which may be disproportionate to their conservation benefits (see question Y.4 for further discussion).

There is also evidence, such as that provided by DEFRA UK, that problems with Annex IV species can be exacerbated where little information is available on their location, as this prevents developers from identifying and avoiding potential conflicts early in the planning process. In addition, a lack of knowledge about the distribution and status of a species and an absence of defined FCS standards, can lead to overly risk-averse decision-making. In such situations, a no net loss of individuals policy may be followed rather than ensuring the FCS of the population in question. However, there are increasing examples of best practice that are avoiding such situations and producing better and more efficient conservation outcomes (see question S.3 and Y.5 for further discussion).

Financing objectives

The Birds Directive does not explicitly require Member States to secure financing for the implementation of the Directives, but this is implied in the measures that are required to achieve the Directive's objectives. However, Article 8 of the Habitats Directive does require Member States to identify the conservation measures that are necessary (in accordance with Article 6(1)) to maintain or restore priority habitats and species within SACs to FCS, and to estimate their costs. This information is then to be used by the Commission to develop a PAF of measures that provided co-financing to the Member States.

The availability of funding for the implementation of the Directives is investigated under question Y.2 (see section 6.2) and the implementation of Article 8 is examined in detail under question C.7 (see section 8.6). Therefore, the financing of the Habitats Directive is not discussed in further detail here. In summary, the evidence suggests that while there

⁹² Austria, Belgium (Flanders), Denmark, Estonia, France, Germany, Ireland, Italy, the Netherlands and Sweden.

was an increase in funding for nature conservation, in particular through the LIFE programme and agri-environment schemes, the level of co-financing provided through the EU's funding instruments (under the integrated approach) has been insufficient. Consequently, levels of funding have limited the effectiveness and efficiency of nature authorities (e.g. in decision-making) and implementation of the Directives, particularly the establishment of CAP funded compensation / incentives for conservation measures within Natura 2000 sites (see section 5.3 for more detail). Currently available evidence suggests that the availability of funding for agri-environment schemes is lower for the 2014-2020 period in some Member States.

Research objectives

Under Article 10 of the Birds Directive Member States are required to encourage research and other activities that can inform protection, management and use of birds, particularly regarding the following topics (listed in Annex V):

- National lists of species in danger of extinction or particularly endangered species, taking into account their geographical distribution.
- Listing and ecological description of areas particularly important to migratory species on their migratory routes and as wintering and nesting grounds.
- Listing of data on the population levels of migratory species as shown by ringing.
- Assessing the influence of methods of taking wild birds on population levels.
- Developing or refining ecological methods for preventing the type of damage caused by birds.
- Determining the role of certain species as indicators of pollution.
- Studying the adverse effect of chemical pollution on population levels of bird species.

Similarly, Article 18 of the Habitats Directive requires Member States to encourage research and scientific work to support the objectives of the Directives. No detailed list of topics is provided, but the Directive states that particular attention should be paid to scientific work necessary for the implementation of Articles 4 and 10 and trans-boundary cooperative research between Member States.

It is clear from the evidence gathering questionnaire responses that the Directives stimulated a huge increase in research of relevance to the implementation of Directives. This is evident from the online bibliographic search carried out for this study, which found over 600 publications that include the term Natura 2000 in the title.

The evidence supplied by the respondents does not enable an assessment to be made of the degree to which the research has addressed the topics highlighted in the Directives. However, many respondents noted that a great deal of research was required to identify SPAs and SACs. A notable example of this has been the development of the Important Birds Area inventories by BirdLife International. This is supported by a study by Popescu (2014), who conducted a systematic review of 572 scientific articles and conference proceedings focused on Natura 2000 research, published between 1996 and 2014. Popescu found that most of the studies (79%) were on ecological research, with a strong focus on spatial conservation planning. Studies addressing 'social and policy' issues were under-represented, and typically focused on environmental impact assessment, multi-level governance, agri-environment policy, and ecosystem services valuation.

Monitoring and reporting objectives

As described in Section 2.3.1 the Habitats Directive has specific surveillance, monitoring and reporting requirements, that require Member States to assess the conservation status of habitats and species of Community importance. These requirements have been further elaborated through the development of ETC-BD guidance and reporting forms, which now use a common terminology for assessing the status of habitats and species, as well as reporting on the pressures and threats that are affecting them, and measures that are being taken to address them (e.g. their development of management plans). The Birds Directive's monitoring and reporting requirements are not as detailed or focused on the achievement of objectives. However, Member States agreed to align them with those of the Habitats Directive.

These monitoring and reporting requirements are increasingly implemented in Member States according to the agreed procedures. As a result the most recent report for 2007-2012 provides a relatively comprehensive and reliable assessment of the status of most EU protected habitats and species for all EU countries other than Greece⁹³ (EEA, 2015a). However, knowledge gaps, institutional capacity constraints and methodological issues remain (see section 6.8 for further discussion). As a result of these and other factors, the status of 16% of birds, 7% of habitats and 17% of non-bird species are unknown.

The overall impacts of the implementation of the Directives' measures in relation to the aims of the Directives

EU assessments and scientific studies

A fundamental consideration of this evaluation is the amount of progress that is being made towards the achievement of the overall aims of the Directives, which results from the combined impacts of the actions being taken to achieve their more specific objectives (as described above) and other influences (as set out in the intervention logic framework in Section 2.3). Progress can be primarily measured by reference to the results of the most recent reports by Member States under Article 17 of the Habitats Directive and Article 12 of the Birds Directive, as set out in the 2015 State of Nature Report (EEA, 2015a). Some of the key results are summarised here in the State of Play (chapter 4) and in relation to question S.2 on Target 1 of the Biodiversity Strategy. Some key conclusions are:

- 15% of all assessed bird taxa are near-threatened, and 17% are threatened.
- 47% of Habitats Directive Annex 1 habitats have an unfavourable–inadequate status and 30% have an unfavourable–bad status.
- 42% of Habitats Directive Annex 2 species have an unfavourable–inadequate status and 18% have an unfavourable–bad status.

These results indicate that full achievement of the objectives of the Directives remains a considerable distance away.

At first sight, some comparisons between the status of habitats and species of Community interest in the 2001 – 2006 period with the recent reporting for 2007-2012 suggest that the situation is improving. All but four Member States report some unfavourable habitat assessments that are improving, and all but one Member State report improvements in the status of non-bird species. However, these results should not be taken at face value since comparisons of the status of species and habitats are complex. Although the level of knowledge has improved greatly since the previous reporting, there are still many gaps in knowledge and the status of many species remains uncertain (see section

⁹³ Which provided its 2007-2012 report in 2015.

6.8). Thus, the EEA concludes in the 2015 State of Nature Report that most of the recent favourable assessments were also favourable in the previous reporting period, and most of the improvements in the conservation status assessments were largely attributable to improved data and changes in methodology. More habitats and species are declining than improving.

These results are not surprising, as the majority of actions taken to implement the Directives have focused on the identification and establishment of the Natura 2000 network. The more practical management measures that will actually improve habitat conditions and meet the ecological requirements of species are yet to be fully put in place in many Natura 2000 sites, as well as in the wider environment. In addition, species and habitats often take a long time to respond to conservation measures, as indicated by a study of the response of birds to the implementation of the Birds Directive (see Donald et al, 2007, below). As noted in the 2015 State of Nature Report, conservation status assessments are based on a number of criteria in addition to current trends, such as historic range and population size and consideration of future prospects. With such complex multifaceted criteria, conservation status is likely to be an insensitive indicator of underlying change and progress towards achievement of the Habitat Directive's objectives.

It is essential to consider the status of species and habitats in relation to the counterfactual situation, as many species and habitats were in significant decline prior to the entry into force of the Directives. There is also strong evidence of continuing pressures on EU protected species and habitats (see section 7.1). Therefore, as noted by many stakeholder questionnaire respondents, it is likely that status of European protected habitats and species would be much worse in the absence of the Directives.

While it is extremely difficult to assess the additional impact of the Directives on mitigating ongoing threats, a number of studies have provided some evidence of added impacts. Most notably, a study by Donald et al (2007) compared bird trend data over two time-periods (1970-1990 and 1990-2000) from the EU-15 and elsewhere across Europe, to test five hypotheses based on their predicated impacts of the Birds Directive. The study had the properties of a highly replicated before-after-control impact (BACI) approach and was therefore able to provide robust statistically significant evidence of the following impacts:

- The population trajectories of Annex 1 species in the EU-15 improved after the implementation of the Directives in comparison to non-Annex 1 species, but not elsewhere in Europe.
- Improvements occurred in population trajectories of Annex 1 species relative to non-Annex 1 species in the EU-15 that were significantly greater than those elsewhere in Europe.
- Annex 1 species in the EU-15 were significantly more likely to have a more positive trend than the same group of species elsewhere in Europe, but there was no similar statistical difference for non-Annex 1 species.
- The positive impacts of Annex 1 listing were most apparent for the species that had been on Annex 1 for the longest.
- There was a positive correlation across the EU-15 between the population trend of species and the proportion of land designated as SPAs. Importantly, this pattern is apparent for both Annex 1 and non-Annex 1 species, although the impact was significantly stronger for Annex 1 species. For every 1% increase in the proportional area of SPA designated, the odds of a species being in a more positive population trend class increased by around 4% across all species and for non-Annex 1 species and by around 7% for Annex 1 species.

In other words, this study provided strong evidence of the added value of the implementation of the Birds Directive (by comparing the situation before and outside the EU), the

added value of conservation measures being taken in response to being listed on Annex 1, and the increased impacts from the time during which conservation measures are taken and the increased impacts of high levels of SPA designation for Annex 1 and non-Annex 1 species. Donald et al conclude that 'the data are therefore consistent with the hypothesis that the Birds Directive has brought demonstrable benefits to bird populations in the EU'.

The Donald et al study was repeated in 2015 using a more up-to-date data set comprising both long-term (1980–2012) and short-term (2001–2012) trends in the populations of all breeding bird species occurring naturally in the EU (Sanderson et al, 2015). The study found that in both periods Annex 1 species had more positive trends than non-Annex 1 species, which was most apparent in countries that had been in the EU for the longest period of time. The positive impacts of the Birds Directive on Annex 1 species noted in the previous study appear to be consistent over time and across the expanded EU.

The study also examined the effects of climate change and other species traits on population trends, revealing no difference in trends between Annex 1 and non-Annex 1 species that are long-distance migrants. This suggests that the conservation benefits of the Birds Directive on such species were insufficient to compensate for pressures associated with their migration, such as changes in their African wintering grounds (Sanderson et al, 2006). The impacts of climate change on species' trends was also detected. However, the moderate changes in climate to date do not appear to have had sufficiently strong impacts to negate the benefits of the Birds Directive. The authors conclude that 'the long- and short-term trends of birds in an expanded EU show strong evidence of an effect of the EU Birds Directive that is additional to, and often greater than, that of other known drivers of population change, such as climate change, life history strategy and migration strategy.'

Data on the trends of other species in the EU are currently insufficient to enable as detailed an analysis as that carried out for birds, such as comparisons with countries outside the EU. However, the 2015 State of Nature Report compared the status and trends of Annex I habitats and Annex II species with their coverage in Natura 2000 sites. This found no statistically significant correlation between the proportion of habitat within Natura 2000 sites and their overall conservation status. Similarly, there was no correlation between the proportion of a species population within Natura 2000 sites and their overall conservation status. However, there was a statistically positive correlation between the level of coverage in Natura 2000 sites and the conservation status trend amongst species and habitats that had an unfavourable status. In other words, fewer habitats and species declines occur when they have higher levels of Natura 2000 coverage.

Another indication that the Directives are having added impacts is a comparison in the 2015 State of Nature Report of trends in bird species that have Species Action Plans (SAPs), and which therefore benefit from increased LIFE funding and other targeted measures, and those that do not. This shows that 50% of Annex 1 breeding birds with SAPs have long-term increasing trends, compared to 36% of Annex 1 breeding birds without SAPs.

In conclusion, objective scientific evidence, particularly from birds, suggests that the Directives have a beneficial impact (especially where they have had the most time to take effect), and that the conservation status and trends of Annex I birds and species and habitats of Community interest would be worse in the absence of the Directives. However, it is not currently possible to quantify the added impact of the Directives.

Responses to the evidence gathering questionnaire

Although the assessment of this question primarily requires scientific evidence, the majority of respondents to the stakeholder questionnaire also considered both Directives to

be progressing towards achieving their objectives (Table 4). Most respondents referred to their national monitoring reports or to the 2015 State of Nature Report as supporting evidence. Both nature conservation authorities and NGOs had similar responses, although NGOs had a slightly more negative view, with more responses judged to fall into the 'little progress category'.

Table 4 The percentage of evidence gathering questionnaire responses allocated to each category of progress relating to progress towards the achievement of the overall objectives of the Directives

	Birds Directive				Habitats Directive			
	Nature Protection Authority	Other public authority	NGO	Private Enterprise/Industry	Nature Protection Authority	Other public authority	NGO	Private Enterprise/Industry
Number with a clear answer to the question	5	0	6	0	4	0	6	0
No significant progress	0%		0%		0%		0%	
Little progress	0%		50%		25%		40%	
Substantial progress	20%		33%		25%		10%	
Objective achieved or largely achieved	0%		0%		0%		0%	
Some progress but amount uncertain	80%		17%		50%		10%	

Results from the online public consultation

The online public consultation questionnaire did not include a question directly asking the level of progress that had been achieved on the overall aims of the Directives. However, two questions related to the overall effectiveness of the Directives, which can be considered to provide some relevant insights on this issue. Firstly Question 6 (in Part 1) asked whether the Directives have been effective in protecting nature (Table 5).

Table 5 Online public consultation questionnaire responses by stakeholder on whether the Directives been effective in protecting nature

	Not effective	Somewhat effective	Effective	Very effective	Don't know
Individual	<0.5%	5%	1%	93%	<0.5%
Business	13%	68%	10%	6%	2%

	Not effective	Somewhat effective	Effective	Very effective	Don't know
NGO	9%	31%	18%	41%	1%
Organisation or association (other than NGO)	10%	44%	32%	12%	2%
Government or public authority	3%	47%	33%	15%	1%
Academic/research institute	6%	25%	34%	34%	1%
Other	10%	55%	17%	15%	<0.5%
All respondents	1%	6%	1%	92%	
Total	3,136	31,612	5,706	510,924	1,094

The combined responses indicate that 92% felt that the Directives have been very effective. However, as discussed in section 4.2.2.4 this result is highly influenced by campaigns. The answers to Part 1 questions particularly reflect the responses of individuals to the Nature Alert! campaign, which is estimated to have contributed over 90% of the answers. It is also clear that the answers varied considerably amongst the respondent groups, with 93% of individuals considering the Directives to have been very effective. The majority of NGO responses (43%) also considered them to have been very effective, while 31% thought that they were only somewhat effective and 18% considered them to be effective. The majority of responses from businesses (68%), government or public authorities (47%), organisations or associations other than NGOs (44%) and others (55%) also considered the Directives to have been somewhat effective. There were broadly spread results from academic and research institute respondents.

Question 17 in Part 2 also asked a similar question, but as shown in Table 6, rather contrasting answers were supplied to those under Question 6. This probably reflects the influence of the Aktionsbündnis Forum Natur AFN campaign (which represents agriculture, forestry, hunting and fishing interests) as it is estimated to have contributed about 38% of the answers to Part 2 questions. The Nature Alert! campaign did not provide suggested answers for Part 2. Most individuals thought that the Directives were somewhat effective, so had a lower perception of effectiveness compared to the answers from individuals in Question 6. By contrast, all other stakeholder groups provided responses that indicated a higher level of effectiveness than provided in Question 6. The reasons for these discrepancies are uncertain but it is likely to be related to differences in the profiles of the groups answering the different parts of the questionnaire. It is therefore very difficult to draw conclusions from these results.

Table 6 Online public consultation questionnaire responses by stakeholder on effectiveness of the Directives to-date

AVERAGE (Birds and Habitats Directive)	Not at all effective	Not very effective	Somewhat effective	Very effective	Dont know
Individual	7%	10%	59%	23%	1%
Business	3%	8%	79%	9%	1%
NGO	4%	10%	33%	52%	1%
Government or public authority	2%	10%	56%	30%	2%
Academic/research institute	4%	6%	37%	53%	0%
Organisation or association (other than NGO)	6%	21%	50%	21%	2%
Other	3%	11%	65%	19%	2%
All respondents	6%	10%	59%	23%	1%
Total	1,033	1,728	9,981	3,885	189

5.1.3.2 Is progress in line with initial expectations?

Although it is possible to assess trends in habitats and species, and to a lesser extent the impact of the Directives, assessment of whether or not progress with the Directives is in line with expectations is particularly difficult because neither Directives set timetables for the achievement of their aims and most objectives. The only time-limits set within the Directives relate to the identification of SCIs and their designation as SACs. According to Article 4(3) of the Habitats Directive, lists of SCIs should be established within six years of the notification of the Directive. Member States are then obliged to designate SACs within six years of their adoption by the Commission as SCIs. This study found little indication that the Commission or Member States developed timetables for most objectives. The assessment of whether progress towards objectives meets expectations is, therefore, mainly based on the subjective views of this study's consultees.

Many Member States were slow to transpose the legislation, and this led to numerous infringement proceedings, as described in section 3.3.2. There is also evidence that there was a lack of political will and ambition in the early stages of implementation of the Directives (see section 5.3). This resulted in further infringements for inadequate designation of SPAs and proposals for SCIs.

The Commission does not appear to have publicly available data on whether or not each SCI has been designated as an SAC within the six-year time limit. However, the 2015 State of Nature Report (EEA, 2015a) provides an analysis of the proportion of SCIs that have been designated as SACs, which shows that designation of SACs has been slow in a number of countries. The report points out that the initial lists of SCIs were published early in the 2000s, so it should be expected that most would now be designated as SACs, in particular for the EU-15. However, 14 Member States have less than 50% of their SCIs designated as SACs. Seven have no designated SACs: Finland, Ireland and Italy from the 'older Member States', and Malta, Poland and Romania from the newer Member States.

There is a general consensus amongst the respondents to the evidence gathering questionnaire that the implementation of most measures has been slow, and many refer to the slow rates of transposition, SPOA and SCI identification and SAC designation. However, some consider that the delays and slow progress were inevitable, given the ambitions and complexity of what was intended, and therefore their expectations have been met. Others felt that faster progress could have been made if Member States had the political will to do so, and had provided more resources.

5.1.3.3 When will the main objectives be fully attained?

Evaluation of when the main objectives will be fully attained

This question attempts to establish the likely year or range of years during which the main objectives will be met, including the overall aims of the Directives, and the key strategic objectives (i.e. including the establishment of the Natura 2000 network, and designation of SCIs and SACs and the adequate protection of species wherever they occur).

It is very difficult to reliably predict when the main objectives of the Directives will be achieved, as no Member States have a comprehensive strategy and timetabled plan of action to achieve these. Very few respondents provided any clear indication of when they

considered that the main objectives of the Directives would be achieved. Some respondents referred to decades, but these appeared to be educated estimates rather than calculations based on an analysis of required actions and trends.

It is therefore not possible to currently reliably predict from the available information the likely date by which the main objectives of the Directives will be met, although progress is being made. This is because, as noted by many questionnaire respondents, there are a large number of factors constraining the implementation of measures and the overall maintenance and restoration of the FCS of many EU habitats and species. Some of these factors relate to current implementation barriers, such as funding and the need for other EU policies to be more aligned with EU biodiversity policies (see question S.3 and elsewhere in this report), which could be relatively easily addressed, and feasibly within the next decade. However, ecological systems and many species populations take time to respond to conservation measures and therefore it is likely to take several decades for the main objectives to be achieved for most habitats and species. Wider ongoing threats, such as nitrogen deposition and agricultural intensification and, in particular, climate change (see below) are much more difficult to tackle and reverse. As a result, the conservation objectives for some habitats and species may not be fully achieved in the foreseeable future.

5.1.4 Key findings

- Substantial progress has been made by all Member States on:
- Identification and designation of SPAs and SCIs/SACs, i.e. the creation of the Natura 2000 network, which is nearly complete in the terrestrial environment (and has greatly increased the extent of protected areas in many Member States), with an impetus to complete the marine network.
- Legal protection of Natura 2000 sites (Article 6(3) and 6(4) of the Habitats Directive).
- Protection and sustainable use of species, including regulating and enforcing hunting.
- Research (e.g. to identify appropriate sites for Natura designation) and surveillance / monitoring, although significant knowledge gaps remain (see question Y.8).
- Progress has been less significant in the areas of:
- Development of conservation measures for Natura 2000 sites (e.g. through management plans and practical land management agreements with owners).
- Establishment of adequate financing mechanisms, both at an EU level and within Member States (see section 6.2 and 8.6).
- Management of landscape features that improve the ecological coherence of the Natura 2000 network.
- The Directives have also encouraged actions on non-native species, reintroduction programmes and education and awareness activities, however there is insufficient information for a definitive assessment of progress.
- The impacts of the measures taken to-date are not yet sufficient to meet the overall aims of the Directives. In particular, the 2015 State of Nature report indicates that, in the EU, while 52% of bird species have a secure population, 17% are threatened, with a further 15% near threatened, declining or depleted. Of EU Annex I habitats, 16% have an FCS, with most others being classified as having an unfavourable-inadequate status (47%) or unfavourable-bad status (30%). Of the species listed in Annex II of the Habitats Directive, 23% have a favourable conservation status, with most species having an unfavourable-inadequate status (42%) or unfavourable-bad status (18%).

- The limited progress towards improving the status of most European protected species and habitats needs to be considered in the context of the strong evidence of ongoing decline before the Directives came into force, the current stage of implementation and the time needed for ecosystems and species populations to respond to conservation measures. Recent assessments suggest that many declines have been arrested, and many stakeholders consider that more widespread improvements in conservation status will occur when the Directives' measures are fully implemented.
- There is strong scientific evidence that the Directives have a beneficial impact over time on birds in Member States with high proportions of SPA, and for species with species action plans. Habitats and species with an unfavourable conservation status are also more likely to show positive trends where a high proportion of their area or population occurs within Natura 2000 sites. The status and trends of Annex I birds and species and habitats of Community interest would therefore be worse in the absence of the Directives.
- Common bird species that have a large proportion of their populations within SPAs are more likely to have more favourable population trends. By contrast, a high proportion of species that are widely dispersed, particularly in agricultural habitats, are declining.
- Most consultees consider progress to have been slower than expected, mainly due to delays and problems with transposition and resulting legal challenges, slow identification and designation of sites (especially in the marine environment), funding constraints and slow development of management plans (see section 5.3 for further discussion).
- It is not possible to predict the likely date by which the main objectives of the Directives be met. A large number of factors constrain full implementation (e.g. funding) and threats such as nitrogen deposition and climate change (see section 7.1) are difficult to tackle and reverse.

5.2 S.2 - What is the contribution of the Directives towards ensuring biodiversity? In particular to what extent are they contributing to achieving the EU Biodiversity Strategy Objectives and Targets?

5.2.1 Interpretation and approach

The EU currently has the following headline biodiversity target (endorsed by the European Council on 26 March 2010⁹⁴), 'Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.'

The 2020 target is supported by the EU Biodiversity Strategy⁹⁵, which includes the six main sub-targets and 20 supporting actions (set out in Figure 17). The objectives of the Nature Directives ensure that they contribute to these EU biodiversity policies and targets to some extent, but mismatches may occur, given that both Directives predate the EU's latest biodiversity policy priorities by many years.

The evaluation of this question focused on two key issues. Firstly, the contribution the Directives make to the conservation of biodiversity as a whole, taking into account the following key factors:

- The proportion of biodiversity that is directly targeted by the Directives (i.e. European protected habitats and species).
- The proportion of other biodiversity that indirectly benefits from the measures for target species.

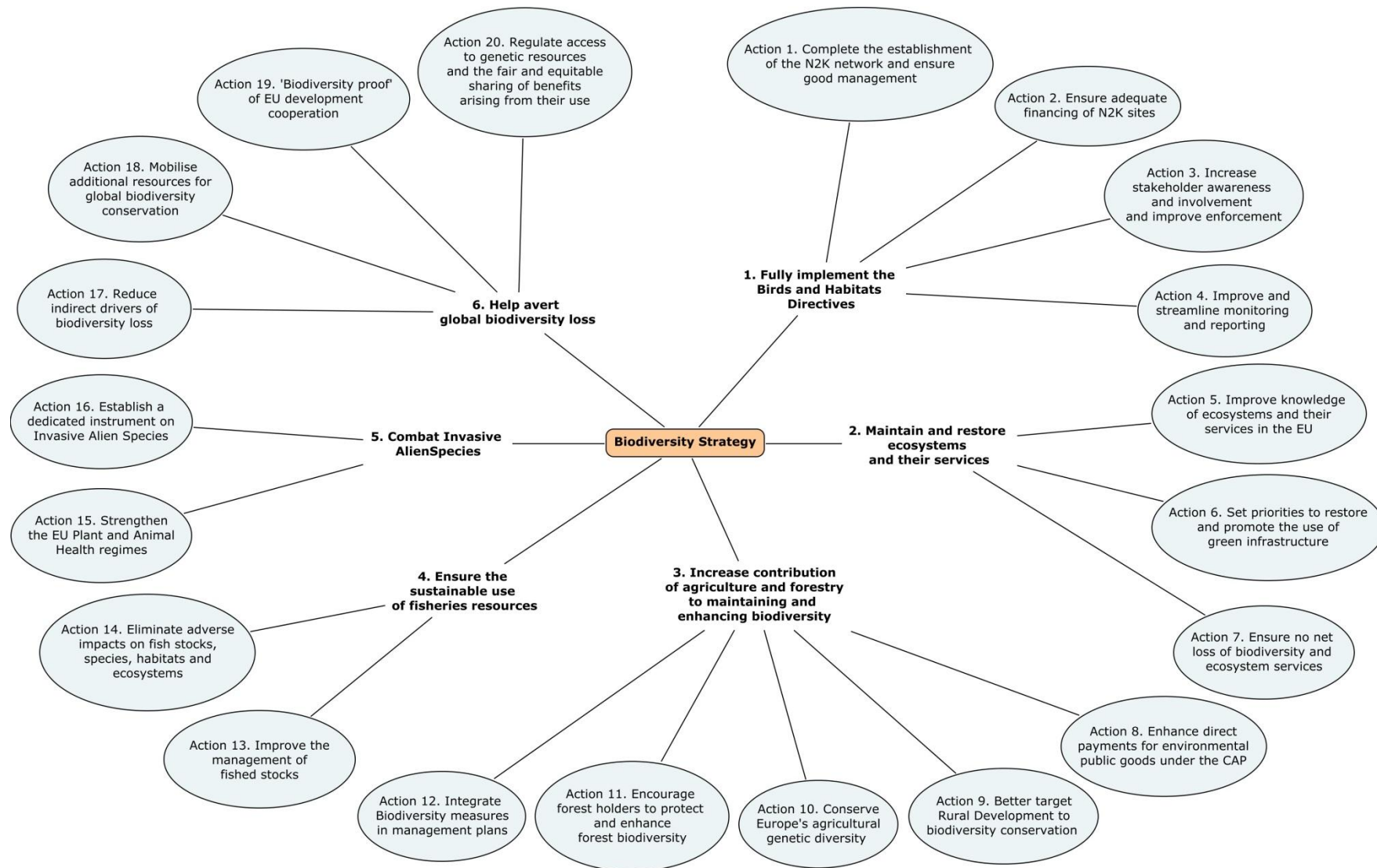
Secondly, the evaluation considered the extent to which the Directives contribute to the achievement of the specific targets and related actions in the EU Biodiversity Strategy to 2020. Notwithstanding their steps to avert losses in the EU (which benefit some species that move beyond the EU), the Directives are of limited relevance to Target 6 and its specific supporting actions, which primarily relate to the EU's influence outside the EU. Furthermore, the Nature Directives' coherence with international and global commitments on nature and biodiversity are discussed under question C10. Therefore, Biodiversity Strategy Target 6 is not considered here.

The other contributions that the Directives make to the overall objectives of the Biodiversity Strategy, beyond those included under Targets 1-6, are discussed under question C.9 (see section 0).

⁹⁴ European Council Conclusions of 26 March 2010, http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/ec/113591.pdf

⁹⁵ COM(2011)244 Final *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*.

Figure 17 EU Biodiversity Strategy to 2020 targets and actions



5.2.2 Main sources of evidence

The main sources of evidence used were:

- Scientific studies of the degree to which the Directives cover biodiversity at EU level, and more local scales, through assessments of the species listed in the Annexes, as well as those which have examined the adequacy of the Natura 2000 network for threatened species.
- IUCN assessments of the status of species in the EU.
- Preliminary results from an ongoing Commission funded study on the wider biodiversity benefits of Natura 2000.
- The 2015 State of Nature Report (EEA, 2015a).
- The recently published Mid-term Review of the EU Biodiversity Strategy.
- Responses to the evidence gathering questionnaire, such as national examples of contributions to the targets, as well as highlighted gaps.
- Responses to the online public consultation, particularly Questions 16, 25 and 27.

5.2.3 Analysis of the question according to available evidence

5.2.3.1 Evaluation of evidence – the contribution the Directives make to the conservation of biodiversity as a whole

EU and national studies

Coverage of threatened species in the Annexes

The extent to which the Annexes of the Nature Directives cover currently threatened species in the EU has been partially assessed by comparing IUCN assessments of the threat status of species groups with the threat status of those species groups listed in the Annexes (i.e. all species on Habitats Directive Annex II, IV or V and Birds Directive Annex I). The results of the analysis are summarised in (Table 7).

As the Birds Directive provides protection for all native **bird taxa** in the EU, all 72 threatened species can be regarded as being protected to a certain extent, with 92% (67) of threatened species being trigger species for SPA designation. The Habitats Directive covers the majority of threatened vertebrate species, with just four threatened **mammals**, four threatened **reptiles** and four threatened **amphibian** species not listed in the Annexes. Most of these non-Annex species are either subject to ongoing taxonomic research on their status as species, or were only recently recognised as separate species. The knowledge and taxonomy of **freshwater fish** has developed substantially since the Annexes were first drafted, including the description of many new species. Despite this, of a total of 150 known threatened freshwater fish species, 97 are covered by the Annexes.

The Habitats Directive Annexes have a low coverage of threatened **invertebrates**, which is unsurprising, given that there are at least 100,000 described species in Europe of which an unknown number are threatened. The Annexes cover 11 of 24 threatened but-

terfly species, 3 of 19 threatened dragonfly taxa, 6 of 51 threatened saproxylic beetle species, 7 of 264 threatened freshwater mollusc species, and 15 of 222 threatened terrestrial mollusc species.

The **arthropod taxonomic coverage** in the Annexes is partial, omitting entire species-rich groups, such as bees, wasps and ants (Hymenoptera) and flies (Diptera), and with only one species listed for spiders (Araneae) and sucking bugs (Hemiptera and Heteroptera) (Cardoso, 2012). Bees (Apidae, Andrenidae, Colletidae, Halictidae, Megachilidae, Melittidae) are the only arthropod group not covered by the Annexes that has been assessed for EU threat status, which found 9.2% of species threatened at the EU-27 level, while the status of 55.6% remains unknown (Nieto et al, 2014). The arthropod species lists in the Annexes have been assessed as biased towards Central and Northern European species, while European invertebrate diversity is richest in Southern Europe and the Mediterranean, particularly with respect to endemic species (Cardoso, 2012). The Annexes, for example, do not list any arthropods from the Macaronesian Islands which are particularly rich in endemic species

The Habitats Directive protects 314 threatened **vascular plant** taxa, 289 of which require Natura 2000 site designation, while the threat status of another 149 taxa in the Annexes remains unknown. It is not possible to assess the overall coverage of threatened vascular plants in the EU, as the overall number of plant taxa in the EU remains unknown but includes at least 12,000 species, of which only a fraction has been assessed. A draft list of threatened plant species in Europe lists around 9,600 species⁹⁶. The Directive covers a relatively small number of **non-vascular plants** (mosses, liverworts, etc.) and omits fungi completely.

The analysis indicates that the Directives provide direct protection and other conservation measures for all birds and the large majority of vertebrate taxa that are threatened in the EU according to the latest IUCN assessment and criteria. These taxa comprise, in themselves, a significant proportion of all threatened taxa in the EU. In contrast, direct coverage of threatened plants and, in particular, invertebrates is low. Due to their diversity, these taxa comprise the majority of threatened species in the EU.

However, the IUCN red lists and the annexes of the Nature Directives have different purposes, with the latter tending to focus on species of regional or EU concern (see section 7.2 for further discussion). A large proportion of regionally red-listed species tend to be rare or highly localised, especially among plant and invertebrate taxa, making it, perhaps, more appropriate to address the conservation needs of such species through national actions, rather than through listing in EU-wide instruments such as the Nature Directives. Furthermore, as discussed in the next section, many plant and invertebrate species will in any case receive indirect protection through the conservation of Annex I habitats and the habitats of those species that are listed in the annexes of the Directives.

⁹⁶ <https://www.bgci.org/where-we-work/europe/>

Table 7 The number and proportion of threatened species directly protected by the Nature Directives

The number of species and sub-species in the Annexes is taken from the species checklists published by ETC-BD for Member State reporting on the 2007-2012 period under Article 17 or Article 12 (ETC/BD, 2014). The number of species that require Natura 2000 site designation are the species listed in Habitats Directive Annex II, or defined as 'SPA trigger species' on the Birds Directive checklist (i.e. Birds Directive Annex I listed species plus migratory species with significant populations in the EU).

The number of species classed as threatened by the IUCN is taken from the published red lists referenced in the table and updated according to the online IUCN database (IUCN, 2015). According to the IUCN criteria, threatened species are classified as critically endangered (CR), endangered (EN) or vulnerable (VU). Non-threatened species can be classified as near-threatened (NT), least concern (LC) or data deficient (DD). The IUCN has not assessed sub-species other than for certain vascular plants, so 57 of the taxa listed in the Nature Directives annexes in the relevant species groups were not assessed.

	No of known species in EU	No of IUCN assessed species in EU	No of EU threatened species	No of species in Annexes	No of species with EU threat status not in Annexes	No of species with EU threat status in Annexes	No of species with EU threat status requiring Natura site designation	No of species in Annexes with unknown threat status	Reference
Mammals	220 (EU 25) / 260 (Europe)	228 ⁹⁷	31	127 (plus 13 sub-species)	4 (13%)	27 (87%)	17 (55%)	1 ⁹⁸ (1%) (NB 20 n/a ⁹⁹)	(Temple and Terry, 2007)
Birds	451 (EU 27)	451	82 ¹⁰⁰	171 (plus 32 sub-species) (Annex I only) / 247 (plus 37 sub-species) ¹⁰¹ (Annexes I & II)	20 ¹⁰² (24%) (17 not trigger species)	40 (Annex I only) / 62 (Annexes I & II)	65 (79%)	0 (0%)	(Birdlife International, 2015b)
Reptiles (non-marine)	141 (EU 27)	141	19	90 ¹⁰³ (plus 5 sub-species)	4 ¹⁰⁴ (21%)	15 (79%)	11 (58%)	3 ¹⁰⁵ (3%)	(Cox and Temple,

⁹⁷ Excludes three species known to have become extinct between 1500 and 1950.

⁹⁸ Wild Goat *Capra aegagrus* has not been assessed by IUCN as its taxonomic status is disputed.

⁹⁹ 20 Annex species are assessed as not applicable by IUCN as they are of marginal occurrence in the EU, including 14 cetacean species & three seal species, *Rousettus aegyptiacus*, *Sciurus anomalus* and *Eptesicus bottae*.

¹⁰⁰ Excludes three extinct/regionally extinct species.

¹⁰¹ Excluding three species listed in Annex II but not native to the EU (*Branta canadensis*, *Meleagris gallopavo*, *Phasianus colchicus*).

¹⁰² Includes 19 species that are listed in Annex IIA or IIB but not on Annex I. Does not include three species that are extinct in the EU.

¹⁰³ *Chamaeleo chamaeleon* is not included as it is no longer considered to be native to the EU.

	No of known species in EU	No of IUCN assessed species in EU	No of EU threatened species	No of species in Annexes	No of species with EU threat status not in Annexes	No of species with EU threat status in Annexes	No of species with EU threat status requiring Natura site designation	No of species in Annexes with unknown threat status	Reference
Amphibians	84 (EU 27)	84	18	58 (plus 3 sub-species)	4 ¹⁰⁶ (22%)	12 (14 ¹⁰⁷) (88%)	7 (39%)	2 ¹⁰⁸ (3%)	(Temple and Cox, 2009)
Freshwater fish	381 (EU 27)	382	150	155 ¹⁰⁹ (plus 1 sub-species)	53 ¹¹⁰ (35%)	97 ¹¹¹ (65%)	47 (31%)	35 ¹¹² (23%)	(Freyhof and Brooks, 2011)
Butterflies	451 (EU 27)	421	30 ¹¹³	30 (plus 1 sub-species)	19 (63%)	11 (37%)	7 (23%)	1 ¹¹⁴ (3%)	(van Swaay et al, 2010)
Dragonflies	139 (with 4 subspecies) (EU 27)	134 (included subspecies)	22	17	19 (including sub-species) (86%)	3 (14%)	3 (14%)	0 (0%)	(Kalkman et al, 2010)

¹⁰⁴ This number differs from the published European Red List of Reptiles, because, since publication, the threatened reptile species *Dinarolacerta mosorensis* has been added to Annexes II and IV for Croatia.

¹⁰⁵ *Elaphe lineata* and *Emys trinacris* are classified as data deficient. *Mauremys caspica* has not been assessed by IUCN.

¹⁰⁶ The taxon status of *Rana pyrenaica* is recognised by the IUCN red list but not by the Habitats Directive checklist.

¹⁰⁷ *Bombina pachypus* has only recently been separated from *Bombina variegata* and is recognised as being covered by the Annexes, but is not yet listed as a separate taxon in the Habitats Directive checklist. *Calotriton arnoldi* is recognised as being covered by the Annexes as part of *Euproctus (Calotriton) asper*, but is not yet listed as a separate taxon in the Habitats Directive checklist.

¹⁰⁸ Two recently recognised / still disputed taxa recognised on the Habitats Directive checklist have not been assessed by the IUCN - *Triturus macedonicus* and *Mertensiella luschani*.

¹⁰⁹ The number of freshwater fish species covered by the Habitats Directive annexes is subject to rapid change because the Directive covers a number of species groups subject to extensive taxonomic changes (eg *Coregonus*, *Alosa*, *Aphanius*, *Barbus*, *Cobitis taenia* hybrid complex, *Eudontomyzon*, *Gobio*, *Phoxinellus*, *Rutilus*, *Sabanejewia*). Six species of *Coregonus* are recognised as extinct in the EU.

¹¹⁰ Does not include 10 freshwater fish species recognised as extinct in the EU.

¹¹¹ Includes six species of *Coregonus* which are considered to be extinct in the EU.

¹¹² 10 species were assessed as data deficient, nine species were not assessed because they occur outside the EU, 10 species were not assessed because of taxonomic uncertainties or because they have only recently been described as separate species, six species were not assessed because they have only recently been added to the Habitats Directive checklist for Croatia.

¹¹³ Does not include two butterfly species regionally extinct in the EU before accession of Romania to the EU (*Aricia hyacinthus* and *Tomares nogelii*)

¹¹⁴ *Polyommatus eroides* is no longer recognised by IUCN as a separate species but as a population of *Polyommatus eros*, which is not listed in the Directives.

	No of known species in EU	No of IUCN assessed species in EU	No of EU threatened species	No of species in Annexes	No of species with EU threat status not in Annexes	No of species with EU threat status in Annexes	No of species with EU threat status requiring Natura site designation	No of species in Annexes with unknown threat status	Reference
Saproxylic beetles	unknown (perhaps 20-30 000 beetles in Europe)	407	56	19	51 (91%)	6 (11%)	6 (11%)	4 (21%)	(Nieto and Alexander, 2010)
Freshwater molluscs	670 (EU 27)	670	271	13	264 (97%)	7 ¹¹⁵ (3%)	4 (1%)	1 ¹¹⁶ (4%)	(Cuttelod et al, 2011)
Terrestrial molluscs	c 2700 (EU 27)	1138	236 ¹¹⁷	27 (plus 2 sub-species)	221 (94%)	15 ¹¹⁸ (6%)	9 (4%)	3 (11%)	(Cuttelod et al, 2011)
Vascular plants	at least 12 000 (EU 27)	1826	not evaluated	640 (including 56 sub-species and 2 species groups)	Not evaluated	314 ¹¹⁹	289	149 ¹²⁰ (23%)	(Bilz et al, 2011)

¹¹⁵ *Unio tumidiformi* classed as vulnerable by the IUCN red list but is still considered to be part of *Unio crassus* under the Habitats Directive.

¹¹⁶ *Margaritifera durrovensis* has only recently been recognised as a separate species in the Habitats Directive checklist and has not been assessed separately by IUCN.

¹¹⁷ Excludes one species *Pseudocampylaea lowei* that was extinct before the accession of Portugal to the EU.

¹¹⁸ Includes one species recognised as extinct (*Leiostryla lamellosa*).

¹¹⁹ Including *Euphrasia mendoncae* classed by IUCN as extinct (although the taxon is disputed and recently it is regarded as a synonym of *Euphrasia minima*); and *Mandragora officinarum* classed as regionally extinct in the EU-27, although it is still present and endangered in Croatia and Bosnia-Herzegovina.

¹²⁰ 93 taxa are data deficient and 56 taxa have not been evaluated.

Coverage of non-protected species by the Natura 2000 network (the 'umbrella' effect)

Most Natura 2000 sites comprise natural or semi-natural habitats that are typically species-rich and support specialised and rare species. Therefore, the Natura 2000 network is expected to provide protection for a large proportion of the EU's biodiversity beyond the species, taxa and habitats listed in the Annexes. This 'umbrella' effect has been critically tested in relation to coverage of threatened species in some taxa and all species in some groups. The detailed results of these studies are provided in [Annex xx](#), and the conclusions that can be drawn from them are described below.

Coverage of threatened species in the Natura 2000 network

Several studies have used gap analysis to assess whether or not the Natura 2000 network adequately covers species that are considered to be threatened in the EU (i.e. those listed in IUCN assessments). This is a procedure for assessing the effectiveness of the protected area networks at ensuring that a viable collection and coverage of species and habitats is protected from disturbances (McKenna et al, 2014). Most gap analysis has assessed the representation (range and distribution) of species and habitats within the Natura 2000 network, as the lack of population data for most species precludes any analysis of impacts on persistence (abundance over time). Gap analysis has also been used to assess the coverage of the network for some species under different climate change scenarios (see question R.1 for further discussion).

Gap analyses that disregard the differences between species spatial structuring may lead to inequitable assessments of protected area coverage (Santini et al, 2014). The ability of different species to persist in protected area systems mostly depends on their population density and dispersal abilities, as well as the interaction between these two features, which eventually determines the number and relative size of the populations (Santini et al, 2014). Species with different spatial structures will, therefore, require the protection of different numbers of individuals in populations, with different probabilities of persistence across species, in order to achieve the same target.

Bearing these analytical constraints in mind, the results suggest that the Natura 2000 network provides significant coverage for more threatened species than those listed in the annexes of the Directives, particularly in the case of birds, mammals, reptiles and amphibians (Maiorano et al, 2015; Trochet and Schmeller, 2013).

The coverage of threatened plants is more variable, from good in the UK (Jackson et al, 2009), Apulia, Italy (Perrino et al, 2013; Perrino et al, 2014; Perrino and Wagensommer, 2012; Perrino and Wagensommer, 2013a; Perrino and Wagensommer, 2013b; Wagensommer et al, 2013), and Andalucía, Spain (Mendoza-Fernández et al, 2010), to moderate in Ireland (Walsh et al, 2015). Plant micro-reserves (small areas of 5-20 ha) within Natura 2000 sites are effective for conserving populations of rare and threatened plant species in Spain (Valencia and Minorca), Slovenia (Karst Edge), Greece (Crete), and Cyprus (Kadis et al, 2013).

Even though no lichens are included in Annex II of the Habitats Directive, threatened lichens typical of old growth forest in moist climates are well represented in the Spanish Natura 2000 region (Martínez et al, 2006), although four out of 18 lichens typical of dry habitats in a Mediterranean climate are poorly represented (Rubio-Salcedo et al, 2013).

The coverage of threatened invertebrate species is uncertain, as only two gap analysis studies have been carried out. These found that there is almost complete coverage of threatened butterfly species in Slovenia (Verovnik et al, 2011a). In contrast, endangered arthropods and molluscs are poorly covered by Natura 2000 in Spain (Hernández-Manrique et al, 2012).

Coverage of all species by the Natura 2000 network

Studies of some taxa have revealed that the extent to which Natura 2000 covers all species varies between species groups (see Annex 2.1 for details). The coverage of common birds is generally good (Pellissier et al, 2013; Pellissier et al, 2014), although there is evidence that this is not the case for farmland birds in Italy (Campedelli et al, 2010). An ongoing study¹²¹ suggests that the Natura 2000 coverage of mammals, reptiles and amphibians is moderate. A study of amphibians and reptiles reported mixed coverage; well-covered species were mostly widespread taxa, while narrow-range species were under-represented (Abellán and Sánchez-Fernández, 2015).

Studies of the coverage of invertebrate species in Natura 2000 sites are very limited, but there is evidence of good umbrella effect for butterflies¹²² across the network, and there is a high degree of concordance between distributional hotspots of 120 endemic **water beetles** and Natura 2000 sites in the Iberian Peninsula and the Balearic Islands, (Sánchez-Fernández et al, 2008). However, there was little coverage of **saproxylic beetles** in Italy (D'Amen et al, 2013).

A cross-taxa study (Ejrnaes et al, 2014) was carried out of the degree to which the terrestrial Natura 2000 network in Denmark provides protection for all threatened species (i.e. red listed) and biodiversity in general (based on a map of biodiversity hotspots). This found that the network covered the most internationally important sites, as well as providing protection for two-thirds of Denmark's threatened species. Coverage of threatened species was highest for those of salt meadows, mires, heaths, meadows and lakes (>80% of habitat area for threatened species) and lowest for those of streams (32%) and forests (39%). In addition, most of the overall biodiversity hotspots were included in the network, even though it only covers 8.4% of Denmark's land area. This result is consistent with a previous similar study (Lund, 2002), which found that the protection of species listed in Annexes II and IV of the Habitats Directive indirectly provides protection for many other species.

Results of the evidence gathering questionnaires

Table 14-3 summarises the responses by stakeholders to question S.2 on the Directives' contribution to the overall target of halting the loss of biodiversity. The majority of stakeholders, especially amongst the NGOs, consider that the Directives make a major contribution to the EU's biodiversity target. Many respondents state that this is due to their focus on habitats and species that are threatened and/or of particular EU level importance, and their comprehensive legal framework of conservation measures. Several also refer to the indirect protection of species in Natura 2000 sites (i.e. the umbrella effect) and key studies described above.

¹²¹ Stephan Hennekens et al, to be published.

¹²² Stephan Hennekens et al, to be published.

Table 8 Summary of evidence gathering questionnaire responses to the contribution that the Nature Directives are making to the EU's biodiversity target

Contribution of the Nature Directives to the EU's bio-diversity target	Nature Protection Authority	Other public authority	NGO	Private Enterprise /Industry
Number with a clear answer to the question	11	2	13	7
No contribution	0%	0%	0%	0%
A small contribution	0%	50%	0%	0%
A substantial contribution	36%	0%	23%	0%
The major contribution	36%	50%	54%	43%
A contribution but the magnitude is uncertain from the response	27%	0%	23%	57%

Note. As the questionnaire did not include specific multiple answers for the respondents to choose, the allocation of responses to the categories are based on judgement.

Results of the online public consultation

Question 20, in Part II of the online public consultation asked 'how significant are the benefits associated with the Directives?' and the relevant responses are summarised in Table 9. More than 90% of respondents believed that the Directives provided some benefit, ranging from minor- major, for the conservation of wild birds, species and habitats. Most believed these benefits to be minor (46-47%, with one-third (31-33%) believing them to be major. 14% allowed for moderate benefits. However, as discussed in the Methods chapter (section 4.2.2.4), care must be taken in the interpretation of the online public consultation results, as they were significantly influenced by campaign responses. For example, a large proportion of Question 20 responses were from a German campaign associated with hunting, forestry and agriculture stakeholders. This is a likely explanation for the bi-modal distribution of responses, however, it is not possible to verify this, as a break-down of responses according to field or interest / user type was not provided in the online public questionnaire report.

Table 9 Summary of online public consultation responses to Question 20 "How significant are the benefits associated with the Directives?"

Total responses = 16,815

	Insignificant benefits	Minor benefits	Moderate benefits	Major benefits	Don't know
Benefits to wild bird conservation	6%	46%	14%	33%	1%
Benefits to species conservation (other than birds)	7%	47%	14%	31%	1%
Benefits to habitat conservation	5%	46%	14%	33%	1%

5.2.3.2 Evaluation of evidence – the Directives’ contribution to the specific targets of the EU Biodiversity Strategy

The EU Biodiversity Strategy recognises that the core EU biodiversity law is not in itself sufficient to deliver EU biodiversity policy. This is largely because the Directives have relatively little influence over land and sea ‘use’ practices (e.g. farming, forestry and fishing), or developments outside the Natura 2000 network, and have limited dedicated funding (i.e. the LIFE Programme).

The achievement of the EU’s biodiversity target is, thus, highly dependent on additional support from other policies and legislation. The WFD, MSFD, and Emissions Ceilings Directive set other environmental objectives that contribute to those of the Biodiversity Strategy and the Nature Directives, particularly on the regulation of pollution. The CAP also includes regulations that seek to protect biodiversity, and is the largest provider of management funds (see question C.4/C.5 for discussion). Other EU funding instruments, including those related to Cohesion Policy and the European Maritime and Fisheries fund, also support biodiversity conservation to some extent (see section 6.2). All of these instruments, as well as the Nature Directives - and supporting Directives such as the Environmental Liability Directive - contribute to EU Biodiversity Strategy targets.

In assessing the effectiveness of the Directives it has been important to understand the role of other interacting legislation in the delivery of the Strategy and, therefore, the specific roles the Birds and Habitats Directives should have.

The contribution of the Directives towards Target 1: to improve the status of EU protected species and habitats ¹²³

This Target focuses on EU protected habitats and species, with the Directives being, therefore, the principle means by which the status of habitats and species will be improved. As the achievement of FCS, and its equivalent under the Birds Directive, are the overalls aims of the nature legislation, the progress towards these goals is discussed in the context of question S.1 (section 5.1).

The specific requirements under Target 1 are to achieve a significant and measurable improvement in the status of European protected habitats and species so that, ‘by 2020, compared to current assessments: (i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50% more species assessments under the Birds Directive show a secure or improved status.’ This Target is not included in the Directives, and progress towards it is briefly outlined below.

According to the Mid-term review of the Biodiversity Strategy to 2020, ‘much has been achieved in carrying out the actions under this Target’, as summarised in Table 10. These assessments are broadly consistent with the findings of this evaluation. The Member States’ conservation status assessments, as analysed and summarised in the 2015 State of Nature Report, indicate that the number of species and habitats in secure/favourable conservation status has increased slightly since the 2010 baseline. However, the status of many habitats and species remains unfavourable, and some are deteriorating further. Consequently, the Mid-term review concludes that ‘progress is being made towards the Target, but at an insufficient rate (increased efforts are needed to meet the target by this deadline)’. This is consistent with the findings discussed in question S.1 (see section 5.1).

¹²³ To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments: (i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50% more species assessments under the Birds Directive show a secure or improved status.

Table 10 Summary of progress on the Biodiversity Strategy to 2020 actions supporting Target 1

Source: European Commission Mid-term review of the Biodiversity Strategy to 2020

Biodiversity Strategy Action	Progress	Discussion in this report
Action 1a) Member States and the Commission will ensure that the phase to establish Natura 2000, including in the marine environment, is largely complete by 2012.	☐+	S.1
Action 1b) Member States and the Commission will further integrate species and habitats protection and management requirements into key land and water use policies, both within and beyond Natura 2000 areas.	☐-	C.3,4,5,7
Action 1c) Member States will ensure that management plans or equivalent instruments which set out conservation and restoration measures are developed and implemented in a timely manner for all Natura 2000 sites.	☐-	S.1
Action 1d) The Commission, together with Member States, will establish by 2012 a process to promote the sharing of experience, good practice and cross-border collaboration on the management of Natura 2000, within the biogeographical frameworks set out in the Habitats Directive.	☐	S.3 & Y.5,8
Action 2) The Commission and Member States will provide the necessary funds and incentives for Natura 2000, including through EU funding instruments, under the next multiannual financial framework. The Commission will set out its views in 2011 on how Natura 2000 will be financed under the next multi-annual financial framework.	☐+	Y.2 & C.7
Action 3a) The Commission, together with Member States, will develop and launch a major communication campaign on Natura 2000 by 2013.	☐	[?]
Action 3b) The Commission and Member States will improve cooperation with key sectors and continue to develop Guidance documents to improve their understanding of the requirements of EU nature legislation and its value in promoting economic development.	☐	[?]
Action 3c) The Commission and Member States will facilitate enforcement of the Nature Directives by providing specific training programmes on Natura 2000 for judges and public prosecutors, and by developing better compliance promotion capacities.	☐+	S.3 [and others ?]
Action 4a) The Commission, together with Member States, will develop by 2012 a new EU bird reporting system, further develop the reporting system under Article 17 of the Habitats Directive and improve the flow, accessibility and relevance of Natura 2000 data.	☐	S.3 [and others ?]
Action 4b) The Commission will create a dedicated ICT tool as part of the Biodiversity Information System for Europe to improve the availability and use of data by 2012.	☐+	S.3 & Y.5,8

The contribution of the Directives towards Target 2: the maintenance and restoration of ecosystems and their services¹²⁴

As defined by the Commission, habitat restoration is 'Actively assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed, although natural regeneration may suffice in cases of low degradation. The objective should be the return of an ecosystem to its original community structure, natural complement of species and natural functions to ensure the continued provision of services in the long term.' Target 2 explicitly mentions the need to restore ecosystems for ecosystem services (as well as for

¹²⁴ By 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems.

intrinsic nature conservation values), as the multiple benefits of ecosystems must be maintained.

The EU's adoption of the relatively ambitious 15% target probably reflects the fact that there are already a number of existing policy instruments that require restoration including the Nature Directives, WFD and MSFD, as well as funds that can directly, or indirectly, support the target, such as the LIFE programme, CAP (e.g. agri-environment climate measures), EMFF and Cohesion Policy funds, etc. Indeed, according to the Mid-term review of the Biodiversity Strategy, Member States have agreed that restoration actions under existing EU legislation should count towards the 15% target.

Although a range of measures may be needed to reach Target 2, the EU Biodiversity Strategy implies that the maintenance and development of green infrastructure (under Action 6b) is the primary means of achieving the target. In accordance with Action 6b, the Commission has now developed a Green Infrastructure Strategy¹²⁵. According to the Strategy, green infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features, designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, green infrastructure is present in rural and urban settings. Thus, a very wide range of natural features can be considered to be green infrastructure components that contribute to related goals. However, a study for the Commission, which informed the development of the Green Infrastructure Strategy, concluded that there is 'strong evidence that one of the most reliable and cost-effective ways of maintaining biodiversity and ensuring continued provision of ecosystem services is the conservation and enhancement of core areas (i.e. large and healthy ecosystems including for example sites designated as Natura 2000).' This is further recognised in the Green Infrastructure Strategy, which notes that 'The work done over the last 25 years to establish and consolidate the [Natura 2000] network means that the backbone of the EU's Green Infrastructure is already in place. It is a reservoir of biodiversity that can be drawn upon to repopulate and revitalise degraded environments and catalyse the development of Green Infrastructure.' Similar views were expressed in a number of evidence gathering questionnaire responses.

The Directives also contribute to the maintenance and restoration of Green infrastructure outside the Natura 2000 network through the requirements of Article 3 of the Birds Directive and Article 10 of the Habitats Directive. However, as discussed under question S.1 (section 5.1), there is little evidence that these measures have yet been implemented to any considerable degree.

Another action that is listed in the Biodiversity Strategy under Target 2 is 6b, which states the Commission will propose, by 2015, an initiative to ensure there is no net loss of ecosystems and their services. This policy primarily aims to support the maintenance component of the Target, by ensuring that unavoidable residual impacts are offset¹²⁶. However, it can indirectly support the restoration of degraded ecosystems if an offset results in a net gain in biodiversity and associated ecosystem services. This can happen as a result of intentional or accidental over-compensation, such as by replacing more habitat than is lost, replacing lost habitats with habitats of higher ecological value and placing offsets in areas that can provide additional ecological functions (e.g. where they may enlarge, buffer or connect small and isolated habitat patches).

Under Article 6(4) of the Habitats Directives, Member States 'shall take all compensatory measures necessary to ensure that the overall coherence of the Natura 2000 Network is protected'. Thus there are clear legal requirements to take measures to address residual negative impacts, which are equivalent to offsetting, that should contribute to achieving

¹²⁵ COM(2013) 249 Final.

¹²⁶ Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure and ecosystem function and people's use and cultural values associated with biodiversity http://bbop.forest-trends.org/pages/biodiversity_offsets.

no net loss at the network level. These provisions only apply to Natura 2000 sites, and compensatory measures should rarely be necessary, as impacts should be avoided in accordance with the mitigation hierarchy. Nevertheless, because these requirements apply to particularly important habitats, species and sites, the Article 6(4) measure has the potential to make a disproportionately high contribution to the aim of achieving no net loss of biodiversity in the EU. However, despite the publication of Commission guidance on Article 6(4) (European Commission, 2007a), there are significant concerns over the degree to which compensatory measures actually offset impacts on the Natura 2000 network, with inappropriate compensatory objectives, poor quality measures and inadequate implementation all raised as issues (Tucker et al, 2014). (See section 5.1 for further discussion.)

According to the Mid-term review of the Biodiversity Strategy progress has been made with some of the policy and knowledge actions in support of Target 2 (i.e. the mapping and assessment of ecosystem services, development of a strategic framework for prioritising ecosystem restoration, the Green Infrastructure Strategy, a methodology for biodiversity proofing and the no net loss initiative). However, at the time of reporting, only two Member States had submitted Restoration Prioritisation Frameworks, and no estimate is provided of the amount of restoration that is expected to be delivered in response to Target 2. Notably, the Commission concludes that although there are few comprehensive restoration strategies at national and sub-national levels, some restoration is taking place – often in response to EU legislation such as the WFD, MSFD and the Nature Directives.

Given this situation, and the steps that are being taken to implement the Nature Directives – particularly the increasing steps to put management measures into place – it seems clear that the Directives are making a major contribution to Target 2. However, the amount of restoration that is currently being carried out to meet the objectives of the Nature Directives (i.e. achieve FCS of EU protected habitats and species), and the WFD and MSFD, remains unknown, making it impossible to quantify this contribution. Nor is the proportion of Annex I habitat area that has an unfavourable status, and which therefore requires restoration, known. Nevertheless, it is evident that the potential contribution of restoration under the Habitats Directive alone is considerable, as 77% of Annex I habitat types have an unfavourable status (EEA, 2015a).

The majority of the views expressed by stakeholders in the evidence gathering questionnaire were broadly consistent with the findings described above, with **xx% of the respondents (xx out of xx)** stating that the Directives make significant contributions to Target 2. Differing views were expressed in the online public consultation results in relation to Question 16, which asked 'To what extent do the Directives help meet the EU biodiversity Strategy objectives?' With respect to their contribution to 'Maintaining and restoring degraded ecosystems and their services' the most frequent response (57%) was that they make a small contribution. 36% considered that they make a significant or very significant contribution. As noted above, care should be taken in interpreting these results due to the influence of campaigns on the responses.

The contribution of the Directives towards Target 3a: agriculture¹²⁷

Agriculture has a major influence on the EU's biodiversity since a substantial number of semi-natural habitats listed in Annex I of the Habitats Directive, as well as many species that are covered by the Directives, are affected by agricultural management. Many depend on low-intensity traditional farming systems, including those often referred to as

¹²⁷By 2020, maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement in the conservation status of species and habitats that depend on, or are affected by, agriculture and in the provision of ecosystem services as compared to the EU2010 Baseline, thus contributing to enhance sustainable management.

HNV systems¹²⁸ (Olmeda et al, 2014). Some species covered by the Nature Directives, such as farmland birds, occur in a wide range of farmland habitats. There is evidence of widespread historic declines in EU protected habitats and species, as indicated in the 2015 State of Nature report (EEA, 2015a), and as discussed in question R.1 (see section 7.1). These declines are primarily the result of agricultural improvements, intensification and specialisation, but also agricultural abandonment, primarily in some HNV areas.

In response to these biodiversity declines and other environmental impacts, nature conservation and other environmental objectives and measures have been progressively incorporated into the CAP since the 1990s. The overarching objectives of the 2014-2020 CAP are to support viable food production, the sustainable management of natural resources and climate action, and to achieve balanced territorial development. As discussed under question C.4/C.5 (section 8.4), the CAP incorporates financial support and incentive measures, along with conditions on payments (e.g. cross-compliance), to achieve these aims. As discussed under Y.2 (see section 6.2), Pillar 2 measures are the most important for biodiversity, as they provide by far the largest source of funding for practical management measures in Natura 2000 sites, as well as for Habitats Directive Annex I habitats and the habitats of EU protected species in the wider environment. Of these measures, the agri-environment measure is the primary means used to incentivise farmers to adopt management practices that are beneficial to biodiversity, although other measures provide essential supporting funds (Keenleyside et al, 2012; Olmeda et al, 2014; Poláková et al, 2011).

In addition, the Natura 2000 measure provides compensation payments for management restrictions in Natura 2000 areas. The basic services and village renewal (previously rural heritage) measure can also provide funding for Natura 2000 site management, including visitor management and communication, management planning and associated studies and research, habitat creation and restoration projects, land purchase, and awareness raising for conservation.

There are many examples of improvements in the status of European protected habitats and species as a direct result of targeted agri-environment schemes (eg Batáry et al, 2015; Broyer et al, 2014; MacDonald et al, 2012; Olmeda et al, 2014; Perkins et al, 2011; SEO, 2014; Whittingham, 2011). Evidence of the biodiversity benefits of other Pillar 2 measures is limited, but, in Austria, the rural heritage measure contributed to conservation management for EU protected habitats and species inside and outside Natura 2000 on 66,000 ha annually in 2007-2013 (Schwaiger et al, 2014). In Natura 2000 sites, the schemes were found to be the key to achieving the conservation objectives of habitat types (Suske et al, 2009). The rural heritage measure funded 1,026 projects, 80% of which contributed directly to the conservation of habitats and species, with a total funding of EUR 75m in 2007-2013: 54% concerned a Natura 2000 area; 29% concerned habitats and species covered by Annex I of the Birds Directive; and 11% concerned habitats and species covered by Annexes I and II of the Habitats Directive (Pinterits et al, 2014).

It is clear that the CAP's environmental measures have the potential to contribute greatly to the aims of the Nature Directives. However, the contribution of the Directives to the Biodiversity Strategy agriculture target is difficult to quantify. It is clear that a major policy driver for directing CAP funds to Pillar 2 environmental measures are the obligations under the Nature Directives, especially those relating to the need to establish conservation measures in accordance with Article 6(1) of the Habitats Directive. This is implied in the 2007-2013 Rural Development Regulation, where Member States/regions (the managing authorities) were required to align their RDPs with four axes, including axis 2 'improving the environment and the countryside'. As described in question C.4/C.5, there

¹²⁸HNV farmland can be defined as areas where agriculture is a major (usually) dominant land use and that supports, or is associated with, either a high species and habitat diversity, or the presence of species of European, and/or national, and/or regional conservation concern or both (Beaufoy and Cooper, 2008; Cooper et al, 2007; Oppermann et al, 2012). HNV farmland includes most of the farmland within Natura 2000 areas and other farmland with species and habitats listed in the annexes of the Nature Directives, but can include further areas characterised by a mosaic of low-intensity agriculture and natural and structural elements and/or a high proportion of semi-natural vegetation and/or other species of conservation concern.

are now explicit requirements for the 2014-2020 period to *(amongst other things)* ‘focus on restoring, preserving and enhancing biodiversity, including in Natura 2000 areas,...’ Managing authorities must take account of the specific needs of Natura 2000 areas according to the PAF in their RDP needs assessment¹²⁹ and in the overall design of their RDPs¹³⁰.

Member States or regions must report on how much registered agricultural area (Utilised Agricultural Area, UAA) is covered by agri-environmental agreements and how much UAA within Natura 2000 received Natura 2000 compensation payments under their RDPs as part of the obligatory output indicators. Exact figures for the area covered by biodiversity-related measures during the 2007-2013 period will not be available until the ex-post evaluations are completed. However, while agri-environment measures covered 27% of the UAA [ref], many schemes addressed broader environmental issues, such as reducing soil erosion or nitrogen emissions, rather than addressing biodiversity conservation directly. Also, inadequate targeting of agri-environment schemes to Natura 2000 areas was raised in the responses from nature conservation authorities in Cyprus, Belgium (Wallonia), Ireland, the Netherlands (RLI, 2013), and Slovenia.

The Natura 2000 measure was implemented in 2007-2013 by 13 of the 27 Member States¹³¹, however, by 2012, payments had been made on only 3.9% of the agricultural area of the Natura 2000 network¹³² (ENRD, 2014). Overall, it is known that Natura 2000 payments were allocated to 1.5 million ha, including Natura 2000 forest [ref], but this is less than 2% of the area of agro-ecosystems and forest within Natura 2000 (approx. 662,000 km²)¹³³. As discussed under question C.4/C.5 (see section 8.4), the limited use of the Natura measure by Member States is in part because the use of Natura 2000 payments is dependent on the development of site-specific conservation objectives and measures. Therefore, they have been constrained by the slow progress with management planning in many Member States (as discussed under question S.1).

Where management plans have been developed for Natura 2000 sites, they also facilitate the development of agri-environment climate measure funded management agreements. These have been further encouraged through the development of Commission guidance on farming within Natura 2000 sites (Olmeda et al, 2014).

Despite the influence of the obligations under the Nature Directives, there is clear evidence (set out in sections 6.2 and 8.4) that the CAP could contribute more to achieving the aims of the Directives, especially if Pillar 2 funding was increased and Member States targeted and tailored their measures more towards the needs of EU protected habitats and species.

The contribution of the Directives towards Target 3b: forestry¹³⁴

The Nature Directives cover a large proportion of EU biodiversity associated with forestry systems, including 73 birds, over 240 non-bird species and 85 habitats associated with forests or woodland (European Commission, 2015b). Much of this forest area is under management by a wide range of owners and managers, with a wide variety of purposes, ranging from large-scale commercial timber extraction, to multifunctional forests managed for recreation and forest products, to forests maintained primarily for landscape

¹²⁹ Commission Implementing Regulation (EU) No 808/2014 Annex I 4(b).

¹³⁰ Regulation (EU) No 1305/2013 Preamble paragraph (24).

¹³¹ Hungary, Ireland, Bulgaria, Germany, Spain, Latvia, Estonia, Belgium, Lithuania, Czech Republic, Austria, Italy, Slovenia.

¹³² 1,138,053 supported ha on a total Natura 2000 network area in 2012 of 76,814,198 ha, of which 38% is agricultural land. No data are available on the amount of forest land supported.

¹³³ Based on the terrestrial Natura 2000 area of 788476 reported in the June 2015 Natura barometer, and assuming the habitat proportions remain the same as in the 2012 EEA protected area report (EEA, 2012), i.e. including 38% agroecosystems and 46% forest. This is likely to exclude some grasslands.

¹³⁴ By 2020, Forest Management Plans or equivalent instruments, in line with Sustainable Forest Management (SFM), are in place for all forests that are publicly owned and for forest holdings above a certain size (to be defined by the Member States or regions and communicated in their RDPs) that receive funding under the EU Rural Development Policy so as to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 Baseline.

protection functions (e.g. to control soil erosion, landslides, avalanches, flooding). An increasing area of forest, mainly within protected areas, is under minimal or no-intervention management (e.g. to provide wilderness). To effectively manage Natura 2000 forest it is necessary to integrate Natura 2000 conservation objectives and measures into a diverse range of management structures, each with its own aims. In many Member States, the Natura 2000 network has substantially increased the proportion of privately owned forest under protection, which has increased the area of forest that is (potentially) subject to targeted management for biodiversity (European Commission, 2015b).

In those Member States or regions where forest management is funded through RDPs, forest management plans in line with Sustainable Forest Management (SFM) are now a requirement for funding above the threshold area size defined in the RDP, as prescribed by the regulation¹³⁵. However, the only currently agreed definition of SFM in the EU is from Forest Europe, and it makes only very broad references to biodiversity management. It is unlikely, therefore, that SFM forest management plans can achieve Natura 2000 objectives, unless they are specifically adapted to the Natura 2000 site objectives or at least to management requirements corresponding to the relevant Annex I forest habitat type(s).

The management of Natura 2000 forest has raised many concerns for forest owners and managers, as well as nature conservation advocates (European Commission, 2015b), and experiences across the EU are very diverse. Some examples of good practices in integrating Natura 2000 into forest management, as well as some more problematic experiences, cited by respondents to the evidence gathering questionnaire and/or from the literature, are described below.

- **Forest management in Finland:** According to the Finland Nature Conservation Authorities, the Directives have boosted some successful national actions targeting improvement of certain habitat types (within and outside the Natura 2000 network), including through the Forest Biodiversity Programme METSO 2008–2025. This aims to halt the ongoing decline in the biodiversity of forest habitats and species, and establish stable favourable trends for endangered and declining species in Southern Finland's forest ecosystems. The scope of the programme covers the most important forested habitat types listed in Annex I of the Habitats Directive. During the period 2008–2014, about 64,000 ha of forests were placed under permanent protection in the METSO Programme (Rantala et al, 2014). In addition, over 48,000 ha of biodiversity-friendly actions in forest management in commercial forests have been carried out under the METSO programme to the end of 2014¹³⁶. Most of the measures taken have improved the protection status of heathland forests with plenty of decaying wood, thus also positively affecting those species dependent on dead wood.

However, studies indicate that the guidance provided to foresters from the government, aimed at protecting the nest sites of Flying Squirrel (*Pteromys volans*), is ineffective at maintaining species presence and populations (Jokinen et al, 2015; Santangeli et al, 2013).

- **Forest management in Romania:** Current forestry guidelines and related legislation in Romania promote natural forest structures and seek to achieve sustainable yields, and can therefore be considered to be compatible with the conservation requirements of the Natura 2000 network (Stancioiu et al, 2010). Forest management is being implemented effectively at forest district administration level, but not at Natura 2000 site level, particularly in Natura 2000 sites covering large areas and including diverse forms of ownership, with forest owners poorly informed about Natura 2000. Financial compensation schemes do not currently cover all types of forest ownership in Romania.

¹³⁵ Regulation (EU) No 1305/2013 and Commission Implementing Regulation (EU) No 808/2014.

¹³⁶ <http://www.ym.fi/fi->

FI/Ajankohtaista/Tiedotteet/Vapaaehtoisessa_METSOohjelmassa_uusi_suo%2832847%29

- **Natura 2000 implementation in forests in Croatia:** Natura 2000 implementation is being planned by an expert working group on Natura 2000 in forestry, representing a broad range of stakeholders (Lovric and Lovric, 2013). It is anticipated that this will help to diminish possible conflicts in site management.
- **Natura 2000 integration problems in Slovakia:** In Slovakia, a study indicates that there has been inadequate coordination across the sectors involved in forest management. The implementation of the Natura 2000 network in Slovakia shows deficits that result from different policy priorities concerning nature protection and forestry management (Sarvasova et al, 2013).
- **Forest management problems in the Czech Republic:** In the Czech Republic, a study has concluded that the condition of open woodland habitats covered by the Natura 2000 network have been found to be worsening as a result of an intensification of forestry activities (leading to too little growth of new solitary trees and excessive infilling of open canopy areas for logging) (Miklín and Cížek, 2014).
- **Natura 2000 forest management problems in Germany:** Natura 2000 beech forests under active timber production in Germany do not offer better habitats for bats compared to commercially used non-Natura forests (Zehetmair et al, 2015). The study concludes that the current management of the Natura 2000 beech forests is almost identical to that of non-Natura 2000 commercial forests, and thus, the Natura 2000 status has not led to an increase of bat-relevant habitat variables to date. A study calculated that expected annual income losses for forest enterprises in Germany resulting from Natura 2000 management restrictions on commercially used beech forests, will average EUR 31-39/ha (Rosenkranz et al, 2014).
- **Timber industry implementing Annex I bird action plan in Sweden:** The timber company Bergvik Skog AB has signed a conservation agreement with the Swedish Forest Agency to maintain and create over 10,000 ha of deciduous forest to protect habitat for the endangered White-backed Woodpecker (*Dendrocopos leucotos*), as well as 200 other listed species (Bergvik Skog and Skogsstyrelsen, 2012).
- **Best practices in Boreal forest restoration:** Experience of best practices in boreal forest restoration and management in Finland have been published as guidance (Similä et al, 2012). Restoration treatments for Annex I forest habitat types in Natura 2000 sites in Estonia have also been evaluated - restoration treatments were imposed on 30–60 year old conifer plantations, including gap creation with and without added deadwood, added deadwood without gaps, and gaps plus over-burning (Laarmann et al, 2013). The study demonstrated the benefits of the treatments for richness and abundance of different target species groups compared to control areas.

The contribution of the Directives towards Target 4: fisheries¹³⁷

In line with an international commitment by the EU in 1982 (UNCLOS) and the World Summit on Sustainable Development in 2002, the target on fisheries aims to achieve maximum sustainable yield (MSY) by 2015. It also aims to achieve Good Environmental Status by 2020, as required under the MSF). The main actions relating to Target 4 include managing fish stocks (i.e. setting fishing quotas) in order to maintain and restore them to levels that can produce MSY, and increasing efforts to collect data on fish stocks to inform the implementation of MSY. In addition, actions such as the gradual elimination of discards to avoid harmful by-catch, and the implementation of the MSFD by inter alia providing adequate financial incentives for environmental measures, are central to the achievement of the target.

¹³⁷ Fisheries: Achieve Maximum Sustainable Yield (MSY) by 2015. Achieve a population age and size distribution indicative of a healthy stock through fisheries management with no significant adverse impacts on other stocks, species and ecosystems, in support of achieving Good Environmental Status by 2020, as required under the Marine Strategy Framework Directive.

The management of European fish stocks is the remit of the CFP, which therefore bears the strongest influence over the achievement of this target. However, evidence from the scientific literature, as summarised below, indicates that the Nature Directives can indirectly contribute to this Target 4.

As no major commercially harvested fish species are represented in the annexes of the Birds and Habitats Directives, such species are supported only indirectly, i.e. to the extent that they depend on habitats or species under protection. MPAs (also non-Natura 2000) are, by definition, spatial protection measures that primarily protect benthic ecosystems. Nevertheless, depending on the fishing restrictions imposed within the site, fish stocks may be supported both inside and outside site boundaries (Lester et al, 2009; Buxton et al, 2014).

Effects inside the site include individual specimens avoiding being caught as primary or by-catch, thereby growing older and larger. This may contribute to the genetic resilience of the population thanks to their greater reproductive potential and ability to produce larvae with better survival rate (Howarth et al, 2011; Birkeland and Dayton, 2005). International and European evidence show that sites that do not allow fishing (no-take) can generate significantly higher fish biomass, fish length, species richness and better fitness of high trophic species than multi-use and open access areas (e.g. Edgar et al, 2014; Guidetti et al, 2014; Fenberg et al, 2012).

Effects outside site boundaries include evidence from no-take sites resulting in spillover of adult fish into adjacent fishing grounds (Mateos-Molina et al, 2014; Vandeperre et al, 2011; Halpern et al, 2010; Follesa et al, 2009). By protecting the spawning grounds of targeted species, MPAs may also secure an undisturbed (from fishing) level of production of eggs and larvae that may, in turn, serve as recruitment for neighbouring stocks (Harrison et al, 2012). Evidence of recruitment effects is rare, as it is difficult to measure due to the temporal and spatial variability of larval survival and settlement (Goñi et al, 2010; Buxton et al, 2014). At spawning grounds, adult fish are easier to catch and restricting fishing in these areas may be especially effective in reducing fish mortality (Pantzar, 2014).

Evidence of impacts of marine Natura 2000 sites on fish stocks – both inside and outside the protected areas – is scarce, possibly as a result of the relatively young age of many marine Natura 2000 sites. Evidence from Norway indicates that for some species, significant positive effects on stocks are possible relatively soon after MPA designation (Moland et al, 2012). For others, it may take years, or even decades, to become successful breeders (Vandeperre et al, 2011). In addition, many marine Natura 2000 sites designated by Member States still lack management plans (or equivalent measures) (European Commission, 2014), which means that not enough rules have been put in place to have a significant impact (Pantzar, 2014). It is also important to acknowledge that species- and site-specific factors and external stressors will impact the effects of protection (Jameson et al, 2002; Edgar et al, 2014). Similarly, if surrounding fisheries are largely mismanaged, any spillover from an MPA will provide limited support to the fitness of fish stocks (Jessup and Power, 2011).

Predicting the contribution of the network of marine Natura 2000 sites to Target 4 of the Biodiversity Strategy is both difficult and uncertain. There is clear evidence of no-take MPAs providing increased production of fish larvae and fitness of adult specimen, but very little evidence of multi-use sites supporting fish stocks. This suggests that marine Natura 2000 sites - which are almost exclusively multi-use areas - would need to impose strong restrictions on extractive activities in order to benefit fish stocks. Furthermore, commercially targeted marine species would need to be better represented in the Nature Directives to provide a legal basis for restricting fishing that does not impact on existing European protected habitats and species. Above all, conservation results are dependent on authorities' ability to effectively manage and enforce the protection of existing sites.

The contribution of the Directives towards Target 5: invasive alien species¹³⁸

The detrimental impacts that invasive alien species (IAS) can have on native habitats and species has been known for many years, and measures to combat such threats are explicitly included in both Nature Directives. Under Article 11 of the Birds Directive, 'Member States shall see that any introduction of species of bird which do not occur naturally in the wild state in the European territory of the Member States does not prejudice the local flora and fauna. In this connection they shall consult the Commission.' Under Article 22(b) of the Habitats Directive, Member States shall 'ensure that the deliberate introduction into the wild of any species which is not native to their territory is regulated so as not to prejudice natural habitats within their natural range or the wild native fauna and flora and, if they consider it necessary, prohibit such introduction. The results of the assessment undertaken shall be forwarded to the committee for information.'

Although these specific obligations primarily relate to controlling the introduction of IAS (rather than controlling or eliminating established species) it is important to note that Member States must take all measures that are necessary to achieve the aims of the Directives (i.e. FCS). Therefore, as IAS are a relatively frequent pressure affecting some species and habitats (especially amphibians, wetlands and rivers) then, in practice, Member States have taken wider actions than those required by Articles 11 and 22 in order to control and, if necessary, eradicate IAS.

Many of the actions that have been taken to address IAS impacts in EU protected habitats and species within Natura 2000 sites and in the wider environment have been funded by the LIFE programme. According to a recent review, it has co-financed more than 260 IAS projects across Europe since 1992, investing a total of some EUR 70m in the problem (European Commission, 2014c). The number of LIFE projects focusing on IAS since 2002 are listed in Table 11, together with some examples. Not all of these will have focused on EU protected habitats and species, and therefore it is not possible to quantify the Nature Directives' overall impact, but it is clear that they have made a considerable contribution to the EU Biodiversity Strategy's target on IAS. Furthermore, IAS are a thematic priority for the LIFE programme 2014-2020.

Table 11 Selected LIFE projects since 2002 that have focused on IAS

Source: Selected projects from the brochure on LIFE projects on IAS (European Commission, 2014c)

Member State	IAS projects since 1992 ^{*1}	Example ^{*2}		
		Project number	Title	IAS addressed
Austria	3	LIFE04 NAT/AT/000003	Alluvial forests and slope forests of the Upper Danube Valley	<i>Exotic conifers</i>
Belgium	23	LIFE13 NAT/BE/000074	Cross-border heath restoration, inland dunes and pools, integrated invasive plant management	<i>Prunus serotina;</i> <i>Quercus rubra;</i> <i>Rhododendron ponticum</i>
Cyprus	4	LIFE04 NAT/CY/000013	Conservation management in Natura 2000 sites of Cyprus	<i>Acacia spp.</i>
Czech Republic	4	LIFE11 NAT/CZ/000490	Grasslands and streams restoration in SCI Krkonoše: Future of	<i>Lupinus polyphyllus</i>

¹³⁸ By 2020, IAS and their pathways are identified and prioritised, priority species are controlled or eradicated, and pathways are managed to prevent the introduction and establishment of new IAS.

Member State	IAS projects since 1992 ^{*1}	Example ^{*2}		
		Project number	Title	IAS addressed
			Nardus grasslands*, Dwarf gentian* and Bull-head	
Denmark	8	LIFE11 NAT/DK/000893	LIFE LAESOE - restoration of birdlife and natural habitats at Laesoe	<i>Rosa rugosa</i> ; <i>Spartina anglica</i> ; <i>Pinus mugo</i> ; <i>Pinus contorta</i> ; <i>Picea sitchensis</i> ; <i>Prunus serotina</i>
Estonia	2	LIFE08 NAT/EE/000257	Securing <i>Leucorrhinia pectoralis</i> and <i>Pelobates fuscus</i> in the northern distribution area in Estonia and Denmark	<i>Carassius auratus gibelio</i> , <i>C. Auratus</i> , <i>Elodea</i>
Finland	6	LIFE07 NAT/FIN/000151	Inventories and planning for the marine Natura 2000 network in Finland	<i>Dreissena polymorpha</i> ; <i>Mytilopsis leucophaea</i>
France	14	LIFE98 NAT/F/005250	Maritime archipelagos and islets of Brittany	<i>Neovison</i> ; <i>Rats</i>
Germany	14	LIFE07 NAT/D/000233	Restoration of habitats in the Federsee bog (ReHa Federseemoor)	<i>Solidago canadensis</i> , <i>Impatiens glandulifera</i> , <i>Helianthus tuberosus</i> , <i>Cornus alba</i>
Greece	5	LIFE10 NAT/GR/000637	Management of the SPA site of Andros Island to achieve an FCS for its priority species	<i>Rats</i>
Hungary	12	LIFE06 NAT/H/000098	Conservation of Euro-siberian steppic woods and Pannonic sand steppes in 'Nagykörösi pusztai tölgyesek' pSCI	<i>Prunus serotina</i> , <i>Robinia pseudoacacia</i>
Ireland	7	LIFE09 NAT/IE/000220	Restoration of the Upper River Blackwater SAC for the Freshwater Pearl Mussel, Atlantic Salmon, European Otter and Kingfisher	<i>Impatiens glandulifera</i>
Italy	45	LIFE08 NAT/IT/000352	Conservation and recovery of <i>Austropotamobius pallipes</i> in Italian Natura2000 Sites	<i>Procambarus clarkii</i> (Red Swamp Crayfish / Louisiana Crayfish)
Latvia	1	LIFE06 NAT/LV/000196	The improvement of habitats management in Natura 2000 site - Vestiena	<i>Heracleum mantegazzianum</i>
Luxembourg	1	LIFE11 NAT/LU/000857	Restoration of Unio crassus rivers in the Luxembourgish Ardennes	<i>Muskrat</i> <i>Ondatra zibethicus</i>

Member State	IAS projects since 1992 ^{*1}	Example ^{*2}		
		Project number	Title	IAS addressed
Malta	1	LIFE12 NAT/MT/000182	Soil stabilisation measures to protect Annex I habitats in Buskett-Girgenti Natura 2000 site	<i>Ailanthus altissima</i> , <i>Vitis sp.</i> , <i>Agave sp.</i> , <i>Ricinus communis</i>
The Netherlands	6	LIFE09 NAT/NL/000418	Realisation of Natura 2000 targets for calcareous white, grey dunes and dune slacks in three Dutch dune sites	<i>Prunus serotina</i> , <i>Cotoneaster sp.</i> , <i>Mahonia aquifolium</i>
Poland	8	LIFE12 NAT/PL/000034	Nature mosaics - protection of species and habitats in Natura 2000 site 'Pieniny'	<i>Fallopia japonica</i> , <i>Fallopia sachalinensis</i>
Portugal	14	LIFE97 NAT/P/004082	Measures for the management and conservation of the Laurissilva Forest of Madeira (code 45.62*)	<i>Hedychium gardnerianum</i>
Romania	5	LIFE10 NAT/RO/000740	Improving the conservation status for the priority species and habitats in the Iron Gates wetlands	<i>Invasive weeds (Eichhornia crassipes, Azolla filiculoides, Nymphoides peltata)</i> , <i>invasive trees (Robinia pseudoaccacia, Rhus hirta, Ailanthus altissima)</i> , <i>Neovison vison</i>
Slovakia	4	LIFE10 NAT/SK/000083	Restoration of endemic pannonic salt marshes and sand dunes in Southern Slovakia	<i>Solidago sp.</i> , <i>Ailanthus altissima</i> , <i>Robinia pseudoaccacia</i> , <i>Gleditchia triacanthos</i> , <i>Padus serotina</i> , <i>Celtis occidentalis</i>
Spain	45	LIFE09 NAT/ES/000534	Conservation of Posidonia oceanica meadows in Andalusian Mediterranean Sea	<i>Caulerpa racemosa</i> , <i>Lophocladia lallemandii</i>
Sweden	4	LIFE09 NAT/SE/000344	Management of the invasive Raccoon Dog (<i>Nyctereutes procyonoides</i>) in the North-European countries	<i>Nyctereutes procyonoides</i> (Raccoon)
UK	19	LIFE05 NAT/UK/000142	Eradication of Ruddy ducks in the UK to protect the Whiteheaded Duck	<i>Ruddy Duck</i>

*1 as selected in the LIFE brochure, so the total number of projects may be higher. *2 Further details of each project can be obtained from the LIFE project database at:

<http://ec.europa.eu/environment/life/project/Projects/index.cfm>

5.2.4 Key findings

- Many stakeholders stated that both Directives make a major contribution to the EU's biodiversity target, and are widely regarded as the cornerstone of the EU's biodiversity policy.
- Firstly, the Directives contribute directly through the conservation of their target European protected habitats and species. These include all naturally occurring bird species under the Birds Directive, providing a comprehensive policy framework for this species group. The Habitats Directive complements the Birds Directive by addressing the conservation of other species, natural and semi-natural habitats. Although the Habitats Directive targets a selected group of threatened species and habitats, these include the majority of the most threatened mammals, reptiles, amphibians and fish in the EU. Few plants and invertebrate are directly targeted.
- Secondly, the Directives indirectly provide some protection for a much larger number of EU non-target species across all taxa. This is because most Natura 2000 sites are selected on habitat-based criteria, and qualifying habitats are generally species-rich and often hold rare species. Evidence shows that the network contains the majority of the most diverse and species-rich habitats, and that there is a lower degree of nature conservation interest in the wider environment. European protected species and habitats and Natura 2000 sites thus provide a so-called umbrella benefit. Studies of the umbrella effect are limited, but there is evidence of wide coverage of vertebrates and butterflies.
- There are inevitably some deficiencies in the coverage of biodiversity. For example, studies of the distribution of some habitats and species in relation to the location of Natura 2000 sites have found that marine habitats and temporary freshwater habitats are under-represented in the Mediterranean region. However, the studies are too localised and taxa specific to draw any general conclusions on the adequacy of the Natura 2000 network for either the habitats and species in the Directives or other threatened species.
- The measures contained within the Directives contribute towards the achievement of the specific targets of the EU's Biodiversity Strategy, as follows:
 - Target 2: Maintenance and restoration of degraded ecosystems, with more use of green infrastructure. As per the aims of the Directives, the maintenance and restoration of habitats and species populations are closely aligned with the objectives of Target 2. In addition, these aims have stimulated funding support for restoration projects from the LIFE nature programme, CAP agri-environment measures and, to a lesser extent, other EU funds.
 - Target 3: Increase the contribution of agriculture and forestry to biodiversity conservation. As discussed under questions C.4/C.5 the CAP is now more coherent with the aims of the Nature Directives, with RDP measures taking into account the needs of European protected habitats and species, both within Natura 2000 sites and in the wider environment. This has been facilitated through the development of PAFs by Member States. The development of management plans for Natura 2000 sites also helps to identify and prioritise appropriate agri-environment climate scheme measures, as well as feeding into forest management plans. However, mismatches remain between RDPs and Natura 2000 priorities and funding requirements, and progress on Natura 2000 site management planning has been slow in most Member States.
 - Target 4: Sustainable management of fish stocks. Although the Directives do not directly influence the management of fish stocks, they are likely to provide indirect benefits, primarily through the designation of marine Natura 2000 sites (which may help depleted fish stocks to recover), but also through pollution control measures.

- Target 5: The control and eradication of IAS. The Directives require measures to be taken to prevent the introduction of alien species and, indirectly, to address their impacts on European Protected Species, and have therefore resulted in actions being taken well in excess of the Biodiversity Strategy requirements and the recently developed Invasive Alien Species Regulation. While it is not possible to quantify the overall impact of these actions, they have made a significant contribution to Target 5.

5.2.5 Annex S2.1 Studies of the coverage of species in the Natura 2000 network

5.2.5.1 Coverage of threatened species

Gap analysis studies of the coverage of species that are threatened in the EU (i.e. those listed in IUCN assessments) in the Natura 2000 network

- A recent gap analysis of the Natura 2000 network plus national protected areas identified 5.6% of EU threatened terrestrial **mammals**, 0.9% of threatened **birds**, 11.9% of threatened **reptiles** and 17.6% of threatened **amphibians** as partial gap species¹³⁹ (Maiorano et al, 2015). One critically endangered species in Austria, *Microtus bavaricus*, had no coverage. *Microtus bavaricus* was considered extinct at the time the Habitats Directive was drafted, and the residual population in Austria was discovered only recently.
- An earlier study, which overlaid the Natura 2000 site network with distribution maps of selected European threatened vertebrate species from the 2007 IUCN red list, found that distributions of a large proportion of the threatened species of **mammals**, **birds** and **reptiles** were highly covered (above 90%) by the Natura 2000 network, but 36 threatened species were only 10% covered, including four **fish** species listed on the annexes (*Coregonus* species, *Barbus euboicus*, *Eudontomyzon hellenicus*, *Acipenser naccarii*), and two **amphibians** (*Speleomantes flavus*, *Rana latastei*) (Trochet and Schmeller, 2013). It is, however, likely that some of this assessment is now outdated as a result of additional Natura 2000 site designations, for example 190 sites have been subsequently designated for *Rana latastei* in Italy and Croatia and 54 sites for *Acipenser naccarii* in Italy¹⁴⁰.
- Natura 2000 sites in Slovenia cover the distribution of all but one **threatened butterfly** species, and cover the majority of areas with high butterfly diversity, with the small protected areas being of particular importance (Verovnik et al, 2011a).
- **Endangered arthropods and molluscs** are poorly covered by Natura 2000 in Spain (Hernández-Manrique et al, 2012). Coverage is highest on the Canary Islands.
- A study found that the protected area network (including Natura 2000) in Andalucía, Spain, is highly effective for **threatened vascular plants** (Mendoza-Fernández et al, 2010). The protected area network (including Natura 2000) in Great Britain (UK minus northern Ireland) covers occurrences of the vast majority of **threatened vascular plant species** (on the UK plant Red List), but 11% were missing from the network, notably, threatened arable weeds and species that occur at one or a few sites (Jackson et al, 2009). In Ireland an estimated 22% to 40% of tetrads (2km ×

¹³⁹ According to species representation targets set at between 10 (very widespread) and 100% (narrow endemics) of the area occupied, depending on species range, size and proportion of range in EU.

¹⁴⁰ EUNIS database <http://eunis.eea.europa.eu/species.jsp>

2km cells) with **plant species of conservation concern** do not overlap with designated areas (Natura 2000 and national designations) (Walsh et al, 2015).

- Plant micro-reserves (small areas of 5-20 ha) within Natura 2000 sites are effective for conserving populations of **rare and threatened plant species** in Spain (Valencia and Minorca), Slovenia (Karst Edge), Greece (Crete), and Cyprus (Kadis et al, 2013). This contrasts with a previous study that found poor effectiveness of Natura 2000 sites on Crete for plant biodiversity (Dimitrakopoulos et al, 2004).
- **Threatened lichens** typical of old growth forest in moist climate are well represented in the Spanish Natura 2000 network (Martínez et al, 2006) but 4 out of 18 lichens typical of dry habitats in a Mediterranean climate are poorly represented (Rubio-Salcedo et al, 2013).

5.2.5.2 Coverage of all species

Birds

- A study using data on 166 **common breeding bird species** from 13 Member States found that more than half of the common bird species are positively impacted by the Natura 2000 network with higher populations inside than outside the network, and among these, a large number are specialist species, particularly woodland specialists (Pellissier et al, 2014).
- A study using breeding bird survey data on the Natura 2000 network in France concluded that the sites showed greater abundance of a majority of **common bird species** (Pellissier et al, 2013).
- In Italy, the national protected area network (including Natura 2000) fails to guarantee an acceptable level of protection for **farmland bird species**, while **birds breeding in open-habitat in mountains** have quite a good protection rate (Campedelli et al, 2010).

Other vertebrates

- An ongoing study¹⁴¹ concludes that 55 of the EU's **mammal** species (32.5%) are partial gap species (species included in the Natura 2000 network but whose coverage do not reach the adopted threshold), while the remaining 113 mammal species (66.9%) were adequately covered (according to a threshold equal to 17.92% Natura 2000 coverage in the EU-28). **Reptiles** and **amphibians** have a mean coverage of $28.7 \pm 14.1\%$ ($25.7 \pm 12.0\%$ for amphibians and $30.6 \pm 14.9\%$ for reptiles).
- A recent EU-wide study of the representativeness of the Natura 2000 network plus national protected areas for **amphibians** and **reptiles**, concluded that these areas often perform poorly in representing amphibians and reptiles, but that the Natura 2000 network usually covered significantly more species than a random selection of areas. However, well-covered species were mostly widespread taxa, while narrow-range species remained under-represented (Abellán and Sánchez-Fernández, 2015).

Invertebrates

- An ongoing study¹⁴² finds that 401 **butterfly species distributions** are adequately covered, and there are no total gap species, while for 10 species, their coverage in the Natura 2000 network does not reach the threshold (using a threshold equal to 17.92% Natura 2000 coverage in the EU-28). A comparison of data on 103 **butterfly populations** with the Natura 2000 network in six countries/regions showed that a larger number of species populations respond positively than negatively to the

¹⁴¹ Stephan Hennekens et al, to be published.

¹⁴² Stephan Hennekens et al, to be published.

coverage of Natura 2000 in the landscape, but the data are insufficient to demonstrate any detectable differences between the temporal trends inside and outside Natura 2000 (Pellissier et al, 2014).

- There is a high degree of concordance between distributional hotspots of 120 endemic **water beetles** and Natura 2000 sites in the Iberian Peninsula and the Balearic Islands, although the distribution of four species falls completely outside the network (Sánchez-Fernández et al, 2008). The study also revealed that it fails to protect beetle species typical of saline water bodies (saline streams and salt pans), despite their high conservation interest and narrow global distribution (Sánchez-Fernández et al, 2008).
- Only 7% of 150 **saproxylic beetles** in Italy have a significant portion of their geographic extent covered, with 13 species - including two threatened species - not protected at all by Natura 2000 (D'Amen et al, 2013). There was no evidence that Natura 2000 sites improved species representation compared to nationally designated areas.

5.3 S.3 - Which main factors (e.g. implementation by Member States, action by stakeholders) have contributed to or stood in the way of achieving the Directive's objectives?

5.3.1 Interpretation and approach

This analysis sought to identify the main factors that have affected the Directives' ability to achieve their specific and operational objectives, as well as their overall aims. It considered whether their overall approaches and strategic objectives are consistent with their overall aims, while primarily focusing on factors affecting implementation of their measures (e.g. transposition, approaches towards protecting sites and species, funding, promotion to the public and monitoring). The analysis also distinguished between previously influential factors and ongoing issues.

Many of the most influential factors identified are already well known and are covered in more detail under other questions, including Y2 (section 6.2), Y8 (section 6.8) and in relation to policy conflicts discussed in several coherence questions (section 8). Therefore, whilst this section aims to identify all the important influential factors that contribute to, or hinder, the Directives' achievements, it concentrates on those not described in detail elsewhere. Numerous factors could be described and further-subdivided, with a significant degree of interaction and overlapping. As a broad evaluation study the factors identified and discussed here should not be regarded as an exhaustive list or definitive categorisation, but as a list of the main factors of relevance in this context.

5.3.2 Main sources of evidence

A number of EU level studies have examined the implementation of the Directives, identifying some of the factors that have contributed to, or hindered their achievements. Two of those studies are of particular relevance and their results are assessed in detail. The ETC-BD carried out a literature review of the ecological effectiveness of the Natura 2000 network (Naumann et al, 2011). This review identified 142 publications in the scientific and grey literature via web-based bibliographic search using "Natura 2000" and similar terms as selection criteria. Of these, 128 priority references were analysed in light of two key questions. Firstly, what do Natura 2000 sites deliver in terms of ecological effectiveness? This is closely linked to the examination of the coverage of biodiversity by the Natura 2000 network, and is dealt with here in question S.2. Secondly, the study investigated those factors exerting the most influence on levels of effectiveness, the results of which are described below. The second key study evaluated the cross-scale functioning of Natura 2000 through a targeted survey of European conservation scientists using a structured questionnaire (Kati et al, 2015). According to the authors, this is the first poll-based attempt to evaluate the implementation of Natura 2000. However, it did not evaluate other aspects of the Nature Directives.

A large number of studies have also been carried out on the implementation of the Directives in one or more Member States and these provide insights into the factors that have had an impact on their achievements to-date. These have, for example, covered Greece (Apostolopoulou and Pantis, 2009), the Netherlands and Italy (Ferranti et al, 2010), Poland (Grodzinska-Jurczak et al, 2012; Grodzinska-Jurczak and Cent, 2011), Romania

(Ioja et al, 2010) and the UK (Ledoux et al, 2000; Morris, 2011). Many of these studies were considered in the ETC-BD literature review and/or referred to as supporting evidence by the respondents to the Fitness Check evidence gathering questionnaire. These studies are not, therefore, described systematically in a dedicated section below, but are instead referred to when relevant to the discussion.

The evidence gathering questionnaire responses provided a large amount of relevant information, often including clear explicit lists of the main influencing factors. This information, together with the evidence from the previous EU level studies, was used to develop a simple list of key factors that could be used to quantify the stakeholder responses (i.e. to count the number of respondents that clearly identified each of the key factors as a contributing or hindering factor). The list also forms the structure of the discussion of the key influencing factors. The sections below firstly describe the basis of the identification of the key factors before discussing each in turn, drawing on the EU level, national and stakeholder evidence.

5.3.3 Analysis of the question according to available evidence

Evidence from EU and national studies

A number of EU studies have examined the factors influencing the effectiveness of the Directives. However, the Directives do not operate in isolation, and the biodiversity that they seek to conserve is also influenced by other EU and national level measures, such as those being taken to achieve the EU's broader biodiversity targets (see section 5.3). Before analysing the Directives specifically, therefore, it is useful to look at the reasons why the EU failed to meet its 2010 headline target of halting the loss of biodiversity. An analysis carried out for the Commission concluded that although the Biodiversity Action Plan¹⁴³ set out to address the key pressures and drivers, it was hampered by insufficient integration of biodiversity requirements into other sectoral policies, incomplete implementation of existing legislation (including the Nature Directives among others, such as the WFD and the National Emission Ceilings Directive 2001/81/EC (NECD)), policy gaps, insufficient funding, limited awareness of biodiversity, inadequacy of the policy framework and governance, as well as inadequate administrative capacity, skills and knowledge gaps (MRAG et al, 2010).

The ETC-BD literature review of the ecological effectiveness of Natura 2000 (Naumann et al, 2011) identifies similar problems to those affecting the implementation of the 2010 Biodiversity Action Plan. The analysis firstly considered ecological effectiveness in terms of the Natura 2000 network's coverage of the geospatial and ecological requirements of target habitats and species through a review of gap analysis studies. The review included an assessment of the factors influencing the ecological effectiveness of the network. The factors highlighted¹⁴⁴ in the review were:

- Policy planning and implementation process:
- A lack of reliable data and insufficient communication of scientific data to policy makers and planners.
- Insufficient participation of the public and of landowners.
- A lack of support from local authorities.
- Conflicts between economic interests and conservation goals (exacerbated by the lack of access to scientific data, meaning that other concerns assume a more dominant role in planning and implementation).

¹⁴³ European Commission 2006. Halting the loss of biodiversity by 2010 - and beyond. Sustaining ecosystem services for human well-being. Communication from the Commission, COM(2006)216 final, 22.5.2006.

¹⁴⁴ i.e. those set out in bold type in the original document, with minor amendments and additional explanatory text added in parentheses.

- Inadequate personnel, administrative and financial resources.
- Weaknesses of policy design and low policy coherence across sectors (particularly with respect to agriculture and forestry, e.g. ineffective targeting of agri-environment support payments to high nature value farming).
- Selection of Natura 2000 sites at Member State level
- Unclear conservation goals of the Natura 2000 network, politically motivated site selection, and a low prioritisation of conservation objectives and socio-economic considerations compared to economic objectives.
- A bias towards areas away from human activity.
- Incoherent planning and approach to site selection.
- Insufficient functional connectivity and spatial connectedness.
- Management of Natura 2000 sites
- The central role of low intensity agriculture and forestry activities in preserving valuable habitats is not reflected in Member State policy priorities and site management.
- Lack of adequate conservation data hinders effective management.
- Insufficient implementation of management plans across Member States, as well as species and habitats.
- Insufficient stakeholder participation and community engagement in management processes.
- Incoherent management approaches between marine and terrestrial Natura 2000 sites.

A paper by Hochkirk et al (2013a) - not referred to in the ETC-BD review but which, nonetheless has some relevance here - identifies some problems from the perspective of 14 German university academics. While, overall, they conclude that 'conceptually, the Habitats Directive meets all requirements to become a successful conservation act', they also identify four major problems with the implementation of the Directive. Firstly, state that regular adaptation of the annexes is required to ensure the Directives focus on priorities according to the most up-to-date and comprehensive scientific knowledge (an issue discussed in detail in question R.2 of this report). Secondly, they suggest that strategic conservation plans are required for highly threatened species and that adaptive management plans should be prepared locally for all sites. Thirdly, there is a need to improve the on-the-ground monitoring as it lacks standardisation across countries, taxon-specific standards and coherent training of monitoring staff. Lastly, they note that a substantial increase in funds is necessary to address the implementation problems, and to increase awareness and educational actions to reach societal consensus on the necessity for conservation.

Another recent EU level review, not included in the ETC-BD paper, by Crofts (2014) focused on the Natura 2000 network from a practitioner's perspective. It draws on the author's experience of contributing to its implementation whilst Chief Executive of Scottish Natural Heritage, and his involvement in wider IUCN work on protected areas. Overall, his assessment is positive, as he considers the Directives and Natura 2000 measures to be far sighted and effective. A number of strengths and weakness (see Table 12). In relation to the the overall aims, strategic objectives and approach of the Directives, he finds the Natura 2000 network's strengths in its ambitious, strategic and regional approach within a biogeographical framework that has clear objectives (favourable conservation status) for habitats as well as species. This goes beyond the maintenance of the status quo, instead moving towards the restoration of degraded habitats and depleted species populations.

Table 12 Summary of strengths and weakness of Natura 2000 according to Crofts (2014)

Strengths	Weaknesses
Regional, transnational approach	Not all Member States took it as seriously as they should have
Based on biogeographic regions	More rational approach to selection of regions
Common classification of species and habitats	Unsystematic in subdivision of habitats
Site and area focus	Lacks focus on connectivity
Encouragement to restore habitats	Selection of priority habitats unsystematic
Encouragement to re-introduce lost species	Little activity in most Member States
Expert scientific basis	Difficult for non-expert to engage
Top-down approach ensures action	Top-down approach causes conflict with key stakeholders
Environmental NGOs played positive role in implementation	Opponents feel that environmental NGOs have too much influence
Natura key EU biodiversity mechanism	Other EU policies in opposition perverse incentives
Responsibility on Member State to resource	No additional resources provided

In some respect, the author believes that the Directives do not adhere to good practice (citing, as an example (Lockwood et al, 2006)). The Natura 2000 approach, in general, he finds rather narrow, being site-focused with inadequate consideration of the wider environment instead of modelling itself on ecological network concepts that involve buffer areas and corridors, such as that followed in the Netherlands (Government of the Netherlands, 2014). However, this criticism is not borne out by more recent recognition that it is more important to conserve large core areas of good quality habitat than to focus on joining them up with corridors, a practice for which there is little evidence of effectiveness (Hodgson et al, 2009; Hodgson et al, 2011; Kettunen et al, 2007b; Van Der Windt and Swart, 2008). Furthermore, most of the species that necessitate Natura 2000 designations have specific habitat requirements and other ecological needs, making it unlikely that typical corridors could provide the habitats required to greatly facilitate their movements. Crofts also considers that the requirement to designate sites for particular habits and species leads to static conservation objectives that do not recognise ecological changes. While this problem is also noted by others, for example with respect to coastal change in the UK (Ledoux et al, 2000), there is, in fact, evidence to show that change in features can be accommodated, such as in response to climate change (See question R.1).

Two other major weaknesses are identified by Crofts and supported by other evidence and stakeholder opinions. Firstly, although the top-down approach used to establish Natura 2000 facilitates systematic and well-coordinated actions, it has also led to some problems, in particular, where key stakeholders were not sufficiently consulted. Although some Member States took steps to consult with those affected by the proposals for Natura 2000, this was on a limited basis because the Directives require sites to be selected solely on scientific criteria. This created conflicts, especially where designations were on private land, leading, in some cases, to protesters hiring their own nature conservation experts to challenge the case put forward for site designation (e.g. certain sites in Scotland). Crofts considers the involvement of stakeholders to be beneficial, as it forced a more rigorous approach by the nature authorities.

Secondly, citing Phillips (Phillips, 2003) and Lockwood et al (Lockwood et al, 2006), Crofts states that the best protected area systems have 'a financial assessment of the costs of all stages in the process, appropriate financial mechanisms and resource allocations to ensure that the necessary tasks can be undertaken both in the short and the long terms, and the revision of those policies and programmes whose continuation would impact on or hinder the implementation of the protected areas measures. In terms of these requirements Natura 2000 does not perform well, as funding is inadequate and policies have not been aligned to support biodiversity objectives.

Kati et al (2015) identified the main factors affecting the implementation of Natura 2000, using a targeted questionnaire-based survey of conservation scientists in Europe in 2009.

242 responses to the questionnaire were received from 24 EU Member States. Although this comprises a substantial sample, the respondents were from a primarily academic background (40% employed in a university or research institute), and almost half of whom had less than four years involvement in Natura 2000 implementation, and 25% had two years or less. The results of the study should be read in light of the academic nature of the group, along with the limited range of experience.

The questionnaires asked respondents to score 30 elements of Natura 2000 implementation according to a 5-point Likert scale of satisfaction (e.g. 1= not at all; 5= very much). The results were then subjected to a comprehensive statistical analysis¹⁴⁵ to identify the factors that most influenced the respondents' satisfaction levels with Natura 2000 implementation.

The analysis revealed that the conservation scientists had a moderate level of overall satisfaction regarding the implementation of Natura 2000 (mean score 3.07). Table 13 shows that seven main factors affected the quality of implementation (in decreasing order of influence). Respondents considered that the increase of biological knowledge gathered for target species and habitats is the greatest strength of the Natura 2000 designation process. Other strengths included the contribution of NGOs, the adequacy of the network design in terms of its area and representativeness, and the adequacy of the legal framework.

Table 13 Average item scores and factor scores from a survey of conservation professionals in Europe about Natura 2000

No.	Factor	Questionnaire item	Item score*	Factor score
1	Network design	Natura 2000 well represents the areas that should be protected	3.80	3.69
2		The area of Natura 2000 network covers a sufficient proportion of the national territory	3.57	
3	External sources	Involvement of NGOs yields desired positive effects for Natura 2000 implementation	3.81	3.34
4		EU Life+ funds for Natura 2000 are adequately used for nature conservation	3.46	
5		EU rural development funds targeted at Natura 2000 implementation are adequately used the nature conservation	3.18	
6		Spatial and urban planning of the municipalities properly integrates Natura 2000 sites	2.90	
7	Legal frame	Natura 2000 provides an efficient EU legal frame to enhance nature conservation	3.64	3.27
8		There is an adequate national legislation for the implementation of Natura 2000	3.36	
9		Natura 2000 is effective in halting or mitigating big projects (regional scale) with great negative impact on biodiversity	3.28	
10		Natura 2000 is effective in halting or mitigating small projects and activities (local scale) with small negative impact on biodiversity	3.17	
11		Natura 2000 is effective in halting illegal activities negative impact on biodiversity	2.95	
12	Scientific input	Natura 2000 contributes to increasing our knowledge on species inventories and habitat typology	3.87	3.9
13		Competent conservation scientists are available	3.54	
14		The personnel charged with the management of Natura 2000 sites in situ is competent	3.40	
15		Scientific studies for Natura 2000 sites management are adequate	2.91	
16		The current management practices implemented in	2.86	

¹⁴⁵ Including analysis of the reliability of the questionnaire, and cluster analysis and tree modelling of the responses, which are not fully reported here.

No.	Factor	Questionnaire item	Item score*	Factor score
		Natura 2000 sites are adequate for the conservation of biodiversity		
17		There is a sufficient number of conservation scientists who are involved in Natura 2000 decision-making processes	2.64	
18		Sufficient personnel are employed for the management of Natura 2000 sites in situ	2.41	
19	Procedural frame	EU cross-compliance regulation for nature conservation is adequately implemented in Natura 2000 sites	3.25	3.07
20		The measures proposed by the environmental impact assessment studies for projects and activities planned inside Natura 2000 are adequately implemented	3.21	
21		The environmental impact assessment studies projects and activities planned inside Natura 2000 are adequate	3.21	
22		The monitoring schemes for Natura 2000 sites are adequate	2.96	
23		The monitoring schemes in Natura 2000 sites are well implemented	2.74	
24	Social input	Citizens would support a substantial increase of national funds for nature conservation	3.07	0.69
25		Natura 2000 contributes to the sustainable development of local communities	2.98	
26		Local people have a positive attitude toward Natura 2000	2.50	
27		Local people have the knowledge for well-informed decisions with regard to nature conservation in Natura 2000 sites	2.41	
28	National or local policy	And efficient national mechanism has been established for Natura 2000 administration	2.89	2.5
29		Natura 2000 success is among the priorities of your national government	2.43	
30		Natura 2000 success is among the priorities of local governments	2.17	

Source: Kati et al, (2014)

Note: * average of a 5-point Likert scale of satisfaction (e.g. 1= not at all; 5= very much).

Weaknesses were the lack of political will from local and national governments, the negative attitude of local stakeholders, as well as their lack of background knowledge (which prevented well informed policy decisions), and the understaffing of Natura 2000 management authorities. The lack of public and stakeholder awareness and social input through stakeholder participation was viewed as one of the main weaknesses. The authors note that 'farmers, foresters, landowners, and local residents in most EU member states envisage Natura 2000 as a hindrance to development and often oppose Natura 2000 implementation, according to the gravity of economic interests at stake' [citing Young et al. 2005; Keulartz 2009; Apostolopoulou & Pantis 2010; Grodzinska-Jurczak & Cent 2011]. The respondents also considered that EIA procedures need to be improved. In this regard it is assumed that the paper is referring to Appropriate Assessments (in accordance with Article 6(3)) rather than EIAs carried out in accordance with the EIA Directive. As such this observation is consistent with some stakeholder views discussed below. The impact of this factor, however, may have lessened in recent years, as a more recent review of Appropriate Assessments carried out for the Commission found that standards had improved (Sundseth and Roth, 2013).

Responses to the evidence gathering questionnaire

On the basis of the above reviews and an examination of the evidence gathering questionnaire responses, it was possible to identify a number of recurring themes and more specific factors that have significantly influenced the implementation of the Directives.

Inevitably, their interactions are complex, making it difficult to separate them completely to create a pragmatic list that does not result in some duplication of issues. Table 14-3 lists the key issues and is aligned with the list of factors that were included in the online public consultation for this study. The key factors are described in more detail below. Some respondents indicated that funding levels were influential factors but did not provide further details of the impacts of funding constraints, in which case the key factor was noted as a general funding issue. Similarly, in some cases only general stakeholder consultation issues were identified.

Table 14-3 indicates the percentage of respondents that were judged to have included the listed factor, as well as whether they considered it to support or hinder the implementation of the Directives. In some cases the responses indicated that the factors had mixed impacts on implementation. For example, initial increases in funding or knowledge helped to initiate actions, but now higher levels of funding are required. The information provided did not allow for a reliable and systematic quantification of the impact of each factor on implementation.

Although the results are broadly consistent with other sources of evidence, such as those described above, the most influential factors vary between Member States and regions, according to their context and their position along the Directives implementation pathway. Thus, for example, factors affecting the designation of terrestrial Natura 2000 sites are still relevant to the newer Member States, whilst older Member States may be more concerned with factors affecting the establishment of management measures within sites.

Table 14-3 Factors affecting implementation of the Directives in the Member States

Based on an analysis of 88 clear and relevant responses to question S.3 (from 23 nature authorities, 10 other authorities, 35 NGOs and 20 from private enterprise / industry)

Factor – the level of:	Listed by	Supporting	Hindering	Mixed
General funding availability	58%	8%	50%	0%
• Funding availability for management measures (including compensation / incentives for land owners)	38%	3%	30%	5%
• Funding availability for nature / environment authorities and their capacity	27%	0%	27%	0%
General stakeholder awareness & cooperation - GENERAL	51%	9%	31%	11%
• Awareness and collaboration - landowners, farmers and foresters	28%	5%	19%	5%
• Awareness and cooperation - nature conservation / science organisations	16%	15%	1%	0%
• Awareness and cooperation - businesses	14%	9%	5%	0%
• Awareness and cooperation - hunters and anglers	6%	1%	3%	1%
Available knowledge	48%	3%	40%	5%
Court rulings and Commission guidance	36%	16%	11%	9%
Coherence with other EU policies and funds	30%	2%	26%	1%
Political ambitions and support	28%	1%	27%	0%
Objective setting and management planning processes	24%	6%	17%	1%
Governance, including cooperation across government departments, and between national, regional and local levels	23%	1%	20%	1%
Enforcement of legislation and penalties	17%	1%	16%	0%
Authorities' expertise and experience (e.g. Appropriate Assessments and permitting)	11%	2%	9%	0%
Integration with spatial planning, SEA and	9%	3%	6%	0%

EIA				

Other factors mentioned by five or fewer respondents were: the systematic biogeographical process; the designation of industrial areas within Natura 2000 sites; pre-accession funding for projects; access to justice, uncertainty of national and EU legal interactions; the current focus on jobs and growth and low awareness of value of Natura 2000 sites; the history of nature conservation in the Member State; measures in some Member States going beyond the Nature Directives' requirements ('gold-plating'); overly strict application of procedures at the expense of the overall aims of the Directives; limitations on use of adaptive management approaches to dealing with potential pressures; differences in Member States' approaches (e.g. relating to interpretation of habitat definitions, fisheries, hunting); land ownership sensitivities and registration problems; the complexity of procedures for landowners to apply for management contracts; limitations of the voluntary approach to site management; lack of incentives for private investment in biodiversity; lower taxation for Natura 2000 landowners; transboundary cooperation; and public support for the environment.

Results from the online public consultation

Under question 18, respondents were asked to identify which of the 15 factors listed in the question contributed to making the Directives a success. Table 15-4 provides a summary of the results, but care should be taken in the interpretation of the combined responses due to the influence of response campaigns by different stakeholder groups (see section 4.2.2.4). Of the 15 factors listed, eight were considered by the majority (46-49%) to have no contribution to the success of the Directives. Four of the factors: effective enforcement, effective national coordination, guidance and best practice implementation, and international cooperation to protect species and habitats, were considered by the majority (49-52%) to have a minor contribution. Public awareness and support (57%) and nature conservation being integrated into other policies (55%) were considered by the majority to have a moderate contribution to the success of the Directives. None of the 15 aspects were considered by the majority to have had a major contribution to the success of the Directives.

Adequate scientific knowledge was the factor that stood out as being most frequently believed to have a major contribution. Combining the moderate or major contribution responses suggest that the top three factors, with a combined percentage of over 40%, were public awareness and support, nature conservation integration with other policies, and scientific knowledge.

Table 15-4 Summary of respondents' responses to Question 18 on factors that have contributed to the Directives' successes

The results are based on 16,815 responses (see section 4.2.2.4 for a breakdown of respondent types)

	No contribution	Minor contribution	Moderate contribution	Major contribution	Don't know
The Directives are clearly worded	47%	10%	18%	21%	4%
Effective enforcement	7%	51%	19%	20%	3%
Effective EU level coordination	47%	12%	15%	19%	6%
Effective national coordination	7%	52%	17%	20%	3%
Effective regional coordination	46%	14%	20%	17%	3%
Effective local coordination	48%	16%	15%	18%	3%
Guidance & best practice on	7%	51%	17%	21%	4%

	No contri- bution	Minor contribu- tion	Moderate contribu- tion	Major contribu- tion	Don't know
implementation					
Sufficient scientific knowledge of species & habitats	46%	9%	15%	28%	2%
Dedicated funding	46%	13%	14%	23%	5%
Appropriate human resources	47%	13%	18%	17%	5%
Stakeholder involvement	49%	10%	15%	22%	4%
Public awareness & support	9%	15%	57%	17%	2%
Nature conservation is well integrated into other policies	10%	15%	55%	18%	3%
Appropriate management of protected areas	46%	12%	17%	23%	2%
International cooperation to protect species & habitats	7%	49%	24%	14%	6%

Description of key factors and case examples

The key factors identified in the review above are further described below, together with supporting examples from evidence gathering questionnaires and literature. More detailed case examples are also provided for issues of particular importance that are not discussed in more detail elsewhere in this report. Political will and court cases are described, as these were particularly relevant to the initial stages of the implementation of the Directives, for example, the interpretation of the Directives during their national transposition and Member State ambitions relating to the extent of the Natura 2000 network etc.

The other key factors relate to the ongoing implementation of the Directives and are given in order of importance, according to the number of evidence gathering questionnaire respondents that highlighted their importance.

Political ambitions and support

The degree of political support by the elected representatives of national and regional government bodies was mentioned by 28% of respondents to the evidence gathering questionnaire. Of these, only the Spanish Ministry of Agriculture, Food and Environment, stated a positive impact, citing the country's creation of the largest Natura 2000 network in the EU and its decision to develop management plans for all sites in the network as evidence. However, the response from the Spanish NGO did not support this view. All other respondents considered that political support had been weak, and had constrained the implementation of the Directives in their country. This seemed to primarily relate to the transposition of the Directives, which was slow in many countries, and the ambitions regarding the number of sites and extent of the Natura 2000 network. However, as discussed under question Y.2 (see section 6.2) political decisions have also influenced the allocation and targeting of EU funds.

The majority of respondents that considered political support to have acted as a constraint were NGOs (49% of NGO responses). Four Member State authorities also indicated that past political support had been weak (Greece, Italy, Luxembourg and Poland). The European Landowners Organisation and the Bulgarian Tourist Board felt that weak political support had constrained implementation of the Directives. Several respondents suggested that the underlying reasons for concern stemmed from perceptions of the Di-

rectives' potential to create burdens and slow down or prevent economic developments, combined with limited awareness of the social and economic benefits of biodiversity and ecosystems services (especially at the time). Some politicians appeared to consider that their established protected area networks were already sufficient to meet the requirements of the Directives, such as in the Netherlands (Ferranti et al, 2010). Kati et al (Kati et al, 2015) also found that respondents to their questionnaire from 24 Member States gave a low agreement score in relation to the statement that 'Natura 2000 success is amongst the priorities of your national government' (Table 13). They also found that political support was lower at local levels, as they gave their lowest score to the statement on the prioritisation of Natura 2000 by local governments.

Direct evidence of weak political support, and its impacts and causes, was not provided by any respondents, but many referred to CJEU cases resulting from slow or incomplete designation / classification of SPAs / SCIs, which resulted in Member States having to increase the designation of SPAs and SACs. For example, cases related to the inadequate implementation of the Birds Directive were brought against Ireland (117/00), Italy (C-334/89), the Netherlands (C-3/96), France (C-166/97, C-96/98, 202/01), Finland (C-240/00), Spain (C-235/04 and 378/01), Greece (C-334/04), and Bulgaria (4850/2008). Similar cases relating to the failure to propose complete lists of SCIs, pursuant to Article 4 of the Habitats Directive, were brought against Ireland (C-67/99), Germany (C-71/99) and France (C-220/99).

Court rulings and Commission guidance

Uncertainty regarding the implications of some legislative provisions also led to some delays in the transpositions of the Directives (see section 3.3), which in turn lead to infringement procedures and legal cases that further delayed transposition and implementation. However, over time, the case law has clarified interpretation of the legislation and confirmed whether or not Member States have acted lawfully in transposing and implementing their provisions.

Evidence of the effects of infringement cases on implementation primarily comes from the responses to the evidence gathering questionnaire. 38% of respondents indicated that the CJEU and national court cases, as well as the development of Guidance documents, affected the implementation of the Directives (see Table 15-4). However, views on whether the court cases contributed to or hindered implementation vary. Some respondents who listed this as a key influencing factor considered that the court case supported implementation (16%). But a significant number considered court cases to hinder progress (11%) and or have mixed effects (9%), such as initially delaying progress but stimulating more effective actions in the long-run. Several respondents noted that the Commission had played a key role in identifying and dealing with legal issues during initial discussions with Member States, which, if necessary, led to infringement procedures. This process of learning and clarification has been supported by the production of Commission Guidance documentation (increasingly in consultation with stakeholders; see list and discussion in relation to question Y.8 (see section 6.8).

Case examples where implementation as believed to be affected by CJEU court cases included:

- Austria: inadequate and incomplete implementation, and variation amongst the Federal regions, resulted in many problems with the transposition and implementation of the Directives, resulting in 39 Commission infringement proceedings. (Source: WWF Austria).
- Bulgaria: The Commission supported the implementation of the Directives by providing guidance on correct implementation of the Directives in particular cases, both during the accession process (Kresna case¹⁴⁶), and after accession, mainly

¹⁴⁶ T-PVS/Files(2004)20E / 21 October 2004: <https://wcd.coe.int/com.instranet.InstraServlet?command=com.instranet.CmdBlobGet&InstranetImage=1326919&SecMode=1&DocId=1450548&Usage=2>; T-PVS/Files(2006)15E / 27 September 2006: <https://wcd.coe.int/com.instranet.InstraServlet?command=com.instranet.CmdBlobGet&InstranetImage=13264>

through infringement procedures (e.g. Kaliakra case on the inadequate protection of Kaliakra IBA – 4260/2008), regular visits to Bulgaria, and meetings with desk officers in Brussels. (Source: Bulgarian Society for the Protection of Birds).

- Luxembourg: For a long time Luxembourg failed to transpose the Directives into national law as the relevance of the Directives was underestimated, and there were uncertainties relating to the correct legal interpretation of some articles (e.g. Habitats Directive Article 6(3)). EU guidance facilitated implementation. Governments, stakeholders and business have familiarised themselves with the procedures and the processes of the Directives and their overall functioning. The Directives have become more and more effective over time as different authorities have become familiar with the Directives. (Source: Ministry of sustainable development.)

Available funding

58% of questionnaire respondents believed the availability of funding has had the most influence on the implementation of the Directives. This is expected, as funding is necessary for a range of key actions that have to be taken to implement the Directives. Funding is, for example, required by authorities (often in partnership with conservation organisations and researchers) to carry out surveys and research to identify and designate Natura 2000 sites, raise awareness of the Directives and consult with stakeholders, prepare site and species management plans, agreements and contracts, consider the impacts of activities on Natura 2000 sites and protected species (i.e. to evaluate EIAs and Appropriate Assessments), carry out surveillance and enforcement activities, and to monitor and assess the conservation status of habitats and species. Public funding is also normally essential for incentive/compensation measures for landowners in order to secure appropriate management.

Many respondents to question S.3 noted that the Nature Directives had initially greatly increased the availability of funding for nature conservation (e.g. through EU funded pre-accession projects, the LIFE programme and CAP funded agri-environment schemes). The LIFE programme was mentioned many times as being especially important, even though the total amount of funding that it provides is very low compared to other sources (such as agri-environment programmes). Consequently, 8% of respondents considered that available funding had supported the Directives (see Table 15-4.) However, 58% of respondents to the question clearly indicated that, while funding levels may have increased, they remain inadequate and constrain further implementation. It was possible to deduce from some of the responses whether funding affected the implementation of management measures (e.g. habitat maintenance and restoration in Natura 2000 sites), which are largely dependent on compensation or incentive payments for land owners (e.g. through the CAP funded Natura or agri-environment measures), or the funding of nature authorities. The funding of management measures was explicitly mentioned most often, with 27% indicating that funds were inadequate. However, some 27% also indicated that funding was a constraint on nature authorities, with many also mentioning that this contributes to other factors affecting implementation (e.g. available knowledge, expertise and enforcement issues – as discussed below).

There is strong evidence to support the view that funding is insufficient and/or difficult to access, and that current funding levels, therefore, place a constraint on the implementation of the Directives. (see section 6.2 for a more detailed discussion).

Stakeholder awareness and cooperation

General stakeholder awareness and collaboration was mentioned by 51% of respondents to question S.3 (see Table 15-4). Most considered awareness raising and collaboration with stakeholders to have been inadequate, thereby causing problems and slowing the establishment of the Natura 2000 network. Further analysis of the responses in relation

to stakeholder groups affected reveals that this was most often in connection with land-owners, farmers and foresters, with 28% of respondents indicating that such stakeholders were affected, most of whom received inadequate consultation. . This exacerbated concerns about possible impacts on land uses and property rights, combined with inadequate or absent compensation payments, leading to frequent objections to Natura 2000 designations in some Member States. Where steps were taken to consult with stakeholders early in the Natura 2000 network development process, then this initially slowed the designation process, but often brought greater acceptance of site designations in the long-term. Similar conclusions were drawn by a review of the literature by the ETC-BD (Naumann et al, 2011) and Crofts (2014). Documented examples of problems resulting from insufficient public participation in the implementation of the Directives comes from Greece, (Apostolopoulou and Pantis, 2009), Sweden (Stenseke, 2009), Ireland (Bryan, 2012) and Poland (Grodzinska-Jurczak and Cent, 2011).

A clear trend is visible over the course of the implementation of the Directives towards increased stakeholder participation, and this has avoided or alleviated some conflict with stakeholders. In France, for example, according to the questionnaire response from the Ministry for Ecology, Sustainable Development and Energy, there was strong resistance from some groups to the initial proposals for the Natura 2000 network. The network was therefore subsequently introduced on a gradual basis, through close cooperation with local stakeholders, during both the site designation phase and the site management phase. This cooperation has taken place at various levels, including within site Steering Committees (COPILs) responsible for site governance, during consultation on site DOCOB preparation, and through the work of local coordinators, who meet with local stakeholders to propose contracts that encourage cooperative behaviour. The Ministry states that 'these local management measures have already delivered effective results'.

Another example of an initiative believed to have promoted stakeholder collaboration was the development of the German Association for Landcare (Box 5).

Box 5 Stakeholder engagement in nature conservation through the German Association for Landcare

The German Association for Landcare (DVL)¹⁴⁷ is a 20-year old umbrella organisation of 155 Landcare Associations (LCA) in Germany. These regional non-governmental associations **link nature conservation groups with local farmers and local communities**. The often-opposing interest groups work together in LCAs voluntarily to care for the cultural landscape and traditional farming systems. By pooling interests and local forces LCAs implement integrated and sustainable land management practices in many rural areas in Germany to protect flora and fauna and to support sustainable development.

Local Landcare coordinators in LCAs develop projects for specific landscape types including scientific measures, financial calculations and the **implementation of agri-environment schemes**. They apply for available state funds and supervise the implementation of activities, mostly by local farmers, as well as monitoring project outcomes. The basis for successful projects is the close cooperation with farmers, local communities, conservation groups and government authorities. Overall, LCAs in Germany work with 20,000 farmers, half of Germany's communities and have a turnover of 20 Mio EUR/year for practical projects on the ground. Project coordinators combine traditional knowledge and new scientific information to foster farming practices which increase sustainable incomes for farmers while conserving the diverse mosaic of landscapes and their associated services. DVL also provide manuals and guidelines on Natura 2000 implementation.

Source: NABU response to the evidence gathering questionnaire, citing Deutscher Verband für Landschaftspflege (DVL) e.V.

Some respondents indicated that the involvement of other stakeholder groups had an important influence on the implementation of the Directives. Good cooperation with nature conservation organisations (e.g. in terms of surveying, monitoring, research, identi-

¹⁴⁷ www.landschaftspflegeverband.de

fication of Natura 2000 sites, management planning and the assessment of progress) was considered by 15% of respondents to support the Directives (Table 15-4). Several also noted that they played a major role in scrutinising Member State policies, legislation and proposed developments. There were also examples of positive collaboration with businesses, who are increasingly aware of the need to manage biodiversity associated business risks, with more progressive businesses seeing opportunities to make positive contributions to biodiversity objectives. Some 9% of respondents considered that collaboration with businesses had been sufficient to contribute to the implementation of the Directives, while 5% indicated that there had been problems that had constrained progress. Cooperation with hunters and sport anglers, was mentioned by 6%, most of whom stated that there had been problems hindering implementation, but some noted positive initiatives, such as the collaboration on the development of the guidance on sustainable hunting (European Commission, 2008b).

Available knowledge

The level of ecological knowledge, such as the distribution of European protected species and habitats and their ecological requirements, clearly has an important influence on the effectiveness and efficiency of the implementation of the Directives. 48% of responses to S.3 strongly believed that the availability of relevant knowledge was an important factor influencing the implementation of the Directives. Many respondents noted that Member States have greatly increased their ecological knowledge as a result of the Directives, although data and knowledge deficiencies that persist are constraining the identification of appropriate Natura 2000 sites, the development of management plans and the reliable assessment of the impacts of activities on habitats and species. Consequently, 40% of respondents state that, overall, the level of knowledge now represents a constraint on progress.

Some respondents noted that where Member States have invested in gathering detailed data, this has often helped to achieve nature conservation objectives and minimise delays and cost to the developers (as discussed under efficiency issues). See Y.8 (see section 6.8) for further discussion of the impact of knowledge gaps.

Coherence with other EU policies and funds

30% of respondents considered other EU and national policies and funds (such as grants that influence agriculture, forestry and fisheries), to have an important influence on the implementation of the Directives. However, the vast majority of these (26%) state that other policies and funds hinder implementation as they have made it difficult to secure appropriate management of habitats, especially outside Natura 2000 sites (i.e. where there are less land and sea-use restrictions). The ETC-BD review also notes that the central role of low intensity agriculture and forestry in preserving valuable habitats is not reflected in Member State policy priorities and site management (Naumann et al, 2011).

Only one respondent provided direct evidence to support their views. This was the Danish Society for Nature Conservation, which referred to a statement by the farmers' organisation "Landbrug & Fødevarer". They say that farmers consider it to be more desirable to continue conventional farming, compared to engaging in efforts to manage and recreate habitat, because funding is not sufficient to be an attractive alternative, compared to conventional farming under the CAP. In fact, they state that there is a very large disincentive to contribute to implementation by entering agreements with compensation, and farmers are in many cases advised against it by their organisations. However, although it is difficult to draw clear and reliable conclusions from this evidence, other evidence is described in more detail under the CAP section of questions C4/5 (see section 8.4). This provides some support for the view that payments under the CAP Natura and agri-environment measures are not strong incentives for some farmers to adopt practices that increase their contribution to nature conservation objectives. Furthermore, the analysis of funding under Y.2 (see section 6.2) also provides evidence that funding priorities un-

der CAP RDPs and other funds are not generally aligned with nature conservation requirements.

Objective setting and management planning

The development of management plans according to best practice principles, such as clear site objective setting and adequate participation of landowners and other key stakeholders, is widely regarded as an effective means of addressing stakeholder concerns¹⁴⁸. They can also form the basis for management agreements and the release of funding under the CAP Natura 2000 measure and/or agri-environment schemes. However, while many respondents to the evidence gathering questionnaire noted the value of management planning in this respect, 17% considered that management planning was a constraint on implementation (Table 15-4). This appeared to be primarily due to slow progress with management planning, but also in some cases the management planning process had caused problems (e.g. through top-down approaches). For example, according to the NGO Zelený Kruh, there are problems with the preparation of management plans produced by the Nature Conservation Agency of the Czech Republic together with regional authorities. According to the NGO, there were problems with the quality of the plans, for example as a result of the conservation principles for sites being set at national level, rather than regionally.

Another issue constraining the development of effective management plans has been the limited and varying development of national and regional conservation objectives (i.e. the clear definition of FCS for European protected habitats and species). The lack of such objectives can also make it difficult to assess the potential impacts of activities on species and habitats. This has led in some Member States to an overly risk-averse approach to dealing with impacts, and some protected species where every individual is strictly protected rather than conservation status of the population concerned. For example, NGOs and DEFRA in the UK, agree that insufficient mapping and monitoring and establishment of conservation objectives and definitions of FCS for some protected species, such as the Great Crested Newt, has led to each individual being protected and compensation being required for unavoidable impacts to ensure no net loss (see section 6.4 for details). There are also varying standards and approaches amongst Member States in the interpretation of FCS without sufficient development of favourable reference values (McConville and Tucker, 2015).

However, as described further under question S.1 (see section 0), management planning is progressing well in some Member States. For example, according to the Agency for Nature and Forests, in Flanders, the establishment of conservation objectives and further development of the management plans has given landowners and stakeholders more insight into the legal implications for their land and activities. They also enable flexibility in permitting procedures by focusing on the overall requirements for an improved conservation status in the relevant sites, rather than simply prohibiting certain activities.

Governance issues

Governance issues, such the organisational structures and responsibilities of competent authorities in relation to national, regional and local administrations (i.e. vertical governance) and interactions across administrative departments can have important effects on nature conservation actions (e.g. in relation to overall policies, funding allocations, permitting, enforcement actions and reporting). 23% of respondents stated that such issues have affected the implementation of the Directives, with most (20%) indicating that governance issues have been a hindrance. In some cases these were related to the initial implementation phases, where Member states were coming to terms with requirements and learning. Some countries report ongoing problems, e.g. due to organisational re-

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<http://ec.europa.eu/environment/nature/natura2000/management/docs/comNote%20conservation%20measures.pdf>

structuring, and funding cuts to nature organisations (see further discussion in relation to efficiency questions in section 6).

Examples of governance issues referred to by respondents to the evidence gathering questionnaire include the additional complexity of federal governance structures (ASFi-NAG nature authority and WWF in Austria), delays with the establishment of suitable management bodies for Natura 2000 sites in Greece (Ministry of Reconstruction of Production, Environment and Energy), and poor cooperation between nature conservation, agriculture and forestry administrations in Romania (Federatia Coalitia Natura 2000).

Enforcement of legislation and penalties

16% of respondents consider enforcement of the Nature Directives' to have been inadequate, creating a constraint on the implementation of the Directives. This related to a number of issues, such as hunting, the impacts of intensive agriculture and forestry on European protected species and habitats, the implementation of compensation measures for impacted sites and the impacts of pollution incidents. As noted above, such problems may be ultimately due to limited funding and/or political support.

Examples of enforcement issues provided by the respondents included:

- The impacts of hotel building (Sunny Beach resort), golf courses (Tracian cliffs) and wind farms on SPAs in Bulgaria (Source: Bulgarian Society for the Protection of Birds, and the Bulgarian Tourist Chamber).
- In the UK, Wildlife Link state that inadequate enforcement has resulted in a systematic failure to prevent persecution, through the deliberate killing, nest destruction and disturbance of raptor species (in particular the Hen Harrier)¹⁴⁹¹⁵⁰. There have also been increases in contraventions of the legislation to protect bats and their roosts. Furthermore, the fines given following conviction are set at a very low level, such that it is cheaper to break the law.
- According to Friends of the Earth Europe, unauthorised mineral extraction has been undertaken on a significant scale at Lough Neagh in the UK since it was designated as a SPA. It is estimated that Lough Neagh provides some 20-25% of Northern Ireland's annual sand production and has been at up to 1.7 million tonnes per annum. Yet there is no Habitat Regulations Assessment or EIA for this activity.

There is also well-documented evidence of substantial problems with illegal hunting in Malta, as indicated by BirdLife Malta in the evidence gathering questionnaire. However, Malta Environmental Planning Authority and the Wild Bird Regulations Unit stated that enforcement has been progressively strengthened 'through the introduction of harsher legal deterrents against bird-related crime and hunting violations; through investment in the capacity building of enforcement institutions (strengthening of the Administrative Law Enforcement Unit within the Malta Police Force, creation of the Specialist Enforcement Branch of the Wild Birds Regulation Unit, training initiatives, investment in IT and technical enforcement infrastructure, etc); through public education and regulatory awareness initiatives (e.g. support for educational programmes run by NGOs, awareness raising campaigns aimed at hunters, etc)¹⁵¹'. BirdLife Malta, recognise that improvements have been made, but note that further actions are needed.

¹⁴⁹ Fielding, A., Haworth, P., Whitfield, P., McLeod, D. & Riley, H. 2011. *A Conservation Framework for Hen Harriers in the United Kingdom*. JNCC Report 441. Joint Nature Conservation Committee, Peterborough. <http://jncc.defra.gov.uk/pdf/jncc441.pdf>

¹⁵⁰ Natural England 2008 *A future for the Hen Harrier in England?* http://webarchive.nationalarchives.gov.uk/20110320092856/http://www.naturalengland.org.uk/Images/hen_harrier_report221208_tcm6-9451.pdf

¹⁵¹ <http://environment.gov.mt/en/Pages/WBRU/Reports-and-Statistics.aspx>

Authorities' expertise and experience

9% of respondents stated that problems have arisen as a result of limited expertise and inconsistent standards being applied by authorities, such as with respect to EIAs and permitting procedures (Table 15-4). For example, according to the Association BIOM in Croatia, the poor quality of EIAs/AAs/SEAs is considered to be one of the biggest obstacles to the effective implementation of the Directives, with some situations arising where expert opinions from the State Institute for Nature protection relating to wind farm applications have been overruled.

Similar conclusions were drawn by Kati et al (2015) and supporting evidence comes from a Commission study of Appropriate Assessment procedures (Sundseth and Roth, 2013). This also appears to have been a particular problem where decision-making has been devolved to regional and local administrations that may lack the expertise and experience to cope with complex nature legislation issues. This has, in some cases, led to the approval of activities that have had significant impacts on habitats and species. In other cases it has led to a risk-averse policy among competent authorities, whereby development projects that could be designed or managed in a way to avoid impacts are rejected, and/or heavy burdens are placed on the developers to prove the absence of impacts. There is evidence that, where Member States have learned from their experiences and invested in training, guidance and provided adequate resources for the competent authorities', decision-making on Appropriate Assessments and permitting, etc. is more consistent, effective and efficient.

Integration with spatial planning, SEA and EIA

Strategic spatial planning combined with best practice and joined up SEA, EIA and Appropriate Assessment procedures can help to identify potential conflicts early in development cycles, thus helping to avoid economic social and biodiversity impacts. This is particularly effective where good up-to-date spatial data are available on the location of European protected species and habitats. As indicated in Table 15-4, such practices do appear to be supporting the implementation of the Directives to some extent, as they were mentioned by a small proportion of respondents to the questionnaire (3%). However, there also appears to be scope for further improvement as 6% considered that these processes are a hindrance to progress. Further discussion of the interactions between the Nature Directives and SEA and EIA can be found in question C.2 (see section 8.2).

5.3.4 Key findings

- The availability of public funding has probably had the most influence on implementation. Funding constraints on authorities have affected the establishment of the Natura 2000 network, as well as other important actions, such as stakeholder engagement, management planning, permitting and enforcement measures. Public funding is also usually essential for incentive/compensation measures for landowners to secure appropriate management. Although the Directives have undoubtedly increased the availability of funding, there is strong evidence to suggest that this is insufficient and/or difficult to access, and will continue to be a constraint on implementation (see question Y.2).
- The degree of political support for the Directives was frequently listed by NGOs and other stakeholders as a key factor that has affected implementation through its effects on funding (e.g. with respect to the prioritisation of funding) and key implementation decisions, such as the ambitions of the Natura 2000 network.
- Uncertainty regarding the implications of some legislative provisions has led to some delays in transposition, leading, in turn, to infringement procedures, legal cases and further delays. Case law has, however, clarified interpretation and confirmed where Member States have acted lawfully in transposing and implementing their provisions.

This process of learning in collaboration with stakeholders has also been supported by Commission guidance.

- Lack of awareness of the implications of the Directives for, and among, landowners and local communities slowed the establishment of Natura 2000. Concerns over possible impacts on land uses and property rights, combined with inadequate or absent compensation payments, led to objections in some Member States. While early consultation with stakeholders on Natura 2000 initially slowed the designation process, it is expected to yield long-term benefits through greater acceptance of site designations and participation in site management.
- The level of ecological knowledge, such as the distribution of European protected species and habitats and their ecological requirements, clearly has an important influence on the effectiveness and efficiency of the implementation of the Directives (see Y.8 for details).
- The development of management plans according to best practice principles, including clear site conservation objective-setting and adequate participation of landowners and other key stakeholders, has been shown to be an effective means of addressing stakeholder concerns and forming the basis for management agreements.
- Limited and varying development of national and regional conservation objectives frequently constrained strategic and site-level management planning. Associated issues were the difficulties in assessing the potential impacts of activities on species and habitats. In some Member States this has contributed to an overly risk-averse approach to dealing with impacts on some protected species, such that the focus is on the protection of individuals rather than maintaining the conservation status of the population concerned.
- The existence of incentives, such as payments that encourage agricultural, forestry and fishery systems and practices, can make it difficult in some circumstances to secure appropriate management of habitats, especially outside Natura 2000 sites (i.e. where there are less land and sea-use restrictions).
- Good integration of the Nature Directives with planning and impact assessment procedures. Strategic spatial planning, combined with best practice and joined-up SEA, EIA and AA procedures can help to identify potential conflicts early in development cycles, thus helping to avoid economic, social and biodiversity impacts. This is particularly effective where good up-to-date spatial data are available on protected species and habitats.
- There is evidence that problems have arisen as a result of limited expertise and inconsistent standards with impact assessments and permitting procedures. This appears to have been a particular problem where decision-making has been devolved to regional and local administrations, which often lack the expertise and experience to cope with complex nature legislation issues. In contrast, where Member States have invested in providing training, guidance and adequate resources, decision-making was found to be more consistent, effective and efficient.
- Many NGOs consulted stated that a lack of enforcement of the Nature Directives has been a widespread problem, e.g. in relation to hunting, disregard of the impacts of intensive agriculture and forestry on European protected species and habitats, the implementation of compensation measures for impacted sites and the impacts of pollution incidents. Even when enforcement activities are carried out, there is evidence that penalties are often inadequate to deter further offences.
- Stakeholder cooperation is a major factor, particularly in relation to stakeholders who utilise biodiversity, such as hunters, fishers and sport anglers, (who benefit from the sustainable management of species and their habitats). Partnerships between nature authorities and nature conservation organisations have been instrumental in greatly increasing surveying, monitoring, research and management planning. Engagement with businesses also has had a role to play, as they have become increasingly aware

of both the need to manage biodiversity associated business risks, and the opportunities to make positive contributions to biodiversity objectives.

- It is important to note that some of the problems listed above are largely historical, because the action in question is now complete (e.g. problems related to transposition of the Directives), or are becoming less significant as a result of improved practice (facilitated by experience sharing, training and Commission guidance).

5.4 S.4 - Have the directives led to any other significant changes both positive and negative?

5.4.1 Interpretation and approach

The analysis assesses whether or not the implementation of the Nature Directives has brought about any significant environmental, social or economic effects or changes, either positive or negative, not intended by the Directives at the time of their approval. These changes should be the result of effects that were either unintended or unforeseen at the time of the approval of the Directive (causality) and they should be significant (magnitude). The effects/changes assessed are not defined as objectives of the Directives but act to support or block achievement of the Directives' objectives to a greater or lesser extent (significance).

Some of the changes/effects brought about by the Directives and identified by stakeholders relate specifically to the objectives of the Directives and, as they do not comply with the above mentioned judgement criteria, are not included for the purposes of this analysis. In addition, some of the identified effects/changes overlap with issues analysed under other questions (e.g. climate change in question R.1 – section 7 - and C.3, level playing field and internal market in question C.6 – section 8 -, or administrative burden and ecosystem services under question Y.1 – section 6).

5.4.2 Main sources of evidence

The following sources of information were used:

- Responses to the evidence gathering questionnaire, complemented by relevant case studies and detailed evidence shared by the stakeholders.
- The results from the 10 national missions to Member States and meetings with relevant Commission services. In some cases, the visits explored in greater detail the specific effects/changes raised in the evidence gathering questionnaire.
- The results of the online public consultation, in particular the replies received to the open question confirmed the information received in the evidence gathering questionnaires on unintended changes brought about by the Directives.
- EU-wide studies on the implementation of the Nature Directives, as well as national documents and literature referred to in the responses to the evidence gathering questionnaires.

5.4.3 Analysis of the question according to available evidence

The Directives have brought about **unintended changes not envisaged by the objectives of the Birds and Habitats Directives but which have impacted their effectiveness**.

Approximately 80% of the 101 respondents to the evidence gathering questionnaire considered the Directives to have led to 'other significant' positive changes, with about 30% of the respondents considering the Directives to have led to 'other significant' negative changes. In some cases, respondents stated that the Directives had led to both positive and negative changes. The changes which meet the judgment criteria, and which are not dealt with under other questions, are presented below.

Increased public awareness of nature leading to behavioural changes

The positive change most frequently mentioned is an increased awareness of nature among the public, leading to behavioural changes (e.g. various EU level organisations, NGOs and nature authorities, other public authorities in France and the Netherlands). One of the reasons for this is the proactive approach taken by some national authorities to raising awareness of the Nature Directives, bringing associated behavioural changes and greater support for implementation of the Directives.

The implementation of the Nature Directives and, in particular, the site selection and designation process has not been immune to problems. The first step for the establishment of the Natura 2000 network focused on site selection. The scale of this work was unprecedented, and few countries initiated proactive awareness-raising campaigns to explain the impact of Natura 2000 in practice for stakeholders affected by the site designation. This lack of early communication generated a number of problems, with certain sectors reacting negatively to the implementation of the Nature Directives. In France, Finland and parts of Germany, major campaigns were launched against Natura 2000 during the 1990s in response to fears that it would affect livelihoods and restrict activities (Sundseth 2004 [1908]).

The difficulties in the designation of Natura 2000 sites in France led to a complete freeze in 1996 in the implementation of the Nature Directives. A process for their implementation¹⁵² was then established based on the principle of public participation, framed within an awareness-raising and information scheme. Implementation is overseen by a Steering Committee (COPIL) in each site, including representatives of all relevant stakeholders, such as the *land owners and land users concerned, NGOs, local authorities and other stakeholders*. The Steering Committee is responsible for site management and governance decisions. A consultation process is also developed for the adoption of the conservation objectives of the site (DOCOB) and the management plan. This is supported by the work of local coordinators who act to raise awareness of Natura 2000 and who meet with local stakeholders to facilitate agreements, propose contracts and encourage best practice behaviours¹⁵³. This system is widely credited with the increased acceptance of the Nature Directives¹⁵⁴.

Slovenia is one of the Member States with the highest proportion of territory designated as Natura 2000 (37.5%)¹⁵⁵. The level of opposition to the Nature Directives is low, due to a high degree of awareness among the population. According to a 2015 survey¹⁵⁶, Slovenia is one of three Member States where the majority of the population (58%) has heard of Natura 2000, with about 30% claiming to know what the network is. The awareness among Slovenians is attributed to the awareness-raising activities carried out by the public authorities when setting up the Natura 2000 network¹⁵⁷ (Hlad 2004 [861]).

While raising awareness is not an objective of the Nature Directives, the legislator wanted to encourage Member States to carry out activities that would support the achievement of the Directives' objectives. Article 22 of the Habitats Directive adds a supplementary provision to encourage Member States to promote education and general information on the need to protect species of wild fauna and flora and to conserve their habitats and natural habitats.

¹⁵² National description of the implementation process related to site designation and management approaches (Articles 6(1) and 6(2) of the Habitats Directive), L'Atelier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc, accessed on 3.11.15.

¹⁵³ L414-1-III and R414-3 of the French Environmental Code.

¹⁵⁴ National description of the implementation process related to site designation and management approaches (Articles 6(1) and 6(2) of the Habitats Directive), L'Atelier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc, accessed on 4.11.15.

¹⁵⁵ Natura 2000 Newsletter, number 38, June 2015, available at: http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000news/nat38_en.pdf, accessed on 5.11.15.

¹⁵⁶ Special Eurobarometer 436 "Attitudes of Europeans towards biodiversity", European Union, 2015.

¹⁵⁷ Communication support to the Implementation of Natura 2000, ID number 2006/S 55-057662, available at: http://www.natura2000.si/uploads/tx_library/Komunikacijska_podpora_Natura.pdf, accessed on 5.11.15.

At an EU level, the need for an improved communication strategy was acknowledged in May 2002 when '... the 25 EU Member States signed the 'El Teide Declaration' to emphasise their commitment in promoting greater awareness and understanding of Natura 2000 and involving stakeholders in decisions over the long term management of the sites' (Sundseth 2004 [1908]).

Increased awareness has led to behavioural changes. Both Directives have enabled some Member States (e.g. France and Greece) to achieve genuine cultural change in relation to conservation and management approaches, as well as legal thinking and environmental priorities¹⁵⁸.

The private sector representatives (e.g. Euromines and Irish Business and Employers Confederation - IBEC) noted that awareness of nature and the Directives has also increased among companies, which now have greater knowledge and understanding of the requirements stemming from the Directives, and are planning their activities accordingly. This has led to the development of business opportunities and innovative solutions that combine economic development with environmental protection (e.g. UEPG, CEMBU-REAU). Evidence from several stakeholders (e.g. German and UK NGOs) show that the Nature Directives have acted as drivers of 'eco-innovation' linked to the development of renewable energy industry, for example, in order to address the ecological impacts of wind energy deployment. In the UK, the regulations protecting marine species – such as the Offshore Marine Conservation Regulations which implement the Nature Directives – incorporate the opportunity for developers to adopt innovative installation techniques to reduce ecological impact and improve timescales.

The UK NGOs stated that the Nature Directives foster innovation, giving the example of the Dibden Bay Container Terminal project, which aimed to expand Southampton port, but which was not given the right to expand on protected habitats. The NGOs believe that this project drove the sector to explore the potential to increase port productivity through modernisation, without causing unacceptable environmental damage. Other positive examples from the UK include the 2013 Technical Guide for New and Existing Buildings providing standards and guidance on biodiversity and the built environment¹⁵⁹. This is also confirmed by literature (Roddiss 2014 [1903]) which refers to the Nature Directives as an example of innovation being driven by environmental regulations.

Increased public awareness has also led to a (further) professionalisation of nature conservation organisations, which strengthen their collaboration through formal and informal networks. The fact of having a common legal framework composed of the Nature Directives, with similar rules to be applied in all Member States, has led to a higher strategic coordination and engagement of NGOs and an increased influence in decision-making. This strategic approach has also generated increased capacity, as demonstrated by the increased numbers of NGO staff working on the implementation of the Nature Directives. Nature authorities and NGOs in several Member States (e.g. the UK, Germany and France) stated that EU environmental legislation has also helped to create new roles and sectors, including new environmental professionals. For example, the Scottish expertise in assessing the environmental impacts of onshore wind farms and selecting sites for designation is already being exported overseas.

NGOs and nature protection authorities' (e.g. BirdLife, Belgian NGOs and the German nature protection authority) responses included information on changes in University courses and degrees to include the Nature Directives, thereby increasing the number of professionals with specific knowledge of nature legislation. New degrees offered by German universities include: nature conservation and landscape ecology at Bonn University, nature conservation at Marburg University, landscape management and nature conservation at Eberswalde University for Sustainable Development. The North Rhine-Westphalia offers training courses to its civil servants in landscape conservation since 1985 (Voithenberg 2010 [1508]). However, it is difficult to determine the direct effect of the Directives in the establishment of these studies.

¹⁵⁸ Response from WWF European Policy Office.

¹⁵⁹ <http://www.ribabookshops.com/item/designing-for-biodiversity-a-technical-guide-for-new-and-existing-buildings-2nd-edition/79859/>, accessed on 4.11.15.

Increased stakeholder participation and new forms of governance

Literature, stakeholder responses and EU Guidance documents (European Commission, 2000) all recognise that the Nature Directives have provided a new concept of nature conservation, enabling integrated management and taking into account conservation and socio-economic considerations, thereby stimulating sustainable development. This intended change (mentioned in the recitals and Article 2 of the Habitats Directive) is not fully implemented and requires the development of new approaches.

The Directives provide for innovation in Natura 2000 sites through the achievement of conservation goals, but also in going beyond the traditional definition of protected areas (Born et al, 2015). Unlike strict nature reserves of the past, Natura 2000 sites are not 'development exclusion zones'. New developments or activities are entirely possible provided either that they respect the site conservation objectives and do not impact negatively on the habitat types and species for which the site has been designated, or that they are required for imperative reasons of overriding public interest (Sundseth and Roth, 2013). It is broadly recognised by stakeholders (e.g. Greek NGOs) and literature that the implementation of the Nature Directives has led to the concept of protected areas that frame, rather than exclude, human activities.

The largely unforeseen effect triggered by this concept in the Nature Directives is an increased **stakeholder participation in Natura 2000 site designation, definition of site conservation measures and site management**. This was highlighted by most of the stakeholders (EU level NGOs, e.g. ECNC; EU level private sector representatives, e.g. RGI, UEPG, CEMBUREAU, IMA; nature authorities, e.g. the UK; Member State NGOs, e.g. Slovakia) and by the specialised literature (Beunen and de Vries, 2011).

The site designation process under the Habitats Directive is based on scientific information and evidence, with a biogeographic regional approach. Stakeholders with the relevant scientific data were empowered to provide input and participate e.g. the involvement of the members of the European Habitats Forum or the European Landowners Organisation.

In the case of one of the Belgian regions, regional and local stakeholders were involved in the establishment of the conservation objectives, development of management plans, initiation of LIFE projects for restoration of natural values and development of recreational infrastructure (Wouters 2013 [1909]).

In France, in order to ensure the effective management of Natura 2000 sites, the government developed a system whereby local landowners and land users are involved in agreeing a management plan for each site. These plans are developed through a local Steering Committee made up of local authorities, landowners and land users, representatives from rural agencies, sectoral organisations, nature NGOs and ecology experts, and anyone else who has an interest in the Natura 2000 site. Committee meetings provide an opportunity for all parties to discuss the implementation of the conservation objectives of the site in a way that best fits with the local socio-economic activities and interests in the area. Once a consensus has been reached, the management plan is officially approved by the State. Local landowners or users are then encouraged to enter into different types of management contracts with the local authority to help to implement the management plan. The process promotes an integrated approach to Natura 2000 and has proven to be very successful, winning the support of many landowners and users (Sundseth 2012 [211]).

In Italy, the authorities responsible for the management of the state marine natural reserve of Torre Guaceto worked with fishermen and local stakeholders to set management measures. In the Oder Lands Riparian Zones (Kraina Łęgów Odrzańskich) in Poland, a partnership was formed between NGOs and local government to ensure the conservation of Natura 2000 areas alongside sustainable growth, including the development of tourism, stimulation of local activity and enterprise, education, acquisition of skills and conservation work.

In Ireland, more than 7,000 volunteers contributed over 20,000 hours to Bat Conservation Ireland bat monitoring schemes in the period 2003–2014, fostering a culture of so-

cial participation¹⁶⁰. Similar activities took place in other Member States (e.g. nature authority Germany).

The use of EU financing (i.e. second pillar of the CAP) for the implementation of the Nature Directives is considered to be a major factor promoting a holistic and participatory approach, and specifically the involvement of farmers (e.g. response WWF European Policy Office).

The new approach to nature conservation brought by the Directives has enabled positive partnerships and **different forms of stakeholder participation/cooperation**. At the Member State level, Italian Transmission System Operator (TSO), Terna, worked together with competent authorities and NGOs to ensure that biodiversity criteria were integrated into the national grid development plan (Schneider 2013 [1219]). The Greek NGOs referred to an interesting case of stakeholder cooperation on the LIFE project to restore Lake Stymfalia, part of Natura 2000, in Greece. Within this project, Pireaus Bank (one of Greece's largest banks), the Society for protection of Prespa, the local authority, an expert consultancy and a research centre all collaborated on the restoration, protection, and management of the site.

Partnerships between NGOs and non-energy extractive industries (e.g. UEPG, CEMBU-REAU) recognise the positive contribution to biodiversity conservation by non-energy extractive industry through the restoration and rehabilitation of mining and quarrying sites at the end of the project cycle (European Commission, 2010a) leading, in some instances, to their designation as Natura 2000 sites. In the Czech Republic, restoration of a stone quarry in Mašovice, which now forms a part of Natura 2000 network, received a UEPG Sustainable Development Award in 2007¹⁶¹.

While this trend has been confirmed in those countries where public authorities have facilitated participation, in others a failure to meet stakeholder expectations continues to create conflict. Stakeholders in some Member States (e.g. Slovakia) claim that some stakeholders were not consulted when establishing Natura 2000 sites. In Greece, a study conducted among national, regional and local stakeholders showed that participation in site management exists mainly on paper, (Apostolopoulou et al, 2012). The same study concludes that stakeholder engagement seems to take place through administrative documentation and to be confined to personal contacts and initiative (Apostolopoulou et al, 2012). During the national mission to Spain, private sector representatives (the Fisheries association, landowners and land users) and NGOs all stated that there is a lack of stakeholder participation in the development of management plans and conservation measures for Natura 2000 sites. However it is broadly recognised that the Directives have provided the platform to request such participation which did not exist before.

The Directives' strict species protection standards have also raised concerns from private sector stakeholders, in particular the way in which socio-economic considerations are taken into account and the extent of their involvement in decision-making on site management. Evidence shows that landowners and/or property developers in the Netherlands feared the presence or the development of nature on plots that they planned to develop. For example, fallow plots in Rotterdam Harbour were ploughed regularly in order to prevent a natural environment from developing there (nature protection authority in the Netherlands). These concerns have led to the development in the Netherlands and Flemish regions in Belgium of innovative, flexible systems (such as the concept of 'temporary nature') which increase private landowners' participation in restoration outside of Natura 2000 sites. While this initiative should not be considered a replacement for protection requirements in Natura 2000 areas, it is an innovative and pragmatic approach which promotes a collaborative approach to nature conservation by private landowners (Schoukens, 2015).

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<https://drive.google.com/file/d/0Byc1SOzeg2IPsXNYZWVRSetLc09MNjFUTUkzUFITczF5RFdV/view?pref=2&pli=1>, accessed on 16.12.15.

¹⁶¹ http://www.uepg.eu/uploads/Modules/Publications/pub-14_en-uepg_awards_brochure_2007.pdf, accessed on 18.12.15.

The open question in the online public consultation questionnaire also received responses citing the problem of the lack of participation of land owners and users in the definition of the conservation measures and management plans required for Natura 2000 sites. In the response sample reviewed, 14% (114) of these comments came from individuals, with 17% (36) coming from organisations. 89 individuals and 24 organisations providing those comments came from the agriculture, forestry, fisheries and hunting sectors. Some pointed out that land owners and users have very good knowledge of nature protection and often know best how to manage the land in a sustainable nature-friendly way.

The Directives have also led to **new forms of governance** at different administrative levels, from new formal structures generated by government decision, to more informal initiatives involving different stakeholders.

An example of a new governance system is found in Spain, where the nature protection authorities and the tourism authorities have developed a voluntary regulatory framework based on a decision adopted in 2014 at government level on Natura 2000 and tourism, to promote the marketing and recognition of business in Natura 2000 areas¹⁶². In terms of informal governance mechanisms, in the Netherlands the Directives have led to the development of cooperation agreements between different stakeholders. For example, the Dutch nature protection authority noted that the 2010 Dutch manifesto 'Nature, landscape and economy in a vital country' was signed by eight parties, including 'green' organisations, the recreation sector, the agricultural sector and rural organisations. The Natura 2000 programme in the Netherlands has contributed to recognition by various sectors of the advantages of certain forms of self-regulation, such as codes of conduct and charters (Snethlage et al, 2012).

At the EU level, there are several initiatives and platforms (e.g. Sustainable Hunting Initiative¹⁶³, RGI¹⁶⁴, Large Carnivore Platform¹⁶⁵, cooperation with cement industry¹⁶⁶, Ecoports¹⁶⁷) which fostered partnerships between different stakeholders.

The changes in governance structures to involve stakeholders and actors in the decision-making process has also been recognised in the literature (Beunen and de Vries, 2011). The changes in governance imply a shift in focus for many government organisations that have to conduct a planning process in which other organisations become involved. Government organisations are responsible for conducting the decision-making process and involving other actors, while still remaining the legal authority that takes such decisions. Their role, based on constitutional powers, is shifting towards the coordination of various stakeholders' participation within the planning process. The implementation of Natura 2000 at site level is an example of the current transitions in governance. National governments are responsible for the management of these Natura 2000 sites which, in many cases, is delegated to local and regional authorities. These responsibilities entail balancing the conservation objectives of the Natura 2000 site with social and economic interests. In many areas this requires other public and private parties to agree to the management schemes. The management of Natura 2000 sites includes organising discussions, making decisions about social and economic activities and dealing with conflict. For the governance of Natura 2000 sites, these stakeholders are landowners and users in and near the sites whose activities need to be balanced with conservation objectives. The design of the planning process has been found to greatly influence the outcome.

The literature (Beunen and de Vries, 2011) concludes that it is the decision of the responsible authorities whether or not to design a planning process built on cooperation and mutual trust. In situations in which the management of the Natura 2000 site de-

¹⁶² Plan Sectorial de Turismo de Naturaleza y Biodiversidad (RD 416/2014).

¹⁶³ http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/index_en.htm, accessed on 4.11.15.

¹⁶⁴ <http://www.renewables-grid.eu/>, accessed on 4.11.15.

¹⁶⁵ http://ec.europa.eu/environment/nature/conservation/species/carnivores/coexistence_platform.htm, accessed on 4.11.15.

¹⁶⁶ <http://www.birdlife.org/worldwide/cemex-birdlife-international-global-conservation-partnership-programme-2007-2017> and <http://www.birdlife.org/europe-and-central-asia/partnership-heidelbergcement>, accessed on 4.11.15.

¹⁶⁷ <http://www.ecoports.com/>, accessed on 4.11.15.

depends on many different stakeholders, a planning process that emphasises interaction and cooperation seems to offer better possibilities than a more formal and hierarchical planning process. Involving stakeholders in a planning process where expectations and responsibilities are shared, strengthens awareness of conservation objectives and encourages mutual trust.

This conclusion is confirmed by some stakeholders (e.g. German NGOs) who have highlighted that the effectiveness of voluntary agreements depends on their design, adequate control and enforcement, and on the level of financial incentives for the land users compared to alternative options. In addition, the rules and requirements of any voluntary agreement adopted at national level (such as the one described in Spain) needs to be adapted to the local context. One recognised weakness of voluntary agreements is their dependency on political will, which can change not only when governments change but also when legal pressure from the EU diminishes.

The Directives have strengthened governance and cooperation within public bodies in federal or more decentralised countries. In Spain, for example, the nature protection authorities pointed to an increased cooperation and coordination of conservation and planning authorities, and greater weight being given to biodiversity in decision-making. In Austria, the implementation of the Directives contributed to the harmonisation of project approval standards and inter-regional cooperation (Austrian NGO). More specifically, the Austrian Federal Ministry prepared binding standards on species conservation assessments in infrastructure projects¹⁶⁸. According to the German nature protection authority, cooperation between the federal and regional governments in the area of nature conservation has increased, and the Nature Directives also enabled standardisation of monitoring systems and collection of comparable data across the country (Sachteleben and Behrens, 2010). This has had a positive impact on the effectiveness and efficiency of nature conservation by avoiding unnecessary conflict and duplication of effort and promoting problem solving and practical solutions.

Strict legal systems and requirements for authorisation of activities and their enforcement

The Nature Directives' requirements have triggered the strengthening of existing nature conservation legal systems in most EU Member States which had less strict requirements. The Directives provide for a framework where nature conservation objectives are considered more seriously in relation to other economic interests, triggering a change from previous national systems where nature objectives were weaker than economic interests. The protection system is greater than those existing in Member States not only due to the Directives' legal provisions but also to the enforcement at EU level.

The unintended effects of this system of protection relate to the creation of risk-averse behaviour in decision-making at local level, particularly for granting permits, where the precautionary principle is frequently invoked. In some cases, the local authorities prohibit specific types of activities affecting a Natura 2000 site, even in cases where these could be carried out in line with site conservation objectives. In other cases, the local authorities request disproportionate requirements for their authorisation.

The negative consequences of the systematic prohibition of certain types of activities linked to the assessments under Article 6(3) of the Habitats Directive have been highlighted by the private sector (e.g. UEPG) and also by authorities in some Member States (e.g. the Netherlands). According to the EU level association representing the private sector, this procedure has led to unnecessary management changes when activities could have been adjusted to respect the conservation objectives.

The Commission's opinion, expressed in specific Guidance documents (e.g. non-energy mineral extraction (European Commission, 2010a), wind energy (European Commission, 2010b)), is that the risk of individual projects on species and habitats should be assessed on a case-by-case basis and that systematic prohibition is not necessary. The positive

¹⁶⁸ (z.B. RVS 04.03.13)

impact of these Guidance documents is acknowledged by many EU level organisations (e.g. CEMBUREAU). Many Member States, and, in the case of some federal states, their regions (e.g. Spanish autonomous region of Castilla y Leon) are following Commission's guidance on the issue.

However, the discretionary power of Member States to decide on the best way to achieve the Directives' objectives, enables individual Member States to take a different approach and impose statutory restrictions on certain types of activities. This may be due to specific local considerations, for example, the Spanish autonomous region of Galicia prohibits open pit mining exploitations in Natura 2000 areas¹⁶⁹, and, in Murcia, any building development in the territory of a littoral Natura 2000 site is forbidden, given the existing high pressure on these areas. The CJEU has reiterated Member States' discretion to adopt more stringent measures¹⁷⁰, and therefore introduction of statutory prohibitions on specific activities is not a breach of EU law provided it does not impact the functioning of the internal market.

In other cases, stakeholders claim that the relevant Commission Guidance documents are not properly distributed or/and translated and, therefore, the local level authorities are not sufficiently informed. This lack of knowledge results in the rejection of authorisation of activities even when they would respect the conservation objectives of the site. Some stakeholders (e.g. Dutch nature protection authority, the UK other relevant authorities, EU level organisations) stated that local authorities sometimes request disproportionate requirements for the authorisation of certain activities. EU level organisations from different private sectors stated that, often, the required levels of evidence to prove the absence of risk of damage beyond doubt, do not exist and the activities are prohibited (Europeche). Such a restrictive approach by the authorities is due to lack of reliable data (Snethlage et al, 2012), lack of resources, and insufficient training and expertise of planning authority staff. Certain EU level organisations (e.g. Euromines) are of the view that the most common attitude is to reject projects after three or four years of permit procedures, but evidence to support this claim is limited.

In the case of Falmouth Docks, UK, the Falmouth Harbour Commissioners consider the approach taken by the authorities misunderstands the Nature Directives, claiming that it uses a 'no, unless' approach, while the EU Guidance documents (European Commission, 2011b) promote a 'yes, if' approach. The guidelines state that the latter approach is coherent with the sustainable development principles, balancing environmental benefits and societal and economic requirements. Representatives of the private sector (e.g. France, the Netherlands) and nature protection authorities in the Netherlands provided further examples where the decision-making process on permits for development activities or projects affecting Natura 2000 areas under Article 6(3) of the Habitats Directive are too restrictive based on the precautionary principle.

The rules and requirements under Article 6(3) and (4) of the Habitats Directive have led, in some Member States, to a high number of cases brought to the national and even EU Courts regarding issues of implementation of the Directives and, in particular, the authorisation of development projects. This is all the more significant as these provisions have demanded a radical departure from the previous inertia of insufficient regard to conservation requirements in Natura 2000 sites, or where they were only considered at a later stage in the development process. While the relatively high number of cases has generated a higher level of compliance and a wealth of case law clarifying the interpretation of the legislation, it has also created delays and risk-averse decision-making on authorisations for projects at local level. This has increased costs (due to consideration of alternatives) and, as pointed out by some stakeholders (e.g. Bulgarian nature protection authority) affects investments. (See section 6.1 for more discussion).

¹⁶⁹ Decree 37/2014 of 27 March.

¹⁷⁰ ECJ C 2/10 Azienda Agro-Zootecnica Franchini et al, paragraph 39-75.

National implementation choices leading to changes or restrictions on property rights

Member States' discretionary power to choose their methods of implementing the Directives to ensure that they deliver their objectives triggers some unintended changes. Restrictions on property rights (e.g. expropriations) of designated sites as part of the Natura 2000 network are not required by the Directives but respond to national decisions in the implementation of the Directives. This is confirmed in a five-country study on the implementation of the Habitats Directive (Slovenia, Czech Republic, the Netherlands, France and Sweden) which refers to private landowners' fears that their property rights would not be respected in the process of Natura 2000 site designation, management planning and site management (Bouwma et al, 2010).

In certain countries, the authorities considered that the adoption of management plans or appropriate conservation measures would only be ensured if the land was state-owned or managed by public interest associations (Dodd et al, 2010). This would lead to expropriations or similar processes for changing the ownership of the land as part of the Natura 2000 site designation process.

The first proposals of Natura 2000 sites in several Member States (e.g. France, Finland, Belgium and Spain) generated strong opposition from landowners and rural communities, who feared changes or restrictions to their property rights. Member States developed information, engaged in awareness-raising actions and adopted measures to compensate landowners and managers for the economic impact that such restrictions could cause. The level of opposition has been lower in those countries where implementation choices were based on stakeholders' involvement and information campaigns.

In France, landowners and rural actors initially opposed the selection and designation process of Natura 2000 sites due to the lack of understanding about the regulation of activities within those sites (FACE). However, these issues were subsequently resolved through integrated implementation strategies. Holders of real and personal rights to the land included in the Natura 2000 site may sign a Natura 2000 contract or the Natura 2000 charter with the administrative authority. The contracts are discussed between the local representatives of the authorities and the stakeholders in order to define the management measures to be carried out, the financing or state aid required and the services to be provided in return by the beneficiary. Signing up to the charter may lead to land tax exemptions for which persons or organisations may qualify¹⁷¹.

In Finland, complaints against site designation were submitted from private owners whose land was proposed to be part of Natura 2000. However those issues were subsequently resolved (Dodd et al, 2010) by greater understanding of the implications of the Directives. NGOs in Slovakia reported that the resistance of landowners for their sites to be included in the Natura 2000 Network was resolved once they received full information on the issue. The nature protection authority of one of the Belgian regions (Wallonia) referred to stakeholders' opposition to changes in their capacity to exercise their property rights due to the imposition of specific nature conservation measures. However, over time the opposition moved from being sectoral (e.g. agriculture) to more individual, following the public consultation which took place during the definition of the site management measures and implementation using compensatory allowances and fiscal benefits.

According to EU level associations from the forestry sector (EUSTAFOR), the compensation has not always been sufficient and was, in some cases, completely non-existent. This problem has also been raised during the national missions, where access to compensatory funds by the forestry sector seems to be lower than access by farmers (see sections 6.2 and 8.6).

¹⁷¹ National description of the implementation process related to site designation and management approaches (Articles 6(1) and 6(2) of the Habitats Directive), L'Atelier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc, accessed on 3.11.15.

Improved knowledge and understanding of protected species and habitats

The establishment of the Natura 2000 network requires knowledge and understanding of the species and habitats protected under the Nature Directives, as well as the monitoring of their conservation status or the management of features of landscape important for wild species. Both Directives explicitly require Member States to encourage the necessary research and scientific work with a view to ensure the achievement of the Directives' objectives. While an indispensable measure for the achievement of the strategic and specific objectives of the Directive¹⁷², it is not an objective of the Directives in itself and it has therefore been recognised by stakeholders and literature as one of the major unintended changes brought about by the Directives. Furthermore, the extent of the changes on knowledge is considered to go beyond what could have been foreseen originally. This is, in most cases, a result of the significant lack of relevant data in the Member States prior to the introduction of the Directives and the use of EU financing for the development of inventories of habitats and species and mapping of relevant sites. Some respondents (e.g. other public authority in France and Poland, and NGOs in Slovakia) stated that the establishment of Natura 2000 has had a positive impact on increasing scientific knowledge and understanding of species and habitats in the annexes of the Nature Directives, as well as on the transparency of data. The results from the latest Article 17 report on the conservation status of the habitats and species listed under the Habitats Directive support these observations, referring to a reduction in the proportion of assessments where conservation status is unknown from 31% to 17% for species and from 18% to 7% for habitats (EEA, 2015b).

The 2008 report on implementation of the Natura 2000 network in Europe found that Member States underestimated the requirements in terms: of 'volume' of scientific knowledge needed to implement the Directive, which led to delay in their implementation (Court of Accounts of France, 2008).

Stakeholders and literature provide examples where the implementation of the Nature Directives has led to the development of inventories of habitats and species and site mapping, in some cases of entire countries, e.g. the Czech Republic or Spain (Evans, 2012; Hartel et al, 2009; Rivas-Martínez et al, 2004). Many countries had to launch nationwide surveys and biological inventories which mobilised much of the scientific community and monopolised most of the national conservation authorities' time (Sundseth 2004 [1908]). The mapping of Natura 2000 habitats and species in order to identify the sites to be included in the network and subsequent monitoring has led to a much better knowledge of existing occurrences. The Spanish scientific and technical system classifying habitats and evaluating their status¹⁷³ is especially praised by NGOs (IUCN). In Germany, mapping of Natura 2000 habitats and species led to the discovery in the Dreisam valley of White-clawed Crayfish (*Austropotamobius pallipes*), a species of the Annex II and V of the Habitats Directive (FoEE).

In most of those cases, increased knowledge was supported by EU funding instruments. Between 1992 and 1994, five EU Member States – Italy, Greece, Spain, Portugal and Ireland – received LIFE financing for the completion of national projects to draw up inventories of habitats and species for the Habitats Directive (European Commission 2003 [1918]). Similarly, site mapping in the Azores and in Corsica were also financed through EU LIFE financing. LIFE has also supported important marine projects in Member States with a view to selecting Natura 2000 marine sites (e.g. Malta¹⁷⁴). In 1998 under the external action of the LIFE instrument called LIFE 'Third Countries' Cyprus also benefited from a project for starting its national inventory. In other candidate countries, the PHARE financial instruments supported the development of inventories and maps in Poland.

¹⁷² Recital 21, Articles 12 and 18 of the Habitats Directive; Recital 13, Article 10 of the Birds Directive.

¹⁷³ http://www.magrama.gob.es/es/biodiversidad/temas/espacios-protegidos/red-natura-2000/rn_tip_hab_esp_bases_eco_acceso_fichas.aspx, accessed on 11.11.15.

¹⁷⁴ http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4750&docType=pdf, accessed on 16.12.15.

Since the mapping was supported by public funding, access to the resulting data was made considerably easier, increasing the transparency of data.

Despite the recognised improvement on the information on habitats and species, the lack of sufficient knowledge is often raised by stakeholders as a barrier to the ecological responses to certain activities (Snethlage et al, 2012). The exchange of information is also often lacking (Snethlage et al, 2012). (See section 6.8 for a discussion of increased knowledge and the Directives.)

Unintended effects from species protection measures

Some targeted species that require protection from an EU perspective are widespread and common in some Member States where stakeholders feel that there is no need for their strict protection in those areas. Examples include Great Crested Newts (*Triturus cristatus*) in the UK and Denmark (UK nature protection authority and Copa-Cogeca – Denmark) and European Flying Squirrel (*Pteromys volans*) in Finland (Copa-Cogeca – Finland, Finish private sector representative). These stakeholders argued that focus on these species has a negative impact on the development of construction projects¹⁷⁵. However, the Directives do offer adequate flexibility to take into account socio-economic considerations while respecting the conservation objectives of the species within or outside Natura 2000 sites. Potential conflicts can be resolved either when setting the conservation objectives and designing conservation measures or management plans of the Natura 2000 sites (e.g. Belgian authorities), through the implementation of sustainable management practices in agriculture and forestry (Danish nature authorities), the granting of derogations as set up by the Directives or the establishment of systems for early planning of projects.

A similar argument has been raised by some stakeholders from economic sectors in relation to targeted species which have recovered and became widespread due to the effectiveness of the Nature Directives generating unintended impact on certain economic activities. Perhaps the best example is the Great Cormorant (*Phalacrocorax carbo*), which may cause damage to fish stock in certain areas¹⁷⁶¹⁷⁷ (Cowx, 2013).

This has been raised several times during focus groups and on national missions. The Pygmy Cormorant (*Phalacrocorax pygmeus*) is also of concern for fish stock according to some EU level organisations (e.g. FEAP). In addition to Cormorants, large carnivores also have the potential to cause damage to livestock and crops and to compete with hunters for game species (Linnell et al, 2008).

There is documented evidence of damage caused by growing populations of certain large carnivores in areas in Sweden (Frank et al, 2015). However, again these concerns cannot be sustained as any potential conflicts can be resolved by the flexibility offered by the Directives to take into account socio-economic considerations, including the adopted amendment of annex of the Birds Directive to remove the Cormorant, or by granting derogations, implementing sustainable practices or setting action plans or management plans in Natura 2000 areas. (See section 5.3 and 7.2 for a discussion of management solutions.)

Changes or impacts on non-targeted species and habitats outside the Natura 2000 network

The clear legal protection system introduced by the Nature Directives has positively influenced non-target species and habitats or sites outside the Natura 2000 Network, promot-

¹⁷⁵ <http://www.miltonkeynes.co.uk/news/local/1million-to-save-150-great-crested-newts-1-5964646>, accessed on 16.12.15.

¹⁷⁶ European Parliament resolution of 4 December 2008 on the adoption of a European Cormorant Management Plan to minimise the increasing impact of cormorants on fish stocks, fishing and aquaculture (2008/2177(INI)), accessed on 16.12.15.

¹⁷⁷ Position Paper prepared by the 2nd International Carp Conference, September 2013, Wroclaw, Poland.

ing wider landscape protection (e.g. German and Belgian NGOs, IUCN). The protection of non-target species or habitats was not explicitly intended as an objective of the Habitats Directives, although the broad scope of the Birds Directive aims at covering all bird species.

Site designation can help to conserve species not listed on the annexes of the Directives. A survey carried out in 13 EU Member States in 2012 found the abundance of a large number of bird species to be higher inside than outside the Natura 2000 network, showing that the Natura 2000 areas harboured a substantial number and population of common bird species in addition to the targeted species listed on Annex 1 of the Birds Directive (Pellissier et al, 2014). In Latvia, site selection based on the Birds Directive Annex 1 species has equally contributed to the protection of national priority species not included in the annexes (Opermanis et al, 2008). In Spain, the Nature Directives have contributed to the protection of gypsophilous plants which are not included in the annexes of the Habitats Directive (Martínez-Hernández et al, 2011). In Estonia, in addition to Natura 2000, another network of protected areas called the 'green network' has been planned at state level. It is now being implemented at different administrative levels through the spatial planning system. (See section 0)

In some cases, Member States extended the protection under the Nature Directives to other species and areas. For example, in France, the protection was extended to *Lanius excubitor* (WWF). In 2014/2015 England extended the application of requirements concerning management of fishing activities in Natura 2000 sites to English Marine Conservation Zones, protected marine areas not falling under Natura 2000 (UK NGO). In Greece, EU funded projects, such as CRETAPLANT and FOROPENFORESTS, within Natura 2000 sites, contributed to the protection of species and habitats not covered by the Nature Directives (Greek NGO).

According to some EU level organisations (e.g. BirdLife) the Nature Directives have also had an impact outside the EU, leading to improved governance and conservation in many non-EU and non-accession countries. This has been primarily through the Nature Directives' impact on the Bern Convention, but also through specific initiatives, such as the sustainable hunting in the Middle East initiative¹⁷⁸.

5.4.4 Key findings

- The Directives have brought about **unintended changes not required in the legislation but which have impacted its effectiveness**. Some of the changes identified are discussed in other evaluation questions (e.g. climate change in sections 7.1 and 8.3, level playing field and internal market in question C.6, or administrative burden and ecosystem services in section 6.1) and are not, therefore, described in this section.
- The positive change most frequently mentioned by stakeholders is the **increased public awareness of nature leading to behavioural changes**. In addition to this, the Directives have triggered a proactive approach by national authorities to **raising awareness** and information exchange on innovative elements of the Directives. This proactive approach has increased **public understanding and helped to avoid public objections**. The most obvious example refers to the implementation process established in France, following difficulties in the designation of Natura 2000 sites. This process is based on the principle of public participation and is framed within an awareness raising and information scheme for the establishment of the Natura 2000 network.
- The largely unforeseen effect triggered by the Directives' site protection system is the **increased stakeholder participation and involvement** in the definition of site conservation measures and the management of Natura 2000 sites. This was highlighted by stakeholders and by the specialised literature. While this trend has been confirmed in those countries where public authorities have facilitated

¹⁷⁸ <http://www.birdlife.org/datazone/sowb/casestudy/35>, accessed on 4.11.15.

participation, in others it remains a problem, with conflict created as a result of failure to meet stakeholder expectations. However, stakeholders in some Member States claimed that participation in the management process does not exist in practice.

- Literature, stakeholder contributions and EU Guidance documents all recognise that the Nature Directives have promoted an **innovative approach** to nature conservation based on integrated management stimulating sustainable development. The innovative concept of Natura 2000 is based on a more flexible system of protection whereby socio-economic activities are not automatically banned and economic factors are considered, provided they respect the site conservation objectives. This concept has had a positive impact on socio-economic activities, **generating business opportunities**, i.e. in tourism and sustainable farming or fishing practices. It has generated **new governance approaches**, such as the 2014 ministerial decision establishing a voluntary framework on Natura 2000 and tourism in Spain.
- The literature and the responses to the evidence gathering questionnaire point to the unintended effect of **improved knowledge** and understanding of protected species and habitats. The site designation process of the Nature Directives is based on scientific criteria and evidence, requirements which have triggered Member States' development of new inventories of habitats and species, supported by public funding and facilitating **increased transparency of data**.
- The strict legal protection system introduced by the Nature Directives has, in some Member States, led to unintended effects where local authorities prohibit specific types of activities affecting a Natura 2000 site (even in cases where these could be carried out in line with site conservation objectives) or where they request disproportionate requirements for their authorisation. Such negative effects have been highlighted by the private sector or nature authorities in several Member States. While the Commission sectorial guidelines may allow the development of socio-economic activities (i.e. renewable energy, extractive industries) under certain conditions, the CJEU has reiterated Member States' discretion to adopt more stringent measures.
- Specialised literature and stakeholders in national authorities and NGOs refer to an unintended effect related to the enforcement system triggered by the Directives. The establishment of this uniform legal system that is enforceable by the public concerned, has led to **high numbers of cases brought to national or EU courts**. While this has generated a higher level of compliance, as well as case law clarifying the interpretation of the legislation, it has also created fear among authorities and operators at local level. In addition to causing delays, such fears create risk-averse decision-making on authorisations for projects or activities.
- The evidence shows the **importance of national choices in the implementation** of the Directives (including **raising awareness**) which may lead to unintended changes. This stems from the considerable flexibility for Member States in deciding how best to deliver the Directives' objectives. For example, changes or **restrictions on property rights** (from expropriations to imposed management measures) regarding a site designated as part of the Natura 2000 network that have been raised as issues by certain stakeholders, stem from national choices on the implementation of the Directives, or lack of information on the impacts of Natura 2000. The first proposal of Natura 2000 sites generated strong opposition from landowners in several countries, who feared an impact on their property rights. However, those issues were subsequently resolved through a greater understanding of the implications of the Directives.

5.5 Conclusions concerning effectiveness of the Nature Directives

- Considerable progress has been made in the implementation of the Directives' measures, particularly regarding the creation of the terrestrial component of the Natura 2000 network, the legal protection of Natura 2000 and the protection and sustainable use of species. Progress has been slower than anticipated in a few areas, especially in the marine environment, although there is a growing impetus towards the completion of the Natura 2000 network, the development of management plans and the establishment of site conservation measures. Where fully and properly implemented the Directives have effectively reduced pressures on biodiversity, slowed declines and, with time, led to some recoveries of habitats and species.
- The Directives have been less successful in contributing to the management of features of the landscape outside of Natura 2000 that are important for fauna and flora. Common bird species that are more dependent on the wider countryside are more likely to be showing population declines.
- The impacts of the measures taken so far are not yet sufficient to meet the overall aims of the Directives. In particular, while 52% of bird species have a secure population, 17% are threatened, with a further 15% near threatened, declining or depleted. Of EU Annex 1 habitats, 16% have a favourable conservation status, with most others being classified as having an unfavourable-inadequate status (47%) or unfavourable-bad status (30%). Of the species listed in Annex II of the Habitats Directive, 23% have a favourable conservation status, with most species having an unfavourable-inadequate status (42%) or unfavourable-bad status (18%).
- The Directives make a major contribution to the EU's biodiversity target. They contribute directly through the conservation of targeted habitats and species, which include a high proportion of semi-natural habitats and threatened species (especially amongst vertebrates). Many more species are protected indirectly, through the diverse and species-rich habitats in the Natura 2000 network. The Directives also support all the targets of the EU's Biodiversity Strategy, especially the restoration of ecosystem services under Target 2. However, the Directives alone cannot deliver the EU 2020 goal of halting the loss of biodiversity without complementary action being taken, especially in other key policy sectors such as agriculture.
- The availability of funding has probably had the strongest influence on the implementation of the Directives. The increase in funding availability stimulated by the Directives (such as the LIFE programme and CAP agri-environment measures) has been vital; but there are now shortages that are limiting progress, especially in the establishment of conservation management measures. Other important influences include the degree of political support for the Directives; uncertainty over the Directives' provisions (although now largely addressed); levels of enforcement; stakeholder awareness and involvement; levels of biodiversity knowledge; progress with management planning; the unintended effects of certain incentives and subsidies in other policy sectors; levels of integration with spatial planning, impact assessments and other policies; and the capacity of competent authorities.
- The Directives have brought about unintended changes that are not required in the legislation but have impacted its effectiveness. A key positive change is increased public awareness and stakeholder participation in support of nature protection. They have also encouraged more integrated management of nature with socio-economic activities, which has generated business opportunities and new governance approaches.

6 Evaluation and analysis of efficiency questions

Efficiency is essentially a comparison between inputs used in a certain activity and produced outputs. The central question asked here is whether the costs involved in the implementation of the EU Nature Directives are reasonable in relation to the objectives pursued and the results achieved (benefits). Both 'costs' and 'benefits' can be monetary and/or non-monetary.

6.1 Y.1 - What are their costs and benefits (monetary and non-monetary)?

6.1.1 Interpretation and approach

Implementation of the Directives gives rise to a range of costs and benefits to society and the economy in the EU. Costs include the direct costs of designating, protecting and managing Natura 2000 sites, the opportunity costs of habitat and species management (including the associated restrictions to development and the outputs of land use), the damage costs of protecting species (e.g. large carnivores) and associated compensation payments, and the administrative costs of compliance with the site and species protection rules within the Directives. Benefits include the protection and improvement of the status of habitats and species, safeguarding and enhancing the delivery of ecosystem services (with related benefits to wellbeing), and benefits for local economies (e.g. job and income creation, and tourism benefits). Some costs and benefits can be relatively easily monetised, such as the financial costs of management of Natura 2000 sites and the benefits to the tourism sector. However, a comprehensive assessment requires wider analysis of opportunity costs, non-monetised administrative costs, and benefits for biodiversity and untraded ecosystem services, quantifying these where possible.

Within the EU, the costs of implementation are shared with stakeholders such as developers and other businesses undertaking or proposing activities with potential impacts on protected sites and species, landowners and land managers in Natura 2000 areas, and public authorities responsible for implementation of the Directives at national, regional and local level. Implementation also delivers a range of public and private benefits, both for particular businesses (e.g. water utilities benefiting from ecosystem services) and the public at large. Often those bearing the costs may differ from those who benefit.

Difficulties arise in distinguishing between the effects of the Directives and those of other nature conservation laws and designations in the Member States, given that most countries have national policies pre-dating and complementing the Directives. While much of the evidence on costs relates to the costs of measures required to implement the Directives, most evidence on benefits relates to the overall benefits of the sites and species protected, making direct comparisons of costs and benefits problematic. (See question Y.6 for a consideration of the costs of non-implementation of the Directives).

6.1.2 Main sources of evidence

Studies have been completed from EU level to site-specific analyses. These include major EU wide assessments of the costs and benefits of delivering the Natura 2000 network, as well as those related to specific processes. National studies have also examined the costs and benefits of the Directives in individual Member States (e.g. the Netherlands, the UK), and numerous assessments have been made for particular sites and species. Responses to the evidence gathering questionnaire, along with national missions, yielded examples of the costs and benefits associated with the Directives, varying in their robustness and degree of quantification.

Online public consultation invited stakeholders and members of the public to comment on the significance of a range of costs and benefits of the Directives.

Together, these sources provide considerable evidence for addressing aspects of this question. Given the wide range of costs and benefits, activities involved and geographical scales, however, the evidence base is far from complete and there are significant gaps. For example, evidence is stronger for Natura 2000 sites than for species protection

measures, for financial costs compared to opportunity costs, for benefits of tourism compared to water regulation, and for North-Western compared to Eastern Europe). Few studies focus on the additional costs and benefits of the Directives themselves, with most assessing the broader costs and benefits of the habitats, sites and species covered by the Directives.

While this question presents overall evidence of the costs and benefits of the Directives, other questions address the differences in costs between Member States and the underlying reasons (see section 6.3), the relationship of benefits to costs and whether these are disproportionate (see section 6.4), examples of cost effective implementation (see section 6.5), the costs of non-implementation (see section 6.6) and the scale and need for the administrative burdens of the Directives (see section 6.7).

6.1.3 Analysis of the question according to available evidence

Costs of the Nature Directives

Types of Costs

The Directives impose costs both directly (for example, as a result of requirements to invest resources in the designation and management of sites) and indirectly (for example, as a consequence of the measures needed to comply with rules for site and species protection).

These costs include both the **compliance costs** of the legislation, and any **opportunity costs** resulting from missed or delayed opportunities for development or other activities. Compliance costs can be further divided into **administrative costs** and **costs of habitat and species management**. Examples of each of these types of costs are set out in Table 1.

Administrative costs refer to the costs of providing information in its broadest sense (i.e. including costs of permitting, reporting, consultation and assessment). When considering administrative costs, an important distinction must be made between information that would be collected by businesses and citizens even in the absence of the legislation, and information that would not be collected without the legal provisions. The costs induced by the latter are called **administrative burdens**.

These costs include both:

- **Monetary costs** – in terms of investments and recurrent expenditures on equipment, materials, wages, fees and other goods and services.
- **Non-monetary costs** – including administrative time inputs, delays, and missed opportunities.

A typology of costs is presented below. This was developed for the evidence gathering questionnaire and has been refined to reflect the answers received.

Table 16 Typology of costs resulting from the Nature Directives

Type of costs	Examples
Habitat and species management costs	Investment costs: • Land purchase • Compensation for development rights • Infrastructure for the improvement/restoration of habitat and species • Other infrastructure, e.g. for public access, interpretation works, obser-

Type of costs	Examples
	vatories, etc. Recurrent costs - habitat and species management and monitoring: • Conservation management measures– maintenance and improvement of FCS for habitats and species • Implementation of management schemes and agreements with owners and managers of land or water • Annual compensation payments • Monitoring and surveillance • Maintenance of infrastructure for public access, interpretation etc. • Risk management (fire prevention and control, flooding etc.)
Administrative costs	Public administrative costs • Site designation, including scientific studies, administration, consultation etc. • Establishing and maintaining management bodies • Preparation and review of management plans • Public communication and consultation • Spatial planning • Permitting and development control • Research, surveys and monitoring • Investigations and enforcement Private administrative costs and burdens: • Time and fees involved in applications and permitting in Natura 2000 areas, including conducting AA and associated surveys, studies and evidence gathering • Time and fees involved in compliance with species protection measures, including applications for permits and derogations • Delays and uncertainties relating to permitting processes
Opportunity costs	• Foregone development opportunities resulting from site and species protection, including any potential effects on output and employment • Delays in development resulting from site and species protection, and any potential effects on output and employment • Restrictions on economic output (e.g. agricultural or forestry production) resulting from species and site protection measures • Restrictions on other activities (e.g. recreation, hunting) resulting from species and site protection measures
Damage costs	• Costs of damage caused by protected species, including large carnivores and fish eating birds • These costs may be reflected in compensation payments made by authorities, and included under species management costs above

Habitat and Species Management Costs

EU level studies

Gantioler et al (2010) reported on the costs of implementing the Natura 2000 network, based on a survey of Member States. Building on the results of a questionnaire completed by 25 Member States, it was estimated that the annual costs of implementation would amount to EUR 5.8bn per year for the then EU-27. This value was deemed an underestimate, as most countries focused on historic and/or budgeted expenditures, with few providing information on future needs. For instance, the cost of achieving FCS was only captured to a limited extent. In addition, the cost of implementing marine Natura 2000 sites was under-represented. The overall costs were not expected to decline in the future, though a gradual shift from one-off investments to regular management costs was expected to occur. In most Member States the network is seen as delivering long-term objectives which will require ongoing expenditures.

It was further estimated that:

- 98% of these costs relate to already designated sites, and only 2% to new sites.

33% of the costs are one-off investments (e.g. investment in infrastructure and land purchase) and 67% are recurrent annual costs (e.g. habitat management and planning).

Averaged over the terrestrial land area of the network, the total costs amount to EUR 63 per hectare per year. This estimate was relatively low compared to previous estimates. The authors commented that a key reason for the relatively low estimates made by the Member States was that many appeared to be based on the existing resources available for the network rather than estimates of the cost of completing, restoring and managing the network if resource constraints were not an issue.

National level evidence

Although based on a survey undertaken between 2008 and 2010, so now more than five years old, the Gantioler et al study (2010) represents the best overall estimate of the costs of implementing the Natura 2000 network in the EU as a whole.

However, since that study, most Member States have compiled Prioritised Action Frameworks (PAFs), which are designed to better define the funding needs and priorities for Natura 2000 at national and regional level, and so facilitate their integration into operational programmes for the different EU funding instruments. The PAFs have provided more refined and updated estimates for some Member States.

Responses from Member State authorities and stakeholders provided much evidence of the costs of implementation of the Directives. 96 questionnaire respondents answered question Y.1 on the costs and benefits of the Directives, of which 79 provided evidence of the costs of implementation, with 56 providing quantitative evidence on costs.

The box below summarises evidence at Member State level on the costs of implementing the Natura 2000 network. These estimates are diverse in nature, making direct comparisons difficult.

Box 6 National estimates of the costs of implementing Natura 2000

Belgium: In Flanders, the estimated overall costs for the Agency for Nature and Forests - including administration, management and restoration measures, mitigation of environment pressures, infrastructure for access, surveillance and monitoring, impact assessment, communication and capacity building - come to between EUR 85.4m and 97.3m per year. These estimates compare to an annual budget of approximately EUR 60m, but do not include costs incurred by other authorities or stakeholders. In Wallonia, implementation costs are estimated at EUR 14.5m/ year, partly co-financed by the EC. This includes salaries and operating costs (EUR 3.6m / year), compensatory payments related to the management of sites (EUR 5.0m/ year), tax alleviations (EUR 3m / year), restoration and management measures (EUR 1.5m / year), and subcontracting (EUR 1.3m / year).

Bulgaria: Costs for Natura 2000 for Bulgaria are estimated at EUR 39.6/ha. These expenditures benefit the Bulgarian economy, providing income for farmers, small business in infrastructure development, scientific research and conservation work.

Cyprus: The PAF estimates the cost of implementing Natura 2000 at EUR 255m for the seven-year period 2014-2020. This includes staff costs, scientific studies, infrastructure for improvement and restoration of sites, habitat and species mapping and monitoring, as well as management planning. It includes an amount for land purchase, but notes that this does not represent the current situation of prices in the country, and that the acquisition of private land is not always a necessary measure to achieve efficient management of a Natura 2000 site. The questionnaire response by BirdLife Cyprus argues that this figure is an overestimate, and suggests that a total of EUR 98.5m would be more realistic for the seven-year period. BirdLife argues that the projected costs of land purchase are overstated. Resource allocation may be further limited by the capacity of the authorities to absorb and spend the financial resources available.

Estonia: According to the PAF, the financial needs for management of Natura 2000 in Estonia amount to EUR 405m between 2014 and 2020. The estimate includes studies, inventories, management planning, habitat restoration, management and monitoring, support payments, investments and land purchase, but excludes administration costs.

Finland: The establishment of the Natura 2000 network incurred costs of around EUR 580m in land acquisition and compensations. However, most of these would have been incurred through national protection programmes decided before EU membership. Natura 2000 is likely to have increased costs by just over EUR 100 m. The necessary costs for management, inventories and other ongoing actions are somewhat smaller in the boreal region compared to other parts of Europe, due to the main focus on natural habitats which require less management than man-made habitats. In the PAF, costs of EUR 313m have been estimated for the period of 2014-2020.

Germany: The costs for implementing the Natura 2000 network are estimated in the PAF to be EUR 627m per year. Given the overall Natura 2000 area of 8,083,224 ha in 2014, including a terrestrial area of 5,503,033 ha, this amounts to costs of EUR 77 - 114 per hectare per year. Some of these costs meet national requirements and would arise without the EU Nature Directives.

Ireland: The potential costs of implementing the network were estimated in Gantioler et al (2010) at approximately EUR 185m per annum. In practice, allocations are far smaller, and nationally-funded programmes had budgets reduced incrementally between 2008 and 2014. For example, Natura 2000 expenditure via the Department of Agriculture Food and the Marine under Ireland's Rural Development Programme (RDP) 2007-13 was approximately EUR 95m, or about EUR 13.6m per annum. In addition, in 2012, the Department of Arts, Heritage and the Gaeltacht spent EUR 5.4m on agri-environment measures and EUR 3.9m on science and species protection programmes. The requirements for baseline studies and monitoring are substantial – especially for marine areas – and not readily met from EU funds. Other costs included EUR 3.4m for compensation and relocation of turf cutters in raised bogs, and EUR 1.2m for scientific studies and management/restoration planning on raised bogs.

Latvia: It has been estimated that the total costs of management of the Natura 2000 network in Latvia would be EUR 50/ha/year.

Netherlands: Leneman et al (2009) estimated the costs of maintaining or restoring the Natura 2000 network to a favourable status in the Netherlands. The total funding needed for the period from 2007-2020 was estimated to be in the range EUR 1.9 - 2.3bn. Approximately 20% of these costs are aimed at management of Natura 2000 areas (ongoing habitat management and restoration), with the remainder mainly aimed at achieving the required environmental quality for a favourable status of Natura 2000 sites (control of ammonia emissions, and improving the quality of freshwater and coastal waters). During the national mission to the Netherlands, the authorities noted that the greater emphasis on management to achieve FCS has raised the costs of Natura 2000 compared to the National Ecological Network.

Portugal: Managing the mainland Natura 2000 network is estimated to cost EUR 135m per annum, excluding administration salaries.

Romania: The PAF estimates the cost for the Natura 2000 network at a minimum of EUR 413m, or EUR 183/ha/year. The costs of an optimal level of management would be EUR 504m (EUR 223/ha/year)

Slovakia: The PAF estimates financial needs for 2014-2020 at over EUR 542m, including purchase of land and compensation of land owners. Resources allocated (before co-financing) are far less than this and include EUR 25.5 m from the Structural Funds, almost EUR 19m from LIFE+ and EUR 3.8m from Swiss and Norwegian financial mechanisms. These figures do not include contributions from the RDP or national resources. Given that Slovakia acceded to the EU with relatively well-preserved biodiversity, the costs of maintenance are relatively low.

Sources: Questionnaires submitted by Agency for Nature and Forests, Government of Flanders, Public Service of Wallonia, Natuurpunt vzw and Natagora (Belgium), WWF Bulgaria, Department of Environment (Cyprus), BirdLife Cyprus, Ministry of the Environment (Estonia), Ministry of the Environment (Finland), Federal Ministry for the Environment (Germany), National Parks and Wildlife Service (Ireland), Vogelbescherming Nederland, Latvian Fund for Nature, SPEA (Portugal), Ministry of Environment, Waters and Forests (Romania), Federația Coaliția Natura 2000 Romania, Ministry of the Environment of the Slovak Republic; National Missions.

The evidence submitted supports many of the earlier conclusions of the Gantioler et al report (2010), notably that:

- The ongoing costs of land management account for a large proportion of implementation costs.
- In many countries, the costs of Natura 2000 are difficult to separate from those of national conservation measures, and only a proportion of relevant expenditures are attributable to the Directives.
- Management strategies (such as the decision whether or not to purchase land) can have a significant influence on cost estimates.
- In many parts of the EU, there remain significant gaps between estimates of the costs of achieving FCS and the expenditures currently being allocated.

Estimates from the PAFs do not provide a comprehensive picture of the costs of implementing Natura 2000, but are generally similar in magnitude to the estimates found by the Gantioler et al study (2010). However, they suggest that the Gantioler et al estimates may have been conservative for some Member States (e.g. Slovakia), but overestimates for others (e.g. Cyprus). Overall, the questionnaire responses are consistent with the scale of the cost estimates made in the Gantioler et al study.

Box 7 Costs of implementing the Directives in the Czech Republic

The questionnaire submitted by the Ministry of the Environment of the Czech Republic estimated the costs of various activities involved in implementing the Directives, including species conservation measures as well as Natura 2000. These include:

Personnel costs of nature conservation authorities – EUR 2.9m/year to employ 155 staff.

Monitoring and Surveillance – EUR 0.56m one-off costs and EUR 1.44m/year (including monitoring under Article 11 of the Habitats Directive, Article 12 of the Birds Directive, surveillance and assessment of Natura 2000 sites, data management).

Legislative based procedures – EUR 31.3m one-off costs and EUR 264,500/year, including designation of Natura 2000 sites and management planning.

Site conservation measures - Regular conservation measures: EUR 41.1m/year for SACs, 7.6m/year for SPAs; One-off conservation measures: EUR 16.3m/year for SACs, EUR 2.2m/year for SPAs.

Action plans – EUR 0.8m – 1.12m/year.

Compensation payments for management restrictions and damage caused by species – EUR 1.2m/year.

Training and public awareness – EUR 0.32m/year for training for conservationists, stakeholder negotiation, new biogeographical process and public awareness raising.

Monetary compensations for restrictions in forest and agricultural management in Natura 2000 sites and purchase of land into a state possession – land purchase costs of EUR 0.23m in 2013 and 0.85m in 2014; compensation of EUR 0.1m per year for restrictions on management in Natura 2000 sites.

The figures demonstrate that the annual management costs of SACs and SPAs represent a large proportion of the overall total.

Source: Questionnaire submitted by the Ministry of the Environment of the Czech Republic.

The Maltese authorities provided data on the costs of the different administrative actions required to support implementation of each Directive.

Box 8 Costs of public administration of the Directives in Malta

In their questionnaire response, the Maltese authorities estimate the overall costs of public administration of the Birds and Habitats Directives.

BIRDS DIRECTIVE

The main cost factors associated with the implementation of the Birds Directive in Malta are related to enforcement, governance and research. In monetary terms, these costs can be approximately quantified as:

- Policy and governance processes: circa EUR 0.5m per annum.
- Field enforcement: circa EUR 0.8m per annum.
- Research: circa EUR 0.5m per annum.

The bulk of these costs are recovered through relevant regulatory processes (e.g. cost of hunting licences, fines imposed for violations, etc.). EU programmes such as LIFE+ also provide support for certain activities such as species re-introduction programmes, scientific research, education and conservation action on the ground.

HABITATS DIRECTIVE

The main costs associated with the implementation of the Habitats Directive in Malta are related to policy and governance, research, funding and management costs:

- Policy & governance – circa EUR 0.8m per annum.
- Research and management costs: Various projects/studies amounting in the region of EUR 10m since accession (some of which were co-financed, under for instance LIFE+ and Med-PAN).
- Increase in biodiversity awareness: EUR 30,000 per year by the Malta Environment and Planning Authority and circa EUR 400,000 for e-actions in connection with two LIFE+ projects to be considered between 2012 and 2017.

Source: Questionnaire submitted by Malta Environment and Planning Authority (MEPA) and Wild Birds Regulations Unit (WBRU).

Administrative Burdens

See section 6.7

Opportunity Costs

EU level studies

Kaphengst et al (2011), in a study of the opportunity costs of biodiversity conservation in the EU, noted that the opportunity costs of the Natura 2000 network include:

- **Foregone development opportunities** – the protection of sites may prevent their use for built development, including housing, industrial, commercial, energy, tourism and infrastructure developments. This may reduce economic output and/or lead to a wider loss of social benefits.
- **Foregone opportunities for land use change** – Natura 2000 status reduces opportunities to 'improve' or convert land for intensive agriculture and forestry, and may therefore reduce the output of land management.
- **Foregone output through constraints on land management/land use practices** – management of sites may reduce output by constraining farming and forestry practices (e.g. through reduced stocking rates, chemical application, timber harvesting etc.).

These opportunity costs are reflected in the financial costs of the network to some extent. For example:

- Purchase of land is most likely to take place in situations where there are conflicting pressures and development options. The price should reflect the returns that can be expected from that land in alternative uses.
- Payment of compensation for foregone development rights or ongoing management constraints is designed to offset the opportunity costs of managing the land for

nature. Provided that compensation payments reflect the income foregone from not changing the use of the site, they should be a good reflection of opportunity costs.

- Management agreements normally involve payments to landowners/managers, which are likely to reflect the costs incurred and income foregone resulting from the prescribed management practices. The income foregone element should reflect the opportunity costs of alternative land management practices. Expenditure on management agreements is not estimated separately but forms an important element of the recurrent cost of habitat management.

On the other hand, where the Directives impose restrictions for which no compensation is paid, landowners and businesses incur opportunity costs which are not reflected in public expenditures.

The authors assessed the incidence of opportunity costs within the different categories of the costs of implementation of the Natura 2000 network estimated by Gantioler et al (2010), based on estimates of opportunity costs within land purchases, compensation payments and management agreements. On this basis, they estimated that, of the annual estimated financial costs of EUR 5.8bn for implementing the Natura 2000 network, compensation for opportunity costs amounts to EUR 2.1bn (or 36%). This comprises land purchase costs of EUR 506m, one off compensation payments of EUR 130m, annual compensation payments of EUR 134m and estimated income foregone associated with habitat management of EUR 1300m.

Kaphengst et al found that the true extent of opportunity costs for which no compensation is paid is not known. However, examples are given where Natura 2000 has prevented development taking place (Box 9). The authors argued that in most of these examples, protection of the site is likely to have displaced development to more appropriate locations. Overall, it is considered likely that the net reduction in economic development at EU level as a result of Natura 2000 is likely to be small, although the authors argue that further assessment would be desirable.

Box 9 Examples of conflicts between Natura 2000 and development

Kaphengst et al (2011) identify a number of cases where developments did not take place because conflicts with Natura 2000 could not be resolved:

- The Commission delivered a negative opinion on the development of a new industrial and commercial area near Siegen in North-Rhine Westphalia, Germany due to unjustified adverse effects of the project on one of the 29 proposed Natura 2000 sites nearby.
- In Scotland, plans by Lewis Wind power for a 181-turbine wind farm at Barvas Moor on the Isle of Lewis, Scotland were refused in 2008 due to the serious impact the development would have on the Lewis Peatlands Special Protection Area. A smaller windfarm development was later permitted at another site on the island.
- Proposed tourism developments have been rejected at a variety of sites including Zakopane (Poland), Beskidy (Poland), Mount Olympus (Greece), Wörschacher Moos (Austria), and Geuldal (Netherlands).
- Fish farming and urban/industrial expansion have been restricted on the Santona marshes (Spain).
- Cockle fisheries have been banned in the Waddensea (Netherlands), although conflicts with mussel fisheries have been resolved through an agreement to change fishing techniques.

The Ecosystems Ltd study on Article 6(3) (Sundseth and Roth, 2013) also noted that the rules governing developments affecting Natura 2000 sites can deter development. It found that, because of the time-consuming nature of the AA procedure and the uncertainty of the outcome, some companies avoid proposing projects in or near Natura 2000 sites unless they can be sure of a reasonable chance of success. The report suggested that, while this may be manageable for some industry sectors where the resources they wish to exploit are relatively widespread, it can be much more of a problem for industries working with rare resources (such as metal ores) with only a finite number of locations available, or where the company may have acquired extraction rights before the site became Natura 2000.

The Ecosystems report considered the extent to which the Directives block development by examining how many developments are proposed affecting Natura 2000 sites and how many of those are screened out. They noted that data for this are largely lacking, but found some evidence at national level (Box YY). This indicates that, on the whole, only a very small proportion of development proposals are subject to a full AA, and, in most cases, these proposals are allowed to proceed.

Box 10 Review of national statistics on developments and appropriate assessment

Bulgaria: From 2009-2012, the Bulgarian Society for the Protection of Birds (BSPB) reviewed around 1533 investment proposals in and around the ten SPAs important for Imperial Eagle and Saker Falcon in Bulgaria. 24 (around 2%) were considered to have a potential threat for the habitat types and species for which the site was designated (mainly involving photovoltaic or wind farm parks inside core areas of the SPA). Between 2009 and 2012, BSPB submitted one report and five statements to the investors and Regional Inspectorates of Environment and Water, presenting arguments against the investment proposals as well as 20 formal complaints to the Ministry of Environment, one to the Administrative Court and two to the Supreme Court. In 2011 and 2012, six of the projects were reworked as a result of BSPB's interventions in order to remove any negative impacts on the SPAs, two were refused permission, and decisions were still ongoing for one project. Three of BSPB's complaints were rejected and the projects implemented as originally planned.

Germany: Environment Minister Sigmar Gabriel provided the following statistics in 2007 on the 2003 Federal Transport Plan (Bundesverkehrswegeplan) which contained 2,600 projects. 1,600 projects were excluded from any further consideration because they posed no problem, while 800 projects were examined in greater detail. 350 projects posed a very high risk to the environment and were given a specific nature-conservation planning mandate when it comes to further planning. In this way acceptable solutions could be found very quickly, even for highly controversial and ecologically problematic measures such as the North Hamburg by-pass involving the A20 or the A33 (Tatenhauser Wald). The Nature Directives helped to prevent conflicts from arising by highlighting a choice of suitable options early in the planning process. The involvement of the Commission was required in very few cases, essentially where the economic project harmed priority species and habitats. In Germany this has happened six times since the Habitats Directive came into force, and on only one occasion did the Commission issue an unfavourable opinion, on account of an obvious failure to follow procedures.

Germany: In Ravensburg County, Baden Württemberg, statistics show that of the approximately 1,000 plans and projects considered by the nature conservation authority within the county administration in 2006, only about 10% were potentially relevant for Natura 2000. Of these 100 projects, 40 were screened out immediately as they were not considered likely to have a significant effect on a Natura 2000 site. The other 60 projects underwent a full AA. As most were small-scale projects with only local environmental impacts, the AA was generally no more than six pages long. Nevertheless, for six projects a more detailed assessment of the impacts was required. Only one project was not approved because significant impacts could not be excluded and appropriate mitigation solutions were not available.

Slovenia: In 2011, the State Institute for Nature Conservation issued 2,820 opinions on plans or projects under the Article 6(3) procedure. 68% showed no significant impacts and were approved, 27% were approved once appropriate mitigation measures had been amended and 2% were refused because of their adverse effect on a Natura 2000 site. The statistics for projects for 2007 – 2010 shows very similar figures: 2007 – 92% of 1,356 cases had no significant effect (either before or after mitigation measures); 2008 – 93% of 1,785 cases; 2009 – 94% of 2,285 cases; 2010 – 95% of 2,587 cases.

Spain: In Extremadura, the Department of Agriculture, Rural Development, Environment and Energy, has kept a tally since 2010 of the number of plans and projects it has to deal with under the Article 6(3) procedure. The vast majority are either screened out or approved. Altogether, around 2% were refused because the AA showed significant effects. The majority of these were reworked and/or mitigation measures were introduced following discussions between the authority and the developer, and were eventually approved. Many of the plans and projects were initially refused because of the poor quality of the AA (usually done by the developer or authority concerned rather than an AA expert) which prevented the authority from making a decision on the grounds of no adverse effects on the Natura 2000 site. Dialogue between the authority and the developer to review the shortcomings of the AA and the possible impacts enabled solutions to be

found in the majority of cases, allowing the project to go ahead.

UK: Natural England (the statutory nature conservation body for England) receives around 26,500 land use consultations annually, of which they 'object' to less than 0.5% on Habitats Regulations grounds. Most of these objections are successfully dealt with at the planning stage. The Royal Society for the Protection of Birds (RSPB) commented on a total of 2,177 planning applications in England over the period 2001-2010, less than 0.04 % of the 599,341 submitted per annum during this period, with very few of them resulting in objections. In the small proportion of cases where comments were submitted, the objections were generally due to 'flaws in putting the law into practice mostly associated with insufficient environmental information, an inadequate or inappropriate survey base for the impact assessment, inadequate mitigation measures, inadequate justification for IROPI, lack of clarity of engagement in the process and lack of competence and/or capacity in relevant organisations (RSPB, 2012).

Source: (Sundseth and Roth, 2013).

The Ecosystems Ltd. report (Sundseth and Roth, 2013) presents further evidence from an online survey which found that the majority of projects are screened out because they are considered unlikely to have a significant effect on Natura 2000 sites. Of those that do go through a full AA, most are approved because the AA concludes that there is no adverse effect. The majority of the rest are reworked or redesigned and then approved. Only a small proportion of projects are actually abandoned because the AA has concluded an adverse effect and even fewer use the derogation procedure under Article 6(4).

Ecosystems concluded that, in general, the majority of plans or projects subject to Article 6(3) are screened out because they are not considered to pose a risk to a Natura 2000 site, or are approved following an AA (with or without mitigation measures). By contrast very few are actually abandoned or refused permits, and even fewer go through the Article 6(4) procedure. While cautioning that their findings are based on partial information and the perceptions of the authorities interviewed, rather than a comprehensive statistical analysis, the authors concluded that: *This would seem to confirm the view that Natura 2000 does not, on the whole, lead to a ban on development within these sites.*

The Directives can also impose opportunity costs on the forestry sector, by limiting opportunities to extract timber. Forest owners may or may not receive compensation for such restrictions. EUSTAFOR (EUSTAFOR and Patterson, 2011) cited a German impact study (Rosenkranz and Wippel, 2012, Rosenkranz et al, 2014) which estimated average annual costs for private and state forest management organisations of EUR 40 per hectare. These include costs of habitat trees, poorer quality or reduction in timber harvest, higher harvesting costs and disposal of conifer trees, and therefore include a variety of opportunity costs and habitat management costs. It is argued that these costs have increased since 2006. Accordingly, some German federal states have introduced, or plan to introduce, compensation for private forest owners at between EUR 50- 100 per hectare per year. As yet, State Forest Management Organisations do not receive any compensation despite being subject to restrictions comparable to those of private forests.

National assessments

Eppink and Wätzold (Eppink and Wätzold, 2009) examined the "hidden costs" of the Habitats Directive, in restricting development opportunities, with reference to a case study relating to development casework affecting the Common Hamster (an Annex IV species) in Mannheim, Germany. Four development projects were found to be restricted in order to protect the species, resulting in the size of residential area and a parking lot being reduced, a building project being delayed by a year and an area of agricultural land being turned into a nature reserve. The costs of the foregone development were examined and estimated at between EUR20m and EUR38m for the studied Mannheim region. The authors found in this case that the hidden costs of changes in development plans are higher than the visible conservation costs by at least an order of magnitude.

In 2007, in Germany, the Chamber of Commerce expressed concern that the Habitats Directive was blocking development, which prompted calls from MPs to amend the way it

was being implemented in Germany. However, a response from the Minister of Environment and Nuclear Safety argued that, to date, the Nature Directives had not prevented any single significant economic development in Germany. Instead, it argued that the Directives helped to accelerate processes by managing conflicts between ecological and economic factors. The Minister argued that opposition to the Directives had been exacerbated by problems of implementation, which included a protracted and unstructured approach to designation of sites and consultation, creating legal uncertainties (Sundseth and Roth, 2013).

In the Netherlands, the high level Social and Economic Council (SER) issued a report in 2006 examining whether the application of the Habitats and Air Quality directives had restricted infrastructure, housing, commercial and industrial development. It found that many projects were being blocked as a result of court rulings by the Dutch Council of State. According to SER the key problems were a lack of experience with the implementation procedure of the Habitats Directive and the fact that the Habitats Directive had not been transposed yet into national law in a satisfactory manner as judged by the ECJ (Case C-441/03, ruling from late 2005). SER's concluded that problems with the implementation of the Habitats Directive arose firstly due to poor transposition in the Netherlands, aggravated by a lack of guidance for the lower public authorities dealing with the necessary permits (Sundseth and Roth, 2013).

A study by Backes et al. (2007) concluded that the application of Article 6 in the Netherlands rarely resulted in the rejection of a development planning request. Projects were often delayed, but in most cases only on formal grounds, because the legally required AA had not been carried out, or had been carried out only partly or poorly. With the exception of one case reviewed by the authors, all project development requests had been given a permit in the end. The study concluded that, although Article 6 has by now been transposed reasonably well in most countries, this has taken a considerable period of time in almost all the countries and has led to the unnecessary friction, including litigation in the European Court of Justice. In many countries, Article 6 has led to much commotion and heated discussions. However, the interests of nature conservation have been given a clearly more distinct role in decision-making and are not easy to push to one side.

In the UK, the HM Government review (HM Government, 2012) of the implementation of the Directives found that in the large majority of cases the implementation of the Directives is working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained. However, there have been some cases where the Directives have blocked development. The review cited the case of Shell Flat, where, in 2003, Cirrus Energy submitted a proposal for a 90 turbine wind farm, five miles off the coast of Blackpool, North West England. Although The Crown Estate licensed this application, lack of marine data meant that the developers were unaware that its proposal would impact on a major concentration of around 50,000 scoter ducks. Despite the developer's best efforts to find a solution, it was unable to find a way of altering turbine deployment to mitigate the impact on scoters without impacting on other interests, such as radar systems at BAe's Warton Aerodrome and navigation channels. Eventually, five years after the application was first submitted, the project had to be abandoned.

Responses to the stakeholder questionnaire present a similarly mixed picture. Some representatives of land management, mining and business interests expressed concern that the Directives provide a constraint to development and economic output, as highlighted in the following boxes.

Box 11 Opportunity costs of foregone minerals extraction

The BDI (Federation of German Industry) argues that regional planning should take species and habitat protection into account from the outset in order to promote legal certainty about subsequent authorisations. However, a lack of resources for regional planning often means that it is inadequately addressed. The BDI considers that raw material extraction is often completely suspended in some Natura 2000 areas (e.g. Brandenburg, Mecklenburg-Western Pomerania, Rhineland Palatinate, some parts of North Rhine-Westphalia) for the sake of simplicity, and that as

a rule Natura 2000 areas are no longer regarded as priority sites for raw material extraction.

Euromines argues that the Directives place significant restrictions on mining activity and that this may cause significant economic development opportunities to be foregone at local and national level. It estimates that investments in gold mines, for example, usually exceed EUR 100m and may reach EUR 1bn for large scale projects. A small or medium-sized mine may typically employ 150 workers, but large operations may have 600 or more staff. Furthermore, any restrictions that might be caused by Natura 2000 may result in foregone royalties and tax revenues, and hence foregone opportunities to improve public services. However, although Euromines refers to restrictions imposed by some plans and policies at national and regional levels, the extent to which the Directives prevent mining activities taking place is not clear.

Source: Questionnaires submitted by BDI and Euromines

Natura 2000 can also place restrictions on agricultural activity, particularly in areas sensitive to pollution from livestock farming.

Box 12 Opportunity costs of Natura 2000 to the agriculture sector

In Flanders, Belgium, the farmers' association Boerenbond argues that a major flaw in the Flemish Natura 2000 policy is a failure to assess the cost for economic actors, including the agricultural sector. Implementation of Article 6(3) of the Habitats Directive is problematic for Flemish livestock companies in and outside the Natura 2000 areas which exceed the critical deposition value for nitrogen. Almost 50% of the Flemish livestock companies are situated within a radius of 3km of a SAC. In October 2014 the Flemish Government estimated that more than 1500 livestock farms (almost 10% of the livestock farms in Flanders) would have problems renewing their environmental license to keep animals. These farms are currently unable to expand their livestock numbers and 135 companies are unable to renew their environmental licence. The others have to reduce their ammonia emissions by 30%. The total cost of these measures has not been assessed, but Boerenbond argues that it will be very large. It should be noted that restrictions on livestock farms also result from other environmental legislation, such as the WFD and Nitrates Directive, and not just the Nature Directives.

In Denmark, the Danish Agriculture and Food Council (DAFC) argues that there are considerable uncertainties regarding the application of the Directives for the livestock sector, but that the costs will be considerable. It states that the DAFC has estimated that more than 700 producers of livestock are within range of ammonia-protected Natura 2000 sites, such that the Danish implementation of the Habitats Directive will limit their possibility to develop production to an efficient scale. Approximately 70 of these farms are so close to the protected Natura 2000 areas that DAFC argues that it will be impossible for them to make any changes on the farm, creating a risk of closure. In addition, restrictions on agriculture to protect sensitive habitats such as heathlands, certain grasslands, raised bogs and oligotrophic waters outside of Natura 2000 sites, could result in further losses of potential production.

In the UK, the National Farmers' Union argues that compensation measures remove land permanently from agriculture, resulting in a loss of provisioning services. It notes that the amount of land taken for compensatory habitat is several times the amount of habitat lost. For example Humber Estuary and Alkborough Flats SAC/SPA has taken a large area of valuable agricultural land out of production.

Source: Questionnaire submitted by COPA-COGECA

The Directives may also reduce forestry output by placing restrictions on forest operations and harvesting. In some Member States, such as Sweden, a non-interventionist approach to forest management is applied in areas of high conservation interest, requiring a cessation of productive activities. Compensation is often, but not always, paid to forest owners for restrictions on operations.

Box 13 Opportunity costs in the forestry sector

Questionnaires submitted by CEPF, FECOF and the Federal Ministry of the Environment quote the results of the 'FFH impact study' in Germany (Rosenkranz and Wippel, 2012, Rosenkranz et al, 2014) which evaluated the costs of restrictions on the output of beech forests as a result of Natura 2000. Measures such as the accumulation of deadwood, old trees and restricted choice of tree species were estimated to reduce harvests by an average of 0.66 harvested m³/ha/annum (range

between 0 and 1.6 harvested m³/ha/annum) over 200 years. This resulted in an average loss of margin of EUR 40 per ha of the area of beech habitat per year (including lost output of EUR 20/ha/annum and administrative costs of EUR 20/ha/annum of administrative costs)

In one case in Sweden, a landowner was not compensated for restrictions of use of 14 hectares of forest to protect the Siberian Jay. It was alleged that he suffered a one-off loss of income of about EUR 100,000 through reduced timber harvest. Though this appears to be an isolated case, the LRF (Federation of Swedish Farmers) argues that application of similar restrictions in other forests supporting protected species could impose huge costs on landowners. Sweden offers full compensation (at a premium of 25% above market returns) for restrictions on management of Natura 2000 areas, but no such compensation has yet been introduced for species conservation measures.

Source: Questionnaires submitted by CEPP, FECOF, Federal Ministry of the Environment (Germany) and COPA-COGECA; National Missions

On the other hand, environmental NGOs point to evidence that most development applications are allowed to proceed without restrictions resulting from the Directives.

Box 14 Most development applications are approved in Slovenian Natura 2000 areas

In Slovenia a concern is often expressed that Natura 2000 obstructs many projects and hinders economic development. Such opinion appears to be strongly influenced by the selective reporting of the media, focusing only on problematic cases. However, DOPPS argues that analysis of Slovenian state institute for nature conservation (IRSNC) expert opinions, which are part of Article 6(3) of the Habitats Directive AA, presents a different picture. In 2012 the Institute issued 2,787 expert opinions, with only 46 projects rejected (less than 2%) due to foreseen significant impact. About half of rejected projects were in conflict with Natura 2000 site integrity, and half with the national protected areas protection regime. The analysis shows that a majority of proposed projects have no (39%) or insignificant impact (32%), while for 25% of proposed projects any significant impact could be avoided by applying appropriate mitigation measures identified in the assessment procedure. DOPPS believes that the analysis shows that concerns that Natura 2000 hinders economic development are exaggerated, and that AA often allows suitable mitigation measures to be identified. From this point of view resources spent on assessment are beneficial and help to further sustainable development objectives.

Source: Questionnaire submitted by DOPPS-BirdLife Slovenia

Some stakeholders participating in the national missions and questionnaires expressed the view that, by imposing restrictions on land management and development, the Directives could have a negative impact on land prices. However, no evidence was provided to support this view, except with respect to wolves in Sweden (see below).

Damage costs associated with species protection

Another cost frequently cited by stakeholders relates to the damage incurred by species protected by the Birds and Habitats Directives.

In the case of large carnivores, the authorities bear a significant proportion of these costs through compensation payments to farmers, reindeer herders and landowners.

Box 15 Costs of damage caused by large carnivores

Bulgaria: Compensation for damage caused by Brown Bears amounted to EUR 40,000 in 2014. The system is considered to work well.

Finland: The Finnish Game and Fisheries Institute allocated funding totaling EUR 7.8m on large carnivore research and monitoring between 2007 and 2012 (Pohja-Mykrä and Kurki, 2014a). Large carnivores cause damage to livestock and reindeer, for which compensation of EUR 7.5m was paid in 2014. Most of the damages were caused to reindeer (EUR 7.1m in 2014). These damage costs have increased substantially since 2004. Damage and damage prevention cause other significant direct and indirect costs to farmers, reindeer herders and livestock owners through adaptations to farming measures, which are not compensated. For example, to avoid damages, some reindeer herding areas cannot be used. Each year, the Ministry of Agriculture and Forestry allocates EUR 0.5m for the prevention of large carnivore damage, including the purchase of electric fencing.

France: Article 16 of the Directive requires the prior implementation of alternatives to the derogation for the strict protection of species. In the case of the wolf in France, these alternatives (damage prevention and compensation measures) cost the state more than EUR 12m in 2013, and continue to grow. The Fédération Nationale des Chasseurs argues that these costs are excessive, and only partly achieve the objectives of the Directive, and that hunting derogations should be allowed.

Sweden: Svenska Jägarförbundet (contributing to the FACE questionnaire) contrasts the annual expenditures on management of large carnivores by the Swedish authorities (EUR 16m/ year) with those of other endangered species such as the Arctic Fox (EUR 0.1m/year) and Lesser White-fronted Goose (EUR 0.076m/year). The submission refers to a MSc thesis by Kvastegård (2013) which found that growth in land prices in wolf areas has been significantly less than in wolf-free areas since 2000, and that prices in the former are now 12% lower in 2012 than in the latter. It also refers to studies which have found that the sale of hunting licences and production of moose meat has fallen in areas with wolves.

Source: Questionnaires submitted by Ministry of Environment and Water (Bulgaria), FACE, LRF (Sweden), Ministry of the Environment (Finland).

Fish-eating birds are another group frequently cited by stakeholders as damaging economic interests, particularly with regard to the aquaculture sector.

Box 16 Losses to aquaculture from protected species

Fish ponds in Hungary (total surface of about 30,000 ha) are valuable wetlands that provide feeding, nesting and breeding habitats for wild birds. Pond fish farms contribute significantly to the goals of the Directives, without receiving compensation. According to the questionnaire submitted by FEAP, the cost to the 900 ha Aranypony Fish Farm for scaring the Great Cormorant is estimated at about HUF 5m (EUR 16,000) per year. It claims that fish consumption of cormorants in Hungary totals 2,427,700 kg, which is about 13% of the total pond fish production. This equates to gross losses of about HUF 1,213m (about EUR 4m) for the fish farmers.

In the Czech Republic, direct losses of fish caused by cormorants in aquaculture have been reported by the Czech Fish Farmers' Association at EUR 3m - 3.5m/year. Additional costs are incurred in hunting and scaring. It is also claimed that losses caused by herons total EUR 1m/year (without compensation) and by otters EUR 1.4m/year (with compensation estimated to amount to 18% of losses). The Association also estimates damage by beavers to ponds, flooding systems and reservoirs at more than EUR 5m/year.

While the above species are protected under the Birds and Habitats Directives, the extent to which the costs identified are the result of the Directives themselves, is unclear, particularly since both Directives allow derogations to enable the control of species which cause serious damage to fisheries.

Source: Questionnaire submitted by FEAP.

Costs of the Directives – responses to online public consultation

Q21 of the online public consultation questionnaire asked about the significance of the costs of the Directives. This question appeared in Part II of the questionnaire, where there was evidence that responses had been affected by campaigning against the Direc-

tives. In general respondents to this question indicated that they considered the costs of the Directives to be substantial. Administrative costs were seen as 'major costs' by 60% of respondents, compared to Natura 2000 site management costs (considered by 55% to be major costs), opportunity costs (considered by 55% to be major costs), costs of protecting species other than birds (also seen by 55% to represent major costs), and costs of protecting bird species (seen by 53% as major costs). Each type of cost was rated as 'insignificant' by only 6-8% of respondents to the question.

Benefits of the Nature Directives

Types of benefits

The Directives deliver benefits for biodiversity and for the delivery of ecosystem services, which in turn enhances human wellbeing and contributes to economic development.

The **ecosystem services** framework provides a structured framework for categorising, assessing, quantifying and valuing the benefits of natural environmental policies for people. However, it is also widely recognised that biodiversity has **intrinsic value** and that the Directives aim to protect habitats and species not just for their benefits to people, but because we have a moral duty to do so. In addition, consideration of benefits needs to take account of the **economic impacts** of implementation of the legislation, including effects on jobs and output resulting from management activities, as well as the effects associated with ecosystem services (such as tourism).

A typology of benefits is given in Table 2, as developed for the evidence gathering questionnaire. Assessment of the benefits of the Directives for biodiversity is a major element in the evaluation of their effectiveness. Effects on ecosystem services can be assessed in both:

- **Biophysical terms** – e.g. effects on flood risk, number of households provided with clean water, number of visitors to Natura 2000 sites etc.
- **Monetary terms** – e.g. reduced cost of water treatment and flood defences, value of recreational visits, willingness to pay for conservation benefits.

Evidence of economic impacts includes estimates of expenditures by visitors to Natura 2000 sites, employment in the creation and management of the Natura 2000 network, and resultant effects on gross value added in local and national economies.

Table 17 Typology of Benefits

Type of benefit	Examples
Benefits for species and habitats	Extent and conservation status of habitats Population, range and conservation status of species
Ecosystem services	Effects of Directives on extent and value (using a range of physical and monetary indicators) of: • Provisioning services – food, fibre, energy, genetic resources, fresh water, medicines, and ornamental resources • Regulating services – regulation of water quality and flows, climate, air quality, waste, erosion, natural hazards, pests and diseases, pollination • Cultural services – recreation, tourism, education/ science, aesthetic, spiritual and existence values, cultural heritage and sense of place • Supporting services – soil formation, nutrient cycling, and primary production

Economic impacts	Effects of management and ecosystem service delivery on local and national economies, measured as far as possible in terms of: • Employment – including in one-off and recurring conservation management actions, as well as jobs provided by tourism and other ecosystem services (measured in full time equivalents (FTE)) • Expenditure – including expenditures by visitors as well as money spent on conservation actions • Business revenues – including effects on a range of land management, natural resource, local product and tourism businesses • Local and regional development – including any effects on investment, regeneration and economic development • Gross Value Added – the additional wages, profits and rents resulting from the above

Benefits for species and habitats

The core benefits of the Directives are in protecting species and habitats, which have intrinsic value as well as being valued by people, and delivering ecosystem services. These core benefits are addressed by the section on effectiveness above.

The following sections concern evidence of the value of the benefits of the Directives in terms of their delivery of ecosystem services, as well as their contribution to economic development.

Value of benefits and ecosystem services

EU studies

Most evidence of the value of the benefits of the Directives at EU level relates to the value of the services delivered by the Natura 2000 network.

A study by ten Brink et al (2011) presented overall estimates of the value of benefits of Natura 2000 and of particular ecosystem services. It was estimated that the Natura 2000 network provides benefits of between EUR 200-300 bn per annum, amounting to around 1.7 - 2.5 % of EU GDP.

This estimate was derived by extrapolating existing estimates of the overall value of the benefits delivered by a subset of Natura 2000 sites. The review found 34 different estimates of the value of the benefits of Natura 2000 sites, from 20 different studies. It highlighted that benefits estimates vary widely between sites, ranging from less than EUR 50 per hectare per year to almost EUR 20,000 per hectare per year. The range of values identified underscores that sites are not uniform, while estimates of the value of the services they deliver also vary according to the methods used and data available. These studies were used to calculate average per hectare benefit estimates for Natura 2000 sites. Given that the available benefits assessments were skewed towards North West Europe, they were adjusted for variations in national per capita GDP to give more representative EU averages. This gave average per hectare values of the benefits of Natura 2000 sites of EUR 2,447 (median) and EUR 3,447 (mean).

The per hectare benefits were found to vary widely by habitat, with mean estimates of benefits per hectare per year ranging from EUR 1,898 (for grasslands) to EUR 7,866 (for temperate heath and scrub). The estimates refer to the overall benefits of the sites rather than to particular features or practices related to the Directives.

Table 18 Per hectare benefits of Natura 2000 sites

Site	Ecosystem services / types of benefit	Site value per ha per year (EUR, 2011 prices)	Reference
Pond Complex of Central-Limburg, Belgium	Provisioning services, tourism and recreation	1,406	Desmyttere and Dries (2002)
Scheldt estuary, Belgium	Regulating and provisioning ES (various)	3,990	Ruijgrok, E.C.M. (2007)
Skjern River restoration, Denmark	Biodiversity/ existence values, recreation, water purification and regulation, fibre production	1,218	Dubgaard et al (2002)
Protected forests in eastern Finland	Non-market values measured through contingent valuation	403	Kniivila et al (2002)
La Crau, France	Non-market benefits (public willingness to pay) + hay production	229	Hernandez and Sainteny (2008)
Donana, Spain	Range of ecosystem services, estimated through contingent valuation method	375	Martin-Lopez et al (2007)
Sites protected for Large Blue butterfly, Landau, Germany	Range of services and values including non-use values	6,932	Watzold et al. (2008)
Burren, Ireland	Cultural services: tourism and recreation; Broader socio-economic benefits: beneficial externalities of conservation	2,714	Rensburg et al. (2009)
Wadden Sea N2K sites, Netherlands	Wide range of provisioning, regulating and cultural services	3,650	Kuik et al (2006)
River N2K sites, Netherlands	Use and non-use values, estimated through hedonic pricing and benefits transfer	5,324	Kuik et al (2006)
Lake and marsh N2k sites, Netherlands	Tourism, recreation, non-use values including biodiversity	5,944	Kuik et al (2006)
Dune N2K sites, Netherlands	Flood protection, recreation, non-use values	13,198	Kuik et al (2006)
High fen and sandy soil N2K sites, Netherlands	Recreation, non-use values	1,274	Kuik et al (2006)
Stream valley and hills N2K sites, Netherlands	Provisioning, amenity, recreation, non-use values measured through stated and revealed preference methods	4,974	Kuik et al (2006)
Białowieża Forest, Poland	Recreation, amenity and existence, freshwater, range of provisioning services (e.g. food, timber), tourism, pest control	2,799	Pabian and Jaroszewicz (2009)
Pico da Vara / Ribeira do Guilherme, Azores, Portugal	Water provision, quality & regulation; Recreation and eco-tourism; Landscape and amenity values	642	Cruz and Benedicto (2009)
Lower Green Corridor, Romania	Provisioning services: fisheries, forestry, animal fodder; Regulating services: nutrient retention; Cultural services: recreation	512	Ebert et al. (2009)
Danube floodplains (7 countries, 60% in Romania)	Provisioning services, recreation, water purification	572	Gren et al (1995)
Maramures Mountains Natural Park, Romania	All ecosystem services	416	Ceroni (2007)
Clyde Valley Woods, Scotland	Recreation and non-use values (based on CVM of visitors and	5,665	Jacobs (2004)

Site	Ecosystem services / types of benefit	Site value per ha per year (EUR, 2011 prices)	Reference
	general public		
Waukenwae and Red Mosse, Scotland	Recreation and non-use values (based on CVM of visitors and general public)	14,769	Jacobs (2004)
River Bladnoch, Scotland	Recreation and non-use values (based on CVM of visitors and general public)	5,341	Jacobs (2004)
Sands of Forvie, Scotland	Recreation and non-use values (based on CVM of visitors and general public)	4,404	Jacobs (2004)
Tips of Corsemaul and Tom Mor, Scotland	Recreation and non-use values (based on CVM of visitors and general public)	19,763	Jacobs (2004)
Strathglass Complex, Scotland	Recreation and non-use values (based on CVM of visitors and general public)	87	Jacobs (2004)
Lewis and Harris, Scotland	Recreation and non-use values (based on CVM of visitors and general public)	155	Jacobs (2004)
Sites of special scientific interest in England and Wales (almost 80% by area are N2K)	Range of seven key provisioning, regulating and cultural services (gross)	7,926	GHK (2011)
Wallasea Island, England	Range of key ecosystem services	1,447	Eftec (2008)
Derwent Ings , England	Social benefits of Natura 2000 site, measured through CVM	1,318	Willis, K.G (1990)
Skipworth Common, England	Social benefits of Natura 2000 site, measured through CVM	5,987	Willis, K.G (1990)
Upper Teasdale, England	Social benefits of Natura 2000 site, measured through CVM	1,150	Willis, K.G (1990)
Alkborough Flats, North Lincolnshire, England	Range of ecosystem services	4,508	Everard, M. (2009)
Humber Estuary, England	Amenity and recreation, carbon	847	Luisetti et al (2010)
Blackwater Estuary, England	Amenity and recreation, carbon, fisheries	4,371	Luisetti et al (2010)

Source: (ten Brink et al, 2011)

The study also provided overall estimates of the value of some ecosystem services (Box 17).

Box 17 Natura 2000 delivers valuable ecosystem services

Storing Carbon: Many Natura 2000 sites protect ecosystems (e.g. forests, wetlands, peatlands, grasslands, marine and coastal areas) that are important current stores of carbon and offer significant opportunities for further carbon sequestration. It is estimated that the Natura 2000 network currently stores around 9.6 billion tonnes of carbon, equivalent to 35 billion tonnes of CO₂, which is estimated to be worth between EUR 600 and 1,130 billion (stock value in 2010), depending on the price attached to a ton of carbon. These carbon values are expected to increase in the future, especially if the conservation status of the network improves. Onsite measures that positively affect carbon fluxes include the restoration of wetlands, peatlands and agroforestry ecosystems. On the contrary, policies that encourage land conversion from grassland to cropland will cause the release of stocked CO₂ into the atmosphere.

Natura Hazards: Natura 2000 sites offer potentially significant cost savings and a reduction in damage caused by extreme weather events. Natural hazards cause significant damage across the

EU. For the period 1990–2010, the value of economic losses from natural disasters in the EU-25 amounted to around EUR 163 billion. Natura 2000 maintains healthy, intact and robust ecosystems which play a vital role in mitigating the impacts of disasters (such as floods, avalanches, landslides) and reducing the overall vulnerability of communities to these disasters. Although the benefits arising from natural hazards risk reduction are very site-specific, well-functioning ecosystems can offer efficient mitigation services, often at a much lower cost than man-made measures. For instance, in the Kalkense Meersen Natura 2000 site in Belgium, it has been estimated that the restoration of the original river landscape by means of wetlands and estuarine habitats restoration can bring flood mitigation benefits of between EUR 0.64m–1.65m per annum.

Food security and provision: Natura 2000 sites harbour a wide range of valuable plants and animals, such as pollinating insects, which are important to society. Insect pollination services have an annual value estimated at EUR 14bn per year in the EU, representing 10% of the value of agricultural food production in 2005. Existing data do not allow the contribution of Natura 2000 to be quantified. Many Natura 2000 sites also support important agricultural practices. Farmland covers almost 50% of the EU territory, and agri-ecosystems represent 38% of the surface of Natura 2000 sites. High nature value farming can offer significant benefits for biodiversity, as well as helping to support local breeds, conserving genetic diversity and enhancing the resilience of the sector.

Water: Water purification and provision are important ecosystem services provided by natural ecosystems, including protected areas such as Natura 2000. A number of major European cities, including Munich, Berlin, Vienna, Oslo, Madrid, Sofia, Rome, and Barcelona all benefit from natural filtration in different ways. These municipalities save money on water treatment due to natural treatment from ecosystems. The savings can be passed on to consumers, resulting in lower utility costs for EU residents. The four European cities of Berlin, Vienna, Oslo and Munich are each estimated to receive annual economic benefits of between EUR 7 and EUR 16m from water purification and between EUR 12 and EUR 91m through water provision from Natura 2000. The average per capita benefits are between EUR 15 and EUR 45 per year for both water purification and provision combined in the four European cities analysed. This compares to average household water bills of EUR 200 per year in the case of Germany.

Marine Protected Areas : Marine Protected Areas (MPAs), including marine Natura 2000 sites, support a range of ecosystem services, which help, among other things, to maintain healthy fish stocks. The value of benefits delivered by the marine area currently protected by the network (equivalent to 4.7% of the EU's marine area) is approximately EUR 1.4–1.5bn per year. This would increase up to EUR 3.0–3.2bn per year if 10% of the sea area were protected, and EUR 6.0–6.5bn per year for protection of 20% of the sea area. These values are approximate, and obtaining more robust results would need an improved understanding of how protection will influence aspects such as habitats, services and offsite fisheries.

Source: European Commission (2013)

A related study by BIO Intelligence Service (BIO Intelligence Service, 2011) assessed the value of tourism and recreation benefits delivered by the network. It estimated both the value of the recreational experience received by visitors to Natura 2000 sites, and their expenditures and the resulting economic impacts.

- Natura 2000 sites receive between 1.2 and 2.2 billion visitor days per annum.
- The Natura 2000 designation was estimated to be a motivation for 21% of these visitors.
- The benefits to visitors from these recreational visits to Natura 2000 sites was estimated EUR 5-9bn per annum, based on estimates of visitors' willingness to pay, equating to an average willingness to pay of EUR 4 per visit.
- The total expenditure related to tourism and recreation supported by Natura 2000 was between EUR 50bn and EUR 85bn in 2006.

Arcadis et al (2011) developed a toolkit to value the changes in the value of ecosystem services brought about by changes in the management of Natura 2000 sites. This was used to estimate the net benefit of changes in management at 11 Natura 2000 sites

around the EU. Conservation action was found to deliver positive net benefits at most sites, even allowing for data gaps. The largest net benefit was estimated to have a present value of between EUR 46-65m at Montserrat, Spain (Box X). The authors concluded that the tool provided the best possible insight into the economic value of the wider benefits of conservation measures, but cautioned that it did not always give an accurate picture, and made a number of recommendations about how it could be improved.

Box 18 Tool for Valuing Conservation Measures at Natura 2000 Sites

The toolkit uses **nine steps** which apply knowledge and data about the Natura 2000 site to construct an economic appraisal of likely ecosystem service changes as a result of conservation measures. The steps are:

1. Defining the baseline and its level of ecosystem services and other economic benefits (expected situation in absence of new management measures).
2. Identifying new conservation measures in order to reach FCS (additional management options).
3. Identifying impacts of management changes on ecosystem goods and services.
4. Identifying human populations affected by impacts.
5. Economic valuation of ecosystem service changes.
6. Calculation of discounted costs and benefits.
7. Accounting for non-monetised impacts.
8. Sensitivity analysis.
9. Reporting.

The tool was tested at 11 Natura sites reflecting a range of the different geographies, habitat types and socio-economic circumstances across the EU: Kalkense Meersen (Belgium), Lomovete (Bulgaria), Muntanya de Montserrat (Spain), Telascica (Croatia), Krkonose Mountains (Czech Republic), Ehrenburg und Katzenköpfe (Germany), Elatia Forest (Greece), Naardermeer (Netherlands), Haaksbergerveen (Netherlands), Vindelfjallen (Sweden), and Humber Estuary (UK).

The case studies were able to value only some of the ecosystem service benefits of the eleven sites. Summing the benefits that could be valued, and deducting the estimated costs of the conservation measures required, estimates were made of the net benefits of conservation at each of the eleven sites. These ranged from a small net cost at three sites, to net benefits with a present value of EUR 53-60m (Telascica, Croatia), EUR45-65m (Montserrat, Spain) and EUR 38-74 m (Humber Estuary, UK). The most valuable ecosystem services were found to vary between sites, and included food production (Telascica), landscape/amenity, erosion control and climate regulation (Montserrat), and flood management and fisheries (Humber Estuary).

Source: Arcadis et al (2011)

National studies and questionnaire returns

A study by Kuik et al (2006) estimated the benefits provided by Natura 2000 in the Netherlands at around EUR 4,000/ ha /year, based on estimates from a range of Natura 2000 ecosystems. Recreation and tourism, as well as wider ecosystem functions, were important components of this value, as were non-use benefits. The provisioning service of raw materials was accorded lesser importance in the Netherlands. The authors extrapolated the gross welfare benefits of all Natura 2000 areas in the Netherlands (1.1 million ha), deriving an estimate of around EUR 4.5bn/ year.

Jacobs (2004) estimated the benefits of all 300 Natura 2000 sites in Scotland, using contingent valuation surveys. They found that around 99% of these benefits (GBP 210m or EUR 294m per year) relate to non-use values, shared between the Scottish general public and visitors to Scotland. Only around GBP 1.5m (EUR 2.1m, or 1%) of the benefits relate to use values (e.g. walking etc.). The willingness to pay to protect the sites was found to average GBP 48 (EUR 67m) per Scottish household per year. Other ecosystem services were recognised to be valuable, but not assessed.

Further evidence of the benefits of the Directives is given in responses to the evidence gathering questionnaire. 62 respondents provided evidence of the benefits, with 38 pro-

viding quantitative evidence. Some examples of evidence of the benefits of Natura 2000 at the national, regional and local levels are given in the following box.

Box 19 Ecosystem services delivered by Natura 2000

Flanders, Belgium: A recent study assessed the value of the benefits provided by 11 ecosystem types represented in the Natura 2000 sites in Flanders. This estimated the value of these benefits at EUR 800-1,400m/year. The benefits of Natura 2000 sites to human health were found to account for the largest share of these benefits.

Croatia: A 2011 study examined the potential benefits of ecosystem services from sustainable management of the Northern Velebit National Park and Velebit Nature Park (both Natura 2000 sites). It estimated a net gain of nearly EUR 17m in the tourism sector alone, with substantial additional gains related to agriculture, forestry and freshwater conservation. A second study evaluated the ecosystem services of the Croatian floodplain area along the rivers Mura, Drava, Sava and Danube – almost completely designated as Natura 2000. Several aspects such as wood production, fish production, flood mitigation, habitat provision, game animal production, drinking water provision and nutrient retention were analysed. The floodplain ecosystem in a 200 km² study areas was estimated to provide benefits of between EUR 160-280m per year.

Estonia: A study estimated that the restoration of Pärnu river, the most important potential salmon river in the country, would increase smolt production by an estimated 45 000 – 58 000 smolts per year. After restoration, this would lead to fisheries income increases by up to EUR 5m per year. The maximum cost of restoration was estimated at EUR 15m, which would include work on open migration routes and to restore spawning sites.

Slovenia: A study of the economic value of ecosystem services of Lovrenška jezera estimated the value of the ecosystem services delivered by sustainable management to be four times higher than if the area was managed unsustainably. A study valued ecosystem services at Škocjan Caves regional park at EUR 12.9m per annum under current management, with the potential to increase this to EUR 14.8m through improvements in management. At Sečovelje Salina Nature Park, enhanced management of the Natura 2000 site, with the support of the LIFE+ programme, has increased visitor numbers in the last 12 years from 8,000 to 40,000 per year, with the number of employees growing from 16 to 92.

Bialowieza Forest, Poland: A study estimated the public's willingness to pay to protect this Natura 2000 site at PLN 840m (EUR 193m) per year. This sum far exceeds the current income from logging (PLN 3.5-5m; EUR 0.8-1.2m). Another study estimated the market value of tourism and provisioning services (e.g. honey, game, mushrooms and wild berries) at around PLN 700,000 (EUR 160,000) annually. Another study, employing the travel cost method, estimated the value of recreational benefits of the site at PLN 11m (EUR 2.5m) each year.

Slovakia: The total economic value of ecosystem services generated by Natura 2000 sites and nationally protected areas within the National Park Velka Fatra was estimated at EUR 180m (EUR 4,400 per hectare).

Netherlands: A dissertation examined the four main ecosystem services supplied by the De Wieden wetland. These services are reed cutting, fisheries, recreation, and the habitat service. The research shows that the four services generate a combined annual value of around EUR 830/ha/year. This is high compared to the value generated by surrounding agricultural land, which can be estimated at around EUR 300 to 400/ha/year.

UK: MPAs have a vital role in restoring and safeguarding crucial ecosystem services, including: spawning and nursery grounds for commercial fish stocks; climate regulation; nutrient recycling; and environmental resilience. It has also been estimated that the proposed Scottish component alone of the network could provide economic benefits worth GBP 10bn (EUR 14bn). Another study found that ecosystem services with a net value of GBP 52.8 – 54.5m (EUR 74-76m) may be realised as a result of maintaining or restoring MPAs in Northern Ireland.

Source: Questionnaires submitted by Agency for Nature and Forests, Government of Flanders, Natuurpunt vzw and Natagora (Belgium), Association BIOM (Croatia), Ministry of the Environment (Estonia), Ministry of the Environment and Spatial planning (Slovenia), WWF Poland, Slovak Ornithological Society, Vogelbescherming Nederland and Joint Links (UK)

Benefits of species protection: The White Stork in Poland

About 23% of the world population of White Stork breeds in Poland, where this species has great cultural significance and is treated as a national treasure. Stork populations are also among the most studied and the longest monitored. Long-term trends indicate a moderate decline in the white stork population in Poland. Storks nest in the vicinity of human settlements and attract people's attention. A small part of the eastern population of storks forms nesting colonies, or stork villages. In Poland there are about 10 such colonies, the most famous of which is Żywkowo in the Masurian Lake District, where 20-40 stork nests are resettled each year. The colony is visited by 2000-5000 tourists each year.

A study assessed the value of the storks as a tourist attraction with the use of the travel cost method. The results of a survey carried out in 2011 in Żywkowo estimated the average consumer surplus, and thus the benefit for visitors from visiting the stork village, at almost PLN 200 (EUR 46) per visitor. The value of time spent in visiting the site was estimated at a further PLN 200 (EUR 46) per person. Therefore, the total annual benefit – all visitors to Żywkowo, Podlaskie Voivodship (2850 people in 2011) was estimated to total PLN 0.57m (EUR 0.13m, consumer surplus) or PLN 1.16m (EUR 0.27m, consumer surplus plus time value).

Source: Questionnaire submitted by WWF Poland

Benefits to the economy

EU evidence

BIO Intelligence Service (2011) estimated the economic benefits of Natura 2000 and related tourism activities.

- Natura 2000 sites receive between 1.2 and 2.2 billion visitor days per annum, of which 21% are motivated by the Natura 2000 designation itself.
- These visits support annual tourism expenditure of EUR 50-90bn per annum, of which around EUR 15bn is expenditure by visitors motivated by the Natura 2000 designation.
- These expenditures were estimated to support, directly or indirectly, a total of between 4.5 and 8 million FTE jobs across the EU, of which an estimated 0.8 – 2.0 million jobs are supported by expenditures by visitors motivated by the Natura 2000 designation.

Natura 2000 sites were estimated to support a total of 12 million jobs in 2006-08, about 6% of total employment in the EU. This includes:

- 3.2 million jobs in recreation.
- 1.3 million jobs in agriculture.
- 200,000 jobs in fishing.
- 700,000 jobs in forestry.
- 7 million jobs in other industries.

A study by GHK (2011) examined the potential for creation of green jobs through EU budgetary investments. Using cost data taken from Gantioler et al (2010) and estimates made by Rayment et al (2009), the report estimated the effects of investments in the implementation of the Natura 2000 network. On the basis that wages account for 50% of the costs of implementation, and that wages for Natura 2000 employees average EUR 28,000 per annum, it was estimated that each EUR 1bn spent on the implementation of the network would create 17,900 FTE jobs. Inclusion of indirect effects (resulting from expenditures on goods and services) and induced effects (resulting from employee and supplier spending) would increase this figure to 29,900 FTE jobs per billion euro of ex-

penditure on Natura 2000. It was noted that the jobs created would include a combination of low- skilled (e.g. for capital works) and higher-skilled jobs (e.g. research, surveys, consultations). The 30,000 jobs supported by each EUR 1bn of expenditure in Natura 2000 were found to compare favourably with estimates of 3,000 to 6,000 FTE jobs per EUR 1bn expenditure of the current CAP, and 16,800 FTE jobs supported per EUR 1bn of Cohesion Policy investment.

ICF GHK et al (2012), in a study for the European Commission on the implications of EU biodiversity targets in the labour market, assessed the effects of implementing the Natura 2000 network on jobs and skills. Using the same methodology as in the GHK study (GHK, 2011), the report estimated that full implementation of the Natura 2000 network, involving annual expenditures of EUR 5.8 billion, would support 104,000 FTE jobs directly, and 174,000 FTE jobs in total (including multiplier effects) in the EU.

Box 20 Types of jobs created by implementing the Natura 2000 network

The largest number of new jobs created will be related to the management and monitoring of Natura 2000 sites. These will include managerial occupations (including site managers and management planners), which tend to perform well in terms of earnings, working hours and job security. However, according to one survey, the proportion of women in these roles can sometimes be low.

The site management and monitoring activities are also likely to create new scientific-technical occupations, including site and species protection officers, monitoring specialists, ecological advisers and consultants. These are normally highly-skilled jobs (with most workers holding tertiary education qualifications), involving a high degree of initiative and creativity as well as considerable amounts of field work, and guaranteeing regular contact with nature. On the downside, however, scientific-technical jobs in the nature conservation subsector have not always succeeded in attracting women and other traditionally excluded groups. They also often have relatively low salaries and, when they occur in the private sector, can sometimes consist of self-employed and/or part-time or volunteer work, and therefore offer lower levels of job security.

Teachers and other education specialists will also be needed to raise awareness of the means and benefits of conserving biodiversity. These jobs are likely to offer employment opportunities for women as well as men, with average earnings and high levels of job satisfaction and control.

The designation of Natura 2000 sites and the development of new visitor infrastructure are also likely to create a considerable number of new tourism jobs locally (including visitor wardens and guides, as well as more general jobs in the tourism sector). General tourism jobs are often associated with low earnings and low levels of job satisfaction, although more specialist nature focused jobs for visitor wardens and guides may have higher levels of job satisfaction.

Assessing and addressing the financial implications of completing the Natura 2000 network is likely to create a smaller number of high quality jobs in the field of finance. These bankers, insurance specialists and other economists will need to have sound knowledge of biodiversity. They are likely to be well-paid as a result of their commercial relevance, and to enjoy high levels of job security, flexible working hours and good opportunities for training and career progression. A small number of policy researchers and marketing specialists involved in fundraising, and police and customs officers involved in regulatory enforcement, will also be created under this Target. These jobs are likely to attract younger workers and have a better gender balance.

Finally, a large number of skilled manual jobs will be needed to help with the management and restoration work of the new Natura 2000 sites. Workers in these jobs often enjoy high levels of job satisfaction, but sometimes perform less well against certain other qualitative criteria. These include low earnings, higher risk conditions and, in some cases, insufficient training opportunities. Nevertheless, it is often difficult to generalise about these jobs, as some farmers enjoy high incomes and invest in training their workforce.

Source: (Jurado et al, 2012)

The following boxes present evidence of the benefits of the Directives for economic development, as presented in the evidence gathering questionnaires submitted by stakeholders.

Box 21 Natura 2000, Jobs and Skills in Greece

In its survey of the operation of management bodies of protected areas, the national Natura 2000 committee reported that 276 individuals were employed as regular and/or seasonal staff in these bodies (Vokou et al, 2014). These management bodies cover about one-third of the Natura 2000 area, each employing between 3 and 32 staff. Another study by Chrysogelos and Theodoropoulos (Chrysogelos and Theodoropoulos, 2012) estimated that management of the Natura 2000 network would create between 800 and 1200 jobs. Natura 2000 may also support other jobs indirectly in regional and local administration, Forest Services, Police and Port Authorities and the private sector (NGOs, consultancies, photographers, etc).

The numerous projects that have been undertaken over the past years in support of the implementation of the Directives have contributed to the establishment of professional expertise in nature conservation, as well as to the development of additional skills such as project development, monitoring and evaluation. Moreover, the Nature Directives have increased demand for the development of species and site management plans, species action plans, species population surveys, site and species monitoring projects, EIA and AAs, and visitor interpretation projects in protected areas, among others. This has created new job opportunities. It is estimated that more than 1,000 full- or part-time professionals are employed in such projects in the country annually. These job positions are maintained in the private sector through projects financed by the EU Life programme, Interreg, the Structural Funds, NGOs, private investors and others. Engagement of local conservation groups in EU funded projects, such as LIFE+, empowers active public engagement in nature conservation. These local groups are trained in conservation monitoring practices that are implemented by the projects, creating skills that last beyond the duration of the project (see, for example, Kordopatis and Polymeros, 2014).

Source: Questionnaire submitted by WWF Greece

Box 22 Wildlife Tourism in Estonia, the UK, the Netherlands and Slovenia

Bryden et al (2010) found that wildlife tourism resulted in GBP 1.4 bn (EUR 2.0 bn) of annual visitor spending and 39,000 FTE jobs in Scotland. Ehrlich (2013) estimated that nature-based tourism brings additional visitor expenditure of EUR 30m annually to Estonia.

After being persecuted to extinction in the UK by 1916, legal protection for the White-tailed Sea Eagle and its reintroduction has resulted in a significant recovery, with populations now established on both the west and east coasts of Scotland. A study has estimated that on the Scottish island of Mull up to GBP 5m (EUR 7m) of tourist spend per annum is attracted by White-tailed Eagles, supporting 110 jobs and GBP 1.4m (EUR 2m) of local income per annum (RSPB Scotland, 2011).

Direct and indirect tourism spending due to dolphin and whale-watching in the UK has been rising since 1991 along with total visitor numbers (Woods-Ballard et al, 2003). Visitors who come to see the bottlenose dolphins in the Moray Firth SAC contribute more than GBP 4m (EUR 5.6m) to the local economy (Davies et al, 2010) and have resulted in an active seasonal commercial boat-based industry, as well as providing a great opportunity for land-based watching and monitoring (Thompson et al, 2004).

Minsmere, Suffolk: Minsmere is part of the Minsmere and Walberswick SPA, a complex mosaic of habitats from mudflats, reedbeds to woodland. The RSPB the largest employer in the local parish council district and the reserve attracts up to 100,000 visits annually to the area, spending an extra GBP 3m (EUR 4.2m) per year in the local economy, and supporting more than 100 FTE (Shiel et al, 2011). These significant economic benefits are directly related to the features and species protected by the SPA designation.

In the Netherlands, the presence of protected species like the beaver can provide great economic benefits for nature areas. In the Biesbosch, excursions given throughout the year attract revenues of around EUR 13,750 on a yearly basis. Nature-related benefits for companies in the Millingerwaard in the Gelderse Poort comprise a total of about EUR 23,000 per year. Wildlife thus provides economic gain (Bade et al, 2010).

In Slovenia, bear-watching attracts increasing numbers of eco-tourists. In recent years local hunting clubs, many of which are facing increasing financial difficulties, have gained profits of up to EUR 5000 annually from bear-watching ecotourism.

Source: Questionnaires submitted by Ministry of the Environment (Estonia), Joint Links (UK) and Vogelbescherming Nederland, DOPPS- BirdLife Slovenia

Box 23 Benefits of Natura 2000 for agriculture and food production

In the programming period 2007-2013, Austria carried out 1,026 nature protection projects. According to the project leaders, 25% of these projects contributed to improved agricultural revenues, e.g. by establishing landscape preservation associations or supporting the joint development of products certificated by nature parks (e.g. grass-fed cattle from the Wienerwald Biosphere Reserve). Such products provide farmers with sustainable revenues (Pinterits et al, 2014).

In Estonia, management of semi-natural grasslands (now 25,000 ha, which will increase to 45,000 ha by 2020) has benefited the rural economy. Grazing management under Natura 2000 has boosted livestock numbers and the allocation of beef quota, and contributed to the profitability of the livestock sector. The dairy sector collapsed following the break-up of the Soviet Union. Initially Estonia was not eligible for beef quota but managed to gain an allocation of quota based on plans for grassland management.

In the Nord-Pas-de Calais region of France, pastoral management of limestone hillsides designated as SPA / SAC has been undertaken through partnerships with local breeders of the Boulogne breed of sheep.

In the Aude département, the largest wine cooperative has become involved in the protection of birds, especially the Lesser Grey Shrike, a species which has become emblematic of the lowlands of the Aude. Agri-environmental measures have been implemented to improve the habitat by maintaining trees and ditches, tackling shrub encroachment and protection of vineyards. This has benefited growers by developing local identity, diversifying activities into nature tourism and contributing to product quality and marketing. A special vintage "Lesser Grey Shrike" has emerged since 1996. Part of the proceeds from the wine sales is donated to a special fund concerned with the conservation of the bird and its habitat.

In Slovakia, the project 'Strážovské vrchy – a living and rich region', has restored more than 80 ha of long abandoned and heavily overgrown grasslands in SCI Strážovské vrchy and SPA Malá Fatra. Prior to the project, the sites produced virtually no economic income and had low landscape value. After the restoration, they produce an annual income from meat and milk production of EUR 21,459, helping to create sustainable job opportunities and support rural development. The project has enhanced the attractiveness of the landscape by planting fruit trees on the restored pastures and restoring terraced fields, and opening the landscape for hiking and outdoor recreation. As well as being welcomed by farmers, the project has benefited species such as orchids, Corncrake, Golden Eagle and Nightjar.

Source: Questionnaires submitted by Umweltdachverband (Austria), Ministry of the Environment (Estonia) and LPO (France), Slovak Ornithological Society; National Missions

The beneficiaries of conservation and visitor expenditures include tourism businesses, employees working in conservation activities, suppliers of goods and services to the conservation sector, as well as the general public and society at large. The costs of conservation are typically borne by the public sector and by those owning and managing land. The uneven distribution of costs and benefits has implications for conservation and incentive schemes – numerous stakeholders commented on the need for those incurring the costs to be compensated by those who benefit.

The benefits of the Directives – Responses to the Public Consultation

The following questions in the public consultation asked about the benefits of the Directives:

- Q12 asked the extent to which the Directives have added value to the economy (e.g. job creation, business opportunities linked to Natura 2000). 93% of individual respondents considered that the Directives have added significant value to the economy. By contrast, 79% of responses from businesses considered that they have no added value. Responses from other organisations were more mixed.
- Q13 asked the extent to which the Directives have brought additional social benefits (e.g. health, culture, recreation, education). Responses showed a similar pattern to

Q12, with 94% of individual respondents but only 8% of business respondents considering that they have brought significant added value.

- Q20 asked about the significance of the different benefits of the Directives. The responses indicated that the strongest benefits were considered to relate to the conservation of wild birds, habitats and other species, with 47%, 47% and 45%, respectively, considering these benefits to be significant or very significant. By comparison, other environmental benefits were rated as significant or very significant by 39% of respondents, social benefits by 36% and economic benefits by 34%.

6.1.4 Key findings

- Implementation of the Directives involves significant costs:
- The direct costs of designating, protecting and managing Natura 2000 sites have been estimated at EUR 5.8bn annually across the EU.
- Opportunity costs arise where the protection of sites and species restricts development, land use change and land management. This is highlighted as a concern by certain businesses, although it affects a very small proportion of all proposed developments in the EU. In many parts of the EU land managers are compensated for restrictions on agriculture and forestry.
- The costs of damage caused by protected species (e.g. large carnivores) and associated compensation payments can be significant at a local level but account for a small proportion of overall costs.
- The administrative burdens of compliance with the Directives' site and species protection rules are significant. These are analysed in the answer to question Y.7 (see section 6.7).
- Implementation also delivers substantial benefits:
- Core benefits are the protection and improved status of habitats and species.
- Protection of sites and species helps to safeguard and enhance the delivery of ecosystem services with related benefits to wellbeing. These benefits have been estimated at EUR 200-300bn per year for the Natura 2000 network.
- Implementation brings benefits for local economies through job creation and tourism. Natura 2000 sites attract estimated annual expenditure on tourism and recreation of EUR 50-85 billion.
- There are numerous estimates of the value of these benefits for particular sites.
- The distribution of benefits and costs is uneven, and there is often a mismatch between those bearing the costs (such as owners and managers of land) and those benefitting (source as the tourism sector and society at large). This has implications for the design of compensation and incentive schemes.

6.2 Y.2 - Are availability and access to funding a constraint or support?

6.2.1 Interpretation and approach

This analysis examined the extent – if any – to which the availability of funding from the EU and from national, regional and local sources, affects the Directives' implementation, efficiency and achievement of objectives. In particular, it explored the extent to which EU and Member State funding meets the identified needs.

Funding plays a key role in meeting the objectives of the Directives, particularly given the significant levels of investment required for the Natura 2000 network. Funding is also needed for conservation measures outside the Natura 2000 network; the FCS of EU protected habitats and species, for example, depends not only on the status of protected sites but also on the quality and features of the broader landscape (see question 5.3). Both one-off and ongoing investment is required by authorities – often in partnership with conservation organisations and researchers – to carry out a range of activities essential for successful implementation of the Directives, as well as funding associated staff costs. Funding also has the potential to affect costs and administrative burdens, for example if implementation of the Directives is not accompanied by adequate financing to allow information gathering, advice, consultation and communication.

The main responsibility for implementing the Nature Directives, including securing sufficient funding, lies with the Member States. However, the implementation of the Directives can also be supported by EU funding (as specified in Article 8 of the Habitats Directive) and the recent requirement for Member States to produce Prioritised Action Frameworks (PAFs) is an attempt to improve the strategic allocation of EU financial resources to Natura 2000.

The evaluation examined evidence concerning:

- Funding needs to achieve objectives.
- Funding that is potentially available, and the extent to which this is taken up in practice.
- Funding availability affecting implementation and achievement of objectives and/or the efficiency of implementation.

Quantitative information assessing the available funding against the identified funding needs (i.e. the funding gap) is very limited. Similarly, no studies exist that clearly quantify the relationship between available funding and the effectiveness of the Directives. The existing evidence is primarily focused on the financing of the Natura 2000 network and there is little evidence available with respect to funding the implementation of the Directives' provisions outside the network (e.g. species protection measures, or measures for ecological coherence under Article 10 of the Habitats Directive). Finally, no studies are available that explicitly explore the effectiveness of the EU funds (e.g. difference in effectiveness between EU funds) with respect to the objectives of the Directives. The assessment, therefore, also draws on qualitative evidence and examples from the evidence gathering questionnaires and online public consultation, as well as the views expressed by stakeholders.

6.2.2 Main sources of evidence

The relevant evidence available consisted of:

- A number of EU level assessments on the available opportunities for, and uptake of, EU co-financing. These assessments are of high relative importance as they are based on the analysis of official – and best available – data from all Member States. These include, for example, the assessment of funding needs for the Natura 2000 network, assessment of the uptake of EU funding for biodiversity during the 2007-2013 period, and assessment of opportunities for using EU funds for biodiversity in 2014-2020.
- European Court of Auditor reports on integration of biodiversity into key funds (e.g. ERDF).
- Member States' PAFs and fund-specific programmes (Operational Programmes and Rural Development Programmes (RDPs)), some of which include quantitative estimates for funding sources and/or needs.
- The views of stakeholders responding to the evidence gathering questionnaire (80 responses to question Y.2 were received) and online public consultation. Additional information has also been provided under section 5.3 – on the main factors contributing to or hindering progress towards achieving the Directives' objectives – and C.7 (see section 8.6), on the integration of co-funding obligations into different EU sectoral funds.
- Individual examples provided in the evidence gathering questionnaires and/or supported by documented case studies, which identified funding constraints and their effects on implementation and achievement of objectives

6.2.3 Analysis of the question according to available evidence

EU studies

EU level estimates exist both for the needs for financing the Natura 2000 network and the allocations towards managing the network during the 2007-2013 EU financing period. According to these studies EU financial allocations for Natura 2000 were between EUR 550–1,150m/ year (Kettunen et al, 2011). This estimate represents only 9-19% of the estimated financing needs of EUR 5.8bn /year (Gantioler et al, 2010).

When interpreting the above estimates a number of aspects need to be noted. Firstly, the estimate of financial allocation towards Natura 2000 mainly covers funding from the EU budget. It does not include funding provided by the Member States, including both the required co-funding to match the EU funds and other national, regional and local funding sources. However, the study concludes that it is unlikely that national funding would be able to cover the significant gap (80-90%) between the estimated total needs and available EU allocations¹⁷⁹. This conclusion is supported by the literature (EEB, 2011) and responses to the evidence gathering questionnaire from several Member States, who acknowledge EU funding as the key resource for financing the network.

Secondly, according to the authors the estimated funding needs are likely to be an underestimate whereas the estimate for available funding might be overly optimistic. Gantioler et al. (2010) state that the estimated funding needs for managing the Natura 2000 network should be seen as an underestimate, given that information from most Member States focused on historic and/or budgeted expenditures rather than providing informa-

¹⁷⁹ The estimate mainly refers to the Community funding (i.e. excluding Member States share of the EU funding). The total overall financial contribution to Natura 2000 under the EU co-financing framework was estimated to be around 1.25 – 1.5 times the estimated range (assuming 25 – 50 % co-financing from national funds). As for broader national funding, the study provides a review of national funding instruments in six Member States. Based on the above insights, national level funding is said to be inadequate, resulting in a lack of resources to alleviate the heavy reliance on EU funds.

tion on the future needs. For instance, the costs of achieving FCS were only captured to a limited extent, and the costs of implementing marine Natura 2000 sites were under-represented. In addition, the estimated needs did not cover financing needs for the measures required to manage EU protected habitats and species outside the Natura 2000 network. According to Kettunen et al. (2011), the lack of transparency in tracking biodiversity related expenditure under the EU budget makes it difficult to determine the proportion that actually goes towards supporting the implementation of the Natura 2000 network. Consequently, the upper range estimate is likely to be an over-representation of the actual allocations. The study also notes that past experience suggests that part of the allocated support will not be realised in practice (see also evidence gathering questionnaire responses below). This further indicates that the available funding to support the implementation of the network falls behind from the actual needs.

Finally, while the existing evidence and stakeholder views conclusively highlight the significant role the EU LIFE fund plays in supporting the implementation of the Nature Directives, the estimated funding under LIFE to support biodiversity and nature in 2007-2013 was around EUR 750–837m (around EUR 107–120m/ year, actual and planned allocations respectively, as per Kettunen et al. (2011)). In comparison, for the 2014-2017 funding period, the estimated planned LIFE contribution to biodiversity and nature will be around EUR 610m¹⁸⁰ (around EUR 153m/ year). This represents only 2.6% of Natura 2000 funding requirements alone, and LIFE also supports nature and biodiversity priorities outside the Natura 2000 network. In general, LIFE funding represents less than 1% of the total EU budget.

In addition to the gap in resources available, there are also other significant constraints to using the EU co-financing framework for Natura 2000, contributing to the financing gap. These include the following:

Lack of integration into different EU sectoral funds at national, regional and local level (e.g. earmarking): According to Kettunen et al (Kettunen et al, 2011; Kettunen et al, 2014a), Member States are not obliged to take up the opportunities for financing Natura 2000 from the EU budget. In practice, this leaves Natura 2000 to compete with a range of different policy goals, such as support to economic activities and infrastructure. This is commonly identified as a major constraint, and is pointed out in reports highlighting the lack of integration of biodiversity into the key funds (e.g. ERDF) (European Court of Auditors, 2011; European Court of Auditors, 2013; European Court of Auditors, 2014a). (See question C.7 for more detailed insights into the identified difficulties in integrating biodiversity into the use of the main sectoral funds).

Eligibility gaps: According to Kettunen et al (2011), there are relatively limited opportunities to use EU funds to establish and run management bodies, and to undertake ongoing management and monitoring of Natura 2000 sites, whereas activities linked to one-off investments and remaining designations are relatively well covered. Insights from an EU-wide questionnaire in 2011 by the environmental NGO EEB, with respondents from 18 EU members support the above conclusions. The results indicate that site management and monitoring suffer most from under-financing. According to EEB members, funding for staff capacity is also lacking, as it is implementing landscape scale measures to improve environmental quality in general in and around Natura 2000 areas (EEB, 2011).

Problems with uptake and absorption: There is a lack of capacity of national administrators and stakeholders to absorb EU funding even when available¹⁸¹. Also, the lack of capacity and know-how on access to EU funds, as well as the high administrative burden, deters EU co-financing opportunities (Kettunen et al, 2011; Kettunen et al, 2012; Kettunen et al, 2014a; Kettunen et al, 2014b).

Problems with coordination: The lack of coherence, coordination and planning in Member States in using different EU and national funding sources makes it difficult to form an overall picture of the actual financing needs and how these needs should be met. The

¹⁸⁰ Commission Implementing Decision 2014/203/EU.

¹⁸¹ Problems with the capacity to absorb funding are known to hinder the uptake of EU funding across different national funding priorities, not only to Natura 2000.

development of PAFs should address this issue during the 2014-2020 funding period (Kettunen et al, 2011; Kettunen et al, 2012; Kettunen et al, 2014a; Kettunen et al, 2014b).

National studies

Only a limited number of national studies systematically analyse the adequacy of funding for the Nature Directives, or quantify the existing funding gap.

In Germany, a study by Rühs & Wüstemann (2015) estimated that the costs necessary to achieve German biodiversity targets - including targets related to the management of Natura 2000 - are EUR 3.26bn per year (See Box 24). Compared to the estimate of current spending amounting to EUR 1.3bn per year (Hampicke, 2013), this leaves a funding gap for financing biodiversity conservation in Germany of EUR 1.96bn per year (Rühs and Wüstemann, 2015). With respect to the Nature Directives, the German PAF estimates that the costs of establishment, maintenance, and management of Natura 2000 are around EUR 627m per year (BMUB and BfN, 2013), although no quantitative estimate is provided of the available funding to match these needs.

In Spain, a study by Moreno et al. (2013) estimated the costs of managing Natura 2000 to range between EUR 944–1,557m (EUR 69–114/ha), with the former representing the current level of investment and the latter the estimated spending required to ensure adequate management of the network. This national estimate was based on the actual investment in, and estimated needs for, the management of the Natura 2000 network across different regions in Spain in 2007. The difference between the estimated current investment and the desired level of spending indicates a funding gap of around EUR 0.6bn annually. The estimates by Moreno et al. (2013) are in line with the estimate provided by the Spanish PAF, which estimated funding needs of EUR 1,315m for Natura 2000 in 2012.

No further quantitative assessments of funding gaps are yet¹⁸² available. However, insights from the evidence gathering questionnaire show that other Member States also describe a significant gap between the need for funding and the funding available.

Regardless of the funding gap, information and views at national level gathered via the evidence gathering questionnaire indicate that the Nature Directives have played a significant role in providing continued funding for nature conservation over time (see Table 19 below). The importance of EU funding in supporting the implementation of the Nature Directives was explicitly noted, for example, by stakeholders from Estonia, Belgium (Wallonia), Bulgaria, Finland, Germany and Hungary. In some cases, EU funds have also helped to defend spending on nature during budget cuts. For example, in the Netherlands, representatives of the nature authorities interviewed during the national mission suggested that without the Directives nature expenditure would be EUR 200m less per year. Unfortunately, however, several Member States foresee budget cuts for biodiversity financing from the EU funds during the period of 2014-2020, including financing biodiversity conservation measures under EAFRD (see Box 25).

Finally, some evidence exists for the role of public funding in securing the implementation of nature conservation policies. In the Netherlands, the recent decentralisation of the responsibility - and the accompanied public funding - for managing existing nature conservation areas (e.g. Natura 2000 sites) from the central government to the regions was expected to be accompanied by a net budget cut of EUR 80m in the coming 5–10 years (van Stratum and van Liefeland, 2013). It was argued that this cut could be overcome by acquiring additional financing for nature conservation through a combination of charitable funding and market-based mechanisms. However, the assessment of possible funding flows for nature conservation (including innovative financing) indicates that compensating the cut in public funding with other funding sources will be insufficient, with a gap of EUR 30m/year remaining in the required level of financing (van Stratum and van Liefeland, 2013).

¹⁸² England LIFE + Improvement Programme for England Natura 2000 Sites (IPENS) project is identifying and attempting to quantify funding gaps that currently exist at individual site level.

Box 24 Assessment of financial costs to achieve German biodiversity targets

Rühs & Wüstemann (2015) identify the financial costs necessary to achieve the German biodiversity targets. Based on the National Biodiversity Strategy (BMUB, 2013) and the Quality Status Reports of the Habitats Directive (BfN and BMUB, 2014), a conservation programme was developed containing land use changes for six ecosystem/land use types: forests, arable land, grassland, peatland, wetland and dry habitats. In addition, results from a comprehensive review of literature focusing on nature conservation targets in Germany allow further specification of the conservation program.

The total financial costs would add up to EUR 3.26bn per year (EUR 396/ha) including EUR 1.4 bn necessary for restoration and EUR 1.86bn for maintenance measures. Of the EUR 3.26bn per year, EUR 88m (EUR 195/ha) is necessary for peatland and EUR 65m (EUR 365/ha) for wetland conservation. The yearly costs for arable land and forest conservation would be EUR 903m (EUR 223/ha) and EUR 355m (EUR 243/ha). With estimated annual costs of EUR 1.76 billion (EUR 924/ha) and EUR 90m (EUR 454/ha), grassland and dry habitats conservation are highly cost-intensive.

As for the level of current spending on biodiversity, the authors of the study refer to Hampicke (2013) who estimated spending to be around EUR 1.3bn per year in 2010. Comparing the total costs of EUR 3.26b with the current spending of EUR 1.3b shows that the funding gap for nature conservation in Germany would add up to EUR 1.96b per year.

While no explicit assessment of the funding needs related to the Nature Directives or the Natura 2000 network is made, the study includes many habitat types covered under the Directives and can thus be considered indicative of the scale of cost related to the implementation of the Directives' objectives.

Box 25 Allocation of EAFRD funding to biodiversity objectives 2014-2020

The allocation of total Rural Development Programme (RDP) expenditure to priority area 4, which includes Natura 2000, ranges from 85% (UK England) to 20% (Spain, Canary Islands) in 80 of the 118 RDPs planned for 2014-2020 in the EU-28¹⁸³. In some RDPs, the priority area 4 allocation mainly consists of the use of the payment for areas of natural constraint measures, while in others the agri-environment budget is the major component. It is not possible to draw any conclusions on the likely impact on Natura 2000 or EU protected habitats and species from the allocation of expenditure to these measures, as the scope and targeting of agri-environment schemes is very wide, and the payment for areas of natural constraint does not include any specific land management requirements to benefit biodiversity conservation, though many Natura 2000 farmland areas will be eligible for the payment.

NGOs in Hungary, Poland, Sweden and Slovenia highlighted agri-environment budget cuts in the new period. The Hungarian NGOs highlighted that the agri-environment budget is less than half that of the previous period, with no funding available for the development of Natura 2000 management plans, concluding that it is very likely that the budget will not allow the Natura 2000 and PAF objectives to be achieved. In Poland, the NGOs stated that the 2014-2020 agri-environment budget has been halved compared to the previous period, with funding moved into the LFA/ANC measure. In Finland, the concern is that the limited budget is almost entirely allocated to schemes aimed at water quality that will deliver little for biodiversity based on experience from the previous period (Laukkanen and Nauges, 2014). RDPs in Portugal¹⁸⁴ and Spain (Fernández-Velilla et al, 2015) have been criticised as taking little or no account of Natura 2000 funding priorities as identified in the PAFs.

Responses to evidence gathering questionnaires and national missions

80 responses were received to question Y.2 on financing of the Directives, the majority of which (78) expressed an opinion on funding. 59 respondents also provided qualitative

¹⁸³ Excludes Spanish and French national RDPs and French RDPs outside metropolitan France. AgraEurope. 2015. Interactive CAP 2014-2020 implementation dashboard: Percentage of total RDP expenditure by priority area (2014-2020). Available at <https://www.agra-net.net/agra/agra-europe/cap-monitor/article480867.ece> Accessed 8.10/2015.

¹⁸⁴ SPEA. Submitted evidence.

evidence or examples to support this opinion, while a minority (21) provided quantitative evidence. 61 respondents provided some form of evidence on funding sources and needs.

79% of respondents (63 responses) stated that (lack of) funding is a constraint for successfully implementing the Directives, while 48% (38 responses) expressed the view that funding supports the implementation. Building on the broader evidence base (above and below), these two responses can be viewed as interlinked (i.e. representing two sides of the same coin) reflecting the views that the Directives allow for more funding to be devoted to conservation activities (support), however the current level of funding is commonly considered to be insufficient (constraint).

The evidence gathering questionnaires were supported by missions to 10 Member States, including follow-up interviews with different relevant stakeholders. These interviews were based on the questionnaire structure and designed to further explore questionnaire responses.

A number of recurring issues were identified in both sources across all / most of the stakeholders. Table 19 provides further detail and concrete examples of the issues listed here.

- There is a strong consensus among all stakeholders that funding for implementing the Directives is insufficient and that lack of funding is one of the key constraints to achieving the Directives' objectives successfully.
- Business sector stakeholders (e.g. agriculture and forestry) express the view that the level of compensation for restrictions and/or opportunities foregone is insufficient.
- Member States differ in what they regard to be the most important sources of funding. In some Member States (e.g. Sweden, Netherlands and Germany) funding mostly originates from national sources. For example, in the Netherlands, in both the 2007-2013 and 2014-2020 periods, approximately 10% was / is covered by EU funding and 90% funded by State and Provincial budgets¹⁸⁵. In comparison, a number of other Member States (e.g. Romania, Slovenia and Greece) emphasise the importance of EU funds. This is partly explained by the differences in the eligibility of Member States and regions to access the EU funds, whereby less developed EU regions are generally eligible for wider funding opportunities than more developed regions (e.g. broader access to the Structural and Cohesion Funds). A number of Member States also referred to a decrease in national funding due to the financial crises, further increasing the importance of EU funding (e.g. Greece and Latvia).
- There seems to be a strong consensus regarding the positive and highly important role of LIFE in funding the implementation of the Directives, including several successful contributions towards achieving conservation objectives. Similarly, there seems to be a broad agreement on the limitation of LIFE funding, including limited overall funding available, difficulties in finding co-funding for LIFE funds, the administrative burden associated with applying for and running LIFE projects and lack of resources to develop proposals and/or deal with administrative burden. Dedicated national structures to facilitate access to LIFE funding (e.g. national funds for co-financing) can be useful; in Poland, for example, this structure is reported to have led to visible increases in project uptake¹⁸⁶.
- Finding match funding for EU funds is a recurring problem, and similar difficulties apply to finding alternatives to EU funding.
- Several Member States and stakeholders identify gaps in the EU funding available. These include: funds to increase staff capacity, and funding to support conservation of certain species and/or management measures (e.g. restoration, landscape scale measures, monitoring and ongoing management).

¹⁸⁵ In 2007-2013, EUR 1bn funding available in total, with about EUR 100m from EU funds, EUR 400m from the state budget and EUR 500m from provincial budgets (Leneman et al, 2009). In 2014-2020, EUR 280m of EUR 2 905m will be covered by EU funding. Both result in about 10% funding originating from the EU budget.

¹⁸⁶ National fund for Environment Protection (2015), program LIFE (in Polish) <http://www.nfosi.gov.pl/oferta-finansowania/srodki-zagraniczne/instrument-finansowy-life/>

- Access to EU funding is seen as a barrier by the business sector. Here, administrative burden and penalties deter stakeholders from seeking funding, with some ineligible for funding (e.g. municipal forests, forest owners and private companies).

Questions S.3 (see section 5.3) and C.7 (see section 8.6) reach similar conclusions. S.3 finds that the (lack of) availability of public funding has probably had the most influence on the implementation of the Directives, while C.7 highlights the lack of integration of biodiversity into different EU funds at the national and regional level.

Table 19 Synthesis of views on funding as a support or constraint in reaching the objectives of the Nature Directives, based on the evidence gathering questionnaire.

Support Type of support identified	Example	Constraint Type of constraint identified	Example
Availability of EU funding to support implementation.	Estonia: EU funding considered key in enabling restoration (e.g. mires) and large-scale management of habitats. EU funding is estimated to account for 75% of overall expenditure on nature conservation in the country. The importance of EU funding in supporting the implementation of the Nature Directives was also explicitly noted, for example, by stakeholders from Belgium (Wallonia), Bulgaria, Finland, Germany and Hungary.	Failing to allocate EU funds towards implementation of the Directives at national level, e.g. lack of earmarking and monitoring spending.	Belgium (Flanders): During 2007-2013, 67% of the investment under Pillar II of CAP was invested in improving the economic situation, with only 17% invested in environment. Of the EUR 112m investment, only 2% was related directly to Natura 2000 (Vlaamse Overheid, 2013). Spain: There is an overestimation of the effect of the aid to less favoured areas (LFA) for the maintenance of agriculture favourable for conservation, as no management requirements are required and the amounts offered are so small that they may not be sufficient to avoid abandonment. But as the LFAs overlap with Natura 2000 sites, the funds are included as financing received by Natura 2000 sites. Similar views were expressed by others, e.g. Denmark.
Support in securing funding from national sources.	Netherlands: it was estimated in the national mission that without the Nature Directives expenditure would be EUR 200m less per year.	Negative impacts of environmentally harmful subsidies (EU / national).	Spain: A recent assessment shows that farms within Natura 2000 areas receive less funding support, especially in the case of CAP Pillar 1 direct payments, compared to farms outside Natura 2000 with the same types of cultivation (WWF and SEO, 2010). The study further suggested that the HNV systems usually identified with extensive dryland crops, dehesas and pastures (which host high levels of biodiversity and rare species and are often designated Natura 2000 sites), are the farming systems which receive the lowest level of CAP support in Spain. Similar views were expressed by others, e.g. Denmark and Finland.
Important and positive role of LIFE, e.g. as catalyst for other funding sources.	Different stakeholders across several EU Member States expressed the view that LIFE has played an important role in implementing the Nature Directives. Greece: Piraeus Bank is running a LIFE project	Limited overall financing and high administrative burden under LIFE.	Different stakeholders across several EU Member States expressed this view.

Support Type of support identified	Example	Constraint Type of constraint identified	Example
	called "LIFE-Stymfalia" in Lake Stymphalia until the end of 2017(SPA/SAC GR2530002). LIFE-Stymfalia aims to restore Lake Stymphalia, while also creating a business scheme that will generate profits through utilising reed biomass removed from the wetland and other unexploited biomass from agriculture residues. In other words, LIFE-Stymfalia aspires to establish a sustainable management and financing scheme for the protected wetland, by converting the area's natural biomass into a marketable product and creating economic benefit. This financing model may help co-funding in other Natura 2000 sites in Greece.		
Dedicated national co-funding to match EU funding.	Poland: the country facilitated the uptake of EU funding through an establishment of national fund to provide co-funding for environmental projects. This increased the take up of LIFE funding.	Lack of / issues with national funding, including co-funding to support EU funds.	Lack of required co-funding to match EU funds is considered a barrier to accessing EU funding. This was explicitly mentioned by Belgium (Flanders), Greece and Hungary. Using national payments to support Natura 2000 management actions are (possibly) regarded as state aid in the context of CAP, as stated by France. This limits national co-funding and hinders the uptake of EU funds.
Strategic use of PAFs.	Estonia: the costs for habitat restoration and management are well planned in the PAF. This has been useful in securing needed funding for Natura 2000. Similar views were expressed by others e.g. Belgium (Flanders) and Bulgaria.	Failed opportunities in the use of PAFs.	Several Member States identified failures in the use of PAFs to coordinate funding for Natura 2000. These included the following: PAFs are too ambitious and, therefore, unrealistic in the current form; PAFs are only a compilation of existing management and conservation measures from the Natura 2000 management plans with limited strategic planning; the timing of developing PAFs is too late to have any impact on allocations from EU funds at national level, sometimes combined with limited consultation of stakeholders; and the political power of PAFs is not considered strong enough to overcome competition between different priorities at national level.
		Gaps in certain types of activities from EU funds.	A range of gaps was identified by several stakeholders across Member States. These included, in particular, increasing staff capacity and financing the management of certain species and/or management measures (restoration,

Support Type of support identified	Example	Constraint Type of constraint identified	Example
			landscape scale measures, monitoring, ongoing management). Support to forest conservation is also limited. For example, in the 2007-2013 period, the majority of RDPs provided support for restoring forestry potential, preventative actions (particularly forest fire prevention and restoration) and non-productive investments to some extent (European Commission, 2009). However, an NGO analysis found that little of the RDP spending in 2007-2013 was allocated to forest in Natura 2000 (Fenton et al, 2008).
		Insufficient funds for / insufficient level of compensation payments; varying approaches across Member States to calculate compensation.	Different stakeholders (e.g. agriculture and forestry sector representatives) across several EU Member States expressed this view. Rising land prices aggravates the situation in several Member States. Some respondents identified a need for guidance on how to calculate the compensation that properly takes account of the Natura 2000 specific restrictions and the baseline (now including greening). For example, the Italian regions used widely diverging approaches to calculate payments, setting different payment rates for similar habitat types.
		Administrative burden related to EU funding.	The administrative burden associated with EU funds is seen as a barrier to accessing EU funding by different stakeholders across Member States. EAFRD is regularly considered cumbersome - and therefore unattractive - for both beneficiaries and payment administrators. Also, running LIFE projects is considered to be accompanied by unnecessarily heavy administrative burden. Furthermore, finding co-funding for LIFE and ERDF schemes can be a barrier for small -scale stakeholders (e.g. small local level stakeholders).
		Lack of capacity and/or human resources to access or absorb EU funding.	Lack of capacity and/or human resources to access or absorb funding is seen as a barrier to accessing EU funding. This was explicitly mentioned by Belgium, Bulgaria, Denmark and Greece.

Support Type of support identified	Example	Constraint Type of constraint identified	Example
		Lack of stakeholder eligibility to EU funds.	Agriculture and forestry stakeholders stated that the ineligibility of certain stakeholders to benefit from funding (EAFRD) was a hindrance (e.g. Cyprus, Germany, Slovakia and France). Germany: authorities responsible for public forest management in Germany highlighted the fact that publicly owned forests are not eligible for funding under the CAP. This, they felt, is as a major obstacle to Natura 2000 management.
		Other.	A number of additional constraints were identified by representatives from single individual Member States: lack of long term funding, lack of stakeholder participation, and problems with multi-target projects as currently supported by the EU co-funding framework.

Results from the online public consultation

A dedicated question on financing the implementation of the Directives was included in Part II of the online public consultation (Q25). It sought opinions on how well the funding needs for implementing the Directives are being met, reflecting both the sufficiency and effective use of funding. Most respondents (77%) agreed that there was insufficient funding for implementing the Directives. Of these, 63% thought that the funds available were being used efficiently, compared to 14% who believed that they were inefficiently used. Only 2% thought there was sufficient funding which was being efficiently used.

A number of other questions in Part II of the online public consultation also provided insights into public perceptions of funding of the Directives. Question 18 (Q18) identified 15 possible factors that had contributed to making the implementation of the Directives a success. Dedicated funding was one of these factors, with 37% of respondents stating that, in cases where the Directives had succeeded, dedicated funding had a moderate to major (14% and 23%, respectively) contribution to successful experiences in implementing the Directives. By contrast, 59% of respondents considered dedicated funding to have made little or no contribution to the observed success (13% and 46%, respectively). This is somewhat contrary to the evidence gathering questionnaires, which indicated that the availability of (public) funding is likely to have had a significant influence on the implementation of the Directives (see question S.3). However, the outcome of Q18 might simply reflect stakeholders' views that the level of funding is in general insufficient, limiting its role in cases of successful implementation.

Similarly, Question 19 (Q19) asked about the extent to which the same 15 factors limited progress towards the Directives' objectives. Almost three-quarters of respondents (74%) believed that insufficient funding was significantly restricting progress. The majority of agriculture and forestry, and fisheries and hunting, and nature and environment stakeholders stated that insufficient funding significantly restricted progress (85%, 72% and 70% of the respondents, respectively). The respondents from industry (construction, extractive industry, transport) were more divided on the role of funding, with 42% considering it a non-restrictive factor and 39% a significantly restrictive factor (see Table 20 below).

Table 20 Responses to Q19 on whether insufficient funding limits progress towards reaching the objectives of the nature Directives

Respondent	Not restricting progress	Somewhat restricting progress	Significantly restricting progress
Agriculture and forestry	5%	7%	85%
Angling, fish farming, fishing and hunting	10%	12%	72%
Nature and environment	6%	20%	70%
Construction, extractive industry and transport	42%	13%	39%
Others	6%	20%	68%

Question 31 explored the contribution of the Nature Directives to improving a number of identified key aspects of nature conservation, over and above what could have been achieved through national or regional legislation. With respect to added value to available funding for nature conservation, 39% of the respondents stated that the Directives have made a moderate to significant contribution to conservation financing (14% and 25% respectively). While only 8% considered the Directives to have made no contribution, nearly half of all respondents (49%) held the view that the Directives had made only a

minor contribution to funding over and above what could have been received through national and regional legislation. The emphasis on 'minor contribution' seems to indicate that several respondents believe the support from the EU level towards funding the implementation of the Directives to be limited. This is contrary to the views expressed in the evidence gathering questionnaire, and is likely to have been influenced by campaigning against the Directives, which influenced responses in general to Part II of the online public consultation (see below).

Analysis of the comments under the final open question of the online public consultation indicated that national governments and NGOs consider the Directives to be seriously underfunded, and that an increase in both funding and human resources is required to secure their successful implementation in the future. In this context, a number of respondents indicated that there was a need for a specific EU fund dedicated to Natura 2000. On a somewhat similar note, a significant proportion of comments received from the agriculture and forestry sector - while stating that the Directives put unreasonable constraints on land owners and users - emphasised that there was not enough compensation for income lost or damage caused by the Directives.

With a few exceptions, the results of the online public consultation support the evidence available, including stakeholders' views gathered via the evidence gathering questionnaire. In interpreting the divergence between responses, it needs to be noted that responses to Part II of the online public consultation were influenced by campaigning against the Directives (see sections 3.6 and 6.1.1 of the public consultation report).

6.2.4 Key findings

- It is clear that the Directives have enhanced the delivery of funding required for nature conservation in the EU, and that without them, finance for site, habitat and species conservation would have been considerably less. This is particularly the case in many of the Southern, Central and Eastern European Member States, where EU funds have brought new finance for conservation actions in pursuit of the objectives of the Directives. This point is made by many stakeholders in the evidence gathering questionnaire, and it is also reflected in the results of the online public consultation.
- All groups of stakeholders emphasised that both a severe shortage of funding and different constraints in uptake of funding (EU funding especially), inhibit progress towards the objectives of the Directives. This view is supported by the existing assessments indicating that the estimated EU co-funding for biodiversity during the 2007-2013 period represented only 9-19% of the estimated financing needs for managing the Natura 2000 network. While the EU funding is not foreseen to cover all Natura 2000 financing needs (as per Article 8 of the Habitats Directive), the existing assessment concludes that that national funding is unlikely to be able to cover the significant gap (80-90%) between the estimated total needs and the available EU allocations.
- The availability of public funding is likely to have had the most influence on the implementation of the Directives (see section 5.3). For example, funding constraints on authorities have affected the establishment of the Natura 2000 network, as well as other important actions, such as establishing incentive/compensation measures for landowners, stakeholder engagement, management planning, permitting and enforcement measures.
- Funding shortages are highlighted across all Member States, and are particularly apparent with respect to the ongoing management and monitoring of the Natura 2000 network, which relies heavily on additional finance for site protection and management activities. A further issue (highlighted in question S.3, see section 5.3), is that nature authorities and associated public management bodies are also affected by serious under-financing (e.g. in relation to staff costs). Evidence indicates that the latter can have an impact on implementation, e.g. delays in site designation, management planning and permitting. This can further increase the costs of conservation actions in the future (e.g. resulting in an increased need for expensive

restoration activities) and lead to higher costs and burdens for some stakeholders (e.g. knowledge gaps, as described under section 6.8).

- The existing evidence and stakeholder views highlight the significant role that EU LIFE funds play in supporting the implementation of the Nature Directives. The LIFE programme is seen by many stakeholders as very efficient, with good absorption rate of funds from EU to national level and impact. However, its funding is less than 1% of the total EU budget, and it is generally considered inadequate for current funding needs.

In conclusion, the existing evidence strongly indicates that the funding gap is so large that achievement of the objectives of the Directives will not be possible without a very significant increase in funding. The findings from the evidence gathering questionnaire reinforce the conclusions of previous studies of EU funding for the Directives, such as that by Kettunen et al (Kettunen et al, 2011) which identified shortages in finance for the Natura 2000 network.

6.3 Y.3 - If there are significant cost differences between Member States, what is causing them?

6.3.1 Interpretation and approach

This question involves a comparative assessment of the costs of implementing the Directives across the EU. As well as the overall costs, it is important to consider if these costs differ significantly between Member States and establish the reasons for any such differences.

Cost differences may arise because of differences in needs between Member States, variable implementation of the Directives and their requirements, or because of variations in the efficiency of implementation. Understanding the reasons for cost differences will help to identify opportunities for more cost effective implementation, and to understand variations in financing needs across the EU. If there are differences in costs between Member States, this could mean that the Directives have uneven burdens and economic impacts, suggesting important policy implications. For example, if costs are high in some parts of the EU, there is a danger that resource constraints and cost burdens could lead to incomplete implementation of the Directives and/or opposition from business and other stakeholders. One of the principal reasons for environmental legislation at EU level is that it helps to ensure common rules and a level playing field, thereby facilitating the working of the internal market. In some sectors such as international ports, where the costs of complying with nature legislation are significant and competition is high, significant differences in costs could have implications for competition and the level playing field within the EU.

At a minimum, differences in costs would be expected to lead to differences in financing needs and challenges, including the need for EU co-financing. In assessing differences in costs, it is helpful to distinguish between the different types of costs identified in question Y.1, and the impact of these costs on different groups. For example, variations in the costs of implementing the Natura 2000 network may raise significant challenges for public funding and co-financing in some parts of the EU, while significant differences in private sector compliance costs and administrative burdens could impact negatively on businesses.

The analysis examined the quantitative evidence for cost differences. As this was limited in extent, qualitative evidence and stakeholders' views were also examined.

6.3.2 Main sources of evidence

The most important sources of evidence are EU studies by Gantioler et al. (2010) examining the costs of implementing the Natura 2000 network, the Ecosystems (2014) report on Article 6(3) and the Farmer et al (2015) study on the time taken to complete AA and associated permitting processes.

The evidence gathering questionnaire collected views and evidence from 56 stakeholders, including a range of EU organisations, national authorities, business interests and NGOs.

The evidence provides some insights into the reasons for cost variations. However, the available literature quantifying and analysing cost differences is limited, and questionnaire responses provided mostly qualitative evidence. While the evidence provides a broad consensus on some of the main reasons for cost differences, detailed quantitative assessments are lacking.

6.3.3 Analysis of the question according to available evidence

Evidence of management costs

Gantioler et al (Gantioler et al, 2010), reporting on the results of a questionnaire survey of Member States on the costs of implementing the Natura 2000 network, found very wide variations in average annual costs, ranging from EUR14 per hectare in Poland to more than EUR 800 per hectare in Cyprus, Luxembourg and Malta. These higher cost estimates result in part from the scale of fixed infrastructure envisaged relative to the area of the network in these small countries, suggesting that economies of scale are a significant issue. The higher cost estimates are also due in part to the fact that smaller sites in proximity to urban areas face higher per hectare costs given existing pressures. They may also reflect differences in the interpretation of the exercise. Some estimates were based on actual planned expenditure, while others estimated the expenditure that would ideally be made if the resources were available. This resulted in high cost strategies being proposed in some Member States (involving, for example, high levels of land purchase, e.g. Cyprus) compared to more conservative programmes in others.

Average costs per hectare were found to be higher for established Member States (EU-15) than for newer Member States (EU-12).

In absolute terms, by far the largest overall cost estimate was for Spain, at EUR 1.56bn per year, reflecting both the large size of the network and the relatively high unit cost estimates applied by that country.

Differences in cost estimates between Member States may vary widely by types of sites, being highest in areas which require highest levels of intervention and management (e.g. in agricultural areas in North-Western Europe) and which face greater pressure from development and disturbance (e.g. islands in Southern Europe). Gantioler et al found that the costs of completing and managing a network of protected areas are dependent on a number of factors:

- The size of the sites (costs per hectare are lower for bigger sites than for small ones).
- Accessibility / proximity of the sites to urban areas (increased pressure on the site tends to increase costs).
- Income (costs of protected areas management tends to be higher in higher income countries, reflecting wage and land costs).
- Maturity of the network and the past expenditure, which can reduce the need for future expenditure.

Different conservation strategies might also affect the level of costs. Several Member States (e.g., Bulgaria, Czech Republic, France, Italy, Malta, Slovakia and the UK) indicated that land purchase is only contemplated in rare circumstances, and that forming management agreements with private landowners is the norm. However, in others (e.g., Cyprus, Lithuania, Luxembourg, Romania, and Sweden), purchase of land played a more important strategic role, often being seen as the best means of achieving the required objectives of Natura 2000.

A major cause of variations in the cost estimates reported by Gantioler et al. came from differences in the interpretation of the questionnaire by Member States, and particularly the degree to which responses were constrained by the realities of existing resource limitations. The guidance stated that the purpose of the questionnaire was to obtain an estimate of the financial resources required to complete and effectively manage Natura 2000 at land and sea. However, in practice, respondents interpreted this somewhat differently, with some providing data that built mainly on current and/or effectively planned expendi-

tures (e.g. Belgium) and others providing estimates of what would ideally be spent if the resources were available (e.g. Cyprus, France, Germany, Hungary, Luxembourg, Malta, Sweden). Only Spain provided two estimates – one which reflected planned expenditures with the available resources, and a second with what would be desirable if the resources were available.

In summary, the analysis found that diverse national circumstances (site type, land use, location, ecological status, pressures, labour and wage costs, and management strategies), the level of current data, and different cost assessment approaches and methodologies, explain differences in the cost estimates across Member States and reveal issues for future attention.

Gantioler et al concluded that their findings were broadly consistent with existing global literature on the determinants of protected area costs. For example, Balmford et al (2003) found that key determinants of costs of protected areas globally were site size (costs per hectare go down with increasing size), population density (costs per hectare go up with increasing density) and GNP (costs per hectare go up with increasing output). Similarly, when examining the costs of 78 small protected areas managed by Yorkshire Wildlife Trust in the UK, Armsworth (2011) showed that the size of a nature site area is the most important determinant of management costs. The costs per ha were found to decline with site area, such that management of a 40 ha site would be expected to incur only twice the costs of a 10 ha site. Also from the UK, data from the RSPB suggest that wetlands that are smaller than 100 ha cost up to 13 times more to manage per hectare than sites larger than 100 ha (Ausden, 2007).

Tucker et al (2013), in a study to assess the costs of ecosystem restoration under Target 2 of the EU Biodiversity Strategy, found that labour and machinery accounted for a large proportion of habitat restoration costs. As costs of labour and fuel vary widely within the EU (Eurostat reports up to a factor 25 difference in average hourly labour costs between European (NUTS 1) regions), the cost of restoration measures for habitats can be expected to show significant regional variation. On this basis, the highest cost adjustments were applied to Denmark, Sweden and Luxembourg. The study found that the lowest cost strategy for meeting restoration targets in Europe would focus on those habitats with lowest unit costs for restoration (forests, heathland and tundra, mires, lakes, rivers and saltmarshes). Other habitats, such as arable ecosystems, permanent crops, improved grasslands, sclerophyllous vegetation, inland marshes, dunes and beaches have higher restoration costs. Consequently, average unit costs may be expected to be relatively low in Member States with concentrations of habitats with lower restoration costs (e.g. Finland and Sweden). The distribution of restoration costs varied widely, depending on how restoration actions were prioritised. Overall, however, the highest absolute costs were estimated for France, Spain, Germany, Italy, Poland and the UK, reflecting the size of their land areas, as well as income levels.

Box 26 Factors affecting restoration costs in Estonia

The questionnaire return by the Estonian Ornithological Society comments on the factors affecting the costs of habitat restoration in the country. Due to limited experience of restoration, these costs are usually very high, but could be expected to fall in the future as a result of innovation and learning. This may require consultation with foreign experts, or building new administrative processes that may take time and be costly due to possible mistakes. For example, there are no good examples of amphibian tunnels under new roads in Estonia. The first tunnels were built in 2014 but they have not yet started to work. Now, the Road Administration plans to bring in Danish experts to evaluate the situation with a view to planning new improved tunnels. In other Member States where amphibian tunnel building is more developed, the planning and building is less costly. By contrast, Estonia already has significant experience with raised bog and river restoration, making the cost and timing of these works considerably smoother. Restoration is very costly compared to maintenance, but also varies according to the situation in the Member State. For example, restoration of a grassland that still has a natural seed bank is much cheaper than restoration of one that must be planted or seeded with natural plants.

Source: Questionnaire submission by Estonian Ornithological Society.

Evidence of administrative costs

Ecosystems Ltd (2014), when considering evidence of costs and administrative burdens with respect to AA under Article 6(3) of the Habitats Directive, suggested that there are likely to be significant differences in implementation costs, concluding that:

'it is clear that the differences in application of Article 6(3) across the countries and regions can have a major influence on how the Article 6(3) permit procedure is implemented in practice and this in turn can impact on the nature and extent of possible problems that arise during this implementation.'

Administrative capacity, guidance, training, sharing of information, and consistent frameworks were found to be important in reducing costs. In some countries (e.g. Austria, Czech Republic, Slovenia, Spain, and Sweden), it was reported that there is still an overall lack of understanding of, or willingness to accept, the Article 6(3) procedure among certain authorities and/or sectors. This has caused difficulties in implementation, leading to more frequent delays, inconsistencies in application and frustrations among developers, authorities and NGOs. The report found this to be a particular problem at a lower administrative level (especially in countries with a federal structure), and in countries where the competent authority is not the nature authority. In such cases, a lack of skills, resources and basic understanding of the requirements of the Article 6(3) procedure renders its application more problematic and inefficient. Encouraging a more constructive dialogue between the plan and project promoters and their counterparts in the nature authorities, was emphasised as one of the key factors to help improve the AA procedure.

Businesses reported variations in the competency and capacity of authorities with respect to Article 6(3) procedures, with some taking a long time to respond to requests for a permit, or taking an overly precautionary approach and asking for excessive information. Some countries and regions have decided to impose stricter rules than foreseen under the Directives for certain types of development activities, for example (in a small number of instances) by issuing a complete ban on wind farms in Natura 2000 sites. On the other hand, NGOs argued that variable application of the rules also causes differences in costs – in some countries AA is not applied in certain sectors (e.g. forestry/ farming/fisheries) despite the risk of potentially significant impacts on Natura 2000.

Farmer et al (2015), in a case study examining the reasons for differences in time delays between Member States in undertaking AA, identified similar factors to those highlighted in the Ecosystems report. While aspects such as the size and complexity of projects, processes of communication and the quality of data and AA are project specific, others may result in differences in costs between Member States. These include the capacity and expertise of permitting authorities, procedures for appeals, and the degree of co-ordination with EIA and SEA procedures. The report identified some examples of good practice in improving the efficiency and timescales involved in AA (Box 27).

Box 27 Examples of good practice in enhancing efficiency and timescales for AA

Simplified planning processes and strategic spatial planning

In Denmark, a strong strategic planning system has helped to remove potential conflicts between proposed developments and Natura 2000 sites at an early stage, i.e. prior to project identification and permit application. For example, the system has helped to identify potential sites for onshore and offshore wind farms, thereby avoiding potential clashes with Natura 2000 sites.

Technical guidance and protocols

In England, the Marine Maintenance Dredging Protocol was established to streamline the process of obtaining approval for maintenance dredging activities by ports that could potentially affect Natura 2000 sites. An MDP document is developed, whose data are periodically revised in the light of monitoring of the interest features of designated Natura 2000 sites in the area, carried out on a six-yearly reporting cycle. This ensures that individual maintenance dredge proposals have all the necessary supporting information to be swiftly assessed, and do not require extensive and time-consuming information gathering and consultation.

Ensuring fit-for-purpose AA

In England and Wales, the Major Infrastructure and Environment Unit was established to facilitate

positive cooperation between developers and statutory consultees. Its purpose is to overcome quality issues arising from lack of communication between the two parties, which may relate to a number of elements of both project design and assessment development. The unit plays an early risk management role to identify potential conflicts between projects and Natura 2000 sites. It ensures collaboration between all parties to support resolution of issues, and introduces a new Evidence Plan process for agreeing requirements up-front, providing greater clarity for developers on the evidence requirements.

Appeal procedures

In the Netherlands, the Crisis and Recovery Act (Crisis- en herstelwet) was set up to speed up appeal procedures. The Act entered into force in 2010 and was intended to counteract the impact of the economic crisis. The Act has reduced the time taken for objection and appeal procedures, as well as the number of occasions on which appeal procedures are required.

Source: (Farmer et al, 2015).

Evidence of opportunity costs

Kaphengst et al (2011), in their assessment of the opportunity costs of biodiversity conservation in the EU, did not assess differences in opportunity costs between Member States. However, they noted that the main opportunity costs of the Natura 2000 network include foregone development opportunities, foregone opportunities for land use change such as agricultural improvement or conversion, and foregone output through constraints on land management. Opportunity costs can, therefore, be reasonably expected to be highest in those areas where there is greatest development pressure, which are most productive for agriculture and forestry, and where the price of land is high.

Responses to the evidence gathering questionnaire and national missions

56 respondents to the evidence gathering questionnaire answered this question, with most providing an opinion or qualitative assessment, and only four providing quantitative evidence. 46 respondents expressed the view that there are cost differences between Member States, with 38 identifying the specific factors causing cost differences across the EU, and 29 identifying specific factors affecting costs in a particular Member State.

The most frequently cited reasons for cost differences were as follows:

Table 21 Cost differences

Factor causing cost differences	Responses
Population density, land use pressures, land prices and opportunity costs	12
Conservation status and restoration need	10
Labour costs	8
Knowledge base in the Member State	8
Concentration of protected habitats and species	7
Overall size of Natura 2000 area in the Member State	6
Level of ambition	6
Differences in implementation approaches, administrative structures, interpretation of rules	6
Levels of management intervention	5
Uncertainties, disputes, delays, information costs caused by national implementation approaches	5
Average size of sites (small sites have relatively higher costs)	4
Geographical factors (affecting travel costs, trans-boundary issues, seasonal timing of interventions)	4
Capacity and degree of reliance on consultants/ foreign expertise	3
Strategies for land purchase and compensation	3

An example of the influence of national approaches to implementation on costs within a Member State, was given by Eurelectric and Energy UK (Box 28).

Box 28 Costs of national implementation – monitoring of coal-fired energy plant in the UK

Operators of large UK coal plants were required by the England and Wales Environment Agency to undertake a national scale assessment of the impact of emissions of SO₂ and NO_x from their individual operations under the PPC re-permitting process, as a result of the requirements of Article 6(3) of the Habitats Directive. This requirement was applied to all existing coal plants, with the individual and combined impacts required to be assessed on each Natura 2000 site on the UK mainland (Brooke et al, 2006).

UK coal plant operators did not agree with this requirement on the basis that: (1) they believed that existing coal plants are not 'plans or projects' within the definition of Article 6(3), and (2) they believed that it was not the intention of the Directive to regulate long-range impacts arising from emissions to air, which are covered by other legislation (e.g. the Environmental Impact Assessment Directive (85/337/EEC), the National Emissions Ceilings Directive (2001/81/EC), the IPPC Directive (2001/8/EC), the Gothenburg Protocol and the Large Combustion Plant Directive (2001/80/EC) (and their successors)).

The total costs associated with the assessment exercise, including scoping discussions with the Environment Agency and conservation agencies, performing the initial assessment, and follow-up discussions through the determination process, were estimated at around GBP 50,000 (EUR 70,000) per station. An improvement condition was imposed on nine coal-fired power stations which had not taken the Article 4(4) limited operational hours option under the Large Combustion Plant Directive to set up and operate a meteorological and deposition monitoring network in relation to the Habitats Directive assessment. The ongoing costs of participation are put at around GBP 15,000 (EUR 21,000) per year for each installation. It is argued that these costs are significant, even though they represent a small proportion of operating costs.

Eurelectric and Energy UK state that they are not aware of any other Member States requiring national scale assessments of acid and deposition impacts of coal-fired power station in relation to the Habitats Directive. They argue that this is an overly onerous interpretation of the Habitats Directive requirement by the UK regulators, and derives from a lack of clarity within the Directive itself. They call for further guidance relating to the definition of 'plans or projects' under Article 6(3), the range of impacts to which the Directive should apply, and the definition of the scope of the key legal terms 'significant effect', 'not adversely affect', and 'integrity of the site'.

Source: Questionnaire responses by Eurelectric and Energy UK.

Responses to the online public consultation

Q23 of the online public consultation asked respondents for the cause of any inefficiencies with respect to the Directives and their implementation. This question appeared in the second part of the questionnaire, in which a large proportion of responses expressed negative views about the Directives. The answers indicate that inefficiencies are perceived to arise both from the Directives themselves and the manner of their implementation. However, implementation of the Directives at national, regional and local level is perceived to be a greater cause of inefficiency than the wording of the legislation itself, or its enforcement at EU level. For example, "how the Directives were implemented nationally" was seen by 70% of respondents to cause inefficiency 'to a large extent', compared to 51% stating that 'how the directives are written' caused inefficiency 'to a large extent'. In contrast, "interaction with other laws and policies" was only seen by 27% as causing inefficiency 'to a large extent'. The view that the greatest inefficiencies are caused by implementation at the national, regional and local level would suggest that this may lead to cost differences between Member States.

6.3.4 Key findings

Quantitative comparisons of costs between Member States, although few, suggest significant cost differences, both in absolute costs and in unit costs (e.g. cost per hectare of Natura 2000 sites). However, direct comparisons are made difficult by differences in estimation methods.

The main existing quantitative assessment is the 2010 Gantioler et al. assessment, which found wide variations in a range of one-off costs (e.g. land purchase and compensation payments) and annual management costs. The study suggested that the main drivers of cost differences include the overall extent of the Natura 2000 network, the degree of ambition applied to its implementation, economic factors (e.g. land and labour costs), national circumstances (e.g. type and size of site, land use, location, ecological status, pressures), management strategies, and variations in the level of current data. However, although common guidance was provided, a major cause of variation was due to differences in estimation methods and scope of costs (e.g. total or incremental costs, and actual, planned, required or aspirational expenditures). Some Member States included large estimates of the costs of land purchase, while most assumed that this would account for only a small proportion of costs. Qualitative answers to the evidence gathering questionnaire reiterate these findings.

Studies of the administrative costs related to permitting under Article 6 of the Habitats Directive reveal a scarcity of quantitative data, but suggest that variations in capacity and implementation between Member States, as well as procedures for appeals and the resolution of disputes, can cause cost differences.

6.4 Y.4 - Can any costs be identified (especially regarding compliance) that are out of proportion with the benefits achieved? In particular, are the costs of compliance proportionate to the benefits brought by the Directives?

6.4.1 Interpretation and approach

This question compares the costs of meeting the requirements of the Directives with the benefits achieved. There is a particular focus on compliance costs, i.e. the costs to businesses, landowners and authorities in meeting the requirements of the Directives.

As well as considering the balance between the overall costs and benefits of implementing the Directives, it is important to examine whether their implementation results in specific practices which are disproportionately costly because they incur high costs for relatively little benefit. Such examples might provide opportunities to improve efficiency. In such instances, understanding if disproportionate costs arise from the provisions of the Directives themselves, or as a result of inefficient implementation, is critical. This question considered:

- Quantitative evidence comparing the costs and benefits of the Directives and their provisions at different levels (EU, national, regional, local).
- Examples providing qualitative or semi-quantitative evidence of cases where the Directives may give rise to significant costs with limited apparent benefits, or very high costs with moderate benefits.

6.4.2 Main sources of evidence

Evidence available includes:

- Overall studies valuing the costs and benefits of the Directives at EU level (Gantioler et al, 2010; ten Brink et al, 2011).
- EU studies providing more qualitative evidence of the efficiency of implementation (e.g. the review of implementation of Article 6(3) of the Habitats Directive (Sundseth and Roth, 2013)).
- National studies of the costs and benefits of Natura 2000 in certain Member States (e.g. Germany and the UK).
- Numerous studies of costs and benefits at individual sites.
- Evidence gathering questionnaires and national missions, examining the costs and benefits of implementation and highlighting examples of disproportionate costs. 80 responses to this question were received, of which 55 provided qualitative evidence and examples, with a further 16 providing quantitative evidence.
- The online public consultation, which considered the benefits and costs of implementation.

These sources quantify the relative costs and benefits of the Directives to varying degrees and at different scales. Where direct monetary comparisons of costs and benefits were not available, assessment of proportionality required a degree of judgement. Where estimates were available of costs but not benefits, assessment of proportionality was aided where these costs were put in context, e.g. where information was provided about costs per hectare of habitat, per breeding pair of a species, and/or percentage of overall project costs.

6.4.3 Analysis of the question according to available evidence

EU studies of costs and benefits

Studies at the EU, national and local levels all suggest that the benefits delivered by the Natura 2000 network greatly exceed the costs of implementation and management. For example, at the EU level, the overall benefits of the network have been estimated at between EUR 200-300bn annually (ten Brink et al, 2011), while the annual costs of full implementation and management of the network have been estimated at EUR 5.8bn.

Some care is, however, needed in interpreting these estimates, as they derive from different bases. The ten Brink et al benefits estimates, for example, relate to the overall benefits of the Natura 2000 sites, assessed in gross terms, rather than the added benefits delivered by protection and management under the Directives. By contrast, the Gantioler et al estimates refer to the costs of designation and management of the sites. While some of these costs might continue to be incurred in the absence of the Directives (through national conservation objectives), many would not. On the other hand, in the absence of the Directives, we might expect only a gradual erosion of the benefits that the sites deliver over time.

Evidence which assesses the net costs and benefits of the Directives against a counterfactual ('policy-off') scenario is therefore lacking. This is, perhaps, unsurprising given the complicated policy space within which the Directives work, and the associated difficulties in assessing their added value in quantitative terms.

From a qualitative standpoint, the Ecosystems Ltd report (Sundseth and Roth, 2013) on Article 6(3) of the Habitats Directive found that, on the whole, implementation is working well in most Member States, and that despite problems of implementation creating costs and administrative burdens, many of these have been resolved over time. The study found that there was a general lack of data on the costs and benefits of AA, making it impossible to confirm the claims made by certain sectors that permitting procedures generate high costs or burdens. The authors noted that all permitting systems incur costs, and they argued the need both for better data, and for clearer definitions of disproportionate costs. This would help in the assessment of costs as either reasonable or disproportionate.

National and local studies of benefits and costs

Jacobs (2004) estimated that Scotland's Natura 2000 sites have an overall benefit: cost ratio of around seven over a 25-year period. This means that, overall, national welfare benefits are seven times greater than the national costs and represent good value for money. Benefits were found to be dominated by non-use values, and costs would exceed benefits if these were not taken into account. The authors estimated the marginal benefits and costs of the Natura 2000 designation itself, stating a benefit: cost ratio of 12:1, although without giving details of how this figure was reached.

In England, the Department for the Environment, Food and Rural Affairs (DEFRA, 2015), as part of an assessment of costs of its regulations, estimated the benefit: cost ratio of

biodiversity legislation at 7:1, based on estimates of the benefits of Sites of Special Scientific Interest (SSSIs), as well as estimates of the benefits of CITES regulations to business. The direct costs to business was estimated at GBP 32m (EUR 45m) per annum (of which approximately 75% are to agriculture, forestry and fisheries), while direct benefits to business were put at GBP 10m (EUR 14m) per annum, indicating an annual net cost to business of GBP 22m (EUR 31m). Costs to other parties (mostly government) were estimated at GBP 113m (EUR 158m) annually, with wider benefits to society estimated at GBP 970m (EUR 1,358m) per annum. The report estimated that 84% of costs of biodiversity policy arose from EU legislation.

A study by GHK (2011) on the benefits of SSSIs formed the main basis for the DEFRA estimates. This used a choice experiment survey to estimate that the public in England and Wales is willing to pay GBP 956m (EUR 1338m) annually to secure the benefits that the sites deliver, at a benefit cost ratio of almost 9:1. All terrestrial Natura 2000 sites are also designated as SSSIs, and the Natura 2000 network comprises the majority of the SSSI network, by area. The study also found that Natura 2000 status confers additional benefits compared to the national SSSI designation, through higher levels of protection, some additional funding and added profile.

Similarly, a number of studies in Germany have also examined the public's willingness to pay for biodiversity through implementation of Natura 2000 and national biodiversity targets. This has been found to be significantly higher than cost estimates (Meyerhoff et al, 2012; Wüstemann et al, 2014). For example, the study by Wüstemann et al. found a benefit: cost ratio of approximately 2.8:1 for a nature conservation programme including Natura 2000 and habitat management measures in support of the National Biodiversity Strategy.

Local studies

Local studies also demonstrate that the benefits of Natura 2000 sites can greatly exceed the costs of management. The following box gives some examples.

Box 29 Comparisons of costs and benefits at Natura 2000 sites

Plaine de la Crau, France: Hernandez and Sainteny (2008) estimated the overall benefits of this Natura 2000 site at EUR 182/ha/year, and net benefits at EUR 142ha/year, i.e. the benefits were estimated to be around seven times higher than the associated costs.

Roerdal, Netherlands: costs of nature management in the period 1994-2000 amounted to EUR 2.1m, delivering total business, recreational and amenity benefits of at least EUR 4.5m to businesses, homeowners and the general public (Wijnen et al, 2002).

Wierdense Veld, Netherlands: a study found that the benefits of hydrological restoration and emission reduction measures exceed the costs. Major costs included the creation of buffer zones around the Natura 2000 area (resulting in loss of income and relocation of activities) as well as emission control measures. However, this was more than offset by the benefits of enhanced room for farm development. Total costs amounted to EUR 20.2m while the total benefits were EUR 23.1m, indicating a net benefit of EUR 2.83m (Reinhard et al, 2014).

Monte Alduide, Navarre, Spain: a study estimated the benefits of a conservation plan for the Natura 2000 site at EUR 7.3m/year, compared to annual costs of EUR 0.45m, suggesting a benefit: cost ratio of 17:1 (Moreno et al, 2013).

Other studies have examined the benefits and costs of restoring particular habitats, demonstrating that the benefits of restoration and conservation often greatly exceed the costs.

Box 30 Benefits and costs of habitat conservation and restoration

Peatlands: Numerous studies on the cost-benefit ratio of peatland restoration show that the social benefit is substantial and that costs can be saved, in particular to avoid climate damage and the costs of use of drained peatland for biogas plants (cited in Naturkapital Deutschland - TEEB DE,

2012). Based on the studies, it can be assumed that preserving the peatland and habitat types of the Directives is economically highly efficient (Naturkapital Deutschland - TEEB DE, 2012).

Grassland: Matzdorf et al. (2010) investigated the costs and benefits of conserving high-nature-value grasslands and calculated a 2:1 minimum ratio. A part of this grassland is under the Habitats Directive's habitat types and is particularly threatened by conversion to cropland. The conservation of grassland is more cost-effective than conversion into cropland.

Floodplains: Measures to conserve and restore floodplains, which could be implemented to improve the coherence of Natura 2000, among other things, could achieve a benefit: cost ratio of between 1:1 and 3:1 (Grossmann et al, 2010; Grossmann, 2012a; Grossmann, 2012b). This will, inter alia, avoid flood damages and increase water's cleaning power, to achieve WFD goals.

Marine habitats: EU and international studies have shown that protected areas provide a variety of economic benefits for fisheries, including enhanced yields, improved recruitment, recovery of stocks, restoration of a fish stock's natural age structure, and higher quality products, and can therefore help to reverse the effects of overfishing (Carstensen et al, 2014; Guidetti et al, 2014).

Natural Capital Restoration, UK: The Natural Capital Committee State of Natural Capital Report (2014) provided an analysis of the benefit: cost ratios of a range of natural capital investments. These were estimated at 5:1 for a woodland planting programme, 4:1 for a catchment case study, 2:1 to 3:1 for salt marsh restoration, and up to 9:1 for inland wetland restoration projects.

Evidence from the Netherlands demonstrates that the benefits of the national programme to reduce Nitrogen emissions to Natura 2000 sites exceed the costs, although costs may exceed benefits at certain sites.

Box 31 Engbertsdijkerven, the Netherlands – Costs of controlling Nitrogen emissions

A major element in the Netherlands' implementation strategy is a programme called the Integrated Approach to Nitrogen (PAS), which aims primarily to reduce nitrogen deposition in sensitive Natura 2000 areas. An analysis by the Agricultural-Economic Institute (LEI) (Leneman et al, 2013) shows that the effects of this programme on national social and economic development range from largely positive to neutral (see also question Y.5). However, this report also indicates that the costs and benefits are unevenly distributed.

For example, at the Natura 2000 site, Engbertsdijkerven, the analysis found that within a 5km radius of the site, the costs exceeded the benefits by about EUR 5.1m. A significant portion of these costs resulted from the need to introduce measures on approximately 250 ha of agricultural land outside the Natura 2000 site in order to improve the quality of the nature within the site, with a large impact on local agriculture. Because of the large local impacts, resistance arose from local stakeholders.

Broekmeyer et al (2015) argued that as a result of these costs and in the light of local resistance, it will be difficult to realise the objectives to conserve raised bogs at the site. In preparing the Natura 2000 management plan, the province and the local stakeholders have agreed to investigate potential alternative approaches. They argue that the example emphasises the importance of engaging stakeholders and the public with the Netherlands' responsibility to conserve European protected species and habitats, as well as the feasibility of the proposed measures in achieving FCS.

Source: Questionnaire submitted by Ministry of Economic Affairs, Netherlands

Responses to the stakeholder questionnaire

80 respondents to the stakeholder questionnaire answered this question. The majority provided opinions (76 respondents) or examples (55 respondents), while 16 responses provided quantitative evidence. The responses reveal a split in opinion: 33 respondents expressed the view that the Directives do give rise to disproportionate costs, while 39 argued that they do not. In general (but not in all cases), business representatives and land management interests tended to argue that there are disproportionate costs, while

environmental NGOs tended to argue that costs are less than or proportionate to benefits. A mix of responses was received from MS government representatives.

The most frequently cited examples of measures giving rise to disproportionate costs included:

- Specific examples of high costs of protection of individual species (e.g. birds, amphibians) at particular sites (e.g. mining and development sites) (15 responses);
- Poor or delayed implementation at national level, giving rise to uncertainties, fines and delays (14 responses);
- The need to protect widespread species and habitats listed in the annexes, diverting resources from national priorities (12 responses);
- Administrative burdens, costs of surveys and permitting resulting from Article 6(3) (8 responses);
- High costs of habitat management at particular sites (5 responses)
- High costs of derogations (4 responses);
- High opportunity costs (e.g. restrictions on forest operations, extraction) (4 responses)
- Costs of pollution control / catchment management in agriculture (3 responses)
- Monitoring costs (3 responses); and
- Information costs, caused by failures in mapping/ evidence gathering/ strategic planning (3 responses).

Many examples cited by stakeholders relate to the costs of protection of individual species. It should be noted that the following examples quantify only the costs of action, without valuing the benefits, and therefore involve only subjective judgements that costs are high relative to the benefits achieved.

Box 32 Costs of species action

Great Crested Newts and other widespread species in the UK

According to DEFRA, the Home Builders Federation gave the example of a development where offsite translocation was refused, and the methods to protect Great Crested Newts onsite cost GBP 200,000-300,000 (EUR 280,000 to 420,000), excluding interest or loss of return on the proposed construction, in the context of a peak count of 23 newts.

The European Aggregates Association (UEPG) noted that Great Crested Newts can impose costs on quarry operators, as they colonise standing water in active quarries. This can delay quarrying operations and require costly mitigation measures. In a quarry in northern England, small numbers of Great Crested Newts were found in pools that have formed against active faces, delaying and restricting quarrying operations. Consultants were retained to prepare a mitigation scheme at a cost of GBP 30,000 (EUR 42,000), and additional costs were incurred in the acquisition of land, construction of mitigation pools, hibernaculae and terrestrial habitat (GBP 18,000 or EUR 25,000), as well as fencing (not estimated). These costs appear to be relatively modest compared to those associated with some other developments. For example, UEPG also reports that a study by the consultancy ADAS found that surveys for protected species costs the UK property industry around GBP 15m (EUR 21m) per year. Two recent road-widening projects spent GBP 315,000 (EUR 441,000) and GBP 415,000 (EUR 581,000) on Great Crested Newt surveys and mitigation (equating to GBP 21,000 or EUR 29,000 and GBP 7,400 or EUR 10,400 per actual newt found, respectively).

During the UK mission, the Department for Transport indicated that it expects the cost of surveys of protected species affected by phase 1 of the proposed HS2 rail link between London and Lichfield to amount to GBP 40m (EUR 56m). With the likelihood of certain species already established, the main aim of the surveys will be to establish their locations, populations and abundance. This may lead to further significant investments in mitigation measures for Great Crested Newts, bats and other species. It was noted that the money invested in surveys could achieve considerable biodiversity benefits if instead invested directly in conservation measures.

In the same meeting HM Treasury reported the results of a PhD study that estimated the mitigation

costs for Great Crested Newts in the UK. These were found to range from GBP 100,000 to 215,000 (EUR 140,000 - 300,000) across 18 projects. From these figures it was estimated that the UK incurs mitigation costs of GBP 59-125m (EUR 83-175m) per year on this species alone.

BirdLife argues that the UK's problems with newts and other species arise because of a failure to assess and define FCS at national level, or at the spatial levels appropriate for different species. Without a clear definition of FCS and the actions required to achieve it, a precautionary approach must be adopted based on a goal of no net loss, in order to prevent significant loss. BirdLife argues that steps to assess and define FCS for European Protected Species at national and other appropriate spatial scales, are a prerequisite for their effective conservation.

Black Grouse, Sallandse Heuvelrug, Netherlands

Since the 1970s, much money has been invested in the management of Sallandse Heuvelrug National Park (a Natura 2000 site) for the benefit of Black Grouse, a declining species. As a result of genetic impoverishment, poor habitat quality and possibly climate change, the species has continued to decline, such that, in 2012, only two male birds were counted. A long-term investment of time, effort and money has been unsuccessful, and the costs appear to have greatly exceeded the benefits. However, some stakeholders argue that, despite the decline in Black Grouse, other species and heathland habitats have benefited from the action taken.

Widespread species in Germany

The BDI (Federation of German Industry) argues that species protection measures often give rise to disproportionate costs under the Directives. For example, assessments of the impact of infrastructure developments such as road schemes, often involve case-specific analysis of the likelihood of increased deaths of particular species. The BDI argues that this is bureaucratic, gives rise to legal uncertainties, and is applied to all protected species irrespective of their conservation status, therefore giving rise to costs that are disproportionate to benefits. It can also result in disproportionately costly mitigation measures, such as relocation, construction of fences/barriers, the provision of alternative nesting sites, and expensive ongoing monitoring. These actions are often aimed at reducing impacts on widespread species such as Sand Lizards, Natterjack Toads and bats.

Hen Harriers and Freshwater Pearl Mussels in Ireland

The Department of Agriculture, Food and the Marine (DAFM) comments on the large costs involved in protecting certain species. For example, approximately 160,000 hectares are designated as Hen Harrier SPAs in Ireland, supporting 120-150 pairs of the species. While this species is considered to be at critically low numbers, intervention is costly, with over 1,000 ha designated per pair. Similarly, a species such as the Freshwater Pearl Mussel, which has a relatively narrow habitat range in Ireland, but the quality of which is influenced by wider catchment areas, could result in disproportionate cost implications where land management interventions are required over large areas with the objective of protecting relatively small, albeit important habitats.

European Flying Squirrel in Finland

COPA Finland argues that, overall, the Directives are working quite well, but that they have led to excessive protection of certain species such as the European Flying Squirrel. The questionnaire response claims that this species, listed in the annexes of the Directives but not endangered, requires almost all of the resources for protection of endangered species in Finland.

Common Wall Lizard and Natterjack Toad in France

The questionnaire submitted by CEMBUREAU states that these two species, listed in Annex IV of the Habitats Directive, are strictly protected, despite being common in France, with the Wall Lizard particularly common in the south of the country. As a result, companies have to obtain a derogation permit (Article 16 of the Directive) and implement expensive offsetting measures for non-endangered species. The costs of those derogations are significant (including investigations, collecting data, mapping, biodiversity assessments) and can cause lengthy delays, as the French authorities do not set a specific deadline for derogation permits. Such permits are often subject to challenge, with a high risk that they will be overturned, potentially affecting the survival of the companies concerned.

Source: Questionnaires submitted by Defra (UK), UEPG, BirdLife Europe, Ministry of Economic Affairs (Netherlands), BDI (Germany), DAFM (Ireland), COPA-COGECA, CEMBUREAU; National Missions.

Some perspectives by the Irish nature authorities on the factors that may give rise to disproportionate costs are presented in the following box.

Box 33 Costs of implementation in Ireland

In its questionnaire return, the National Parks and Wildlife Service (NPWS), Ireland, argued that where successful interventions have delivered positive implementation of the Directives, this is generally good value for money.

However, in some instances, the Directives may demand compliance that is very costly and will not necessarily result in a positive outcome. This is often the case in terms of species management, where species may be suffering at the edge of their geographical range (e.g. Corncrake in the Shannon Callows, where outside flooding is having an influence) or where water quality issues are impacting on historical populations (e.g. Freshwater Pearl Mussels in some of the 27 catchments in Ireland, where populations are low). The NPWS argues that restoring such populations may be prohibitive and resources may be better invested in other areas in the species' range.

There are particular difficulties where a very high proportion of the landscape hosts annex habitats or species. In such cases there can be a substantial burden on the local population. For example, the Aran Islands, off Co Galway, are almost entirely composed of a priority habitat, limestone pavement. This inevitably adds constraints to the provision of housing, infrastructure and facilities for both islanders and the tourists which are a critical part of the island economy.

One of the challenges is to ensure that AAs are proportionate to the project, the sensitivities of the site involved and the risks that the former poses to the latter. A large proportion of Ireland's farming enterprises are typically small in scale, and evidence about their interactions with Natura 2000 sites is often lacking. This can mean that the costs of an AA may be disproportionate to the risks involved. This topic is of particular significance in Ireland at this time, when it appears that there could be a requirement to carry out an AA on agri-environment plans for some 30,000 - 50,000 farmers, a task which is beyond the resources of individual farmers or the national authorities.

There is a perception within rural communities, in particular within farming communities, that the costs of compliance with the Nature Directives at farm level outweigh the benefits. It is argued that designation of land within an SAC or SPA can lower its potential value compared to eligibility for other grant aid, such as forestry. In such cases, hostility can emerge towards the species which it intended to conserve. Finding a balanced solution is difficult. Even though agri-environment schemes are available, they may not be as attractive as some of the alternatives.

Costs may also arise where implementation of the Directives affects activities which are covered by other, existing regulations. The business organisation IBEC highlights a recent example concerning the loading of petrol road tankers at Ireland's oil refinery at Whitegate, in Cork harbour. Operators must be licensed by the Irish Environmental Protection Agency (EPA) and must hold a Volatile Organic Compounds (VOC) Permit. In the most recent round of permit renewals (2013), licence holders were asked to conduct an AA of the impact of their loading operations and VOC emissions on local bird species. This was a very costly exercise that IBEC argues delivered no environmental benefits beyond those already guaranteed by the licence conditions. When queried, the EPA stated that their interpretation of Habitats Directive was the reason for requiring an AA.

Source: Questionnaire returns – NPWS, IBEC.

The questionnaires also highlight examples of specific plans and projects which are perceived to have resulted in disproportionate costs. The following cases illustrate that the causes of disproportionate costs are often complex in nature, and may be influenced by national approaches to implementation, as well as the interaction of the Directives with other legislative and permitting requirements.

Box 34 Costs associated with plans and projects

Vuosaari Harbour, Helsinki, Finland: The questionnaire from the European Sea Ports Organisation (ESPO) states that, although there are good practice examples, port development projects have suffered significant overall increases in costs, complex approval procedures and resulting delays that are not always justified by environmental benefits. An example is the Vuosaari Harbour development at the port of Helsinki, where numerous appeals by neighbours opposed to

the scheme, including in the CJEU, added some 10 years to the process. These delays resulted from a variety of environmental permitting processes, not just the nature legislation. Because of the SPAs bordering the port, the railway connection was submerged in an underground tunnel, the longest railway tunnel in Europe solely for freight purposes. ESPO argues that this had excessive cost implications.

Falmouth Harbour, UK: ESPO also submitted a case study of the Falmouth Harbour dredging project in Cornwall, South West England. The initial application to dredge the approach to the docks was submitted in 2004, but has yet to receive permission, following a series of disputes focusing on the environmental impact of the scheme. An AA decision issued by the Marine Management Organisation in January 2011 was unable to conclude that there would be no adverse impact on the integrity of the Fal and Helford SAC. The Falmouth Harbour Commissioners argue that the process of implementation of the Directives lacks balance, has created uncertainty, is unfair, and has failed to take account of the economic aspects of sustainable development. Their estimates of the costs involved include those of EIA (GBP 500,000, or EUR 700,000), subsequent consultancy and legal fees (GBP 250,000 or EUR 350,000), economic studies and the Port Masterplan (GBP 250,000 or EUR 350,000) and a proposed Maerl re-layering trial. However, it is unlikely that all of these costs result from the Habitats Directive. In addition, it is expected that the Maerl mitigation measures, when agreed, will add GBP 3-5m (EUR 4.2-7m) to the cost of the dredging. The Port Masterplan study estimated that the project – which is considered essential for Falmouth to attract cruise ships – will add approximately 850 jobs and GBP 70 million (EUR 100m) in Gross Value Added (GVA) to the local economy.

Via Baltica motorway, Poland: WWF Poland argues that this case illustrates that inadequate implementation of the Nature Directives can often be the cause of excessive costs. After years of discussions about a route which would have damaged the Natura 2000 site of Rospuda Valley, a decision was taken in 2009 to re-route the motorway. Had the decision been taken earlier, WWF argues, the savings in time and resources would have been considerable. An independent road designer proposed an alternative scheme with a reduction in capital costs of EUR 17 million compared to the proposal which would have damaged the Natura 2000 site.

Netherlands: Rijkswaterstaat estimates the costs of nature compensation as a percentage of the costs of infrastructure projects. These are put at 0.9% (roads), 0.3% (rail) and 3.2% (water). In 2007-11 this amounted to EUR 33m (roads), EUR 22m (rail) and EUR 4m (water). These figures – which exclude mitigation measures – suggest that the overall costs of compensation constitute a small proportion of infrastructure costs.

Source: Questionnaires submitted by ESPO, WWF Poland, Rijkswaterstaat (Netherlands)

A similarly diverse range of reviews was expressed by stakeholders interviewed in the national missions, as discussed in the box below.

Box 35 Disproportionate costs – findings from the national missions

In Germany, while all parties recognise that the implementation of the Directives involves significant costs, there is a difference in opinion between the NGOs and industry about whether costs are disproportionate. There are also differences in opinion about what should be considered disproportionate. The BDI points to a range of examples of significant costs, but the NGOs say that assessment of proportionality needs to consider these in context, with respect to the benefits achieved, as well as the overall value of developments delivered. They refer to evidence that for most infrastructure projects nature expenditures account for less than 5% of total costs, as well as evidence of strong benefit: cost ratios for the conservation and restoration of a range of habitats. The federal highways administration argues that costs are often much higher than 5% of the value of road projects, sometimes exceeding 20% of project costs. Actions taken to protect some relatively common species (e.g. Sand Lizard) are seen by some to be disproportionately costly.

While most UK stakeholders considered the overall balance of benefits and costs to be favourable, some examples of perceived disproportionate costs were raised. In particular, the implementation of species protection rules is seen as being excessively costly for some widespread species, especially the Great Crested Newt, and it is argued that resources devoted to surveys and species protection measures could be more usefully deployed in other ways (e.g. habitat scale approaches, or actions targeted at the species population level, rather than detailed surveys and measures focusing on individuals of a species).

In Sweden, little firm evidence is available of the balance of costs and benefits. However, both authorities and NGOs argue that costs are proportionate to benefits, although there is some scope to reduce administrative burdens associated with AA. Some representatives from the private sector argue that species protection measures impose disproportionate costs and burdens, while hunters claim that the costs of protecting predators are disproportionately high.

Source: National Missions

The UK questionnaire submission describes some of the factors that have caused disproportionate costs in the UK, highlighting a lack of evidence to inform decision-making, creating a risk-averse approach by developers and land managers.

Box 36 Factors giving rise to disproportionate costs in the UK

The submission of DEFRA, UK argued that, although overall evidence demonstrates the net benefits of conservation action, some costs of implementation have been significant. It argued that costs tend to be driven up, and thus disproportionate, under the following conditions:

- When there is a lack of evidence on which to make decisions or for developers to assess their proposals. A poor understanding of the conservation status of certain species can lead to more precautionary decision-making and higher costs. A lack of detail in site conservation objectives or difficulty in accurately predicting potential impacts may prevent a developer from being able to determine the likelihood that a proposal is viable in the early stages, again driving up costs for a project that may not be subsequently approved.
- When developers and land managers may be risk-averse, proposing mitigation beyond what might be considered reasonable and necessary given the scale of impacts, out of fear of prosecution or delays to projects. This increases costs substantially for developers. Evidence from the Forestry Regulation Task Force found that financial burdens and risks of non-compliance are sufficient to dissuade forest owners from managing sites. A key recommendation of this task force was that 'more resources are devoted to establishing a sound evidence base for determining to what degree approved woodland management activities affect European Protected Species.' For linear projects (e.g. highway developments), projects have felt compelled to fit and maintain many kilometres of temporary amphibian fencing, sometimes for many years, to prevent the killing of individual Great Crested Newts. Much of this relates to interpretation issues of the Habitats Directive, where better guidance might be of use.

Source: Questionnaire submitted by DEFRA, UK.

Views expressed in the public consultation

Q8 of the online public consultation asked how the costs of implementing the Birds and Habitats Directives compare with the benefits from their implementation. The vast majority of the respondents (93%) expressed the view that the benefits from the implementation of the Directives far exceed the costs. However, views varied markedly according to type of respondent. The vast majority of individuals (94%) and 59% of NGOs thought the benefits far exceeded the costs. By contrast, 35% of associations other than NGOs and 75% of businesses considered the costs of implementation to far exceed the benefits. Government and public authorities were more or less equally divided with a slightly higher number (37%) believing the benefits exceed the costs rather than vice versa (28%).

Q22 asked whether costs are proportionate, given the benefits associated with the Directives. This question – which appeared in Part II of the questionnaire – received a markedly different response to Question 8, reflecting the large proportion of land management and hunting interests answering this part of the questionnaire. Overall, more than half of the respondents (59%) considered the costs of implementing the Directives to be disproportionate to the benefits associated with them. This was especially noticeable for administrative costs, with 62% of respondents believing them to be disproportionate. However, 35-36% of respondents considered the costs to be proportionate to the benefits received

in relation to managing Natura 2000 sites and protecting species. This percentage dropped to 26-28% when it came to administrative costs or lost opportunity costs.

Table 22 Results of question 22 of the public consultation questionnaire

Q22: Are these costs proportionate, given the benefits associated with the Directives?

	Proportionate	Disproportionate
Natura 2000 site management costs	35%	57%
Costs of protecting species of birds	36%	57%
Costs of protecting species other than birds	35%	59%
Administrative costs	28%	62%
Lost opportunity costs	26%	59%

Row percentages may not add up to 100%, because the category "I don't know" is not presented. Thus, the remaining share to add up to 100% are respondents who answered "I don't know".

The answers to this question varied according to the type of respondent. The majority of businesses (84%) and 58% of individuals considered the costs disproportionate. On the other hand, the majority of NGOs (64%) and governments or public authorities (51%) believed the costs were proportionate.

6.4.4 Key findings

- Studies indicate that the benefits of the site and species protection ensured by the Directives greatly exceed the costs of implementation at the EU, national and local levels.
- However, few studies have directly compared the costs and benefits of the specific actions required to implement the Directives. Those that have done so, suggest that the benefits of action exceed the costs at most, but not all, sites.
- Responses to the evidence gathering questionnaire and online public consultation, particularly from businesses, highlighted several examples where the costs of implementation were considered disproportionate to the benefits.
- The most frequently cited examples of disproportionate costs related to species protection, particularly (but not only) in the protection of widespread species affected by development. Other examples given referred to the administrative burdens and delays associated with permitting more widely, and the opportunity costs of restrictions on forestry and other land management activities, particularly in instances where compensation is not paid by the authorities.
- However, it was frequently argued by representatives of all stakeholder groups, that disproportionate costs can be attributable to poor national implementation rather than the Directives themselves.

6.5 Y.5 - Can good practices, particularly in terms of cost-effective implementation, be identified?

6.5.1 Interpretation and approach

Efficient implementation of the EU Nature Directives can be informed by examples of good practice, where the objectives of the Directives have been met at relatively low cost. It may be expected that problems experienced in the initial implementation of the Directives which may have involved unduly costly or burdensome processes, will be subsequently identified and addressed.

Cost-effective implementation may be visible in low unit costs relative to the results achieved, for example low costs per hectare of habitat protected or managed, per species protected, or per AA undertaken. However, as noted in question Y.3, variations in costs are affected by a range of factors, such as differences in local needs and conditions, and economic variables such as land and labour prices, as well as good practice in implementation. Cost effectiveness cannot, therefore, be determined by comparisons based on costs alone. The strongest evidence is found in Member States whose costs have been reduced as a result of changes in practice, without reducing the benefits of the Directives. Much of the available evidence is qualitative, including case studies where streamlined processes have reduced costs and led to more efficient implementation and compliance.

6.5.2 Main sources of evidence

The main sources of evidence are:

- EU studies of the implementation of the Nature Directives, the costs of the Natura 2000 network and Article 6(3) of the Habitats Directive (including Farmer et al, 2015; Gantioler et al, 2010; Sundseth and Roth, 2014).
- Member States' reviews of implementation, such as the review undertaken in England, as well as initiatives undertaken in other Member States.
- Examples of good practice identified in the evidence gathering questionnaires. Of the 71 responses to this question, 59 provided examples of activities representing cost-effective implementation.
- Views expressed in the national missions and through the online public consultation.

Numerous examples were provided of cost-effective implementation. While these examples are mostly qualitative in nature, with few providing estimates of reductions in costs, a number of common themes emerge with respect to factors that can support cost effective implementation.

Good examples of cost-effective implementation were found throughout the EU, with the largest number of well-documented examples submitted for Western European countries (especially the UK, Germany, the Netherlands, France and Belgium). This may reflect the relatively high costs of implementation in these countries and the more pressing need to find cost-effective solutions.

6.5.3 Analysis of the question according to available evidence

EU wide evidence of cost-effective implementation

Ecosystems Ltd (2014) highlighted examples of good practice in the implementation of Article 6(3) of the Habitats Directive in the areas of guidance, expertise/ capacity, consistency of screening procedures, early dialogue/ partnership approaches, adoption of a proactive and strategic approach, a coordinated approach to major infrastructure, and a focus on win-wins and co-benefits. They concluded that the following steps can help to improve the efficiency of implementation:

- Improving access to data on Natura 2000 sites and protected species/habitats.
- Providing increased training on the AA procedure for competent authorities and project proponents, especially at regional/local levels, to improve understanding of the AA procedure.
- Providing targeted, user-friendly guidance, forms and checklists for the various stages of the AA.
- Ensuring a more robust and consistent framework for screening plans and projects.
- Encouraging early dialogue and cooperative working among the competent authorities, potential project or plan proponents, and between different sectors within government.
- Promoting a more inclusive strategy during the decision-making process, in order to take account of Natura 2000 at the earliest possible opportunity in the plan or project development, reducing the potential for conflict later and encouraging a win-win approach.

Farmer et al (2015) identified the following best practice procedures to streamline AA and reduce permitting delays:

- Simplified planning processes and strategic spatial planning: In Denmark, for example, a strong strategic planning system supports appropriate and efficient coordination of activities across the countryside. This helps to remove potential conflicts between proposed developments and Natura 2000 sites at an early stage i.e. prior to project identification and permit application. A specific example was given for the planning of onshore and offshore wind farms across the country. Here, upfront strategic spatial planning and the identification of potential sites for wind farms, has avoided much of the potential conflict with Natura 2000 sites. Strategic planning approaches have also been developed in England for Enterprise Zones (EZs) and Nationally Significant Infrastructure Projects (NSIP). The latter operate within strict timetables and require developers to gather all data relevant to AA at an early stage, in order to avoid subsequent delays.
- Technical guidance and protocols: These help to ensure AAs are of sufficient quality to inform decision-making processes. Examples include specific guidance on sustainable mussel fisheries in Denmark, criteria for assessment of potential significant negative effects on Natura 2000 sites in Spain, and the Marine Maintenance Dredging Protocol in England, designed to streamline the process of obtaining approval for maintenance dredging activities by ports that could potentially affect European sites.
- Expertise and skills: Employing appropriate specialists with the skills and training required to oversee AA processes was identified as important in both Denmark and England.

- Appeal procedures: These have been streamlined in Denmark and the Netherlands, helping to reduce delays in permitting processes.

Reviews of implementation in the Member States

In the UK, the HM Government (2012) review of implementation of the Birds and Habitats Directives identified a number of initiatives to enhance the cost-effectiveness of implementation and reduce burdens on business.

- Facilitating nationally important infrastructure projects, including through streamlined processes and advance collection of data and early identification of any issues relevant to the Directives.
- Improving the quality, quantity and sharing of data, including a new group to develop and share marine evidence, consultation on standards of evidence for decision making, plans for enhanced sharing of environmental evidence, and improved surveillance of protected species.
- Improving the 'customer experience' for developers, including new partnership approaches.
- Improving implementation processes and streamlining guidance.

The review also identified a number of examples of good practice in the UK (see Box 37). These highlight the advantages of early and constructive engagement and data-sharing among developers, regulatory authorities and nature conservation organisations.

Box 37 Examples of cost-effective implementation in the UK

Delivering jobs and protecting the Severn Estuary environment. In 2006, Bristol Port Company made an application for a major new container terminal on the Severn Estuary, which would have direct and indirect impacts on an important and protected winter feeding area for around 3,000 waterbirds. The company engaged positively with the nature conservation obligations and worked closely with regulators and nature conservation NGOs to identify key impacts and agree mitigation, compensation and monitoring measures. These were set out in a detailed legal agreement. As a result of this agreement, statutory advisers and the RSPB withdrew their objections. This allowed for the development to be successfully approved without recourse to a public inquiry. It is estimated that this expansion will eventually create 1,800 new jobs and safeguard nearly 8,000 current jobs, as well as generating over GBP 114m a year for the local economy.

Local working – Scotland. A local collaborative approach in the siting of an open-cast coalmine in Ayrshire saved in the region of three years of discussion by 'front loading' the process, which delivered both a replacement mine and the necessary levels of environmental protection. The Chair of the Regulatory Review Group facilitated discussions on the whole project with the developer, local community, local authority, Government environmental agencies and a green NGO before any application was made. The mine was eventually located a short distance from the original proposal and proceeded without further delays.

Resolving complex and sensitive infrastructure cases. Discussions of the Autumn Statement of the Chancellor of the Exchequer in November 2011 highlighted four cases, together worth GBP 1.3bn to the economy, with significant conflicts with the Directives. These were the Chilterns Railway, Able Marine Energy Park, Port of Falmouth and Greater Wash wind farms. A DEFRA led Problem Solving Unit was set up to oversee these cases, report progress to Government departments and work with the statutory agencies, helping to make significant progress in resolving conflicts in each case.

Teesport Container Terminal: early agreement of evidence needs. A GBP 300m new container port in the Tees Estuary received approval in 2007. The project required redevelopment of brownfield land and 1km of dredging to deepen the main estuary channel. This would have potentially adverse impacts on a nearby SPA, through changes in sedimentation patterns and cumulative impacts with another similar project. Early in the application process, detailed discussions between the developer's consultants and English Nature resulted in agreement on the

scope of the impact assessment and application of geomorphological modelling to inform the likely impacts. This pro-active engagement provided certainty on what constituted appropriate evidence and ultimately enabled the development to be approved without the requirement for further evidence.

Improving post-construction monitoring. Hutchison Ports proposed in 2003 to redevelop part of Felixstowe Port to increase container handling capacity, creating over 1400 jobs by 2015. The development was expected to accelerate mudflat erosion and adversely affect the Stour and Orwell SPA. A package of mitigation and compensation measures was proposed, which included a new sediment replacement technique. Monitoring primarily focused on establishing the efficiency of this technique and was complemented by the establishment of a Regulators Group to disseminate results. Monitoring found that the technique had been successful, enabling the scaling down of the mitigation measures initially identified as necessary without compromising the overall mitigation/compensation objectives.

Joint survey work to reduce costs. In response to a number of offshore wind farm applications, the East Irish Sea Developers Group was formed to assist with the coordination of these projects. The group comprises developers, Government agencies and the Crown Estate. It provides a forum to discuss issues of common interest, plan potential collaborative work and share data and knowledge. The Group facilitated the commissioning of joint aerial and boat-based marine mammal surveys covering all the prospective projects. This enabled more comprehensive data to be acquired while reducing overall survey costs.

Data sharing. The South Humber Gateway has, for many years, been identified as a development priority. Before decisions on individual developments can be made, information is needed on likely impacts on roosting/feeding areas on the Humber Estuary SPA/SAC. In 2007, North Lincolnshire Council decided to fund surveys of how waders and wildfowl used the land within the protected area allocated for development. The data collection project was managed by the Humber Industry Nature Conservation Association and the data collected stored by the Humber Environmental Data Centre. The same data is available to all developers, statutory agencies and decision makers, promoting consistency, avoiding duplication of data collection efforts, and saving time and costs.

Early collaboration. In 2005, Essex and Suffolk Water indicated its intention to upgrade Abberton Reservoir, Essex, with potential effects on a number of nearby SPAs. The developer and its consultants engaged fully with English Nature and the RSPB prior to submitting a planning application. This enabled the proposals to be designed to avoid any impacts on the SPAs, enabling the development of water supply infrastructure, as well as creating new habitats around the reservoir.

Source: (HM Government, 2012).

Examples given in the evidence gathering questionnaires

This question received 71 responses, of which 59 provided specific examples of cost-effective implementation. Most of these examples were qualitative in nature, with only five responses providing quantitative evidence of cost reductions. The examples covered a variety of themes, most commonly:

- The role of participation, consultation and stakeholder engagement in developing shared understanding and guiding implementation, especially at an early stage of the planning process or development proposal (13 respondents).
- Strategic planning approaches to manage conservation and other land uses (10 respondents).
- The provision of guidance to stakeholders affected by the Directives (9 respondents).
- Coordinated collection and sharing of information, to reduce information costs (9 respondents).
- Partnerships and joint initiatives between industry, NGOs and the nature authorities to meet common objectives (7 respondents).
- Use of volunteers for conservation action (5 respondents).
- Voluntary codes of conduct (4 respondents).

- Synergies in implementation with other directives (4 respondents).
- Annexed species licences/ agreements (3 respondents).
- Cost-effective use of green infrastructure and nature-based solutions (e.g. flood management) (3 respondents).

Sectoral approaches to cost-effective implementation

Certain sectors such as ports, renewable energy and the extractive industries have many years of experience of working with the Directives, and have developed working practices that meet the requirements of the Directives while facilitating the development of the industries concerned.

Box 38 The ports sector

Antwerp, Belgium: Large parts of the Port of Antwerp are designated as Natura 2000 sites under the Birds and Habitats Directives, leading, in the past, to conflict between industry and nature. This situation has changed over the years, and now ongoing extension of economic activities goes hand-in-hand with conservation. The Port Authority and the nature organisation Natuurpunt signed a charter in 2000 for the creation of a network of ecological infrastructure within the port area by means of the project 'Antwerp Port More Naturally'. The idea was that a network of core areas, corridors and stepping stones in the Antwerp port area should create more opportunities for protected port-specific plant and animal species, without adversely affecting the development and commercial exploitation of the port. The Port Authority and Natuurpunt want to safeguard up to 5% of the Antwerp sea port area as ecological infrastructure, thus guaranteeing the sustainable conservation of port-specific species. With the definitive delimitation of the port area in the Regional Spatial Implementation Plan (GRUP), an effort is being made to build such a network of ecological infrastructure with a total area of 603 ha. Following evaluation, the partnership with Natuurpunt was renewed in 2009, and confirmed again in 2012. By 2009, just over 60% of the target had been achieved, with little progress in the meantime during the preparation and approval of the GRUP. Now that the extent of the port area has been delineated, work can continue in pursuit of the targets. In addition to the establishment of ecological infrastructure within the port area, core nature areas are being created around the outskirts, in order to achieve an FCS for the SACs and make port development possible within them. By ensuring that the Port meets the requirements of the Flemish Species Policy and the Nature Directives, these measures create legal certainty for the port community and demonstrate that economic development can be aligned with the needs of nature. The Left and Right Bank Nature Management Committees have the task of monitoring progress towards FCS, reporting on the current position annually to the Commission and the Flemish Parliament.

Belfast, Northern Ireland: Belfast Harbour is Northern Ireland's principal maritime gateway and logistics hub, serving the Northern Ireland economy and, increasingly, that of the Republic of Ireland. Around 70% of Northern Ireland's and 20% of the entire island's seaborne trade is handled at the Harbour each year. The Port achieved a turnover of more than GBP 50m (EUR 70M) in 2013, and handled 23m tonnes of freight and 1.4m passengers in 2014. Within the heart of Belfast Harbour, sits Belfast's Window On Wildlife, an RSPB reserve within the Belfast Lough SPA. Home to birds and other wildlife from all over the world, more than 100 species have been recorded at the site. The reserve and visitor facility provide a good example of how a Natura 2000 site can co-exist with a fully functioning port, while continuing to support its SPA features and attract visitors to the area.

Source: Questionnaires submitted by Voka (Flanders' Chamber of Commerce and Industry). and Joint Links (UK).

Box 39 Renewables development in Slovenia, Ireland and Austria – the role of sensitivity mapping and strategic planning

Experience of wind farm developments in Slovenia helps to illustrate the adverse effects on economic development that can occur as a result of failures to implement the Directives. In the past, and in the absence of a strategic planning approach, the authorities issued environmental consents for wind farms at Volovja reber, a karst mountain ridge within Snežnik SPA/SAC. These were later nullified by the administrative court, with substantial delays and costs for the developer, who eventually abandoned the proposals in 2013 after 10 years of legal dispute. As the first wind farm project in Slovenia, other similar developments also hinged on its outcome. As a consequence of these conflicts, Slovenia has erected only two wind turbines to date. DOPPS – BirdLife Slovenia

argue that the key obstacle is the lack of a national strategy or consensus on how and where to develop wind power. In response, they have conducted bird sensitivity mapping, helping developers to focus on locations with low bird sensitivity, and they continue to call for a strategic planning approach to wind power. The bird sensitivity map is now a valuable tool for both developers and impact assessors. The map suggests that only 15% of total Slovenian territory is highly sensitive for wind development, with an additional 15% deemed moderately sensitive. The remaining two-thirds of national territory should not present any harm to the interests of bird conservation should wind farms be developed (Bordjan et al, 2012).

DOPPS – BirdLife Slovenia argues that while the Volovja reber case is often used as an example of the administrative burden of the Directives, it would not have been the case had there been a more strategic national approach taken to wind farm development. The SPA Snežnik was designated to protect Griffon Vultures and Golden Eagles, species known to be particularly susceptible to collision with wind turbines.

Ireland: BirdWatch Ireland has developed a Bird Wind Sensitivity Mapping Tool to help prevent additional costs for wind energy developers. This tool allows developers and ecologists to determine the location of species potentially sensitive to wind developments throughout the Republic of Ireland. When adopted early, this tool gives clear direction to developers, thereby saving costs. Produced with funding from, and in consultation with, a broad suite of stakeholders including the Sustainable Energy Authority of Ireland, EirGrid, ESB networks, the Department of Arts, Heritage and the Gaeltacht, among others, it helps to achieve renewable energy targets without adversely impacting on obligations under the Nature Directives. (A link to the mapping tool can be found [here](#).) The Commission’s Guidance on Wind Energy Development and Natura 2000 (European Commission, 2010b) notes that wildlife sensitivity maps will also help to avoid potential conflicts with the provisions of Article 5 of the Birds Directive and Articles 12 and 13 of the Habitats Directive, including outside Natura 2000 sites.

Burgenland, Austria: In contrast to most Austrian federal states, in which wind projects are analysed on an individual basis, Burgenland has carried out an early in-depth examination of nature conservation concerns as part of a larger-scale plan. This enables the harmonisation of sustainable energy and nature conservation (under the Birds Directive). The most and least suitable areas for windmill-powered plants were defined in a regional spatial planning framework. This consensus approach enabled Burgenland to reach self-sufficiency in electricity production just 11 years after the first regional framework had been set up. Over the same period, populations of globally endangered bird species like the Imperial Eagle and the Great Bustard, which were protected through wind farm exclusion zones, has grown satisfactorily (Dvorak and Ranner, 2014). Burgenland’s approach has brought more certainty for investors, time and cost savings for the authorities and project applicants, and better acceptance by the population.

Source: Questionnaires submitted by DOPPS – BirdLife Slovenia/Plan B, An Taisce – the National Trust for Ireland, Umweltdachverband (Austria).

Box 40 The extractive industries

The IMA states that Member States’ approaches to interpreting and implementing the Habitats Directive are of primary importance in determining cost effectiveness. It considers the sector to have benefited greatly from Commission guidance on *Undertaking non-energy extractive activities in accordance with Natura 2000 requirements*. This guidance has helped to promote restoration activities that have extended the Natura 2000 network, and to support nature conservation more widely. 35 case studies from IMA member companies across Europe are documented on the IMA website at <http://www.ima-europe.eu/publication-type/biodiversity-case-studies>.

Germany: In May 2009, the German Ceramic Raw Materials Association “Bundesverband Keramische Rohstoffe e.V. (BKR)” and the Ministry of Environment, Agriculture and Forestry of Rhineland-Palatinate (Ministerium für Umwelt, Forsten und Verbraucherschutz in Rheinland-Pfalz) signed an agreement to protect species. The agreement acknowledges that extraction sites of ceramic raw materials are of particular conservation interest because suitable habitats for endangered species may result from the extraction of clay:

- Amphibians like Yellow-bellied Toad and Natterjack Toad particularly benefit from the sparsely covered clay soils and pools created during active extraction.
- Other amphibians, including Tree Frog, prefer more covered waters created during inactive stages and after the end of extraction activities.

- Birds such as Eagle Owl find nest sites in structured rock faces.

The agreement aims to protect the Yellow-bellied Toad and Great Crested Newt. It applies to permitted extraction sites and sites for which extraction is planned, located within and outside designated Natura 2000 areas. Extraction on these sites is designed and carried out with the maintenance and development of target species in mind, while within Natura 2000 areas, the agreement supports the AA process.

Source: Questionnaire submitted by the IMA.

Hunters also contribute to the cost-effective implementation of the Directives in many Member States.

Box 41 Hunters' contributions

France: Since 2014 hunters have been allowed to contribute to the regulation of the Wolf under Article 16(b) of the Habitats Directive. This has reduced the costs and improved the efficiency of the regulation, compared to control by public officials. In 2015, three-quarters of the shooting quota was met by hunters, at no charge to the state.

Greece: The environmental work of the Hellenic Hunters Confederation makes a cost-effective contribution to the implementation of the Nature Directives in Greece. The Confederation is funded solely by the hunting community and spends a total of EUR 15m annually. These funds are used for: 1) Action to stop illegal environmental activities and poaching, and to enforce environmental legislation through the Gameguard Body of the Hunting Organisations; 2) Habitat Improvement Programme; 3) Phenology of Bird Migration Programme; 4) Recording game species populations in Greece through the ARTEMIS Programme; 5) Employment of numerous scientific and administrative personnel; and 6) Specialised studies and reports. This contributes to the Birds and Habitats Directives' objectives for the sustainable use of natural resources and the protection of the environment.

Belgium: Hunters contribute to the management of forests and other habitats. The 'Criteria Duurzaam Bosbeheer' in Flanders provides a good framework for this. Hunters are also involved in action to restore wetland habitats, with positive impacts on waterfowl species. There are good examples of projects creating wet grassland complexes for overwintering birds and restoring reedbeds and other habitats. A LIFE project (3Waters) has been executed with the help of hunters and landowners in Limburg, with another proposed for the Oostkustpolders.

Source: Questionnaire submitted by FACE.

Use of information

Information plays a crucial role in the implementation of the Directives, the gathering, processing and utilising of which represents a major cost for the authorities, developers and other stakeholders. Efficiency in the acquisition and use of information, therefore, has an important role to play in cost-effective implementation.

Box 42 Mapping tools in Malta

An important tool utilised by Malta is the MapServer (hosted on the website of the Malta Environment and Planning Authority, at: <http://www.mepa.org.mt/mepa-mapserver>), which includes various map layers, covering both development and environment aspects. This provides information to government officials, professionals (such as architects) and the public, including on the location of Natura 2000 sites and other protected areas.

Source: Questionnaire submitted by MEPA.

Box 43 SCANS – survey collaboration between Member States

The SCANS-II project is an example of effective collaboration by Member States to implement the requirements of the Habitats Directive in the most cost-effective way possible. It involved large-scale surveys to estimate the abundance of small cetaceans in the European Atlantic and North Sea

in line with the requirements of Article 11. The project was supported by LIFE funding, with eleven partners in 10 countries, and co-financed by institutions in seven countries. EU funding an important catalyst for collaborative action in this case.

Source: Questionnaires submitted by BirdLife Europe and Nature Trust Malta.

Box 44 Streamlined data collection in the UK

The UK aims to streamline data collection and to use it to support implementation of a range of EU and international environmental legislation. As an example of best practice, the collect-once-use-many-times approach is being used through the development of the UK Marine Monitoring R&D Programme. The current strategy addresses significant policy and statutory obligations, including the UK and Devolved Governments High Level Marine Objectives, OSPAR Convention and the Nature Directives, in the most cost-effective and efficient manner. Data collection methods and standards will be developed to meet all requirements, with the same data then used to make comparable overall assessments, even if they have different overarching status. This collaborative approach by Natural England and the Environment Agency to the monitoring of inshore waters to meet the objectives of both the Habitats Directive and the WFD has provided significant efficiencies.

Source: Questionnaire submitted by DEFRA, UK.

Use of technology and equipment

The following examples show how the use of technology and equipment is contributing to cost-effective implementation in different Member States.

Box 45 Examples of cost-effective use of technology and devices

Malta: Information technology has been used to reduce the costs of regulatory processes in the implementation of the Birds Directive. For example, the Wild Birds Regulation Unit has implemented a state-of-the-art electronic game reporting system used for real-time monitoring of bag limit uptake by hunters/live-capturers, and for verification of regulatory compliance. This system has proven to be a very effective and relatively inexpensive way of obtaining reliable real-time information. The Malta Police Force has deployed unmanned aerial surveillance vehicles (drones) during surveillance operations conducted during bird migration seasons. The Maltese authorities argue that this deployment has been effective in deterring abuses, and in detection of potential illegalities. Deployment of drones for surveillance of poorly accessible areas has also led to cost savings in comparison with the alternative deployment of personnel on the ground. A GIS has also been developed, containing regulatory information pertaining to licensed live-capturers during autumn live-capturing derogations. The system - installed on portable tablet computers - allows instant on-site verification of regulatory compliance during inspections.

UK: New technologies are making enforcement of management measures of features inside European Marine Sites much more cost-effective. Mobile phone 'black boxes' are placed on top of the wheelhouses of vessels, and these send geo-locational information to a central data hub, then onto fisheries regulators. This technology can also store information until a signal is received. This is very cost-effective for the fishing industry. The equipment costs about GBP 1,000 (EUR 1,400) with about GBP 200-300 (EUR 280-420) annual costs in download time per vessel. This is much more cost-effective and reliable than traditional observation, with its associated issues of interpretation.

Slovenia: Slovenia compensates owners for all damages caused by wolves to livestock. In 2010, the LIFE SloWolf project trialled the use of electric fences on farms which had previously regularly suffered damage to livestock from wolves. 10 sets of electric fences were distributed to eight farmers, at a total cost of EUR 1,600. This led to a reduction of around EUR 100,000 per year in the compensation paid for damage. As well as reducing costs to the taxpayer, the reduced damage has helped to further the co-existence of wolves and humans, enhancing tolerance of the species.

Source: Questionnaires submitted by MEPA, Joint Links (UK) and DOPPS – BirdLife Slovenia / Plan B.

The role of institutions in cost-effective implementation

Some Member States have developed new institutional arrangements to aid the cost-effective implementation of the Directives. Such arrangements can help to streamline management and decision-making processes by promoting engagement and participation among relevant stakeholders, and by facilitating efficient use of data and evidence. Some examples from Germany are given in the box below.

Box 46 Institutional development in Germany

The Nature Directives have led to the development of institutions and structures in several Länder, in which conservation authorities collaborate with agriculture, forestry, hunting, municipalities and NGOs to implement the Nature Directives and Natura 2000. Benefits of this approach include early avoidance of conflict, additional funding, and improved public relations. While such institutions do not exist in all Länder, and have a cost associated with their establishment, they have proven to be an important structure for cost effectiveness and promoting acceptance of the implementation of the Nature Directives.

Biostations in Nordrhein-Westfalen (NRW): 40 biological stations were established in NRW in the 1990s as decentralised conservation institutions to manage approximately two-thirds of all SACs and almost all of the SPAs in the region, on behalf of the NRW government and its counties. A unique network, the Biostations are an interface between conservation authorities, nature users, and volunteer conservationists. They register and map flora and fauna in Natura 2000 sites, organise nature conservation friendly land use, maintain intensive contact with users, advise on contractual conservation agreements, prepare and implement management plans, and inform the public. Often, they also take on the practical implementation of habitat management. Every year they assess the condition of each site. In 2012, eight new LIFE projects were approved in Germany, five in NRW, and four of whom were submitted and implemented directly by Biostations. The LIFE projects were mostly focused on Natura 2000 sites, and in some cases on Habitats Directive species (e.g. Spadefoot) outside of Natura 2000. Altogether, 26 LIFE projects have been implemented in NRW to-date, 15 under management of the Biostations. NRW and its counties provide finance of EUR 10m for the Biostations annually, with an additional EUR 4m acquired from other sources. The stations have a permanent staff of about 200, as well as 70-100 interns and a further 800 volunteers. The volunteers work approximately 40,000 hours annually, which, if valued at EUR 15 per hour, is worth around EUR 0.6m each year.

Landcare Associations (Landschaftspflegeverbände): The German Association for Landcare (DVL) is a 20-year old umbrella organisation of 155 Landcare Associations (LCA). These regional non-governmental associations link nature conservation groups with local farmers and local communities. The often opposing interest groups work together voluntarily in LCAs to care for the cultural customs and traditional farming systems which have shaped Germany's landscape for centuries. By pooling interests and local forces, LCAs implement integrated and sustainable land management practices in many rural areas, supporting nature conservation and sustainable development. Local Landcare coordinators develop projects for specific landscape types, apply for funding, supervise implementation by local farmers, and monitor project outcomes. Successful projects depend on close cooperation with farmers, local communities, conservation groups and government authorities. LCAs work with 20 000 farmers and half of Germany's communities, and have a turnover of EUR 20m per year. Project coordinators also combine traditional knowledge and new scientific results to foster farming practices which provide sustainable incomes to farmers, conserve landscape diversity and deliver ecosystem services. DVL has also provided manuals and guidelines on Natura 2000 implementation.

Source: Questionnaire submitted by NABU.

In France, institutional changes have sought to enhance the efficiency of site management.

Box 47 France – Cost-effective approaches to site management

A number of examples of best practice have been implemented to reduce the cost of site management:

- Pooled coordination of Natura 2000 sites, through the designation of a joint coordinator for several sites with similar conservation challenges (forest environments, agricultural environments, pastoral environments, etc.). This achieves economies of scale and reduces costs.
- Transfer of management of marine sites to a single public body, the AAMP. Marine spaces have historically been managed by local operators such as local authorities, environmental protection

associations or socio-professional bodies. The majority of the marine sites included in the Natura 2000 network are now managed by the AAMP, which handles the preparation of the DOCOBs for these sites, as well as local coordination. This change has delivered economies of scale, by pooling marine knowledge, DOCOB preparation work (which may now include a common base where the conservation challenges of the sites concerned are similar), and site coordination activities (which may be assigned to specialist joint coordinators for several sites at the scale of marine sub-regions). The previous operators continue to work together at regional level, within the framework of more general conventions covering all marine environmental policy requirements.

Source: Questionnaire of Ministry for Ecology, Sustainable Development and Energy (MEDDE).

In densely populated countries such as the Netherlands, competing pressures on land and fragmentation of land use can be a major constraint to cost-effective implementation. Strategic spatial planning and land consolidation plays an important role in enhancing cost-effectiveness.

Box 48 Netherlands - Spatial development and land consolidation

The integrated programmes for land consolidation ("ruilverkaveling") have been important for the implementation of the National Ecological Network. In these programmes, typically, a region is re-developed and re-parcelled. The location of nature, agriculture, industrial, housing and other areas, as well as watercourses, roads and landscape features are planned in an integrated way, taking into account the interests of all stakeholders. Owners can (voluntarily) offer parcels of land to the programme, and apply for other parcels, enabling farmers, for example, to obtain land closer to the farm, reducing fragmentation and facilitating zoning of land for agriculture, water management and nature conservation. This allows the possibility to enhance the coherence of natural areas, re-naturalise water courses and manage groundwater regimes. Existing nature designations may, however, limit possibilities for exchange. Where necessary, compulsory purchase of land can be required to complete the programme.

Oldematen is a site with a complex of grasslands with broad canals and - in some places - transition bogs, which are very important for meadow birds. Land reforms have made the area more robust and improved water management for both nature and agriculture, making it easier for farmers' collectives to harmonise nature conservation and farming practices. Participatory approaches have tackled initial stakeholder opposition and found opportunities to integrate nature management and agricultural use.

Source: Questionnaire of Ministry of Economic Affairs, Netherlands.

AA and development permitting

As described above, EU studies highlight that the costs of AA can vary widely between Member States and types of project. The following examples show that good practice in stakeholder engagement, use of knowledge, development of expertise, collaboration between authorities, project screening and the harmonisation of requirements between legislation can help to reduce costs and administrative burdens. They illustrate many of the themes identified in reports by Ecosystems Ltd (2014) and Farmer et al. (2015).

Box 49 Good practice in AA and development permitting

The benefits of early engagement. BirdLife points to case studies in the UK which demonstrate that, where developers engage with the processes set out in the Directives, a solution can usually be found that meets both environmental and economic needs. Such solutions secure the economic benefits of development without compromising the integrity and benefits of the protected site, while also avoiding unnecessary delay and cost arising from legal challenges (RSPB, 2012).

The importance of skills and capacity. Evidence suggests that low quality AAs can cause delays and administrative burdens. The Czech Republic has found that licensing experts to undertake AAs proved reliable and cost-effective, ensuring complete analysis of the impact of a project on Natura 2000 sites. This can help to reduce costs associated with repeating previously-inadequate AAs. Those undertaking AA are required to hold a Master's degree in biology or ecology, among other things.

The benefits of collaborative approaches in streamlining permitting. The Dogger Bank is a large sand bank complex in the North Sea located in UK, Dutch, German, and Danish waters. It is an important marine habitat, supporting large numbers of species, and has been designated as SAC and SPA by the UK, Dutch and German governments. The site is also attractive for offshore wind farm development. The Member State authorities have come together to introduce a permitting process which requires each proposed development to undergo a single AA and single EIA, both of which will take account of trans-boundary impacts. This avoids the need for developments to seek consent from multiple authorities in different Member States under different processes, thus reducing administrative burdens. Such a joined-up approach would not be possible under disparate national legislation. From an environmental perspective this EU approach is beneficial as it is possible to assess the full impacts of the development over the North Sea area, rather than only discreet pockets. For developers there is the benefit of undertaking fewer assessments in order to complying with laws of different governments (Baldock et al, 2013).

Avoiding duplication of effort with other legislation. In Germany, the requirements of Articles 6(3) and 6(4) of the Habitats Directive are fulfilled through specialised procedures defined by relevant legislation. A preliminary screening is only carried out under the Habitats Directive when a project does not fall under any other legislation that requires an official decision or notification by a public authority. This takes place during a so-called subsidiary notification procedure by the competent nature conservation authority (§ 34 para 6 Federal Nature Conservation Act, BNatSchG). An unnecessary duplication of effort is avoided by integrating this preliminary screening into the procedures of responsible authorities. Ecological inventories are used as a basis for reviews in various legal fields.

Source: Questionnaires submitted by BirdLife Europe, the Ministry of the Environment of the Czech Republic, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety for the German Federal Administration.

Box 50 Austria: Streamlining of consultation and screening

The Austrian environmental NGO grouping Umweltdachverband argues that the early involvement of nature conservation experts in the planning process leads to better project solutions, helps to avoid costly planning failures, identifies alternative solutions, and facilitates more constructive negotiations between ecologists and project designers.

Some federal states in Austria have advanced innovative, simple and citizen-friendly approaches to project screening in relation to nature impact assessments. Pre-tests clarifying whether or not the nature impact assessment is needed for a plan or a project can be carried out in a few weeks. In some federated states, the result is communicated to investors in the form of an official note or a legally valid letter of the provincial government.

In 2002, the federal state of Lower Austria developed a screening datasheet, in which investors had to indicate all of the implications their project might have for Natura 2000 areas. Instead of extensive irrelevant technical project documentation, investors were asked to summarise the potential effects of the project. This procedure resulted in short evaluation phases, taking an average of four weeks, including 9-10 days for the expert evaluation by the team of trained evaluators that existed in Lower Austria at that time). The team comprised technical experts (e.g. herpetologists, ornithologists, vegetation ecologists), capable of providing technical advice swiftly. 52% of all proposals could be granted without further impact assessment, since adverse effects on the integrity of the site could be excluded without doubt. In 2006, the service was suspended for political reasons.

In Vorarlberg, a highway (S18) is planned which would run through a Natura 2000 area (Lauteracher Ried, Unteres Rheintal). 15 years ago, planning delays occurred as a result of CJEU proceedings related to the lack of designation of a bird conservation area. In order to avoid such delays this time, the environmental compatibility of the route was evaluated before the beginning of the official project planning. The first result was negative, since the projected road would have entailed significant damage to the Natura 2000 area, saving costly delays. The authorities then asked experts to analyse the ecological or technical issues identified in the environmental compatibility study and to propose alternative solutions. Changes to the position of motorway junctions and radii and the building of new tunnels were discussed as possible solutions, taking into account the cost and feasibility of these measures.

Source: Umweltdachverband questionnaire response.

Infrastructure development

Major infrastructure projects often come into conflict with Natura 2000 and can have adverse impacts on protected species. The complexity of these projects can lead to substantial information costs, delays and administrative burdens if they are not planned carefully. In response to these challenges, several Member States have introduced strategic approaches to planning and information gathering, in order to streamline the passage of such proposals.

Box 51 PCIs - enhancing the cost effectiveness of applying the Directives to energy infrastructure projects

Members of the RGI believe that PCIs under the TEN-E Regulation will become a model for good practice. With roll-out currently ongoing, it is as-yet too early to confirm this belief. However, many of the elements have the potential to increase the cost effectiveness of implementation. The UK introduced similar requirements in national planning for major infrastructure under its 2009 Planning Act, with largely positive results. Among the requirements under the PCI scheme are earlier consultation, 'one-stop shops' for planning and permitting, a requirement for national handbooks on participation procedures, and streamlining of environmental assessment procedures. The Commission Guidance document "Streamlining environmental assessments procedures for energy infrastructure Projects of Common Interest" (http://ec.europa.eu/environment/eia/pdf/PCI_guidance.pdf) provides a range of specific recommendations and Member State examples, including early planning and road mapping in Germany and Hungary, coordinated data collection tools in Belgium, and SEA of a national transmission grid investment plan in Portugal.

Good practice in complying with the Directives in grid planning include mapping the boundaries of protected areas with GIS systems that optimise route planning. The Belgian Grid Operator Elia confirms that high value maps and information such as aerial photographs, provide valuable support for cost-effective implementation.

The Italian TSO, Terna, voluntarily applies 'ERPA-siting criteria' (Exclusion, Repulsion, Problematic, Attraction) in order to identify the corridor with the highest degree of environmental compatibility and sustainability. The criteria are determined by a National SEA Group. This group consists of environment, cultural heritage and economic development Ministers, and representatives of the Italian regions and autonomous provinces which have signed a memorandum of understanding with Terna. Their work covers technical, economic, social, environmental and territorial aspects. The TSOs RTE and Elia have been looking into mapping tools adapted to the linear context of corridors to efficiently manage forest corridors with respect to vegetation risk management and biodiversity enhancement potential.

Source: Questionnaire submitted by the RGI.

Box 52 Nuclear infrastructure projects (NISP) in the UK – developing efficient approaches to evidence and assessment

The contrasting experience of proposals to develop new nuclear power stations at Hinkley Point (Somerset) and Sizewell (Suffolk) provide lessons for the development of new infrastructure projects.

In the case of Hinkley C, no pre-planned work programme was put in place for Natural England and the developer. As a result, engagement was predominantly reactive, with Natural England staff dealing with issues when they arose, creating resource and time inefficiencies. Key issues related to the lack of information on the possible impacts from new technologies and processes, lack of organisation with regard to consultation, lack of involvement of Natural England in scoping evidence gathering, and inefficiencies in the preparation of assessment material for other legislation. Surveys were scoped and undertaken without Natural England's involvement, proving costly for the developer when they were deemed inadequate. Gaps in evidence were a further barrier for effective and efficient implementation. Natural England concluded that better mechanisms to manage the assessment of impacts could have reached similar outcomes more quickly and cheaply. The Habitat Regulations Assessment (HRA) and EIA were undertaken as separate, independent processes, and completed by different teams, leading to inefficiencies and duplication of work.

Both the developer and Natural England took considerable learnings from the Hinkley C experience, and worked together in a much more collaborative way for the Sizewell C development. Two key mechanisms were put in place for the Sizewell C proposal: an evidence plan and protocol for agreed ways of working, which both parties agree has significantly facilitated the process. An evidence plan is a structured approach to ensuring that the information required for HRA is provided in a timely manner, agreed by all to be proportionate and well scoped. Evidence plans are formally agreed between Natural England and the developer, so that the evidence requirements relating to European site impacts are fully understood. The Sizewell C evidence plan is considered to demonstrate best practice and is being used to inform other NSIP proposals, including another nuclear power station development proposal in Cumbria. A protocol setting out agreed ways of working has been formally developed for the Sizewell C case, within which the developer and Natural England have documented how Natural England will be consulted, the timeframes for meetings and responses, and expected behaviour. The protocol particularly focuses on reasonable timeframes for the consideration of new information, and the time in which Natural England agree to respond. A similar protocol will likely be adopted for other forthcoming NSIP cases.

Whilst these mechanisms create upfront costs in their development, it is believed they will bring clear savings in the longer term. Although all agencies now charge for engagement – thereby increasing initial costs – the entire process is much more efficient, with long-term costs and timeframes for the developer reduced.

Natural England concludes that these case studies demonstrate that the Directives are very effective at driving solutions that provide certainty, through a strict regime of evidence-based decisions and benchmarked mitigations. The Directives remain relevant because they can drive the achievement of win-win solutions. The EU level of the legislation adds significant value in achieving consistency and an appropriate standard. Whilst implementation has the potential to be costly and time consuming, the case studies demonstrate that highly complex development cases can be efficiently dealt, given the right tools and mechanisms. Coherence with other EU environmental legislation is also greatly aided by the use of such tools to set out agreed work programmes and themes upfront, thus reducing unnecessary duplication.

Source: Supplementary evidence submitted by Natural England.

Box 53 Strategic planning of infrastructure in Poland

According to WWF Poland, the introduction of strategic planning into Polish law in response to the requirements of the Nature Directives promotes sustainable development. There are several cases where strategic planning of large investments has been beneficial.

One example is the project to develop an energy interconnection between Lithuania and Poland, passing through North East Poland which has a high concentration of SACs and SPAs. A strategic planning approach enabled a route to be identified relatively quickly and smoothly, and with minimal impact on biodiversity.

Another case related to the development of Lublin International Airport. Initial plans focused on a grassy airfield which holds a large colony of Spotted Squirrel (speckled ground-squirrel). To avoid a conflict with the Habitats Directive, the local authority decided to move the development to another site. This resulted in an increase in the airport area and allowed a more ambitious investment to take place.

Other cases such as the Via Baltica have been less well planned, resulting in substantial delays and administrative costs (see question Y.4 for further discussion). Regional and local authorities, politicians, companies and investors can learn from these experiences for future decision-making processes on other major infrastructure projects situated in areas with special ecological value.

Source: Questionnaire submitted by WWF Poland.

Pollution Control

Tackling the effects of air and water pollution on Natura 2000 sites is a major challenge to achieving FCS for many Member States. Pollution control measures can be costly and constrain development in sensitive areas. In the Netherlands, reducing the effects of nitrogen deposition on Natura 2000 has proved to be an expensive and considerable challenge, prompting the need for new and more cost-effective approaches.

Box 54 The Netherlands – cost-effective investment in tackling nitrogen deposition

The Netherlands has introduced a Programmatic Approach to Nitrogen (in Dutch: Programmatische Aanpak Stikstof: PAS). The PAS represents one of the largest investments associated with Natura 2000 in the Netherlands, and aims to tackle nitrogen deposition in nitrogen sensitive Natura 2000 areas. The PAS, which was due to be launched in 2015, seeks to achieve Natura 2000 objectives in a cost-effective way, while also allowing for economic development. It uses an inter-governance approach across all sectors and areas, and includes analysis of scenarios for emission reduction, based on generic measures. It features an additional national package of measures for the agriculture sector, as well as measures at the provincial, regional and local levels, such as habitat restoration measures.

Leneman et al (2012) estimated the benefits and costs of the PAS by comparing a situation with the PAS to one without it, each regulated by the same Natura 2000 policy. The most significant benefit was the increased room for economic development in the agricultural sector, and cattle farming, in particular. The highest costs are related to restoration management, hydrology and other local measures in nature areas (borne by the government). Source-based national and provincial measures, aimed to reduce the nitrogen emission from the agricultural sector, also account for a considerable share of the total costs (borne by the agricultural sector). In total, benefits were estimated at EUR 202-300m per year, compared to costs of EUR 96m per year, giving a benefit: cost ratio of between 2:1 and 3:1. While the benefits exceed the costs at national level, this is not true for all sites – for example, at the Natura 2000 site of Engbertsdijkerven the costs were found to exceed the benefits (see question Y.4 for more).

Source: Questionnaires of Ministry of Economic Affairs, Netherlands and Vogelbescherming Nederland.

Multiple benefit initiatives

Cost effectiveness can be enhanced where actions to implement the Directives provide multiple environmental, social and economic benefits, delivering wider objectives and contributing to the aims of other policies.

Box 55 Multiple benefit initiatives in the UK and Netherlands

The implementation of the Directives is made more efficient when initiatives achieve multiple environmental benefits. The agri-environment schemes in place in the UK reap multiple benefits, not only for wider biodiversity but also for other aspects of the environment, such as landscape and historic assets.

DEFRA commissioned Natural England and the Environment Agency to identify how better integration of the delivery of the objectives of the Biodiversity 2020, WFD, and Flood and Coastal Risk Management (FCRM) programmes can be achieved. This led to the creation of the DEFRA Synergies Project, a core objective of which is a set of recommendations for improved, integrated achievement of Government environmental objectives that can bring cost-effective improvements to a range of ecosystem services. The UK Government's Nature Improvement Areas programme is a further example of a multi-benefit initiative which particularly contributes to the requirements of Article 10 of the Habitats Directive.

The Sustainable Catchment Management Programme was devised to ensure the sustainable environmental management of 20,000 ha of water catchment land under United Utilities' ownership in the Peak District and the Forest of Bowland. One of the main drivers was restoration of land with SSSI and SPA status supporting priority habitats, such as blanket bog and heather moorland, and species such as Hen Harrier, Curlew and Stonechat. In recent decades, industrial pollution, drainage of the moorland peat, wildfires and agricultural practices have all had a negative environmental impact, affecting the wildlife value of the site. This has contributed to increased discolouration and pollution of water drawn from the catchment, which has to be treated before it is suitable for drinking. A partnership between United Utilities, the RSPB and local farmers has developed an integrated land management approach which complies with the Habitats Regulations, enhances biodiversity and improves the quality of the water abstracted for drinking, as well as providing enhanced income for tenant farmers. Over time, healthy peat vegetation will absorb and store large amounts of carbon and help to mitigate the impact of climate change. Bryan Homan, Head of Catchment Operations at United Utilities has said: 'SCaMP is an innovative long-term catchment

management scheme that unites both private and public funding. It is showing early signs of success at improving raw water quality whilst providing a multitude of community and environmental benefits.'

There are similar examples in the Netherlands, where water companies own 36 Natura 2000 sites. They recognise the importance of proper conservation of these areas for the supply of clean drinking water and take the lead in stimulation of conservation of nature and biodiversity in these areas.

Source: Questionnaires submitted by Defra, EEB and Vogelbescherming Nederland.

Box 56 Germany – Cost savings through joint action with the WFD and MSFD

In Germany, the data gathered for monitoring obligations under the Habitats Directive is also used for other EU Directives, such as the WFD (for six water-bound habitat types, fish, cyclostome, and the Common Otter) and the MSFD (marine habitat types, sea birds, marine mammals). The data collection of the Federal Forest Inventory was extended to include frequent forest habitat types. Data used for the national report on bird protection are also used as indicators for the status of implementation of the national biodiversity strategy. Using data jointly, or extending existing data collection, reduces effort and costs, as well as improving cooperation among the different sectors involved.

Joint measures are undertaken to implement the WFD and the Nature Directives, for example in conserving habitats and improving passes for migratory fish. This joint process has already shown initial success in improving the conservation status of some fish species. Other examples of synergies that have reduced costs include joint management planning under the Habitats Directive and the WFD, and an R&D project to develop and test a harmonised procedure and guidelines for the trans-sectoral and cross-border implementation of the WFD, Habitats Directive and Birds Directive.

Source: Questionnaire submitted by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (Germany).

Species conservation

Evidence presented in response to questions Y.4 and Y.7 demonstrates that species protection rules can lead to disproportionate costs and administrative burdens, particularly where they are applied rigidly to cases involving routine operations affecting widespread species. Several Member States, including the Netherlands, Germany and the UK, have made efforts to reduce burdens by streamlining procedures. Codes of conduct and licensing arrangements can play an important role in this respect.

Box 57 Species licencing in the UK

A comprehensive review of the way in which European Protected Species (EPS) derogation licenses are managed has been undertaken by Natural England. Case-by-case consideration of licence applications is very resource-intensive and has the potential to delay projects. A number of initiatives are being introduced to streamline the process. These include the use of general and class licences, and the publication of new codes of practice which have reduced costs and simplified processes. Financial cost reductions are estimated to be in the region of GBP 400,000 per year from the main improvement measures. Licence types have been modified to take better account of the type of activity, the level of risk and requirements for evidence and oversight. The improvements are also reported to significantly reduce delays to development. The 12-month trial period for the Low Impact Bat Class Licence (permits to qualified consultants undertaking low-risk works affecting bat roosts) was reported to save 444 weeks in possible delays to development proceedings. Training is due to be introduced shortly, following which individuals may seek to obtain personal EPS Licences.

The introduction of annexed licences to the individual EPS mitigation licence process (currently applicable only to Great Crested Newts, bats and Dormice) has also improved efficiencies for developers. The annexed licence process allows minor issues in the method statement to be dealt with outside of the formal Further Information Request (FIR) process, providing more flexibility to the system. Poor quality applications and those requiring significant changes continue to receive FIRs. The annexed licence process reduces development delays and costs, as the licence is issued

more quickly than in cases where an FIR is issued. During the first 11 months of introducing the Great Crested Newt annexed licence process, 160 FIRS were avoided. Despite some ongoing challenges in the system, this has made a significant positive impact. Cost savings in 2014/15 were estimated at GBP 158,250 (EUR 221,000) for Great Crested Newts, GBP 90,000 (EUR 126,000) for bats and GBP 2,250 (EUR 3,150) for Dormice.

Source: Questionnaires submitted by DEFRA and Joint Links.

Box 58 Codes of conduct and common exemptions in the Netherlands and the UK

The Birds and Habitats Directives have prompted the establishment of codes of conduct and charters in several sectors in the Netherlands. These are considered to be cost-effective strategies in implementing the Directives because they provide derogations on some aspects of species protection. Codes of conduct and charters work best if implemented nationally, rather than locally, to maintain a level playing field. In addition, if the exemption covers all aspects of the activity, they avoid the requirement for additional permits. Examples include:

- Codes of conduct: These have been found to be cost-effective instruments in fulfilling obligations to care for species laid down in the Dutch Act for the Protection of Flora and Fauna. Normally, companies and organisations need to apply for an exemption for sustainable exploitation and management of species protected under the Nature Directives. However, companies and organisations that operate according to codes of conduct do not need to apply for such exemptions. Codes of conduct are made for various sectors (13) and municipalities (21). For example, there is a code of conduct for the water boards on maintaining watercourses, specifying the time of year, phasing and execution of management measures. The Ministry of Economic Affairs has estimated that this provision reduces administrative burdens as it eliminates the need to process some 1,200 exemption applications per year.
- Agreements not implemented in law: "S(up)port for Nature" is a framework agreement between site managers and the organisers of sports events, to prevent damage to soil and nature, inconvenience to residents and visitors and to promoting the safety of sports events. Another recent development in the Netherlands is the establishment of a covenant for recreation on Lake IJssel by numerous water recreation stakeholders, working in cooperation with nature management organisations. Administrative organisations such as water boards, road managers and NGOs also have codes of conduct for nature management.
- Species management plans (SMP): These apply to common species that are strictly protected under the Directives. SMPs include measures to ensure an FCS for the species concerned, and at the same time, to establish rules and conditions for the development of socio-economic activities in the area. SMPs can function as a sound basis for issuing generic exemptions for the development of socio-economic activities. The implementation of an SMP creates a surplus of habitat for the protected species, thereby mitigating or compensating for the negative effects of implementing a spatial plan and for socio-economic activities. The SMP is a promising tool, especially for protected species that are rather common and widespread in cities, such as some bats. To-date, however, SMPs have not been widely implemented.

In the UK, the Ports and Maintenance Dredging Protocol is an example of Natural England working closely with industry to find a solution that allows ongoing activities to proceed without the need for repeated assessment.

Source: Questionnaires of Ministry of Economic Affairs (Netherlands) and DEFRA (UK).

Box 59 Bat Conservation Trust, UK

BCT Bat Helpline/volunteers giving free advice

Natural England, through the BCT's National Bat Helpline and Natural England's network of Volunteer Bat Roost Visitors, can provide free advice to homeowners and community initiatives to help them to meet their responsibilities relating to the presence of bat roosts. They also advise those who want to carry out minor works on their houses. The BCT answers an average of 4,000 queries from the general public annually on behalf of Natural England, relating to bats and planning, development and licensing issues. The BCT and its volunteers undertake approximately 1,700 visits, safeguarding an average of 1,220 bat roosts annually. This free advice does not currently extend to cover works that would require a licence, or that are subject to planning permission. Any work relating to planning applications is referred to a consultant and the homeowner must pay for the advice. This distinction between volunteer and paid services is appropriate if the proposed works are complex, will require substantial mitigation, or are part of a wider development. However, in instances relating to low-level disturbance, there is scope to

reduce licence applications and administrative costs through simplified procedures and earned recognition.

Utilising expertise to inform and improve systems:

The BCT has developed an online knowledge hub, the ROOST website, to share best practice in mitigation between professionals working in the field. This website provides numerous examples of situations where access to ecological expertise has prevented delay, and, in some cases, avoided licensing in an irresponsible manner.

Source: Questionnaire submitted by Joint Links.

Box 60 Germany - Species protection can reveal cheaper solutions

Hochwasserrückhaltebecken Bohrerthal – A controversial plan to install a water retention basin in the Quarter of Günterstal in the Bohrer valley south of Freiburg, Baden-Württemberg, triggered substantial local opposition, since it involved the construction of a 15-metre dam in a residential area. The plan also required the re-routing of a road into the adjacent forest, with adverse impacts on the habitat of the Dormouse, a species listed in Annex IV of the Habitats Directive. This led to an alternative solution involving development of two smaller basins upstream. As well as reducing costs, the new solution has a lower impact on people and nature.

Hessen, Germany – A planned development of the A49 motorway would have destroyed the Land's most important habitat for the Great Crested Newt near Stadthallendorf. This led to an alternative route being found, sparing the Newts' habitat, while allowing a second exit from the motorway, and saving EUR 50m in costs (an average of EUR 10,000 per Great Crested Newt).

Source: Questionnaire submitted by FoE Europe.

The role of volunteers

Volunteers play an important role in the implementation of the Directives, and enhance the cost effectiveness of delivery in many Member States.

Box 61 Volunteering in Germany, Estonia, Ireland and the UK

In Germany, voluntary engagement contributes hugely to the cost-effective implementation of the Nature Directives. Many volunteers from scientific associations or local groups of NGOs collect and provide relevant data for site designation, management plans and monitoring conservation status. According to the German PAF (BMUB and BfN, 2013) the monetary value of voluntary activities is of a similar magnitude to the funding provided by state authorities, foundations and others. For example:

- In 2010 NABU registered 37,000 volunteers, contributing more than three million hours of work (DNR, 2012). At the time, NABU had 445,000 members in all Länder. By 2014 NABU had 540,000 members and supporters in 2,000 groups. NABU's Federal Office estimates that about 150,000 volunteer hours each year are devoted to designation and maintenance of protected areas, with a monetary value equivalent to EUR 2,250,000.
- BUND (Friends of the Earth Germany) registered 34,000 volunteers, working a total of 2.8 million hours in 2010, of which 77% involved practical conservation measures (DNR, 2012). BUND reports that 4.5 million hours of volunteer work contributed to Natura 2000 implementation in the period 2010-2012.
- More than 6,000 volunteers support the monitoring of birds, which is inter alia the basis for reporting under the provisions of the Birds Directive (Sudfeldt et al, 2012).
- Many local groups are engaged in maintaining Natura 2000 sites, such as in Bavaria (Kraus and Schlapp, 2013).

The Estonian Fund for Nature has been leading nature conservation volunteer camps on Natura 2000 sites for 15 years. The camps are organised so that volunteers from different backgrounds can help with habitat restoration and maintenance works like shrub cutting, mowing, and ditch management. Volunteer camps can be expensive to organise and are not necessarily cheaper than undertaking the work with specialist machinery, but can provide considerably greater social benefits, particularly where they engage positively with local communities. Studies of

environmental volunteering show that urban people appreciate nature conservation efforts much more if they have been involved directly as volunteers.

Bat Conservation Ireland has found using volunteers to carry out bat surveys to be cost-effective. The bat monitoring scheme, which was set up in response to the Habitats Directive, has fostered a culture of social participation in Ireland. More than 7,000 volunteers contributed over 20,000 hours to Bat Conservation Ireland bat monitoring schemes from 2003 – 2014.

Many of the measures required to implement the Directives in the UK are undertaken in partnership with environmental NGOs (such as the Wildlife Trusts), supported by a strong volunteer community. The UK's approach to biodiversity surveillance and monitoring invests with partners in long-term schemes, most of which depend on the contribution of significant amounts of time and effort by skilled volunteers. Schemes are sufficiently widespread and systematic to allow assessment of trends in distribution and/or population. Through analysis they can provide information relevant to a wide range of policies.

Source: Questionnaires submitted by NABU, Estonian Ornithological Society, An Taisce and DEFRA.

Results from the online public consultation

The examples of cost-effective implementation highlighted above are not aligned with responses to the online public consultation, whose Q24 asked whether different aspects of the Directives and their implementation have become more efficient over time. This question appeared in Part II of the online consultation, in which the majority of respondents highlighted the costs of the Directives, and in which there was clear evidence for organised campaigning against the Directives. The majority of respondents expressed the view that the implementation of the Directives at national, regional or local level has become less efficient over time, compared to 20-21% who stated that it had become more efficient. On the other hand, management of the Directives at EU level, together with their interaction with other laws and policies at both EU and national level, were considered by the majority (around 57%) to have stayed the same over time, although a notable proportion (11%-15%) stated that they did not know the answer.

Table 23 Results of question 24 of the public consultation questionnaire

Q24: Have any of the following become more or less efficient over time?

	Less efficient	The same	More efficient
How the Directives are managed at EU level	10%	57%	18%
How the Directives are implemented nationally	55%	16%	21%
How the Directives are implemented regionally	54%	17%	21%
How the Directives are implemented locally	54%	18%	20%
Interaction with other EU law & policies	12%	57%	16%
Interaction with other national law & policies	16%	56%	16%

6.5.4 Key findings

- A wide range of factors were identified by stakeholders as contributing to cost-effective implementation. The most frequently cited examples from the evidence gathering questionnaire refer to: the role of participation, consultation and stakeholder engagement to develop shared understanding and guide implementation; strategic planning approaches to manage conservation and other land uses; provision of guidance to stakeholders affected by the Directives; coordinated collection and sharing of information to reduce information costs; and partnerships and joint initiatives between industry, NGOs and the nature authorities to meet common objectives.

- EU wide reviews of implementation of Article 6(3) of the Habitats Directive identify similar factors that contribute to cost-effective implementation.
- In some Member States, reviews of implementation have helped to identify initiatives that can improve cost effectiveness. A strategic review in England, for example, created initiatives to facilitate nationally important infrastructure projects, and to improve the quality, quantity and sharing of data, the 'customer experience' for developers, implementation processes and the streamlining of guidance.
- Some industrial sectors – notably the ports and renewable energy sectors - provide a wealth of evidence and examples of more cost-effective implementation. This is because their development has become dependent on the identification of efficient solutions that work within the requirements of the Directives.
- While the evidence and examples demonstrate that there has been considerable progress towards cost-effective implementation, this is not reflected in the online public consultation, where stakeholders expressed the view that implementation is becoming less efficient at local, regional and national level.

6.6 Y.6 - What are likely to be the costs of non-implementation of legislation?

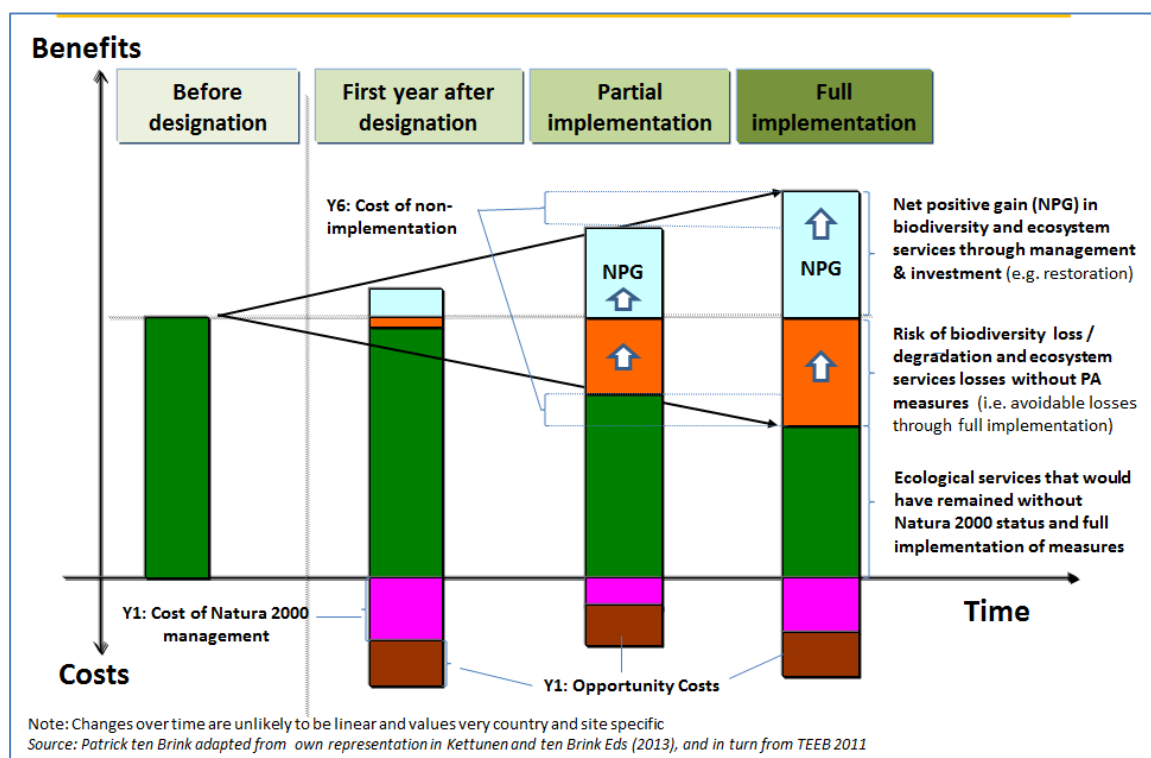
6.6.1 Interpretation and approach

Non-implementation would cause the Directives to fail to meet their stated objectives, with potential adverse impacts on species and habitats in the EU. In such a situation, the benefits of the Directives would not be fully delivered (see question Y.1 for further discussion). Non-implementation could also be expected to impact on other policies, given the synergies across policy objectives, as well as a range of socio-economic impacts related to the flow of ecosystem services to citizens, society and the economy. The effects of non-implementation can be taken to relate to:

- The consequences of non-delivery of the overall objectives of the Directives with respect to species and habitat conservation.
- The implications for EU policy priorities, including those set out in the EU Biodiversity Strategy, and in particular the headline 2020 biodiversity objective.
- The socio-economic impacts stemming from a loss of certain ecosystem services, leading to higher costs to citizens, society and EU economies (e.g. costs of clean water supply or flood management). There may also be lost income or missed opportunities for economic development (e.g. from tourism and recreation), as well as effects on communities and wellbeing.
- Potential knock-on effects with regard to other national and EU policy objectives (e.g. health, cohesion, climate mitigation and adaptation, water, marine and food security).

Non-implementation is, however, unlikely to lead to the loss of all benefits provided by the species and habitats protected by the Directives, as, even in the absence of the Directives, some degree of protection for nature would continue to be provided by national conservation policies in the Member States. While non-implementation would be expected to reduce the level of protection and conservation management activity, adverse effects on sites and species would occur gradually rather than immediately (Figure 1). The costs of non-implementation, therefore, were examined with respect to a counterfactual that considered the consequence of a failure to implement the specific provisions of the Directives, rather than an entire loss of nature in the EU.

Figure 18 The benefits and costs of Natura 2000 under different implementation scenarios: Illustrative schematic



6.6.2 Main sources of evidence

Evidence of costs of non-implementation of legislation is available from:

- Studies of the costs of policy inaction with respect to biodiversity, such as those completed by the OECD (OECD, 2008; OECD, 2012a), Braat et al. (2008) and ten Brink et al. (2009), as well as earlier papers on COPI (Heal, 2005), and wide cost of non-implementation studies (COWI et al, 2011).
- 68 responses to the evidence gathering questionnaire, providing views, judgements and evidence on the costs of non-implementation.
- Studies on the benefits of biodiversity (see section 6.1 for details).
- Evidence of the benefits of biodiversity (see sections on effectiveness for details).

While evidence shows the benefits of the sites and species protected by the Directives (see section 6.1), no exact consequences of non-implementation have been mapped, although international studies of the costs of policy inaction provide some illustration of the possible effects. The evidence gathering questionnaires provided a (limited) set of cases, mostly through qualitative examples based on the judgements of stakeholders.

6.6.3 Analysis of the question according to available evidence

Evidence from Existing Studies

Achieving the full benefits of the Directives is dependent on managing the pressures on habitats and species in the EU, and taking active measures to achieve FCS. **Non-implementation would therefore be expected to result in the gradual erosion of**

the benefits identified in question Y.1 (see section 6.1), as well as potentially imposing additional costs on society and the economy. Insights from existing studies suggest that:

- **Cost of policy inaction (COPI) studies and wider literature show that biodiversity loss and degradation lead to ecosystem service losses**, and to a range of important social and economic costs, from losses of carbon storage, soil quality, clean water, air purification, recreation and tourism. Braat et al (2008) examined the losses of ecosystem services resulting from ongoing losses of biodiversity globally, estimating an 11% loss of natural areas and about 18% degradation overall (across land use designations) in the world from 2000 to 2050, leading to an increasing loss of ecosystem service flow from lost natural capital. A year's loss of natural areas and wider degradation was estimated to lead to EUR 50bn loss globally (loss of carbon stock and seven other services), growing over time as additional biodiversity loss is incurred, and as the value of the loss of services grows (linked to economy, population, climate impacts).
- The OECD (2012a) report on the Consequence of Inaction presents data on the baseline for biodiversity in OECD Europe, showing that it is not only worse than other regions of the world (though comparable to Japan and Korea), but that, without due action, it is expected to degrade further (~23.5% degradation in 2050 relative to 2010 levels).
- A global study by PBL et al. (2010) on the different measures to halt global biodiversity loss estimated that a move from 2010 levels of protected area coverage (~13%) to a 20% coverage (the Aichi target for 2020 is 17%), could avoid 10% of global biodiversity loss. It also explored a range of other measures needed to halt biodiversity loss (climate mitigation, agricultural practices and diet), underlining the importance of looking at synergies with other policies, and stressing that any assessment of non-implementation should also look at other issues and sector policies.
- The ten Brink et al (2011) report on the benefits of the Natura 2000 network developed a first illustrative **estimate of the benefits from the ecosystem services flowing from the (terrestrial) Natura 2000 network as a whole. These were valued at EUR 200-300bn per year** across a range of ecosystem services. No study has attempted to make a detailed estimate of the share of that value that would be lost per year through non-implementation of the Birds and Habitats Directives. However, inaction leading to a 1% loss of services would lead to an indicative loss of services worth EUR 2-3bn per year. These annual losses would accumulate over time.
- A study on the costs of non-implementation of EU environmental legislation completed by COWI et al. (2011) noted that there would be adverse effects on a variety of sectors (including agriculture, forestry, fisheries and tourism), ecosystem services, and biodiversity in the EU and globally. The **report speculated that the annual cost of non-implementation of the acquis with respect to nature and biodiversity alone could be as high as EUR 50bn** (taken from global estimates, based on the EU's share of global GDP), but conceded that this number was very uncertain and may be overestimated.

The costs and lost opportunities from inaction **vary according to national context** and depend on the state of biodiversity and the effectiveness of conservation approaches and other policy measures in place. Without the Directives, **the costs of inaction would therefore vary considerably across the EU.**

Responses to the evidence gathering questionnaire

68 respondents to the evidence gathering questionnaire answered question Y.6. Of these, 94% (64 respondents) argued that there would be costs and/or lost benefits from non-implementation, with just under one-third (21 responses) providing quantitative evidence

to support their claims. The **consequences of non-implementation most frequently identified in the evidence gathering questionnaires** relate not only to reduced conservation outcomes and ecosystem services, but also adverse impacts on tourism and economic activity, a loss of legal certainty, and increased costs via legal actions, fines, disputes and delays in development. The types of costs most frequently cited in the 68 responses were:

- A loss of biodiversity or nature conservation benefits (56%).
- A loss of ecosystem services (35%).
- A loss of jobs / tourism / economic activity (25%).
- A loss of **legal certainty** for industry/ developers, with related conflicts, delays and administrative burdens (25%).
- A loss of **benefits from coordinated EU action**, in terms of the ability to address trans-boundary conservation issues, protect migratory species and/or maintain a level playing field (15%).
- Other costs or effects mentioned by three or more respondents included **less stringent protection/ a reduced focus on FCS** (6), the **risk of unsustainable development** (6), **reduced funding** (5), a failure to meet **international targets** (3) a loss of **knowledge and scientific evidence** (3), and adverse effects on the **EU's image and international reputation** (3).
- Eight of the 68 respondents argued that these lost benefits would be limited, as nature conservation efforts would be expected to continue at national level.

Examples of costs of inaction given in evidence gathering questionnaire responses

The questionnaire responses also gave a number of specific examples of the consequences for biodiversity, ecosystem services and the economy of a failure to implement the Directives fully – presented below.

Box 62 Examples of the costs of inaction

Lake Koronia, Greece: Greece was convicted by the CJEU (Case C-517/11) after the widespread death of bird and fish species and significant reduction of the quantity and quality of water. Greece had to undertake an ambitious and costly master plan for the restoration of the lake, co-funded by EU programmes.

Lovrenška jezera, Slovenia: A study estimated that if the area is managed sustainably and ecosystem services remain at their current level, the net value would be at least four times higher than if the area were be managed unsustainably.
http://www.natreg.eu/pohorje/uploads/datoteke/Vrednotenje%20Lovrenških%20jezer_final%20julij%202011.pdf

Black Sea Coast, Bulgaria: the Bulgarian Tourist Chamber expressed concern that non-implementation of the Natura 2000 network could lead to unsustainable over-development of the Black Sea coast, with adverse effects on tourism. They stated that destruction and over-exploitation of rivers by small hydropower plants and minerals extraction, would cause a loss of recreational fishing, tourism, and traditional mountain farming, over-exploitation of forests, and damage to the water supply functions. The Directives, they believed, make an essential contribution to sustainable development, tourism and the protection of water resources.

Basses Vallées Angevines, France. Without the Birds Directive - and the associated funding available through agri-environmental measures and LIFE - the principal breeding site in France for Corncrake would have almost completely disappeared due to the intensive plantation of poplar trees. The LPO bought more than 400 ha of grassland through a LIFE project on the species. The conservation of these large areas of wet grassland upstream from the town of Angers also helps to protect the town from flooding by the Rivers Maine and the Loire. The Directives have been instrumental in guiding the development of major infrastructures in France with measures to avoid destruction and compensation for biodiversity (e.g. the high speed train track (LGV) Tours-Bordeaux, which plans to put in place 3500 ha of compensatory measures, particularly for the Little

Bustard).

Peatlands, Ireland: An example of significant financial and potential health costs relates to drainage of and peat extraction from peatland Natura 2000 sites. Brown peaty water – caused by the run-off of dissolved organic carbon (DOC) from degraded peatlands - reacts with chlorine during the drinking water treatment process in Ireland to create trihalomethanes, a group of chemicals containing possible carcinogens. Jennings et al (2006) wrote that ‘*These compounds are produced during the chlorination of water containing high levels of DOC and have been associated with diseases of the liver, kidneys and central nervous system, congenital abnormalities and an increased risk of cancer (WHO, 2005).*’ In addition, people find drinking brown, peaty water is unpleasant, requiring the costly removal of humic substances (e.g. DOC from peat) during the water treatment process. The presence of DOC in water is exacerbated by drainage and extraction from peatland Natura 2000 sites. Concern over the quality of drinking water is also expected to lead to greater use of bottled water and hence higher costs to citizens. This has been the subject of a CJEU ruling against Ireland under the Birds Directive, with respect to severe overgrazing of uplands/peatlands, damage to SPA and the wider habitat of Red Grouse (Article 3 of the Birds Directive).

Italy: Part of SPA ITA030042 is characterised by steep mountains, and is very fragile and prone to landslides. Constructions (and annexed activities) can easily distort the fragile equilibrium of the slope and cause a landslide. New developments have often been approved in the SPA without carrying out an AA. As a result, the SPA has been impacted by several landslides. This has resulted in damage to property and human life, as well as the expenditure of public money to solve the problem. The area has been affected by more than 500 landslides, including on the 1st October, 2009, close to the SPA, when 37 people died from a landslide during strong rain (400 mm within 3 hours). In another similar accident, on 27th September, 1998, inside the SPA, there were four victims of flooding. In addition to the human cost, the cost of damage related to non-implementation of the Directives was estimated at EUR 250m.

Vorarlberg, Austria: Failure to implement the Directives can cause legal uncertainty and delays in procedures, which in turn delay investments and can increase costs. For example, the planning and assessment of infrastructure projects require reliable knowledge of the official boundaries of Natura 2000 sites, the precise location of species and habitats of European interest, as well as local conservation objectives. Late Natura 2000 site designation causes delays and can significantly increase costs, particularly in large projects. For example, the planning and construction of Highway S18 in Vorarlberg has been ongoing since 1995 owing to the lack of an SPA designation. Detailed cost estimates in 2014 found that a 10-year delay in construction would entail an extra EUR 139m in costs, purely as a result of inflation (construction costs in 2015: EUR 497m; construction costs in 2025: EUR 636m).

Source: Questionnaires submitted by Ministry of Reconstruction of Production, Environment and Energy (Greece), Ministry of the Environment and Spatial Planning (Slovenia), Bulgarian Tourist Chamber, LPO/ BirdLife France, An Taisce (National Trust for Ireland), LIPU-BirdLife Italy, and Umweltdachverband (Austria).

Box 63 Possible consequences of non-implementation at Member State level – further examples from the evidence gathering questionnaires and national missions

The Netherlands: Because of the high level of overlap of the Natura 2000 network with the National Ecological Network, the authorities state that, in the absence of the Directives, much of what has been delivered would still have been delivered. The costs of non-implementation would not necessarily, therefore, be substantial. However, it was also noted that Natura 2000 gives higher levels of protection, places a greater emphasis on management and affords benefits through co-financing.

Germany: The authorities comment that incomplete and delayed implementation has led to legal uncertainty in Germany, causing numerous infrastructure measures to be blocked for some time. It can be assumed that this has generated significant costs for companies and administrations, which could have been avoided had earlier designations taken place. The authorities also noted that had the Directives not been in place, the protected areas coverage in Germany - which now stands at 15.4% of the land area - would more likely have been 4.3%, based on the nature protection areas and national parks at that time. The difference of over 10% of land area is not just an example of the benefits of implementation (see question Y.1), but gives a scale for late designation creating costly legal uncertainty and delays for investments (see Austrian questionnaire, above).

Poland: Poland has invested heavily in infrastructure since EU accession. Both the authorities and NGOs expressed the view that, in the absence of the Directives, or their non-implementation, these investments would have been highly detrimental to nature conservation in Poland, leading to considerable losses of benefits and ecosystem services.

Spain, Malta: In both countries, the nature authorities and NGOs argue that non-implementation would result in substantial costs in terms of the loss of the benefits that the Directives deliver for biodiversity and ecosystems.

UK: DEFRA stated that the costs of non-implementation would be significant in terms of loss of intrinsic value, sustainability, non-use value, option-value, losses of ecosystem service benefits and increased costs to society from the failure of ecosystem services. However, it also argues that, given its strong national legislation to protect habitats and species, not all of these costs would automatically be incurred in the absence of the Directives.

Sweden: As well as foregoing the benefits of implementation, the NGOs argue that slow or non-implementation of the Directives will result in costly uncertainties, delays to development and a need for additional surveys, as well as fines and legal proceedings. In contrast, the LRF (Federation of Swedish Farmers) argued that costs would be minimal, as Sweden has an ambitious nature conservation policy independently of the Directives, and, in the absence of the Directives there would be less outside interference, allowing priorities to match national conditions, speeding up decision-making and reducing infringement procedures.

Slovakia: The NGO (BirdLife Slovakia) questionnaire argues that non-implementation can cause planning errors and unnecessary delays, leading to extra costs for the developer. The example of the D4 highway construction in South-west Slovakia and its implication for Natura 2000 sites with respect to compensation measures, indicates that a clear framework and effective communication result in reduced costs and greater efficiency. In a relatively short time, well-targeted compensation measures have been designed as per Article 6(4), in consultation with all relevant stakeholders. On the other hand, the lack of approved management plans causes uncertainty and difficulties in assessing investment projects. As further additional studies are requested, delays become more common.

Source: Questionnaires submitted by Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (Germany), Ministry of Economic Affairs (Netherlands), BirdLife Malta, MEPA (Malta), SEO (Spain); Ministry of Agriculture, Food and Environment (Spain), DEFRA (UK), WWF Sweden, LRF (Sweden), BirdLife Slovakia; Missions to Member States (Germany, Netherlands, Malta, Poland, Spain).

6.6.4 Key findings

While there has been no systematic assessment of the impacts of non- or partial implementation of the Birds and Habitats Directives across the EU, and therefore no estimation of the costs of inaction, evidence and expert opinions suggest that:

- **Non-implementation or partial implementation of the Directives will result in the gradual erosion of the benefits** identified in question Y.1 where the loss of biodiversity is not halted, i.e. the flow of a range of ecosystem services to citizens and the economy, from water purification and supply, flood control, air pollution, noise mitigation and climate change mitigation, to cultural services such as recreation and tourism, as well as education and scientific understanding. **Non-implementation will also lead to missed opportunities for the growth of benefits** in protected areas, when management and investment do not take place.
- **Non-implementation will therefore impose additional costs on society and the economy** to substitute for the loss of services, e.g. higher costs of pre-treatment and provision of water, greater defensive expenditures against flood risk, and higher costs of adaptation to climate change.
- **The non-implementation or late implementation** of the Directives (i.e. late designation of Natura 2000 sites) has also been linked by a range of countries to the **risk of deferred investment due to legal uncertainty**, which can lead to both **higher costs** and **delayed benefits** from these investments.

The above consequences of non-implementation are reflected in the evidence gathering questionnaires, with the most frequently cited impacts being **reduced conservation outcomes**, a **decline in ecosystem services**, adverse impacts on **tourism and economic activity**, a **loss of legal certainty**, and **increased costs relating to legal actions, fines, disputes and disruptions in development**. Non-implementation of the Directives will also lead to overall **impacts on sustainable development**.

The issue of **legal certainty and cost of delays resulting from non-implementation** **was also** raised by a range of speakers at the *Fitness Check Conference* of 20 November 2015, in the context of the discussion on 're-opening' the Directives. It was emphasised that such a move would lead to several years of legal uncertainty across the EU, creating a situation of partial non-implementation of the Directives, given the time that a proposed revision of the Directives would take to pass through EU legislative processes ('Community method').

Global studies of the cost of policy inaction (COPI) show that biodiversity loss and degradation leads to ecosystem service losses, which in turn lead to a range of important social and economic costs. The studies (and question Y.1 responses) show that effective implementation of protected areas can significantly contribute to halting the loss of biodiversity and loss of services, but also that a wider range of measures are required across sectors in order to halt biodiversity loss.

The actual level of costs of policy inaction on biodiversity, in the context of non-implementation of the Directives is **closely linked to the questions of what would have happened without the Directives** (when looking retrospectively at the point at which the Directives were agreed) and what would happen now should the Directives be removed, i.e. an examination of the **counterfactual** then and now. In the former case, two Member States (Netherlands and the UK) have noted that the benefits from the Directives would have largely arisen anyway through national policies, but others (e.g. Germany and Poland) described the many benefits arising from the Directives (see section 6.1 for further discussion). This underlines the diversity of contexts across the EU, and how, - as with many pieces of legislation - the Directives will drive greater benefits in some countries than others. Similarly, non-implementation could be expected to have different impacts across Member States, depending on the development pressures on protected areas and government responses. Having EU nature legislation therefore helps to ensure a more level playing field across the EU, which also supports the internal market (see section 8.5 for further discussion).

6.7 Y.7 - Taking account of the objectives and benefits of the directives, is there evidence that they have caused unnecessary administrative burden?

6.7.1 Interpretation and approach

Administrative burdens are defined as the additional administrative costs incurred by enterprises, the voluntary sector, public authorities and citizens as a result of EU legislation. They result from legal obligations to provide information that would not otherwise be collected.

Administrative burdens are often necessary to meet the requirements of EU legislation. For example, Article 6(3) of the Habitats Directive requires that any plan or project likely to have a significant effect on an SAC be subjected to AA, in view of the site's conservation objectives. While such assessments are designed to ensure that potential adverse impacts are identified and addressed, they also inevitably give rise to administrative burdens. Significant burdens also often arise from species protection rules under both the Birds and Habitats Directives, which require that the effects of developments and other activities with the potential to impact on protected species are assessed and mitigated.

Administrative burdens result in a range of costs, including:

- Costs to the authorities of implementing and administering the Directives.
- Costs to developers and other stakeholders in providing the information required to achieve compliance (e.g. commissioning surveys, assessments and monitoring), as well as the time and resources required to comply with administrative processes.
- Costs resulting from delays and uncertainties caused by the administrative process, which may increase financing costs and/or lead to opportunity costs by delaying or affecting economic activities.

Implementation of the Directives is highly dependent on information, making significant administrative burdens inevitable if the objectives are to be met. However, the extent to which unnecessary burdens could be avoided or reduced, while still meeting the objectives of the Directives, is examined here. The evaluation collected evidence on both the extent of administrative burdens, as well as the efficiency of proposed alternatives.

6.7.2 Main sources of evidence

The main sources of evidence included:

- A limited number of EU studies examining the implementation of Article 6 of the Habitats Directive, including the Ecosystems (Sundseth and Roth, 2014) report on Article 6(3) and the Farmer et al. (Farmer et al, 2015) study on the time taken to complete AAs and associated permitting processes.
- A limited number of Member State reviews, including the review of implementation of the Habitats Directive in England, and national estimates of administrative costs in the Netherlands.

- Individual case studies and examples of administrative burdens provided in the evidence gathering questionnaire. Of the 91 respondents to this question, the majority provided opinions, with 63 providing examples or qualitative evidence and 16 providing quantitative evidence.
- The national missions to Member States, which examined evidence of administrative burdens.
- Views expressed in the online public consultation (questions 21-22 addressed administrative costs).

6.7.3 Analysis of the question according to available evidence

EU studies

EU studies indicate that environmental legislation accounts for less than 1% of the overall administrative burden on business in the EU (High Level Group on Administrative Burdens, 2014). There is also evidence that one-third of administrative burdens are caused by inefficient public and private administrative practices, and that perceived burdens are higher than actual ones (European Commission, 2012c).

An earlier study of the total costs of a range of environmental policies (including the Habitats Directive) for the manufacturing industry in the EU found that total annualised costs (of which administrative costs are only one element) are typically less than 2% of production value for those sectors most affected (Vercaemst et al, 2007).

A study by Ecosystems Ltd (2014) examined evidence of the extent of administrative burdens with respect to AAs required for plans and projects under Article 6(3) of the Habitats Directive. The review concluded that the AA procedure, like other administratively regulated permitting procedures, imposes burdens on those involved, which increase if it is not correctly implemented. While there was insufficient evidence to suggest that the burdens were either high or excessive across all countries, plans and projects, the review acknowledged that this might be true for particular cases. More specific findings included:

- The Article 6(3) permitting procedure creates an administrative workload for those involved. It has a financial cost, not just in terms of carrying out or reviewing the AA, but because additional baseline surveys may also be required, the plan or project may need to be reworked and/or suitable mitigation/compensation measures introduced to redress the potential impacts identified.
- It is extremely difficult to assess this 'burden' in any objective way. The study was unable to find any accurate information or quantifiable data on the specific cost of the AA procedure itself despite raising this question systematically during the interviews with the competent authorities, NGOs and EU level key economic sector associations. Member States do not collect the necessary information, and/ or are unable to distinguish the costs of AA from EIA and other environmental considerations.
- The costs of AA can be extremely varied, reflecting the wide variations in projects. Some might take less than half a day to process, while others could take several years and cost significantly more.
- The costs of EIA generally increase proportionally as a function of the size of the project, but this is not necessarily the case for the AA procedure, whose cost is closely linked to the range of intrinsic and extrinsic factors operating within the Natura 2000 site in question.
- The best documented examples relate to major infrastructure projects. These are relatively rare compared to all the other types of smaller plans and projects that go

through the AA procedure, but they are often complex and likely to cause impacts, therefore more expensive to assess under Article 6(3). Even so, costs are often difficult to separate from those of other requirements (EIA/SEA, local archaeological or landscape issues) or public consultation processes (not obligatory under the AA procedure).

- In Germany, for example, nature protection is generally estimated to amount to 2-5% of infrastructure costs but this is considered an integral requirement of any major infrastructure project, and the specific effects of the Nature Directives cannot be estimated.
- A more accurate assessment would depend on gathering further information in a more systematic and objective manner on the actual burden of the AA procedure across a whole range of different types of plans and projects.

The number of countries for which there were accurate statistics about the use of the Article 6(3) procedure was small (Bulgaria, Germany, Slovenia, Spain and the UK). These statistics generally supported the report's findings 'that the majority of projects are screened out because they are considered not likely to have a significant effect on Natura 2000 sites. Of those that do go through a full AA, most are approved because the AA concludes that there is no adverse effect. The majority of the rest are reworked or redesigned and then approved. Only a small proportion of projects are actually abandoned because the AA has concluded an adverse effect and even fewer use the derogation procedure under Article 6(4).' (See question Y.1 for the statistics on opportunity costs.)

Given the gaps in data, the study recommended that Member States should collect statistics in order to develop a thorough understanding of the scale of use and application in practice of Article 6(3), as well as the extent to which it acts as a general block on development.

The study identified a number of factors that can influence the cost of the AA procedure:

- The size and nature of the plan or project - costs may be more significant for small projects.
- The features of the Natura 2000 sites and their sensitivity to potential impacts from plans and projects.
- The quality of the AA and level of dialogue and consultation early on in the decision-making process.
- Public opinion.
- Inefficient and inconsistent AA procedures.

A study by IEEP et al (Farmer et al, 2015), analysing differences in the costs of implementing EU policy, included a case study on decision-making under the Habitats Directive, specifically examining the time taken for project or plan permitting decisions under Article 6(3) by competent authorities. Delays in permitting are widely cited as imposing costs on businesses, because they tend to require increased time inputs and professional fees, delay revenues and therefore increase financing costs, and lead to greater uncertainties for developers. Case study research in six Member States (Denmark, Spain, Malta, Netherlands, Romania and the UK) found that there is no 'typical' situation that presents an average view of decision-making timescales, which were found to range from just over 100 days to over three and a half years. All cases took longer than the timescales suggested in Member State guidance or requirements (where these exists). The research found limited systematic logging of decision timescales and associated costs across Member States, concluding that better logging of decision-making timescales and associated costs would enhance the ability to evaluate such issues in the future. The results need to be interpreted with caution as they refer to small number of cases, some of which were subject to unusually lengthy procedures and timescales.

Key factors identified as influencing the timelines of decision-making included: lack of communication between the applicant and the competent authority; a lack of resources/expertise within the competent authority; interactions with parallel or integrated EIA/SEA processes; poor quality data and AAs; and large/complex/novel projects. Some influencing factors were found to be outside the direct control of the competent authorities. However, the research also identified examples of best practice in dealing with factors that delay decision-making, addressing, to some extent, each of the key factors affecting timescales. These practices included strong strategic planning systems to foresee and resolve potential conflicts (Denmark); streamlined assessment and permitting procedures (Enterprise Zones and Nationally Significant Infrastructure Projects in England); technical guidance and protocols (mussels fisheries in Denmark and dredging of ports in England); and accelerated appeal procedures (Netherlands). However, insufficient capacity and skills in some administrations was found to be a major constraint on improving implementation.

National studies

Quantitative assessments of administrative burdens associated with the Directives have been undertaken in Netherlands and the UK.

In 2011 the independent agency SIRA Consulting (2012) conducted a review of the administrative burden of the Dutch laws that implement the Birds and Habitats Directives. The review estimated that the annual administrative burden to business of applying for permission or exemption under the law is:

- For Natura 2000 areas: EUR 11.6m.
- For the protection of birds and species: EUR 8.2 m.

The overall administrative burden relating to the two Directives was therefore estimated at EUR 19.8m each year. The study did not consider whether or not any of these burdens could be considered unnecessary. A follow-up study was conducted in 2014, estimating that these costs had almost doubled to EUR 39m. The reason for this increase is not entirely clear, but during the national mission to the Netherlands the nature authorities indicated that it reflected a real increase in the burden of permitting procedures and not just a difference in the data collection methods used.

The largest element of this administrative burden is the costs of ecological surveys, which are mandatory in applications for a permission or exemption under nature legislation. These costs can be relatively high in some cases, especially for small enterprises with a relatively small project. Discussions with the Dutch authorities during this evaluation suggested that a slight decline in administrative burden might be expected in the future. In addition, the authorities estimated that approximately 200 staff are employed in the administration of the Directives nationally, at an annual cost of around EUR 10m.

A study by DEFRA UK (DEFRA, 2015) on the costs and benefits of regulations for agriculture, food and the environment in England estimated that they imposed costs of GBP 5.8bn (EUR 8.0bn) on business annually, with administrative burdens comprising 14% of this total. However, for biodiversity, direct costs to business were put at only GBP 32m (EUR 45m) per year, of which administrative burdens accounted for 15% while EU regulations are estimated to account for 84% of costs. This suggests an overall administrative burden relating to EU biodiversity legislation of approximately GBP 4m (EUR 5.6m), equivalent to about 0.5% of the overall administrative burdens of DEFRA regulation, although these appear to be underestimates.

In November 2011 in the UK, the Chancellor of the Exchequer announced a review of the implementation of the Habitats and Birds Directives in England (and relevant offshore waters), with particular reference to the burdens placed on business by the authorisation process for development proposals. The review concluded that: *'In the large majority of cases the implementation of the Directives is working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is main-*

tained. For instance, Natural England receives around 26,500 land use consultations annually; of these, they "object" to less than 0.5% of these on Habitats Regulations grounds. Most of these objections are successfully dealt with at the planning stage. However, some cases do encounter delays for one reason or another. Although the Habitats Directive may only be one contributory factor, the evidence presented to the Review, and a number of well publicised individual cases, showed that costs and delays for developers can arise in the implementation process.'

The review identified four areas of improvement for implementation of the Directives in England:

- The complexity of the legislation and guidance: The transposing terrestrial regulations alone covering approximately 134 regulations and seven schedules over 94 pages, and guidance (EU, national and non-Government) amounted to over 60 documents totalling over 1,600 pages. This can be difficult for competent authorities to navigate and is daunting for developers, large and small. It also reinforces a perception of inconsistency and lack of transparency in the process.
- The complexity of the authorisation process for development: Responsibilities in the Directives fall across a range of bodies, each with potentially different priorities and levels of experience in dealing with the issues. Lack of coordination among these bodies can add to costs and delays.
- The availability and comparability of data: This has implications for every stage of the decision-making process, with uncertainty of evidence requirements and interpretation potentially increasing the risk of delay and higher costs. The shortage of baseline data is a particular issue in relation to the marine environment.
- The culture and capacity of all organisations involved in the process: While good practice exists, there is still scope to strengthen the customer-focused, collaborative culture in statutory bodies. Skills and capability gaps are evident in statutory bodies, developers and their ecological consultants.

Other conclusions were that:

- These issues were magnified in large scale projects and were particularly challenging in relation to offshore wind farms.
- Uncertain or weak data can lead to extra surveys being required and/or a more precautionary approach being taken on licence decisions, licence conditions and mitigation measures. This can cause increased costs and delays for developers.
- Improving the evidence base and making the data more accessible could deliver significant improvements for developers, reducing costs and uncertainty in the system, as well as enabling regulators to make more informed decisions.
- There is a particular need to address data gaps in the marine environment, given the scale of proposed offshore wind developments.
- Changes to evidence requirements, particularly late in the process, increase costs and delays with perceived minimal benefit to the environment.

Among the changes implemented in response to the review was a new process, overseen by the new Major Infrastructure and Environment Unit, for agreeing upfront the evidence requirements, timetable and gateways for 'top 40', and other nationally significant infrastructure projects which may present significant Habitats and Wild Birds Directives issues (see section 6.5 for further discussion).

In Germany, the measurement of administrative burden is carried out with the Standard Cost Model (SCM) methodology. While no specific assessment of nature conservation has been made, environmental legislation accounts for less than 2.5% of the total administrative burden costs in the SCM measurement (response submitted by NABU).

Evidence from evidence gathering questionnaire responses and national missions

In general the questionnaire responses and Member State consultations indicated that the Directives are seen to be working well in most Member States, and that, while administrative burdens arise, in most cases they are considered necessary to meet the Directives' objectives. However, respondents also gave examples where they believed that administrative burdens are excessive, or could be reduced without compromising the objectives of the Directives.

91 responses to the stakeholder questionnaire answered this question. The majority provided opinions (89) and qualitative evidence or examples of burdens (63), with a minority providing quantitative evidence (16). However, many of the quantitative responses were by NGOs and referred to the same studies of the overall administrative burdens of EU environmental legislation in general. 50 respondents (mainly NGOs and public nature authorities) argued that administrative burdens are necessary for the delivery of the objectives of the legislation, while 39 respondents (mostly private sector) argued that there are unnecessary burdens.

The most frequently mentioned types of burdens included:

- Delays – 12 responses.
- Survey costs – nine responses.
- Blocks on development – eight responses.
- General barriers to business – six responses.
- Monitoring costs – three responses.

The most frequently cited causes of high or unnecessary administrative burdens were:

- Implementation of the Directives at national/regional/local level (including approaches to permitting, AA and species protection) – 21 responses.
- Complex and bureaucratic procedures and a lack of flexibility (both in EU rules and Member State implementation, including in relation to site designation, assessment of plans and projects, record-keeping, species protection, compensation, derogations) – 15 responses.
- Species protection rules (including requirements to protect widespread species) – 13 responses.
- Article 6(3) procedures (including excessive requirements for AA) – 14 responses.
- Reporting procedures at EU level – eight responses.
- Derogation procedures - five responses.
- Lack of capacity in authorities – five responses.;
- Overly precautionary approach at national/local level – four responses.;
- Misuse of the Directives by NIMBYs – four responses.
- Strict protection approaches – four responses.

Examples from the evidence gathering questionnaires and national missions

The following examples – provided by stakeholders in their responses - describe the administrative burdens of species protection measures, assessments of plans and projects, infrastructure projects, and EU reporting obligations.

Species protection

Many of the stakeholders' concerns about administrative burdens related to the protection of species which are relatively widespread in some Member States, such as Great Crested Newt (in the UK, Sweden and Germany), Natterjack Toad (France and Germany), Sand Lizard (Germany), Maltese Wall Lizard (Malta), and various bat species (UK, Poland, Sweden and Germany). As these species are relatively widespread they are frequently encountered in the assessment of plans and projects, and account for a significant proportion of the overall burdens related to species protection under the Directives. In addition to the evidence presented in question Y.4 (see section 6.4), some further examples of species related burdens are given in the box below.

Box 64 Administrative burdens related to species protection

Czech Republic: The Ministry of the Environment argues that the general protection of all bird species according to Article 5 of the Birds Directive gives rise to disproportionate costs related to the regulation of killing, taking and disturbing birds. These costs include issuing superfluous derogations for destruction of empty nests which are not regularly occupied, care for injured individuals, and research activities. In addition, the Directive is considered more restrictive than the Habitats Directive since there is no possibility to permit some activities for reasons of overriding public interest. Finally, reporting under Article 9 of the Directive gives rise to large administrative burdens with no clear benefit.

Netherlands: Measures to protect common species – such as the Pipistrelle Bat and a variety of common bird species – can impose significant burdens. For Habitats Directive-listed species, the provisions require the entire species to be taken into account, even in cases where only some subspecies may be under threat. An example is the Jersey Tiger, of which the subspecies that occurs in the Netherlands is not under threat, is quite common, and can be found outside Natura 2000 sites. Nonetheless, every species must be included in every evaluation. The same is true of the fish *Cottus perifretum*, of which there appear to be more subspecies since its inclusion on the Habitats Directive list. Some of these subspecies are highly invasive, although *Cottus perifretum* is quite rare.

Sweden: Private sector consultees expressed concern about ongoing uncertainties in the national approach to implementing the Birds Directive, particularly with respect to developments such as wind farms and other activities with the potential to disturb wild birds. Cases often focus on the effects on individual birds rather than species populations, and uncertainties in dealing with such cases can delay developments and increase administrative burdens.

Source: Questionnaires submitted by Ministry of the Environment (Czech Republic), Ministry of Economic Affairs (Netherlands), national missions.

Assessment of plans and projects

Responses to the evidence gathering questionnaire mirror findings from the literature that the burdens associated with AA vary widely across the EU, and that unnecessary burdens often result from problems of implementation at national and regional level.

Box 65 Unnecessary burdens caused by implementation problems

Belgium: The NGOs Natuurpunt and Natagora argue that unnecessary costs arise mainly from improper implementation, rather from the Directives themselves. As Flanders did not fully transpose the Directives into national legislation, AA has involved unnecessary administrative burdens, resulted in lengthy legal cases, and created significant uncertainty. The Deurganckdok case in the Port of Antwerp ignored the legislation, incurring avoidable costs of millions of euro. Recognition of the problem led to cooperation between the Port Authorities and the NGO Natuurpunt, to design ecological infrastructure in the port and develop a species protection action plan. Strong and consistent implementation, underpinned by clear guidance, would help to reduce administrative burdens.

Ireland: The National Parks and Wildlife Service argues that there is a perception among some stakeholders that the Directives cause excessive delays and costs when an AA is required. This is particularly the case when a decision to grant consent (e.g. for planning permission) is appealed, or a judicial review is taken on the grounds that an inadequate AA has been undertaken by the

decision-maker. However, in the authorities' experience, if due regard is taken of the requirements of the Directives, existing guidance on AA, the standards required and good ecological practice in research, survey and analysis, then many of these delays can be avoided.

UEPG, the European Aggregates Association, notes that some of its members have reported a smooth application of the Nature Directives, with no systematic challenges. UEPG cites several examples in Austria, showing the compatibility between aggregates extraction and Natura 2000 sites for various extractive operations. However, it argues that this is far from being the case in all countries. In parts of the EU, permits and extensions are being denied and existing quarries may have to stop operations. This can be explained by the variety of systems of land planning and management, and of implementation of the Directives. UEPG argues that the Directives have led to some additional administrative burden. Although these might often be necessary to meet the objectives of the Directives, in some countries, such as France, where several administrative levels co-exist, this has led to unnecessary administrative burden and delays. UEPG notes that it is difficult to assess the proportion of the burden that is due to the Nature Directives or caused by other environmental legislation. This is especially true for protected species, with the Bern convention list, Natura 2000 lists and national lists creating a constraining environment for business. The lack of resources, training and expertise of some staff in planning authorities increases this unnecessary administrative burden, leading to an overly precautionary rather than pragmatic and informed approach.

Source: Questionnaires submitted by Natuurpunt/ Natagora (Belgium), National Parks and Wildlife Service (Ireland), UEPG.

Screening of plans and projects can, where effective, reduce administrative burdens by ensuring that AA is required only when necessary and when a positive outcome is likely. However, in some Member States, stakeholders argue that screening is required for an excessive number of developments, creating unnecessary burdens.

Box 66 Burdens associated with screening processes

Bulgaria: The Ministry for Environment and Water argues that many activities, mainly in urban areas, undergo unnecessary screening procedures causing administrative burdens for both the Member State authorities and citizens. Due to the broad nature and lack of exceptions in Article 6(3), and following infringement procedures against the country in 2009, Bulgaria's authorities have been forced to issue large numbers of statements for proposals that will not have adverse effects on the Natura 2000 sites. During the period 15.10.2010 – 20.02.2012, a total of 9,512 such statements were issued by the Ministry for Environment and Water and its regional inspectorates for proposals not having adverse effects on Natura 2000 sites. This work was completed by 20 employees, making it difficult for them to spend time on more important cases. Data from 2013 and 2014 show further increases in the number of screening procedures. The authorities argue that some exceptions could be allowed to these procedures without jeopardising the objectives of the Directives. The situation has resulted in the involvement of the CJEU in many aspects of the Directives' interpretation and implementation, and required much research and guidance. It has also led to multiple lawsuits and appeals, sometimes with controversial outcomes.

Czech Republic: According to the Ministry of the Environment, the screening process requires anyone proposing a project that might affect a Natura 2000 site to submit a proposal to the nature authorities. This results in excessive numbers of proposals being submitted for 'insurance' reasons or as a requirement of EU funding, including many which will clearly have no adverse impact.

Malta: By contrast, Malta reports positive results from screening processes. It has reduced the burdens to developers relating to Article 6(3), by specifying zones for development and developing processes for pre-screening of development. This means that developers receive pre-application advice and information, reducing the risk of significant impact and resulting in EIA and AA taking place only in cases where a positive outcome is likely. This is supported by good information for applicants, including GIS mapping of sites and species. Costs are borne by the public sector. However, private sector interviews highlighted the need for transparency of pre-screening processes, including reporting any decisions about whether or not an AA would be required.

Source: Questionnaires submitted by Ministry of Environment and Water (Bulgaria) and Ministry of the Environment (Czech Republic); National mission (Malta).

Member States also differ in their approach to aligning AA with EIA and SEA. Some Member States have found that integrating AA into existing EIA and SEA requirements can work efficiently, while in others this has created burdens.

Box 67 Administrative burdens related to EIA and SEA

Estonia: The Estonian Ornithological Society argues that the requirement to carry out AAs as part of EIA/ SEA procedures is problematic because of the length, complexity and costs of their EIA/SEA processes. This has led to systematic breaches of the principles of Article 6(3) of the Habitats Directive. In cases where the EIA/SEA would be necessary only because of possible effects to Natura 2000 sites, administrative decision-makers often avoid the official EIA/SEA procedure, and instead demand mitigation measures during screening, determining that a more thorough assessment of impact is not necessary. This runs contrary to the rules, and mitigation measures should not be taken into account when making decisions on initiating an assessment.

Czech Republic: The Ministry of the Environment argues that requirements for AA have not added significantly to the costs of undertaking EIAs. As AA is well integrated in the EIA process, where required, it adds some additional costs to the EIA. It is estimated that there has been only a 1.6% increase in the number of EIAs initiated (in cases with potential significant effects on a Natura 2000 site but where an EIA was not previously required). However, the obligation to carry out the AA can increase the duration and costs of the EIA. The experience with IROPI decision-making and compensatory measures pursuant to Article 6(4) of the Habitats Directive to-date also indicates that great delays in project implementation are caused by this procedure, particularly given procedural uncertainties, a lack of experience in this area and limited Commission guidance.

Finland: The Finnish Association for Nature Conservation reports that, after 20 years' experience, Natura 2000 assessments are now a normal part of daily spatial planning and EIAs. Professional consultants, planners and the courts know how to conduct them and interpret their results. A major cause of delays and costs is that businesses still lack knowledge and information about which surveys and assessments should be done to make permit procedures smooth, rather than the fact that such assessments are required.

Source: Questionnaires submitted by Estonian Ornithological Society, Ministry of the Environment (Czech Republic), Finnish Association for Nature Conservation.

Scientific uncertainties, related to a lack of data, can increase the administrative burdens associated with the assessment of plans and projects, particularly where this causes the authorities to adopt a precautionary approach.

Box 68 Burdens caused by scientific uncertainty

In Germany, the BDI argues that, particularly where there are scientific uncertainties and in the absence of management plans, the requirement to demonstrate that plans and projects do not have significant impacts can lead to an over precautionary approach and excessive gathering of evidence, adding to cost burdens for the project instigator and causing unwieldy and long authorisation procedures. Examples given to support this argument include:

- A proposed quarry expansion of 3.5 ha which required surveys of 120 ha of sand lizard habitat to assess the size of the local population;
- Construction of a coal-fired power station which required detailed mapping of two nearby habitat areas over two years, at a cost of EUR 109,000, to assess sensitivity to air pollutants, as well as additional costs of EUR 112,000 for collection of soil data.
- Monitoring requirements at a quarry, estimated to have led to additional costs of more than € 1 million or an additional cost of more than € 0.50 per tonne. Quarrying was suspended at this location because of nature protection requirements.
- Estimates by companies that the costs of habitat impact assessments typically fall in the range EUR 0 to 100,000.

Netherlands: While spatial planning is important for the achievement of the Directives' objectives, AA of plans as required in Article 6(3) of the Habitats Directive can be problematic. The level of abstraction of the plans and the period in which they remain in effect (10 years) makes it difficult to assess beyond reasonable scientific doubt that the integrity of the site will not be adversely

affected. In accordance with case law, the potential effects of each theoretically possible development that could arise from the plan must be taken into account and assessed as if it were a 'project'. This is despite the fact that, in the future, every project must be assessed before being implemented, as stipulated by the requirements of Article 6(3) to prevent potential adverse effects in the Natura 2000 sites. The fact that activities are assessed twice, the level of both plan and project causes administrative burden.

UK: DEFRA argues that uncertain or weak data has the potential to lead to extra surveys being required and a more precautionary approach being taken towards licence decisions and conditions, as well as mitigation measures, which can lead to increased costs and delays for developers. Improving the evidence base and making the data easier to access has the potential to deliver significant improvements by reducing uncertainty in the systems and administrative and opportunity costs for developers. It also enables regulators to make more evidence-based decisions, reducing precaution while ensuring that the environmental objectives of the Directives are maintained. Many of these issues have now been addressed, for example through the creation of a Major Infrastructure and Environment Unit.

Source: Questionnaires submitted by BGI (Federation of German Industry), Ministry of Economic Affairs (Netherlands), DEFRA (UK).

Efficient implementation also depends on sufficient capacity in the administrative authorities to determine applications for permits. Where capacity is lacking, this can cause delays and have knock-on effects for the requirements imposed on businesses.

Box 69 Burdens caused by capacity constraints

Croatia: Association BIOM argues that while the total administrative costs for executing AA studies are considerable, a significant proportion of these costs is caused by capacity constraints in the competent authorities. The Directorate for Nature Protection, part of the Ministry of Environment, increased its staff by only one between 2007 and 2012, from 34 to 35 employees, while at the same time introducing the AA procedure. All plans/projects potentially affecting Natura 2000 sites have to be screened by the State Institute for Nature Protection (SINP) in stage one (screening phase) within a time frame of 30 days. Due to lack of baseline data about target species and habitats, SINP often takes a precautionary approach, requiring a full AA procedure. This creates a 'bottleneck' in the EIA system, slowing down the development process, especially since 37% of Croatia's territory comprises designated Natura 2000 sites. NGOs in Croatia have frequently challenged the legality of inadequate AA, inevitably leading to delays and associated costs. A major part of this problem is inadequate strategic planning, often with very little input from stakeholders, as well as a failure to undertake SEAs.

Source: Questionnaire submitted by Association BIOM.

Administrative burdens related to infrastructure development

The largest administrative burdens in implementing the Directives often relate to infrastructure projects. However, these costs are usually relatively low compared to the overall costs of the development. As noted in question Y.5 (see section 6.5), experience has enabled the development of cost effective approaches to implementation, achieving cost savings over time.

Box 70 Examples of the administrative burdens of infrastructure development

Hungary: The Ministry of Agriculture argues that the overall burden related to infrastructure projects has not been excessive, but notes that the greatest burdens have fallen on the transport sector. One project, a highway M8 between Dunavecse and Szolnok which would cross a Natura 2000 site as well as affecting another national nature reserve, was blocked. Other projects have been able to proceed with adjustments to planned routes or other modifications. Overall, additional costs resulting from the Directives are estimated at 1-3 % of the budget. However, future proposals such as M0 West, M2 Vác-frontier, and M3 Vásárosnamény-frontier may present greater challenges.

Belgium: Voka notes that it took more than 15 years – with much effort, time and dialogue – to develop a strategic planning system in the Port of Antwerp, to allow industrial development and nature to co-exist.

UK: DECC argues that the costs of energy infrastructure projects are usually proportionate to the size of the project and the level of environmental risk. However, in some situations a lack of evidence can cause delays and significantly increase costs, particularly where this results in a precautionary approach. Significant uncertainty may cause a developer to invest considerable time and money in collecting evidence and still be unable to demonstrate an absence of adverse effects, risking the project's feasibility and jeopardising wider energy policy objectives. Most of the costs incurred by developers relate to data collection (e.g. bird survey work) and professional analysis. These costs vary according to the project and the features protected by the Natura 2000 site. Costs are often higher for marine projects, given the difficulties of data collection in the marine environment and the highly mobile nature of some marine species. The consent costs (resulting from the Nature Directives and other laws) of developing one offshore wind farm were estimated by the Crown Estate (undated) at approximately 4% of capital costs. For a new nuclear project, EDF Energy has estimated the cost of carrying out the monitoring, modelling and analysis needed to inform a Habitats Regulation Assessment at approximately GBP 4-5m (EUR 5.2-7m) per project.

Source: Questionnaires submitted by Ministry of Agriculture (Hungary), Voka (Flanders Chamber of Commerce and Industry), Department of Energy and Climate Change (DECC, UK).

Some infrastructure developers have argued that better implementation of the Directives will facilitate infrastructure development and reduce administrative burdens. For example, in an open letter to Jean-Claude Juncker, the RGI (2014) urged that the environmental protection measures provided by the existing Habitats and Birds Directives not be diminished but, rather, that harmonised implementation of the Directives at national level would streamline procedures to properly develop electricity grids throughout Europe. RGI argued that sound and clear legislation for nature and climate protection is essential for timely deployment, access to capital markets and public support, and that any change that creates uncertainty and delays is likely to prove counter-productive for Europe's energy transition and the related grid development.

Box 71 Administrative burdens of infrastructure development in Germany

The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety notes that the Directives impose costs in the planning of infrastructure projects, including screening and, if necessary, impact assessments, such as surveys and species protection measures. Some of these costs would arise from national planning regulations or other EU rules (e.g. EIA). Legal reviews and uncertainties add to administrative burdens, while planning processes are becoming more complex, lengthy and burdensome in the face of increasing public interest and calls for transparency and participation.

Overall, conservation costs are estimated to account for approximately 2-5% of the overall costs of infrastructure development. Between 2002 and 2007, in the whole of Germany, only four infrastructure projects with federal level involvement required conservation measures with costs of more than EUR 500,000 or 5% of the investment. These were:

- B194 Bypass Loitz in Mecklenburg-Vorpommern: Lesser Spotted Eagle.
- B 8 Bypass Biebelried in Bavaria: Hamster.
- B 11 Regen – Schweinhütt (three strip expansion) in Bavaria: Otter.
- B 533 Bypass Schwarzach in Bavaria: White Stork, Meadow breeding birds.

Safeguards were required to ensure the legal protection of these European protected species, without which the projects would not have been approved.

NABU cites an example of the Werra-Querung road development in Thuringia, where costs and time could have been saved if the Nature Directives had been taken into account at an earlier stage. The planning process ignored advice and representations from nature protection NGOs and authorities, as well as the legal requirements of the Directives. The planning authorities had to drop their proposals in 2015 because of concerns about the impact on designated sites, and resort to a compromise which had been proposed by opponents of the development as long ago as 1994. NABU argues that proper respect and implementation of the legal framework, and cooperation with

nature protection authorities from the start, would have been much more efficient.

Sources: Questionnaires submitted by Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, NABU; Deutscher Bundestag (2007) <http://dipbt.bundestag.de/doc/btd/16/076/1607608.pdf>; Answer to a parliamentary request of an MP (Deutscher Bundestag) of 18. Dec. 2007.

EU Reporting Obligations

Some nature protection authorities responded that the requirements for reporting to the Commission under the Directives cause unnecessary burden. The monitoring and reporting requirements of EU legislation are currently the subject of a separate Fitness Check.

Box 72 Administrative burdens caused by European reporting requirements

Bulgaria: The Ministry of Environment and Water argues that the requirement for annual reporting under Article 9 of the Birds Directive presents an unnecessary administrative burden. No clear added value is provided from reporting each year instead of every two years as required under Article 16 of the Habitats Directive. The burden on Member State administration could be significantly reduced if the reporting requirements were equal for both Directives and required in alternate years.

Czech Republic: The Ministry of the Environment argued that reporting of all issued derogations is unnecessary to meet the objectives of the Directives, and that only derogation which could have impacts on species conservation status should be reported, e.g. derogations concerning bird killing, taking birds from nature permanently, or disturbing birds in a way that would have negative effect on population, destruction of breeding sites and resting places.

ECNC reports a lack of coordination between different EU directives in terms of reporting. Although similar, slightly different data have to be reported under different obligations, notably the WFD and the MSFD. The combined weight of these often-overlapping reporting obligations causes increased administrative burdens. There are likely to be clear benefits from practical steps that would increase synergies and minimise administrative burdens. The critical question in gathering reporting data is identifying the information that can inform and improve management practices so as to ensure progress towards the Nature Directives' objectives and the EU 2020 Biodiversity Strategy targets. Practical steps include measures to streamline reporting requirements, improve the consistency and interpretation of data gathered, and steps to improve the sharing of data to generate a better understanding of the impacts of conservation measures taken.

Source: Questionnaires submitted by Ministry of Environment and Water (Bulgaria), Ministry of the Environment (Czech Republic), ECNC.

Results from the online public consultation

Q21 of the online public consultation asked about the significance of the costs associated with the Directives, including administrative costs. This question appeared in Part II of the online public consultation, in which responses were influenced by campaigning against the Directives, with a majority of respondents emphasising their costs. 60% of respondents considered administrative costs to be major costs, a higher proportion than for other cost categories (Natura 2000 site management costs, costs of protecting species of birds, costs of protecting species other than birds, opportunity costs). Q22 indicated that a higher proportion (62%) considered administrative costs to be disproportionate, given their benefits, compared to the other cost categories.

Responses to Q23 indicated that national implementation of the Directives was considered to be the greatest cause of inefficiency, with 70% crediting it with causing inefficiency to a large extent. This was followed by regional implementation (67%), local implementation (64%) and EU level enforcement (57%).

6.7.4 Key findings

- Implementation of the Directives gives rise to administrative burdens, which, in some cases, are significant for the individuals and organisations concerned. These include direct financial costs (e.g. costs of surveys, monitoring, legal and professional fees), the costs of time incurred in permitting and compliance, and delays and uncertainties which affect development activities.
- EU studies indicate that environmental legislation accounts for less than 1% of the overall administrative burden on business in the EU, that one-third of administrative burdens are caused by inefficient public and private administrative practices, and that perceived burdens are higher than actual ones.
- The only available quantitative estimate of administrative burdens resulting from the Directives was made in the Netherlands. Here, the annual costs of administrative burdens to business arising from the Dutch laws that implement the Birds and Habitats Directives were estimated at EUR 39m in 2014. The costs to the authorities were estimated at an additional EUR 10m.
- Stakeholders are divided as to the extent to which the current scale of administrative burdens is necessary to achieve the objectives of the Directives. Responses to the evidence gathering questionnaire, particularly from businesses and their representatives across a range of industries, cite examples of excessive burdens on business, while some representatives of Member State authorities point to the burdens associated with reporting to the Commission. On the other hand, stakeholders across all groups note that such burdens are often the result of national or regional implementation rather than the Directives themselves.
- Overall, 40% of the 91 respondents to the evidence gathering questionnaire stated that the Directives give rise to unnecessary burdens, with 43% arguing that they do not. The most frequently mentioned types of burdens considered to be excessive or unnecessary included delays and the costs of commissioning surveys.
- Unnecessary causes of administrative burdens were most frequently identified as: inefficient methods of implementation of the Directives at national/regional/local level; complex and bureaucratic procedures and a lack of flexibility; Article 6(3) procedures; species protection rules; and reporting procedures at EU level. Both industry representatives and NGOs also argued that the Directives provide a clear legal framework and that, in their absence, a loss of legal certainty would be expected to increase administrative burdens.

6.8 Y.8 - Is the knowledge base sufficient and available to allow for efficient implementation?

6.8.1 Interpretation and approach

Knowledge based on adequate and reliable information is essential for the effective and efficient implementation of the Nature Directives (see section 5.3 for further discussion). This is required in guiding conservation actions, targeting the application of scarce resources, anticipating and avoiding potential adverse impacts, and monitoring and evaluating the effectiveness and efficiency of delivery. The cost-effective use of evidence (e.g. data sharing) also promotes efficient implementation (see section 6.5 analysis). Implementation efficiency may be compromised where insufficient knowledge causes, for example, suboptimal design of the Natura 2000 network, failures to use lowest cost management or protection actions, or requires businesses and other stakeholders to expend resources in gathering new information. An inadequate underlying knowledge base can, therefore, increase administrative burdens (see question Y.7).

This analysis examined three key questions:

- What knowledge is required to implement the Directives effectively and efficiently?
- How does the knowledge available compare to requirements?
- What are the key knowledge gaps and their impacts on the implementation of the Directives?

It also briefly considers the existing barriers to accessing biodiversity knowledge; and the steps that are being taken to increase such knowledge and its availability.

6.8.2 Main sources of evidence

No systematic review of knowledge requirements and gaps has been undertaken. Some of the studies that have examined the implementation of the Directives have noted both the gain in knowledge that was stimulated by the Directives, and current implementation constraints from knowledge gaps (Kati et al, 2015; Naumann et al, 2011). But such studies only highlighted some of the most important issues, and did not describe their impacts on implementation efficiency.

This evaluation has relied to a large extent on the responses to the evidence gathering questionnaire. In question S.3 (see section 5.3), knowledge gaps were identified by respondents as a key constraint on implementation. In question Y.8 (see section 6.8, the nature authorities provided particularly valuable information on institutional knowledge issues (e.g. relating to site designation, management planning, and AA). Many NGOs carried out, or contributed to, much of the surveying/mapping of species and habitats and monitoring of their status, and have been involved in site selection, the setting of conservation objectives and management planning, allowing them to also provide useful indications of knowledge gaps relating to these activities. Other stakeholders, such as land and sea users, hunters, and sports fishers, are involved in, or affected by, implementation activities, such as the establishment of management plans and management measures, and therefore provided their perspective on associated knowledge issues.

6.8.3 Analysis of the question according to available evidence

What knowledge is required to implement the Directives effectively and efficiently?

No systematic review of knowledge requirements for efficient implementation of the Directives, such as using the methodology developed by Sutherland et al (2011), has been published. Nevertheless, it is clear that access to adequate, reliable information is essential for many activities that are required to meet the objectives of the Directives (see Table 24). The table also identifies the data requirements for these activities, drawing on guidance documents relating to the Directives (ETC/BD, 2011a; European Commission, 2001; European Commission, 2007b; European Commission, 2007c; European Commission, 2008b), a review of the support science can provide to decision-making (Louette et al, 2015), and responses to the evidence gathering questionnaire.

Table 24 Key knowledge requirements for implementation of the Birds and Habitats Directives

Actions required to implement objectives of the Directives	Required knowledge, data and other information
Defining FCS	Historical range and populations and minimum requirements (to set favourable reference values), bio-physical requirements, species composition and structural attributes of habitats, habitat requirements of species and other ecological requirements (e.g. food resources).
Establishing a coherent Natura 2000 network	Distribution of species and habitats requiring site designations, condition (e.g. viability) of species populations and habitats within potential sites, required coverage and representation at biogeographical levels; site size and connectivity requirements in relation to their specific habitats and species.
Developing site conservation objectives and management plans, and establishing management measures	Location of habitats and species; their structure, ecology and functions; their past and current condition and biogeographical importance. Land ownership and uses, and its social/cultural and economic values. Pressures and threats, and interactions with current and expected land uses. The effects of conservation management actions and other factors that affect the condition of habitats and species, the means of delivering them, their economic and social impacts, and potential funding sources.
Undertaking AAs of possible impacts from activities, and planning compensatory measures if required	Qualifying habitats and species present within impacted Natura 2000 sites, and their location, ecological requirements, baseline condition and conservation objectives. Ecological characteristics and functions of the site and sensitive aspects that affect the sites' integrity. Potential impacts of the activities (including cumulative impacts with others) and likely residual impacts after mitigation. Compensation options, their location, potential impacts on each habitat and species and the network as a whole; feasibility, reliability and time-scales.
Managing landscape features to improve the coherence of the Natura 2000 network	Requirements for maintaining and enhancing connectivity to achieve FCS. The role of existing features, threats posed, conservation options and the need for restoration / creation of new features.
Establishing a general protection system for all birds	The conservation status of all birds (range and population trends), pressures and threats and options available to address them.
Ensure hunting / exploitation is compatible with wise for all birds, and for Habitats Directive Annex V species is compatible with	In addition to the requirements for all birds above; mortality rates and timing from hunting / exploitation and impacts on survival and recruitment rates and overall population dynamics (taking into account density dependent effects etc.).

Actions required to implement objectives of the Directives	Required knowledge, data and other information
maintenance of FCS	potential impacts of management measures. Impact on habitats and other species (eg from disturbance). Social, economic and cultural impact of the hunting and exploitation, and management measures.
Strict protection of species listed in Annex IV of the Habitats Directive	Each species' range (ideally fine-scale locational data), population, biology, ecology (e.g. habitat requirements), pressures and threats (particular sensitivities to activities) and overall conservation status. Impact mitigation and compensation options and good practices.
Planning reintroductions	The species former range, biology and ecology (e.g. habitat requirements) and reasons for its loss. Potential pressures and threats if reintroduced. Potential impacts on other species and habitats, social and economic impact. Appropriate reintroduction practices for the species concerned.
Identifying research gaps	Review of available knowledge in relation to requirements (e.g. this table)
Securing funding	Costs of establishing management and restoration measures in Natura 2000 sites and other areas and landscape features to the extent required to achieve their objectives; for incorporation into PAFs and funding bids (e.g. LIFE).
Monitoring the status of habitats and species	Distribution and population size of habitats and species throughout their range (i.e. NOT just within Natura 2000 sites), viability of species populations and condition of their habitat. Habitat condition in relation to key attributes (e.g. bio-physical requirements, species composition and structural attributes). Threats affecting future prospects.
Reporting on the implementation of the Directives	Conservation status of habitats and species (as above), main achievements under the Directives (e.g. new approaches, changes in public attitudes, stakeholder cooperation), progress with management plans, measures taken with respect to approvals of plans and projects, ensuring the coherence of the network and reintroductions.

According to Louette et al (2015), science has an important role to play in the implementation of the Habitats Directive, namely in relation to defining FCS and developing management measures and cost-effective monitoring. However, as indicated in Table 24, there are, in fact, many more activities that require scientific input. Most obviously, reliable and comprehensive data on the overall distribution and most important locations of EU protected habitats and species are required, in order to identify the sites required to ensure that the Natura 2000 network provides adequate coverage of each habitat and species. The Natura 2000 network also aims to be coherent and information should also be sought, therefore, on the functional connectivity requirements of EU protected habitats and species within the network, and the degree to which these requirements are met (see section 0 for further discussion). Following good practice approaches, the location of EU protected habitats and species should be mapped within each Natura 2000 site (to aid management planning and the assessment of possible impacts of developments etc.), and ideally elsewhere. Similarly, the location of strictly protected species (i.e. those listed on Annex IV of the Habitats Directive) should also be well-known and mapped, to feed into SEAs and EIAs, thereby avoiding impacts early in the planning cycle (see section 5.3).

Scientific information is also essential for assessing the potential impacts of developments and other activities (e.g. hunting) on, and assessing potential threats to, EU protected habitats and species. This would allow the identification of appropriate measures to deal with such threats and impact, as well as identifying landscape features of importance to the coherence of the network, and assessing the requirements and feasibility of species reintroductions.

However, the Directives also need to take into account economic, social and cultural values. Therefore, Louette et al, (2015) note that 'although the role of science is promi-

nently stated in the Habitats Directive, a good integration of science and policy is a prerequisite to assure the feasibility of the objectives, and to rapidly attain the desired results.' In order to comply with the Directives, and for simple practical reasons, information is also needed on past, current and potential landownership, land uses and other activities (e.g. recreation, sport fishing, hunting), and their economic and social values. A good understanding of stakeholder views on these activities and nature conservation objectives is also essential.

As recognised in a EU Commission study, the knowledge gained should be made widely available, through, for example, the development of websites, databases, data portals, and clearing houses (Peters et al, 2015). It may also need to be synthesised in scientific papers and books, as well as more practical Guidance documents and outreach materials, or presented through training programmes

How does the knowledge available compare to requirements?

As shown by Popescu et al (2014) and EEA (2011), and discussed under question S.1, (section 5.1), the Directives stimulated a major increase in research and monitoring activities. Boxes Box 73 and Box 74 outline some of the research and monitoring activities that were carried out in France and Germany to support the implementation of the Directives. This increase in knowledge gathering was essential for the implementation of many actions, in particular the identification of appropriate sites for inclusion in the Natura 2000 network and for monitoring and reporting on the conservation status of habitats and species. Indeed, the progress that has been made on most objectives is evidence that the knowledge base has been sufficient to enable the achievements so far, although knowledge deficiencies may have had led to inefficiencies

Box 73 Case example - knowledge gathering activities supporting the implementation of the Nature Directives in France

Knowledge of habitats and species has been particularly improved by the preparation of management plans (DOCOBs) for Natura 2000 sites, the development of the impact assessment system for Natura 2000 sites, and the reporting on the conservation status of habitats and species of Community interest. Supporting work included:

- Updating the 'natural areas of ecological, fauna and flora interest' (ZNIEFF¹⁸⁷) and Important Bird Area (IBA) inventories.
- Consolidation of knowledge on natural habitats (through 'habitats records'¹⁸⁸) and on birds (through 'birds records').
- Knowledge acquisition campaigns focusing on habitats and species in marine environments: PACOMM¹⁸⁹ (data collection programme on seabirds and marine mammals in mainland France); CoralFISH (data collection programme on Atlantic reefs); Medseacan and Corsican (data collection programmes on Mediterranean reefs); Cartham¹⁹⁰ (mapping of marine habitats within Natura 2000 sites). These programmes are coordinated by the AAMP, in conjunction with the MNHN, and have a total budget of approximately EUR 12m.

Source: Ministry for Ecology, Sustainable Development and Energy.

Box 74 Case example - knowledge gathering activities supporting the implementation of the Nature Directives in Germany

The knowledge base has been continuously improved in the course of implementation of the Directives, especially in marine-related fields, such that knowledge gaps with regard to species and habitat distribution and their ecology have been reduced. In particular, a nation-wide

¹⁸⁷ <http://inpn.mnhn.fr/programme/inventaire-znieff/presentation>

¹⁸⁸ <http://inpn.mnhn.fr/programme/referentiels-habitats>

¹⁸⁹ <http://inpn.mnhn.fr/actualites/lire/1121/mise-en-ligne-du-premier-jeu-de-donnees-pacomm-megafaune-marine-observee-lors-des-campagnes-samm-en-france-metropolitaine>

¹⁹⁰ <http://inpn.mnhn.fr/actualites/lire/4281/contribution-du-programme-cartham-a-l-inpn>

monitoring system was established (Sachteleben and Behrens, 2010) and a good knowledge base created by means of the administrative arrangement on bird monitoring (e.g., (Wahl et al, 2011), (Sudfeldt et al, 2013). Extensive literature, including manuals, etc., have been developed on suitable management measures for utilisation- and maintenance-dependent habitat types and species habitats e.g. (Biewald et al, 2013) , (Ellwanger and Schröder, 2006), (Ellwanger et al, 2010), Ellwanger et al. 2012b, (Finck et al, 2009), Riecken & Schröder 2012). The Federal Government and the Länder (specialised authorities, nature conservation academies, etc.) promote the updating of topical scientific knowledge and its transfer to the practice of nature conservation by organising regular knowledge sharing events.

Data are available in specialised publications and (for frequently used data) online (e.g., the manual on the species listed in the annexes, Habitats Directive reports, Birds Directive reports, information for purposes of preliminary screening (<http://ffh-vp-info.de>), management recommendations for the agricultural, forestry, fishery industries (www.ffh-anhang4.bfn.de). Research projects commissioned by the Federal Government also ensure the availability of better data for planning processes.

Information is also available for administrative implementation. GIS applications show the location and boundaries of protected areas (e.g. www.geodienste.bfn.de/schutzgebiete/) and enable this data to be combined with other specialised data (agricultural measures, biotope mapping, forest areas, etc.; e.g. <http://www.geoportal-th.de/>). Regulations and management plans are usually fully available online. Sections C.1 and C.2 of PAF (2013) (BMUB and BfN, 2013) are included as Annex 1 to provide an overview.

A sufficient knowledge base exists on the implementation of a sustainable use of species in Annex V of the Habitats Directive and the requirements for hunting species in Annex II of the Birds Directive, enabling reviews of this type of use as precautionary measures.

Administrative bodies and interested parties not directly linked to nature conservation benefit from this data, for example in planning processes (e.g. spatial planning, other authorities, private and public project operators, etc.).

Source: Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit

The improvement in knowledge of the status of European Protected Habitats and Species is also clear from a comparison of the proportion of assessments reported as 'unknown' in the 2001-2006 and 2007-2012 reporting periods, as shown in Table C.26 of the 2015 State of Nature Report (EEA, 2015a). For habitats, the proportion of 'unknown' assessments fell from 14.8% to 5.4%, while for non-bird species, they fell from 28.6% to 14.2%. A similar comparison for birds is not possible as there were no comparative assessments carried out before the 2007-2012 reporting period. The proportion of 'unknown' assessments for birds in the last reporting period was 16%, which is surprising, given that relatively comprehensive bird monitoring is carried out in the EU. However, as explained in the 2015 State of Nature Report, this result is in part due to the more complex methodology for assessing the status of birds. In contrast to reporting under the Habitats Directive, the assessment of the status of birds requires information on both trend direction and trend period.

Kati et al (2015) identified the main factors affecting the implementation of Natura 2000 through a targeted questionnaire-based survey of conservation scientists in Europe in 2009 (see section 5.3 for more discussion). The questionnaires asked respondents to score 30 elements of Natura 2000 implementation according to a 5-point Likert scale of satisfaction (e.g. 1= not at all; 5= very much). Respondents gave a satisfaction score of 2.91 for the statement that 'Scientific studies for Natura 2000 sites management are adequate' (Table 25). Although this score is above the mid-point, and might suggest a moderate degree of satisfaction, it is a relatively low score, compared to other elements. The statement that 'There is a sufficient number of conservation scientists who are involved in Natura 2000 decision-making processes' had a lower score of 2.64. These scores appear to indicate that the level of scientific knowledge could be improved, and, in particular, the availability of scientific knowledge could be improved through the increased involvement of conservation scientists in policy-making.

Analysis of the stakeholder responses on the sufficiency of the knowledge base revealed mixed opinions (Table 25). 46% did not clearly indicate whether or not they considered the knowledge base to be sufficient. This was often because a common response, particularly among the nature conservation NGOs, was that while the knowledge base is sufficient to implement the Directives, the potential for improving the knowledge base still remains. Thus, while they indicated that the knowledge base was sufficient to some degree, and was not a major limitation on action, they also seemed to suggest that its implementation could be more effective and efficient if further knowledge was available. In fact, many such responses went on to identify knowledge gaps and weaknesses. This made it difficult to allocate the responses to the categories listed in Table 25, and the percentages should, therefore, be treated as indicative. Nevertheless, some 38% considered the existing knowledge base to be insufficient.

There were clear differences in views between the stakeholder groups, with the NGOs being most satisfied with the knowledge base. Public authorities and the businesses / industry sector were least satisfied with the sufficiency of the knowledge base, but it should be noted that the number of respondents from public authorities other than nature authorities, was low.

Table 25 Respondent's views on whether the knowledge base is sufficient and available to allow for efficient implementation

Respondent's views	All respondents	Nature Protection Authority	Other Public Authority	NGO	Private Enterprise /Industry
Number of relevant responses to the question	82	23	11	32	16
% who said the knowledge base is sufficient	15.9%	13.0%	0.0%	28.1%	6.3%
% who said the knowledge base is NOT sufficient	37.8%	56.5%	54.5%	15.6%	43.8%
% who did not clearly state whether the knowledge base is sufficient	46.3%	30.4%	45.5%	56.3%	50.0%

Similar results were obtained from the stakeholder responses to question S.3 on key factors influencing the implementation of the Directives (Table 23). Some 30% of respondents were judged to consider that knowledge levels had hindered implementation, whilst 3% seemed to consider that knowledge levels had supported it, and 7% seemed to note mixed impacts.

Further evidence that the knowledge base is insufficient comes from Question 19 of the online public consultation questionnaire, which asked about the factors that are limiting progress towards the Directives' objectives. 61% of the respondents stated that 'Gaps in scientific knowledge of species and habitats' were 'Significantly restricting progress', 25% thought they were 'Somewhat restricting progress' and 11% considered that they were 'Not restricting progress'. However, as discussed in section 4, care should be taken with the interpretation of these results.

The studies and consultation responses described above provide mutually reinforcing evidence and opinion that knowledge gaps are affecting the efficient implementation of the Directives to some extent.

What are the key knowledge gaps and their impacts on the implementation of the Directives?

There are no detailed EU level assessments of those aspects of the existing knowledge base which are sufficient for efficient implementation of the Directives (other than the 2015 State of Nature Report quantification of monitoring coverage and quality). Therefore, this evaluation study has primarily drawn on the responses to the evidence gathering questionnaire to identify the most important knowledge gaps and deficiencies. From an examination of the responses it was possible to identify a number of recurring knowledge-related issues that have influenced the implementation of the Directives. Although many of these interact and are difficult to separate, the most frequently mentioned are listed in Table 26. The results suggest that there are four knowledge gaps of particular importance (identified by 17% to 24% of respondents). These are described in further detail below. Four others were identified by less than 5% of respondents. Other distinguishable knowledge gaps that were mentioned by single respondents related to financial expenditure, biological aspects of marine habitats (e.g. their characteristic species), the implementation of the provisions of the Directives (e.g. AAs carried out, financing, legal issues and compensation measures taken), and opportunity costs.

Table 26 Knowledge gaps identified by respondents to the stakeholder questionnaire and the percentage of respondents that identified each as a constraint on the implementation of the Directives

Knowledge gaps relating to:	All respondents	Nature Protection Authority	Other Public Authority	NGO	Private Enterprise/Industry
Number of relevant responses to the question	82	23	11	32	16
The location of EU protected habitats & species	24.4%	39.1%	27.3%	9.4%	31.3%
The ecological requirements of species & habitat maintenance & restoration requirements	20.7%	39.1%	36.4%	12.5%	0.0%
Habitat & species: range and population trends (historic and current) / conservation status	19.5%	30.4%	0.0%	25.0%	6.3%
The potential impacts of activities on habitats and species	17.1%	26.1%	27.3%	12.5%	6.3%
Climate change	4.9%	4.3%	9.1%	6.3%	0.0%
Natura 2000 Network adequacy & coherence	3.7%	4.3%	0.0%	6.3%	0.0%
Ecosystem functions & services	3.7%	8.7%	0.0%	0.0%	6.3%
Monitoring of pressures on habitats & species	2.4%	0.0%	0.0%	6.3%	0.0%

The location of EU protected habitats & species

The most frequently mentioned knowledge gaps relate to the distribution and precise location of EU protected habitats and species. This is of particular importance because it has a bearing on both pillars of action under the Directives: the protection of sites and the protection of species. Although few respondents explicitly stated that knowledge gaps had affected the identification of sites for inclusion within the Natura 2000 network, some did note that the distribution of some marine habitats and species, and some terrestrial invertebrate species, remains poorly known. For example, the French National Committee for Marine Fisheries and Sea Farming noted that better knowledge is required of the geo-

graphic location of the habitats and species of Community interest. According to the Committee, the designation of Natura 2000 marine sites was mostly performed in 2008, when data were fragmented and incomplete in many cases. More extensive data were collected later, making it necessary to modify the perimeters of the sites, and resulting in significant new administrative burdens, including the need for additional mandatory consultations.

The National Trust for Ireland (An Taisce) believes that data are lacking on offshore marine SPAs (and other MPAs), suggesting that, as a result, there have been no indications or attempts to identify offshore marine SPAs to date. Resolving this, they feel, should be a priority, as the offshore marine SPAs should form part of a wider network of MPAs, affording better protection for key foraging/roosting areas for seabirds and diving ducks at sea and also, for example, nursery and breeding areas for key prey species.

According to the Ministry of Reconstruction of Production, Environment and Energy in Greece, knowledge gaps mainly exist with respect to the marine environment (especially maps of marine habitat types throughout the country, as well as monitoring of marine mammals) and there are gaps in the maps of terrestrial ecosystems (the most recent Corine Land Cover data are from 2000) and there is limited information on some species groups, such as invertebrates. However, they note that, with support from the EU, some of these gaps have been addressed through three LIFE-Nature projects¹⁹¹ that have investigated coastal habitats and the marine environment of the Aegean and Ionian Seas, as well as seabird species.

Many of the stakeholder responses imply that a more frequent knowledge gap relates to the protection of species outside Natura 2000 sites, particularly species listed on Annex IV of the Habitats Directive. For example, the Danish nature authority notes that knowledge on the distribution and local occurrence of some species is scarce and limited (e.g. amphibians). This is partly because some species are very difficult to detect and survey (e.g. bats or Common Dormouse). The Latvian Fund for Nature NGO states that 'the main monitoring information gaps are distribution, quality and dynamics of habitats outside the Natura 2000 network, distribution, numbers and population changes of amphibians and reptiles, most groups of invertebrates and plants, especially outside Natura 2000.' In the UK, DEFRA, DECC and the nature NGOs all note that while knowledge is improving, locational information on some protected species, such as some bats, cetaceans, seabirds at sea and Great Crested Newts, is inadequate.

The gaps in information on the location of EU protected habitats and species have resulted in a range of impacts on the implementation of the Directives, most obviously, the slow progress with the development of the Natura 2000 network, particularly in the marine environment (see section 0 for discussion). They also led to implementation problems that exacerbate some costs and burdens (see section 6.1 and 6.4 for more details). Uncertainty about whether or not the Natura 2000 network is complete, and if its boundaries may change, can dissuade businesses from investing in certain areas. Late identification of Natura 2000 sites can lead, in some instances, to developers finding that sites they have acquired since the main period of Natura designation have become Natura 2000 sites and they are, thus, unable to carry out their envisaged activities.

Inadequate knowledge of the presence and location of EU protected habitats and species within Natura 2000 sites can also cause problems for nature authorities and developers. Such data gaps hinder the development of site management objectives and plans, and, in turn, management agreements with landowners. It also makes it difficult for developers to identify and avoid potential biodiversity impacts early in their planning, and for authorities to carry out screening of proposed activities with respect to the need for AAs. In their review of the implementation of Article 6(3) procedures, Sundseth and Roth (2013) noted that knowledge gaps were often a cause of problems. The procedures are facilitated where impacts are considered early in the planning stage, but this requires widespread, reliable and compatible data, which normally result from strategic data gathering initiatives.

¹⁹¹ LIFE07 NAT/GR/000285, LIFE03 NAT/GR/000091, LIFE96 NAT/GR/003221.

Euromines also states that reliable certified information on Natura 2000 sites is often inadequate or unavailable from the competent authorities, resulting in project proponents collecting information themselves, 'which results in extra costs for the project proponent but also leads to unnecessarily costly and time consuming authorisation procedures'. The European Landowners organisation makes a similar point, noting that the inadequacy of knowledge frequently leads to problems for small developers, who are obliged to fund data gathering for AAs. ESPO suggest that the burden of collecting information could be more efficiently dealt with collectively, rather than each project proponent having to gather their own information. This has been recognised in the Netherlands, where The Ministry of Infrastructure and Environment is currently working on 'Laan van de leefomgeving'¹⁹² (see section 5.3 for details).

There have been cases where developers have purchased or obtained a development licence for an area outside the Natura 2000 network and then found during surveys for required EIAs that the site is of high biodiversity importance and merits designation as a Natura 2000 site, or can only be developed with restrictions on certain activities. For example, in the UK this situation has affected a number of strategic development areas at sea (e.g. offshore wind development zones and oil and gas licensing rounds). Although these are subject to SEAs, they have been based on inadequate information, in particular on mobile species. This has resulted in some proposed offshore wind farms in the UK being delayed or cancelled as a result of improved knowledge of the biodiversity of the area, e.g. Phase II of the London Array (see Box 75).

According to the UK NGOs, they have long called for a Government-led, national integrated marine survey programme to harness the efforts of Government, developers and others to identify and address knowledge gaps. They noted that while costs of surveys at sea are significant, much could be achieved in terms of economies of scale through better coordination and redistribution of existing effort and investment, and improved access to the data that already exists. They also stated that 'reduced uncertainty and investor risk associated with the clarity that designation of a coherent Natura 2000 network at sea would provide could also deliver significant benefits for Government and industry.'

Box 75 The effect of biodiversity knowledge gaps on the London Array offshore wind development

The London Array Wind Farm, located between the Kent and Essex coasts, 20km offshore between two sandbanks, Long Sand and Knock Deep in the Outer Thames Estuary, was one of 15 companies granted a licence by The Crown Estate in its second round for offshore wind farm development. It was originally planned to consist of 341 turbines of 1GW capacity. However, surveys identified up to 6,500 wintering Red-throated Diver in the north-east area of the licensed area. This was the most important in English waters (and in excess of the total available estimate of the wintering population of the species at that time).

Inadequate marine survey prior to licensing meant that this major concentration of wintering birds had not been identified, nor the area designated SPA in a timely manner. Although it had been subject to SEA, the available data to populate it was so weak it made the exercise almost meaningless. Thus the site was licensed, when a significant area should not have been and the ecological value of the site was only properly revealed by developer-led surveys.

Negotiations between the developer and (then) English Nature and RSPB, led to the site being regarded as though it were SPA given its high interest, the scheme being reduced to two-thirds of its original planned size, and implementation in two phases

Source: UK Wildlife Link stakeholder questionnaire response

Many stakeholders note that the lack of comprehensive knowledge of the location of species - especially Annex IV species - causes widespread problems with proposed developments outside the Natura 2000 network, resulting in high costs for developers in surveys

¹⁹² www.youtube.com/watch?v=QnykLqkDniI

and mitigation measures (see section 6.4, Box 32, Box 34) and in some cases permitting delays and refusals. The Danish nature authority noted that the lack of knowledge on widespread species such as the Great Crested Newt and Moor Frog hinders the implementation of the species protection provisions of the Habitats Directive. DEFRA in the UK made a similar observation regarding the Great Crested Newt.

In conclusion, there is evidence from several sources that better knowledge of the location of EU protected habitats and species would help to complete the Natura 2000 network efficiently, and reduce uncertainty about the need for further designations and their potential impacts on developments and other human activities. Better knowledge of the location of EU protected species (especially those listed in Annex IV of the Habitats Directive), would facilitate consideration of potential impacts in the early stages of development planning (i.e. in SEAs and spatial plans), when it is easier for developers to avoid impacts and their associated costs. Initiatives, such as the Somerset County Council protected species GIS, that are considered to assist with this are described in question S.3 (see section 5.3) and question Y.5 (see section 6.5).

The ecological requirements of species and habitat maintenance and restoration requirements

Approximately 21% of respondents indicated that the implementation of the Directives has been affected by gaps in the knowledge of the ecological requirements of habitats and species. This view was particularly prevalent amongst the nature authorities, including those in Spain, Hungary, the Netherlands, Sweden and Slovenia. For example, in Slovenia, the Ministry of Environment and State Planning stated that key gaps include the ecological requirements of a range of species and habitats (e.g. some mosses, fish, birds, butterflies and mollusc species, marine species that range over wide areas, and some forests habitats). It also difficult to find appropriate solutions for management of some individual species, especially where they require harmonisation with agricultural practices and species protection (e.g. how to assure the maintenance of mosaic landscapes).

Such knowledge gaps can be expected to constrain the development of detailed and well-tailored management plans. This, in turn, impacts on the provision of Natura 2000 compensation funds or the establishment of agri-environment measures, etc. Information on the ecological requirements of species and habitats is also needed to feed into AAs and decisions relating to hunting / exploitation of species and activities that may impact on strictly protected species. Although evidence of the impacts of knowledge gaps is lacking, the Ministry of Environment and Nature Protection in Croatia, noted that information on the ecological requirements of species is insufficient to support the selection of conservation measures and AAs, the latter creating additional data gathering demands on developers. However, such data gaps have been recognised and are now being addressed, e.g. through a Natura Integration Project and under the Competitiveness and Cohesion Operational Programme.

Habitat & species: range and population trends (historic and current) / conservation status

While there have been considerable improvements in the monitoring of habitats and species, a significant proportion of assessments of conservation status were uncertain in the 2007-2012 reporting period. In addition, relatively few data stem from well-designed monitoring programmes, as only 17% of habitat area and species population size assessments for 2007-2012 were based on complete surveys or statistically robust estimates from sampling schemes (EEA, 2015a). Also, the data used to assess conservation status should have been collected during the reporting period using standardised methods consistently across all Member States. However, in reality, Member States have used data collected for diverse purposes and over varying time periods, and in many cases assessments rely on expert opinion rather than suitable data. Some of the key factors that limited the accuracy of the conservation status assessments are summarised in Box 76.

Box 76 Issues affecting the quality and completeness of data used to assess the conservation status of habitats and species

- *Absence of data from Greece:* Greece did not report until 2015, and therefore its data were not taken into account in the State of Nature Report. This is a significant gap because Greece contains a substantial proportion of the biodiversity protected by the Habitats Directive. Although the EU biogeographical region assessments used the data reported for Greece for 2001-2006, they are out of date and were only based on data from Natura 2000 sites rather than from the whole of Greece, and so are likely to be an over-optimistic assessment of the conservation status for that period.
- *Variations between countries and regions:* An indeterminate proportion of the differences between Member States reporting is due to differing approaches and methodologies. These include different methods for determining favourable reference values (McConville and Tucker, 2015), and different methods to measure or evaluate population size or species habitat area. However, this problem has been recognised by the European Commission, who have initiated a contract to study this issue. Annex I habitat interpretation and mapping methodologies also differ between Member States. For example, Germany reported a substantially higher density of habitat 3150 'Natural eutrophic lakes with Magnopotamion or Hydrocharition type vegetation' than Poland despite similar geographies. Many Member States reported species population size using units that did not correspond to the agreed format, making it impossible to provide EU population sizes for most species.
- *Missing and 'poor' data:* The majority of Member States used partial data with some extrapolation and/or modelling to estimate Annex I habitat area (64%) and species population size (47%). Estimates based on expert opinion with no or minimal sampling were used for 12% of habitat area assessments and 25% of species population assessments. In Romania and France, the reported total area of terrestrial Annex I habitats was larger than the total land area, indicating that some of the habitat areas were over-estimates.

Source: State of Nature in the EU, EEA 2015

Hochkirk et al (2013a) described issues with the implementation of the Directives, identified from the perspective of 14 German university academics. Among other things, they state that there is a need to improve the on-ground monitoring as it is crucial for adapting management plans, as well as assessing the status of species. However, at the time, the authors considered that the monitoring lacked standardisation across countries, taxon-specific standards and coherent training of monitoring staff.

In addition to knowing the current distribution of habitats and the range and population size of species, there is also an important need to know their past distributions, ranges and populations. This is because a key requirement for the assessment of FCS (see section 2.3.1) for habitats and species is the establishment of comparative favourable reference values. These reference values were not defined in the Directives but were agreed through discussions with the Scientific Working Group (Habitats), the Habitats Committee and workshops with Member States (ETC/BD, 2011a). As noted by Louette et al (2015), determining reference values is not easy, as they should be based on scientific knowledge on the ecology and genetics of biota, using theoretical, demographical or (meta) population genetic models. In many cases however, these data are deficient, or models result in values that are no longer realistic in the human impacted landscapes of Europe. Therefore, in practice, many Member States have not yet defined these reference values, nor have they defined FCS at national or biogeographic levels. In some cases, where reference values have been defined they have often been based on judgement and simple assumptions rather than robust scientific evidence (McConville and Tucker, 2015).

The absence of favourable reference values and other defined standards (e.g. habitat quality) against which to assess FCS make it difficult to set meaningful conservation objectives for Natura 2000 sites and to assess the possible impacts of activities on them as well as strictly protected species, which then affects decision making on these issues. UK Wildlife Link stated that in the absence of defined FCS standards it is not possible to assess the significance of potential impacts, and therefore a precautionary approach must be adopted that is based on a goal of no net loss. Similar views are expressed by Sund-

seth and Roth (2013) in their review of Article 6(3) procedures, as well as by DEFRA in their response to the evidence gathering questionnaire. Evidence of the impact of the lack of FCS standards is demonstrated by the approach to the conservation of Great Crested Newts in the UK, where mitigation and compensation is required for development impacts on every individual newt (Simpson, 2015), resulting in very high costs in some cases (see section 6.1 for discussion). However initiatives are now addressing the knowledge gaps underlying this problem, taking a strategic rather than site-based approach to defining impacts on conservation status (Simpson, 2015) (see section 5.3).

The potential impacts of activities on habitats and species

About 17% of respondents indicated that there were gaps in knowledge relating to the impact of human activities on EU protected species and habitats. Although this may affect the development of management plans to some extent, stakeholder responses primarily referred to it in the context of assessing impacts as part of AAs and permitting activities that may affect strictly protected species. Several stakeholders note that the knowledge gaps make it difficult to rule out the possibility of significant effects as required under Article 6(3) of the Habitats Directive. Therefore, to ensure compliance with the precautionary principle, authorities are taking risk-averse approaches to development applications, resulting in potentially acceptable developments being rejected, or high burdens being placed on developers to collect sufficient information to reliably establish an absence of adverse effects.

For example, the NWPS in Ireland highlighted the need for research to understand the effects of developments and developing technologies, as current knowledge gaps lead to increased burdens on individual project proponents. They also considered the systems to analyse cumulative effects to be inadequate. Similar views were expressed by the Ministry of Economic Affairs in the Netherlands, for example in relation to the possible impact of wind turbines on birds and bats, and disturbance resulting from recreation.

Many knowledge gaps exist with respect to marine habitats and species, and these, in turn, constrain impact assessments in the marine environment. For example, the French National Committee for Marine Fisheries and Sea Farming noted that better scientific knowledge of the marine environment is required, including the functioning of ecosystems and the impacts of pressures and management measures on the conservation status of habitats and species, and their sensitivity and recoverability.

The Department for Energy and Climate Change (DECC) in the UK, noted that evidence gaps relating to the ecological requirements, distribution, and sensitivity of Annex I and Annex II species has presented (and will continue to present) a significant challenge for developers and for UK decision makers. The sensitivity of mobile species (cetaceans and sea birds) and the presence/absence of ephemeral habitats (e.g. *Sabellaria spinulosa* reefs) have caused difficulties in the past and increased costs/caused additional burdens for developers. They also referred to particular problems relating to the assessment of offshore wind turbine collision risks and their impacts on seabird populations. Data shortcomings have resulted in the use of models in impact assessments that may be too precautionary in terms of their assumptions, as well as high costs and uncertainty for developers. A 'Coping strategy' was produced by DECC, developers, NGOs and statutory nature conservation bodies to manage and reduce these risks until such time as further evidence is available. According to DECC, 'whilst this resulted in some short-term successes, the key issue remains of how best to source robust and cost-effective evidence, taking into account the precautionary principle and wider policy requirements (such as increasing sources of renewable energy and combatting climate change).'

Similar data deficiency problems are affecting the assessment and mitigation of impacts of wind farms on bats (Camina, 2012; Eurobats, 2010; Georgiakakis et al, 2012; Minderman et al, 2015; Peste et al, 2015; Santos et al, 2013; Voigt et al, 2015).

Some important knowledge deficiencies relating to the impacts of human activities are not connected to specific projects, but, rather, to wider human activities. For example, in some areas further information is required to reliably assess and quantify the influence of

nitrogen deposition on the Natura 2000 network (Hicks et al, 2011; LANUV NRW, 2013; Whitfield and McIntosh, 2014).

Although not specifically mentioned by any respondents, some scientific papers have noted gaps in knowledge of the genetic viability of species with greatly reduced and fragmented distributions and/or range (Traill et al, 2010), and a lack of attention to genetic status as component of species conservation status (Laikre et al, 2009). This may be a greater threat than is realised, as indicated by research findings showing a strong decline in gene diversity of *Cricetus cricetus* in Western Europe (La Haye et al, 2012), the finding that the inbred status of wolf in Scandinavia is affecting population health (Räikkönen et al, 2013), the critically low genetic variability in Eurasian Lynx in the Dinaric mountains (Sindicic et al, 2013), and the potential loss of genetic variability of Iberian endemic *Lacerta schreiberi* under climate change (Rödder and Schulte, 2010).

Steps being taken to improve biodiversity knowledge in the EU that will help support the implementation of the Directives

Some respondents indicated that there is a large suite of existing biodiversity data, information and knowledge that is currently inaccessible to policy and decision makers, and these gaps could be bridged, to an extent, by further mobilisation, modelling and processing. In fact, such problems have been recognised by the Commission, and a series of EU research projects financed under the 7th framework programme contribute to improving the EU biodiversity knowledge base, including:

- EU BON is developing tools and data standards, data-sharing specifications and strategies for accommodating large data volumes in order to facilitate access and integration of available biodiversity data in the EU. For example, the Global Biodiversity Information Facility (GBIF) platform is being substantially improved to incorporate monitoring (multiple sample) data, as well as individual occurrence sampling data.
- The EU BON data hub will facilitate use of the database of existing biodiversity monitoring schemes across Europe, developed by the EuMon project.
- The European Biodiversity Observation Network project (EBONE) improves methods and standards for habitat monitoring, including Annex I habitats.
- The Biodiversity Virtual e-laboratory (BioVeL) supports scientists to carry out research on biodiversity by offering computerised tools ('workflows') to process large amounts of data from their own and cross-disciplinary sources, as well as tools for designing and running workflows.

Technological developments are also being used to help to improve the efficiency of biodiversity surveying and monitoring, such as:.

- Development of a feasible method for heathland habitat status reporting using remote sensing data (Hufkens et al, 2010), including the estimation of fine-scale elements that are too small to be derived directly (Spanhove et al, 2012).
- Use of high-resolution full-waveform LIDAR data to detect grassland vegetation classes relevant for Natura 2000 (Zlinkszky et al, 2014).
- A new survey that tests pond water for traces of Great Crested Newt DNA has been shown to be an effective and relatively cheap survey method (costing about one-fifth of the traditional survey).

Barriers to use of available scientific knowledge in conservation management

In addition to gaining the required knowledge, it must be disseminated appropriately to a wide range of actors to aid implementation of the Nature Directives. It is apparent, however, from some studies (e.g. Peters et al, 2015), and responses to the evidence gathering questionnaire, that the best available data and knowledge are not always used in the implementation of the Directives. For example, a study demonstrated that only 40% of published new protected species records were taken into account by the nature conservation authorities in updating species lists of Natura 2000 sites across the EU (Opermanis et al, 2014). Reasons included a reliance on other sources of information by authorities, and the difficulty in finding relevant information in scientific papers, which are published in a wide range of journals, and are often insufficient in details.

Another study compared published conservation recommendations in the literature with implementation in a group of Natura 2000 sites straddling the Greek-Bulgarian border. It found that 74% of the published recommendations were familiar to consulted experts, but only 52% (in the Greek part) and 16% (in the Bulgarian part) of the recommendations were implemented, and only 15% (Greek) and 3.1% (Bulgarian) were implemented and evaluated for their effectiveness (Schindler et al, 2011). Researchers and conservation managers on both sides of the Greek-Bulgarian border faced similar implementation problems, often due to the lack of political will for nature conservation and weak capacities of competent authorities.

Energy UK also noted that there is a need for better guidance for regulators and statutory consultees to ensure the provision of consistent and constructive advice, particularly in terms of requesting information and specifying conditions and mitigation focused on, and proportionate to, the potential impact on the sites.

Steps are increasingly being taken to make biodiversity data more available and to facilitate knowledge transfer through EU and Member State initiatives. The development of the internet has made this relatively easy, with many such initiatives on the websites of national nature/environment authorities, related organisations and data portals. Other initiatives include:

- DG Environment webpages relating to Nature and Biodiversity¹⁹³.
- Biodiversity Information System for Europe (BISE)¹⁹⁴.
- The Biodiversity Data Centre (BDC) of the EEA¹⁹⁵.
- European Environment Information and Observation Network (EIONET)¹⁹⁶.
- Conservation Evidence¹⁹⁷.
- Society for Ecological Restoration Knowledgebase on Ecological Restoration in Europe¹⁹⁸.

The Commission recently conducted a study (Peters et al, 2015) assessing the availability of online information relating to the Nature Directives, and the extent to which spatial data are compliant with the INSPIRE Directive (which aims to ensure that spatial data are usable in an EU and cross-border context). The study provided recommendations on how information could be improved, including through the potential development of a Structured Implementation and Information Framework (SIIF) for the Nature Directives.

The Commission has also been instrumental in identifying knowledge-related problems and addressing these through the development of Guidance documents on the DG Environment website. These and a number of guidance reports produced by Member States are listed in Box 77.

¹⁹³ http://ec.europa.eu/environment/nature/index_en.htm

¹⁹⁴ <http://www.biodiversity.europa.eu/>

¹⁹⁵ <http://www.eea.europa.eu/themes/biodiversity/dc>

¹⁹⁶ <https://www.eionet.europa.eu/>

¹⁹⁷ <http://www.conservationevidence.com/>

¹⁹⁸ <http://chapter.ser.org/europe/knowledge-base/>

Box 77 Examples of guidance documents of relevance to the implementation of the Nature Directives

European Commission guidance:

- Assessing impact of fisheries on marine Natura 2000 (European Commission, 2012d)
- Assessing impacts of aquaculture on Natura 2000 (European Commission, 2012e)
- Assessing impact of wind farms on Natura 2000 (European Commission, 2010b)
- Assessing impacts of non-mineral extraction on Natura 2000 (European Commission, 2010a)
- Assessing impacts of energy transmission infrastructure on Natura 2000 and EU protected species (European Commission, 2014d)

Member States and sectoral guidance:

- Guidance on appropriate assessment and species impact assessment in Austria produced by roads company (ASFINAG, 2011)
- Guidance on bird sensitivity mapping for wind energy developments by NGO (BirdWatch Ireland, 2015)

6.8.4 Key findings

- No systematic review of knowledge requirements and gaps has been undertaken, although some studies examining implementation of the Directives have noted both the gain in knowledge stimulated by the Directives, and current implementation constraints resulting from knowledge gaps. While such studies highlighted some of the most important issues, they did not describe the impacts on costs and burdens.
- Adequate reliable knowledge is fundamental to many activities associated with implementation, including identifying appropriate sites for inclusion in the Natura 2000 network, defining FCS, developing site conservation objectives and management plans, identifying funding requirements, working with stakeholders to establish management measures and funding, developing guidance, undertaking AA of possible impacts from activities, permitting, planning reintroductions, identifying research gaps and monitoring activities and their impacts.
- The Directives have stimulated a significant increase in research and monitoring activities, essential for the implementation of many measures, in particular the identification of appropriate sites for inclusion in the Natura 2000 network. However, in most, if not all Member States, there are significant data and knowledge gaps that constrain efficient (and effective) implementation. The most significant deficiencies in knowledge that have affected the efficiency of implementation relate to:
 - Identification of some offshore marine SPAs for seabirds, SCIs in the marine environment and some SCIs for inadequately surveyed terrestrial species (e.g. various invertebrates).
 - Understanding the extent to which the Natura 2000 network adequately conserves species groups that have low representation in the Annexes, and the implications regarding the potential need for adding species to the Annexes.
 - Assessing the adequacy of the coherence of the Natura 2000 network in terms of its functional ecological connectivity, such as its ability to support viable meta-populations and enable required inter-site movements (e.g. for migration, feeding and dispersal).
 - Assessing the potential impact of climate change on EU protected species and habitats (both within and outside the Natura 2000 network) and the most appropriate intervention measures.
 - Understanding historic and current population and range distributions of species and habitats in order to define FCS at national and biogeographical levels.
 - Understanding the ecological requirements of some species and habitats in order to define appropriate management measures.

- Understanding the causes of observed declines in some EU protected species.
- Knowledge of the potential impacts of certain human activities (such as hunting, marine noise, biomass production) on EU protected species and habitats.
- Having sufficient spatial data on the location of EU protected species and habitats to feed into SEA, EIAs and trigger and inform AA.
- Quantifying the values of ecosystem services provided by EU protected habitats and species in Natura 2000 sites and elsewhere.
- Knowledge gaps have sometimes led to implementation problems, contributing to costs and burdens (see also questions Y.1 and Y.4) including:
 - Uncertainty about the potential designation of areas as Natura 2000 sites in the future, which can lead to project delays and opportunity costs.
 - Uncertainty about the location of EU protected habitats and species, hindering SEA and spatial planning processes, and making early avoidance of the most significant biodiversity and economic conflicts difficult.
- The absence of national and biogeographical standards against which to assess FCS and site conservation objectives makes it difficult to assess the possible impacts of activities, leading to delays and/or risk-averse decision-making.
- Uncertainty about the possible impacts of activities on EU protected habitats and species, which slows decision-making.
- Incomplete knowledge of the ecological requirements and associated management measures of EU protected habitats and species, which constrains the establishment of site management objectives and management plans. This, in turn, impacts on the provision of Natura 2000 compensation funds or the establishment of agri-environment measures, etc.

6.9 Conclusions concerning efficiency of the Nature Directives

- Implementation of the Directives involves significant costs:
 - The direct costs of designating, protecting and managing Natura 2000 sites have been estimated at EUR 5.8 billion annually across the EU.
 - Opportunity costs arise where the protection of sites and species restricts development, land use change and land management. This is highlighted as a concern by certain businesses, although it affects a very small proportion of all proposed developments in the EU. In many parts of the EU land managers are compensated for restrictions on agriculture and forestry.
 - The costs of damage caused by protected species (e.g. large carnivores) and associated compensation payments can be significant at a local level but account for a small proportion of overall costs.
 - The administrative burdens of compliance with the Directives' site and species protection rules are significant. Effective implementation is dependent on the collection, analysis and sharing of information, interactions with stakeholders and consideration of plans and projects. Administrative burdens are therefore inevitable. Businesses and environmental groups differ in their views about whether there are substantial unnecessary burdens, but share the view that burdens are often caused by inefficient implementation at national, regional and local level.
 - Costs vary widely across the EU due to a range of environmental and socio-economic factors, including differences in the size of the Natura 2000 network and the approach to implementation.
 - There are numerous examples of cost-effective implementation practices, which are helping to reduce costs, including effective consultation and stakeholder engagement, partnership approaches, strategic planning, guidance, as well as coordinated collection and sharing of information.
- Implementation also delivers substantial benefits:
 - Core benefits are the protection and improvement of the status of habitats and species.
 - Protection of sites and species helps to safeguard and enhance the delivery of ecosystem services with related benefits to wellbeing. These benefits have been estimated at EUR 200-300 billion per year for the Natura 2000 network.
 - Implementation brings benefits for local economies through job creation and tourism. Natura 2000 sites attract estimated annual expenditure on tourism and recreation of EUR 50-85 billion.
- Studies indicate that the benefits of the site and species protection ensured by the Directives greatly exceed the costs of implementation at the EU, national and local levels. However, few studies have directly compared the costs and benefits of the specific actions required to implement the Directives. Those that have suggest that the benefits of action exceed the costs at most sites, but not at all sites. Responses to the evidence gathering questionnaire and public consultation, particularly from businesses, highlighted several examples where the costs of implementation were viewed as being disproportionate to the benefits.
- Non-implementation of the Directives would be expected to lead to a gradual erosion of the benefits of the sites and species protected by the Directives, including a loss of ecosystem services which would accumulate in value over time. It has been estimated that even a 1% reduction of the ecosystem services flowing from the Directives would cause losses of EUR 2-3 billion a year, which would accumulate over time.

- Despite an increase in research and monitoring activities, significant gaps in knowledge have led to implementation problems and contributed to costs and burdens. Key knowledge deficiencies include: the identification of marine SPAs and SCIs; the potential impacts of certain human activities on some species; and the location of European protected species and habitats outside Natura 2000 sites.

7 Evaluation and analysis of relevance questions

Relevance concerns the extent to which the objectives of the Nature Directives are consistent with the needs of species and habitats of EU conservation concern. It considers whether the objectives and requirements of the legislation are still valid, necessary and appropriate.

7.1 R.1 - Are the key problems facing species and habitats addressed by the EU nature legislation?

7.1.1 Interpretation and approach

This question has two crucial elements – the identification of key problems that species and habitats face, and whether these are addressed by Council Directive 92/43/EEC (Habitats Directive) and/or by Directive 2009/147/EC (Birds Directive).

Methodology:

- Interpretation of the question
- Identification of ‘key problems’
- Are the key problems addressed by the EU nature legislation?
- Key findings and conclusions

Steps (b) and (c) are based on the evidence gathered and processed for the purposes of this evaluation (‘the available evidence’) and on the legal analysis of the two Directives.

Key problems are understood to mean the main pressures on, and threats to, species and habitats, and which are so geographically widespread (incidence) and/or severe (magnitude) as to potentially affect achievement of the Directives’ conservation objectives.

A key problem is considered to be addressed by EU nature legislation if two cumulative conditions are met:

- The directives apply to that problem, and
- They provide for procedures and mechanisms which deal with that problem.

7.1.2 Main sources of evidence

Key problems faced by species and habitats were identified from the State of Nature Report (EEA, 2015a) summary of Member States’ reporting for the period 2007-2012. This report described the pressures (past and present impacts) and threats (foreseeable impacts) affecting the long-term viability of habitats and species of Community interest. It also identified the pressures on birds listed in Annex I of the Birds Directive and a selection of regularly occurring migratory bird species. As a common typology of threats was used by all Member States for the reporting this provided broadly consistent, clear and robust evidence of the frequency of most pressures and threats. The report summarises Member States’ reporting on habitats and species’ issues at the within-country biogeographical level, and on birds’ issues (N2K Group, 2011) at the national level. Member States ranked the relative importance of each threat or pressure as high importance/impact, medium importance/impact, or low importance/impact, with a maximum of five high impact pressures/threats for each habitat or species (see Box 78 for further details of the assessment procedures).

The State of Nature report presents the high-ranked and most frequently reported pressures and threats for birds, other species, and habitats overall, and according to their characteristic or preferred ecosystems. The results of Member State reporting are shown in Figure XX (GT to fill in). At the more detailed level (level 2, see Box 78), 45 high-ranked pressures/threats were reported from the list of 75 possible categories. As most high-ranked pressures were also reported as threats, with the exception of climate

change, which was mainly reported solely as a threat, the combined results of both pressures and threats were analysed in the review.

The pressures/threats to birds were assessed at the national level. The 455 bird taxa were assessed with 13,233 threats and pressures at all levels, of which 3,756 were high-ranked pressures and threats. The pressures/threats to habitats and non-bird species were assessed at the within-country biogeographical level. The 233 habitat types were assessed with 21,979 threats and pressures at all levels, of which 5,128 were high-ranked pressures and threats. More than 1250 non-bird taxa¹⁹⁹ were assessed with 37,976 pressures and threats at all levels, of which 11,011 were high-ranked pressures and threats. As Greece's reporting was late, the pressures and threats facing species and habitats in Greece are excluded. The assessments are the result of expert opinion based on available information at the Member State level.

Box 78 Member State reporting on pressures and threats for the period 2007-2012

Pressures are defined as factors which are acting now, or which were acting during the reporting period, while **threats** are those factors expected to be act in the future (ETC/BD, 2011b). Threats should be reasonably likely to occur within a period of the next 12 years (i.e. two reporting periods). It is possible for the same impact to be both a pressure and a threat if it has an impact now which is likely to continue. For the bird reporting, no distinction was made between pressures and threats.

A **revised classification** of threats and pressures was prepared for the 2007-2012 reporting under the Nature Directives. This list was compatible with IUCN standards (Salafsky et al, 2008), and with similar lists used for reporting under the Water and Marine Strategy Framework Directives and the Ramsar Convention, including a full coverage of potential marine threats and pressures. The list is a hierarchical classification with 17 main classes (including X for no pressures and threats, and U for unknown), subdivided into 75 categories at the second hierarchical level. Member States were asked to report threats and pressures to at least the second hierarchical level, with the option to use the third or fourth hierarchical levels (ETC/BD, 2011b). The categories for threats and pressures outside the Member State, and threats and pressures from outside the EU territory, were not used. These categories were, however, reported as a high-ranked pressure on some marine species (birds, cetaceans and sea turtles).

Member States were asked to rank the **relative importance** of each threat or pressure as one of:

- high importance/impact i.e. an important direct or immediate influence and/or acting over large areas
- medium importance/impact i.e. medium direct or immediate influence, mainly indirect influence and/or acting over moderate part of the area/acting only regionally
- low importance/impact (low direct or immediate influence, indirect influence and/or acting over small part of the area/acting only regionally)

The total number of data entries was limited to 20 for each habitat or species, with a maximum of five ranked as high importance/impact. Member States were asked to use the second hierarchical level to report threats or pressures of high importance/impact. The option of adding a pollution qualifier to those categories which have a direct or indirect pollution effect was provided, but only 9 Member States used it in their Article 17 reports.

Member States' reporting of pressures and threats was reasonably comprehensive (EEA, 2015a). Of 26 Member States reporting, 14 had some **data gaps** on pressures and threats to birds, but only four of these had data gaps for over 10% of bird taxa (Belgium, Bulgaria, Latvia, and Lithuania). 19 Member States had some data gaps on pressures and threats to non-bird species, but only Slovenia had data gaps for over 10%. Finally, 6 Member States had some data gaps on pressures and threats to habitats, but none above 10%. Greece, as stated, did not provide reports.

With regard to the **quality** of the pressures and threats reporting, marked differences can be observed between Member States in the proportion of pressures reported as high-ranking compared to medium and low ranks. Reporting ranges from 65% of pressures to habitats highly ranked (the Netherlands) to only 10% of pressures to habitats highly ranked (Slovakia), and 46% of pressures to species highly ranked (Lithuania) to only 5% of pressures highly ranked

¹⁹⁹ All species in Annex IV and/or Annex II and/or Annex V, excluding extinct species.

(Slovakia). In the Danube basin, Romania reports no highly ranked pressures on any freshwater habitats, while the countries upstream report many high-ranked pressures on freshwater habitats. Some pressures are reported under different categories; for example, eutrophication caused by use of fertilisers could be reported as A08 (fertiliser use) and/or H04 (air pollution) and/or K02 (succession). Some Member States have published more detailed assessments and supporting evidence in their country reports.

A literature review was carried out to identify supplementary evidence for the impact of key pressures and threats on European protected species and habitats. The literature review focused on key meta-reviews of evidence in peer-reviewed scientific papers and reports (e.g. from the Commission, the European Environment Agency, Member States and research centres), as well as IUCN European Red List assessments. The literature review included references identified by the stakeholders consulted, the analysis team, and expert submissions, but did not aim to be exhaustive.

Of 112 stakeholders consulted, 50 provided directly relevant answers²⁰⁰ in their evidence gathering questionnaire. Of these 50, 26 answers came from NGOs,²⁰¹ 19 from Member State nature protection authorities, six from other authorities, and one from industry stakeholders. Very few stakeholders substantiated their claims with evidence for the incidence or magnitude of key problems.²⁰² Any evidence provided is cited in the analysis below.

7.1.3 Analysis of the question according to available evidence

Identification of key problems

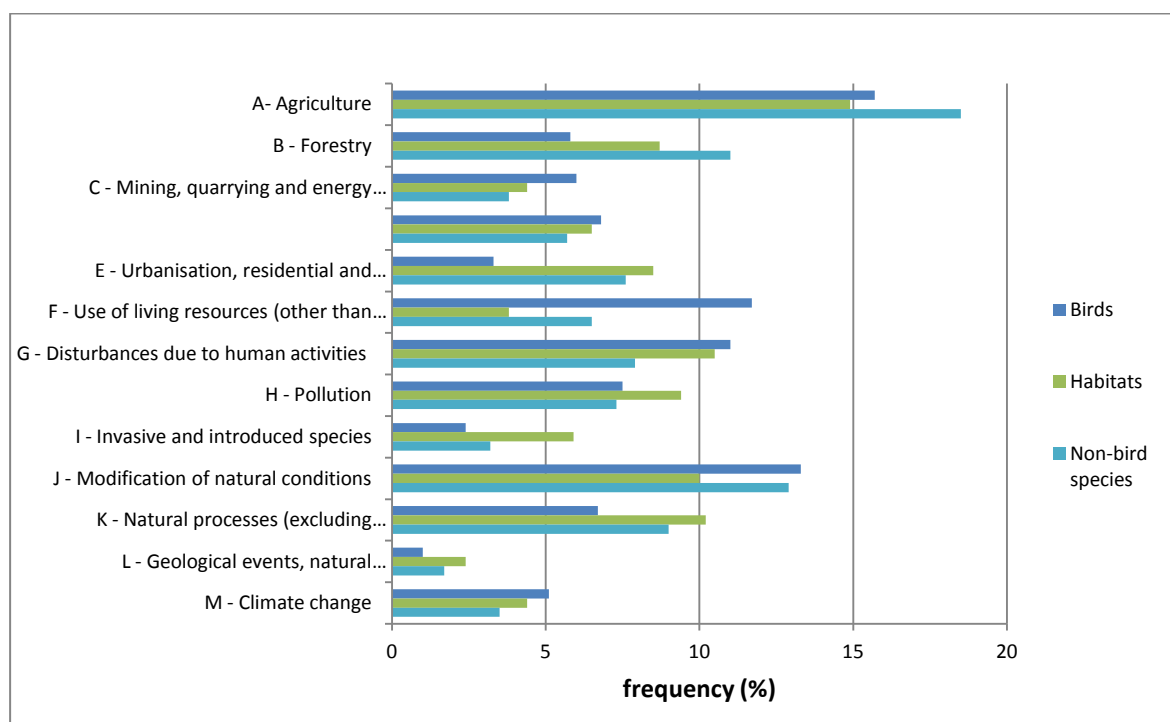
Figure 19 indicates the percentage of overall Level 1 pressures (i.e. those reported as high, medium and low) reported for birds, non-bird species and habitats by Member States for the 2007-2012 reporting period, according to the State of Nature Report (EEA, 2015a).

²⁰⁰ Other stakeholders either did not answer the question or provided an inconclusive answer (e.g. vague or irrelevant).

²⁰¹ Half of the 26 answers received from NGOs contained the same text, suggesting that the responses were coordinated rather than original contributions. As this is not a statistical survey, however, the responses remain valid, as do the findings.

²⁰² This lack of evidence may depend on factors which are unrelated to the validity of the claims (e.g. limited time invested in responding, evidence not being readily available to the respondent).

Figure 19 Frequency (%) of overall Level 1 pressures reported for birds, non-bird species and habitats by Member States for the 2007-2012 reporting period



Source: State of Nature Report (EEA, 2015a).

The results for each category of pressure/threat, along with the supporting evidence are described below. They are presented in descending order of importance according to the frequency of overall pressures/threats identified by Member States.

Agriculture-related pressures

Agriculture was the most frequent source of pressures and threats affecting birds (reported in 15% of assessments), non-bird species (18%) and habitats (15%). This reflects the relatively high proportion of European protected species and habitats completely or partly dependent on the continuation of appropriate agricultural activities, in particular, low intensity grazing and/or cutting, in cropland, grassland, wetland, heathland & shrub, and sparsely vegetated ecosystems (including coastal dunes).

Within the 'agriculture' category, the most frequently mentioned high ranking pressures/threats reported by Member States are modification of cultivation practices, grazing and mowing/cutting (including over and under management), use of pesticides, bio-cides, hormones and chemicals, restructuring of agricultural holdings and fertilisation practices.

The published literature shows substantial evidence of the impacts of agricultural improvements and intensification on farmland birds (Berg et al, 2015; Butler et al, 2010; Donald et al, 2001; Donald et al, 2006; Guerrero et al, 2012; Wretenberg et al, 2007), grassland and wetland butterflies (van Swaay et al, 2006) for example in Slovenia (Verovnik et al, 2011b), grassland and wetland plants dependent on low-intensity grazing and/or mowing (Bilz et al, 2011; Hötter and Leuschner, 2014; Rassi et al, 2010), and European protected plant species dependent on extensive cereal cultivation (IUCN, 2015). IUCN Red List experts assessed agricultural intensification in wood pastures (such as dehesa) and orchards as a major pressure on saproxylic beetles affecting 25 out of 75 threatened species in Europe (Nieto and Alexander, 2010). Similar assessments found the impacts of livestock farming as a major pressure/threat on 13 endangered bird species in Europe, and the impacts of annual & perennial crop cultivation as a major pressure/threat on 27 endangered bird species in Europe (Birdlife International, 2015b).

There is evidence of the indirect impact of some pesticides on certain farmland birds from the UK (Bright et al, 2008; Holland et al, 2012; Morris et al, 2005), France (Chiron et al, 2014) and Germany (Jahn et al, 2014). In addition, there is increasing evidence of widespread impacts of pesticides on freshwater invertebrates (Beketov et al, 2013; van der Sluijs et al, 2015), toxic effects of fungicides (Brühl et al, 2013) and herbicides (Wagner et al, 2013) on amphibians, with evidence also found for rodenticides poisoning European protected birds and other vertebrates (Lemus et al, 2011; Sánchez-Barbudo et al, 2012; Walker et al, 2013).

At the same time the abandonment of extensive agricultural management is affecting numerous European protected species and habitats: evidence cites the loss of specialist farmland bird species in the north-west Mediterranean region and south-eastern Europe (Chiron et al, 2013; Nikolov, 2010; Sirami et al, 2008; Zakkak et al, 2015); Annex I juniper matorral habitat in Portugal, France and Italy (Calaciura and Spinelli, 2008); Annex I semi-natural grasslands in Ireland (O'Neill et al, 2013), Bulgaria (Kazakova and Stefanova, 2010; Vassilev et al, 2011); and Slovenia (Kaligaric and Ivajnsic, 2014). IUCN Red List experts have assessed the abandonment of wet grassland as a critical threat to endangered butterflies (van Swaay et al, 2010), with lack of grazing on coastal grassland & saltmarsh stated as a major pressure on *Vertigo* mollusc species (Cuttelod et al, 2011).

An ongoing loss of semi-natural grasslands is due to both intensification and abandonment of extensive mowing and/or grazing, resulting in scrub invasion.

Documented losses include loss of 7.4% of species-rich grassland in Germany to intensification or ploughing between 2003 and 2008 (BfN, 2014) (BfN, 2014; Dieterich and Kannenwischer, 2012) and losses to arable within Natura 2000 areas in Germany (NABU, 2014a), modification or loss of 40% of UK peatlands by conversion to agriculture (Bain et al, 2011). The German NGOs pointed to a complaint sent to the Commission on the failure of Germany to protect Annex I grassland habitats (NABU, 2014a) and to prevent the decline of meadow-breeding birds (NABU, 2014b).

IUCN Red List experts assessed the loss of treelines and hedgerows as a major pressure on threatened bat species in Europe (Frey-Ehrenbold et al, 2013; IUCN, 2015). They also assessed the loss of small ponds, temporary ponds and traditional artificial habitats such as wells, stone troughs, and irrigation channels in agricultural areas, as a major pressure on amphibian populations (Temple and Cox, 2009).

Modification of natural conditions

High-level pressures associated with the modification of natural conditions include human induced changes in hydraulic conditions on freshwater, coastal and marine habitats and species, human induced habitat fragmentation on a range of habitats and species, and changes in fire regimes on forest and scrub habitats. Many modifications are directly related to agricultural and/or forestry uses, for example land drainage and water abstraction, while others are related to urbanisation and other infrastructure development, or energy production.

Changes in hydraulic conditions: The literature review provides evidence that freshwater habitats and species are extensively affected by modifications of rivers, lakes and other water bodies, including dams (Keder and McIntyre Galt, 2009; Liška et al, 2015; Lundqvist et al, 2008; Ordeix et al, 2011; Österling and Söderberg, 2015), canalisations (Schmutz et al, 2015), loss of floodplain habitats and the habitats created by natural river dynamics, drainage and water abstraction or other water diversions that cut off water flow (Robledano et al, 2010), and dredging and/or depositing of sediments. Coastal habitats and species are extensively affected by dykes, embankments and other flood defences, sediment movements, barrages, altered salinity due to water flow changes (Pérez-Ruzafa et al, 2011), and land reclamation. There is evidence of these modifications causing major pressures on freshwater fish (Freyhof and Brooks, 2011), molluscs (Cuttelod et al, 2011), dragonflies, wet grassland butterflies (van Swaay et al, 2010) and plants (IUCN, 2015), mire habitats (Normander et al, 2009; Peltomaa, 2007; Šefferová et al, 2008), and groundwater dependent habitats (Wamelink et al, 2013). Evidence

shows that marine habitats are affected by sand extraction, dredging and sedimentation (Díaz-Almeda and Duarte, 2008; Korpinen et al, 2015; Piazzini et al, 2012), as well as altered salinity due to water desalination facilities (Díaz-Almeda and Duarte, 2008). The NGO stakeholder response from Bulgaria stated that the construction of small hydro-power plants has allegedly caused significant negative impacts on the conservation status of a number of species and habitats dependent on rivers and streams in areas that have now been designated as SCIs.

Habitat fragmentation: Studies have quantified landscape fragmentation due to the transport network in the EU (EEA and FOEN, 2011) and forest fragmentation at the EU scale (Estreguil et al, 2013), and these findings are supported by some localised assessments (e.g. Le Gouvernement du Grand-Duché de Luxembourg, 2012; Wamelink et al, 2013). There is a large body of literature on the impacts of habitat fragmentation on species.

Changes in fire regimes: Inappropriate management burning (e.g. too frequently, or on peat soils) damages upland heaths, grasslands and blanket bogs in the UK (Brown et al, 2014; Glaves et al, 2013; Tucker, 2003). Severe wild fires can have major impacts on Mediterranean scrub and forest habitats (Papanastasis et al, 2002; Ramón Vallejo et al, 2012), while a lack of fires is a limiting factor on biodiversity in Boreal forests (Birdlife International et al, 2013; Laarmann et al, 2013).

Forestry-related pressures and threats

Forestry pressures are mainly related to unsuitable forest management in existing forest areas rather than absolute increases or decreases in forest area, as, at the continental scale, the area of forest in Europe is increasing. The literature review provides evidence of pressures in a number of areas: due to large-scale clear cutting of areas within forest on the European Flying Squirrel (Jokinen et al, 2015; Rassi et al, 2010; Santangeli et al, 2013), and the loss of deadwood and standing dead trees because of intensive management, on European protected forest birds in Finland (European Commission, 2015c), saproxylic beetles (Nieto and Alexander, 2010), forest bats (Zehetmair et al, 2015), some molluscs, bryophytes and lichens (Paillet et al, 2010). There is evidence of the loss of Annex I forest habitats to clear cutting in Sweden (Sahlin, 2010), Mediterranean countries (Zaghi, 2008), Natura 2000 sites in Romania (Knorn et al, 2013). A lack of management, leading to a loss of open areas in woodland, is a factor in the decline of some European protected woodland butterflies (van Swaay et al, 2006; van Swaay et al, 2010) and plants. There is less evidence, however, of the impact of fertilisers and pesticides on forest species (Freyhof and Brooks, 2011). Afforestation on peat bogs and mire habitats is a significant pressure in Ireland (NPWS, 2013b), the UK (Anderson, 2010), Finland (Similä et al, 2014), although the rate of new afforestation has decreased or stopped. Finally, afforestation is affecting some coastal and Mediterranean habitat types (ICNB, 2014; Picchi, 2008).

Natural processes (excluding catastrophes)

Member States reported succession as a high-level pressure on all terrestrial and freshwater ecosystems (except cropland), which is linked to the abandonment of low-intensity agriculture (see above) and/or eutrophication (see below). Although it was not given a high rank, there is evidence that genetic depression or low genetic diversity is affecting large carnivore populations in Sweden (Laikre et al, 2012; Rääkkönen et al, 2013) and Slovenia (Sindjic et al, 2013).

Pollution

Terrestrial and marine pollution were identified by Member States as a high-level pressure/threat on freshwater birds, other species and habitats, and on some wetland, forest, grassland and heath/scrub habitats. The literature review confirms that eutrophication caused by nitrogen deposition from air pollution is a significant widespread threat to wetlands, grasslands, dunes, forests, heath and scrub, and rocky habitats, particularly in

North-western and Central Europe (Hicks et al, 2011; Posch et al, 2012; Slootweg et al, 2014; Whitfield and McIntosh, 2014). Pressure from eutrophication caused by nitrogen deposition is expected to continue despite air pollution reduction targets and policies (EEA, 2014a). Nitrogen deposition is expected to be a key constraint for the Netherlands in achieving favourable conservation status for its habitats and species (Wamelink et al, 2013). By contrast, acidification impacts from air pollution have reduced substantially in Western Europe and more slowly in Eastern Europe, with beneficial effects on sensitive species and habitats. Recovery of some habitats may, however, take decades (EEA, 2014a).

Nitrogen and phosphate pollution of surface waters is declining (EEA, 2015c), and this has contributed to the recovery of some species (Kalkman et al, 2010). Pollution from agricultural fertiliser use remains a major pressure on freshwater fish (Freyhof and Brooks, 2011), freshwater molluscs (Cuttelod et al, 2011) and Natura 2000 sites (Jensen et al, 2015; Kazun, 2014; NRW, 2014). Pollution of groundwater is generally declining (EEA, 2015c) but is a problem for cave-dwelling freshwater species (Cuttelod et al, 2011) and in some groundwater-fed habitats such as fens (NPWS, 2013b; Šefferová et al, 2008).

The literature indicates that eutrophication from terrestrial run-off is a major pressure on marine habitats and species in most parts of the Baltic (HELCOM, 2010) and Mediterranean Seas (Díaz-Almeda and Duarte, 2008; Micheli et al, 2013; Piazzini et al, 2012). Hypoxia caused by eutrophication is also a major pressure in most of the Baltic (Conley et al, 2011; Korpinen et al, 2015) and the Black Sea (HELCOM, 2010). Marine pollution by certain hazardous substances is above regulatory limits in many places (European Commission, 2014e). Marine litter is an increasing pressure with evidence of significant impacts on some marine birds (van Franeker et al, 2011), grey seals (Allen et al, 2012), sea turtles and whales (Deudero and Alomar, 2015), although systematic assessments are lacking. Frequency of oil spills and chemical discharges are reducing (Camphuysen, 1998; EEA, 2015d; OSPAR Commission, 2010), although large spills are still assessed as a significant threat to marine birds (Birdlife International, 2015b; Burton et al, 2010). Evidence also shows that particle emissions have accumulated in marine sediments (Veltman et al, 2011). Underwater (marine) noise generated by seismic surveys, pile driving for energy infrastructure, and marine munitions clearance is a significant pressure on cetacean populations (Gedamke et al, 2011; Koschinski, 2011; OSPAR Commission, 2009; Pirodda et al, 2014) and possibly some fish (Perrow et al, 2011).

Disturbances due to human activities (recreation and associated structures e.g. golf courses, ski pistes)

Member States reported disturbances due to human activities - principally outdoor recreational activities - as a high-level pressure on a significant subset of species in most ecosystems (including marine), and on habitats in sparsely vegetated ecosystems (including alpine habitats, and coastal dune and rocky habitats). IUCN Red List experts point to significant pressures on particular species groups principally in alpine and coastal habitats, including threatened terrestrial molluscs (Cuttelod et al, 2011), vascular plants (Ballantyne and Pickering, 2013; IUCN, 2015), reptiles (Cox and Temple, 2009), and bats (IUCN, 2015). Impacts come from activities such as ski resorts (Patthey et al, 2008), rock climbing and hiking (Zuberogitia et al, 2008), tourism in caves (IUCN, 2015), and coastal recreation activities. Relatively low-impact activities such as walking or hiking where visitors do not deliberately disturb animals, have been shown to have negative effects on certain birds (Holm and Laursen, 2009; Steven et al, 2011; Steven and Castley, 2013), such as birds in the grouse family (Moss et al, 2014; Rösner et al, 2013; Storch, 2007; Thiel et al, 2011). Coastal and marine recreation activities, such as beach tourism and boating, are associated with negative impacts on coastal plants (Farris et al, 2013), sea turtle nesting (Casale and Margaritoulis, 2010), certain birds (Kerbiouri et al, 2009), and marine species and habitats (Hendriks et al, 2013; Montefalcone et al, 2008).

Use of living resources other than agriculture and forestry (hunting, commercial fishing, collecting, etc., both legal and illegal)

Member States reported high-ranking pressures from the following: hunting and collection of wild animals on some birds and large carnivores; from high densities of game populations on forest habitats; from fishing and harvesting of aquatic resources on marine birds, non-bird species and habitats; and aquaculture on some freshwater birds, coastal birds, and non-bird species. A recent investigation identified illegal killing as a major pressure on 42 endangered bird species in Europe (Birdlife International, 2015a; Birdlife International, 2015b), and additional evidence refers to raptor killings (Knott et al, 2010; Leitão et al, 2014; NABU et al, 2014; NPWS, 2013a). There is some evidence that hunting is limiting large carnivore populations in a number of Member States, both illegal killing (although it is decreasing) (Majic, 2014; Pohja-Mykrä and Kurki, 2014b), or legal quotas for hunting in some Member States (Jerina et al, 2014; Jerina and Krofel, 2012; Knott et al, 2014) (although they are becoming more sustainable) (Boitani et al, 2015).

There is evidence that grazing and disturbance caused by large game populations is affecting forest habitats (Ammer et al, 2010; Vacek et al, 2014) and disturbing forest birds (Eglington and Noble, 2010).

The literature review identified an increasing body of evidence for the substantial pressure of certain fishing methods, in particular bottom trawling, on marine habitats in the Black Sea (Micheli et al, 2013), Mediterranean (Díaz-Almeda and Duarte, 2008; Martín et al, 2015; Puig et al, 2012), North Sea (Atlantic) (Tillin et al, 2006; van Denderen et al, 2014) and Baltic (Korpinen et al, 2015), and food chain impacts on EU protected species through overexploited fish stocks (Svedäng, 2010; Tsikliras et al, 2015); impacts of dredging for shellfish on bird communities (Atkinson et al, 2010; Burton et al, 2010); and gillnetting on seabirds (Degel et al, 2010) and cetaceans (European Commission, 2011c; OSPAR Commission, 2010) caught as bycatch. Overfishing was assessed as a major pressure on 15% of threatened freshwater fish in Europe and 20% of all European freshwater fish species (Freyhof and Brooks, 2011). The illegal collection of protected marine molluscs is reported from Greece (Katsanevakis et al, 2011). Marine and freshwater aquaculture is associated with a range of impacts in the other categories mentioned here (sedimentation, chemical water pollution and eutrophication, release of invasive alien species). Direct impacts on species can occur if unsustainable shellfish harvesting practices, predator control and displacement of birds and seal populations take place (European Commission, 2012e; OSPAR Commission, 2010) (European Commission, 2012e).

Urbanisation, residential and commercial development

Member States reported high-level pressures on habitats caused by urbanisation, residential and commercial development in the Black Sea and Mediterranean regions at a rate almost three times higher than the overall average for all regions, and principally in sparsely vegetated and heath/scrub coastal habitats (EEA, 2015a). This is supported by the literature, which provides evidence of the pressure of coastal development on endangered Mediterranean species, and to coastal habitats in other parts of Europe (Ryle et al, 2009). Development was also reported as a high-level pressure on some cropland, grassland and forest species, and grassland habitats. This is likely to reflect the impact of both urban sprawl and habitat fragmentation, as documented in the literature. Between 1990 and 2000, soil was sealed by urban, residential and commercial development at a rate of at least 1,000 km² per year (Jones et al, 2012).

IUCN Red List experts assessed loss of habitat due to urbanisation in Europe as a major pressure on approximately 40% of endangered terrestrial mollusc species (Cuttelod et al, 2011), on 26 out of 75 threatened saproxylic beetles (Nieto and Alexander, 2010), and endangered reptiles in coastal and mountain habitats (Temple and Cox, 2009). Although sewage discharges have substantially decreased, they are still assessed as a major pressure on some freshwater fish (Freyhof and Brooks, 2011) and on a third of European freshwater mollusc species, especially in Southern and Eastern Europe (Cuttelod et al,

2011). Building renovation is also assessed as a pressure on bat colonies and roosts (IUCN, 2015).

Transportation and service infrastructure

Member States reported the transportation network as a high-level pressure on some protected species in all onshore ecosystems, while the literature review highlighted the evidence of habitat fragmentation caused by transport networks (see above) and direct impacts on birds (Mammides et al, 2015) and large mammals (Alterra, 2008; Fechter and Storch, 2014). IUCN Red List experts assessed habitat loss from road construction as a major pressure on approximately 20% of endangered terrestrial mollusc species in Europe (Cuttelod et al, 2011). Freshwater shipping is associated with a range of unquantified potential threats in the other categories mentioned here (invasive alien species, modification of natural hydrological conditions associated with canalisation and regulation of water flow, dredging and sediment dumping, and pollution from ship waste, bilge water or accidental spills) (European Commission, 2012f). Marine ship traffic has been quantified as a spatially significant pressure on marine ecosystems (Korpinen et al, 2015; Micheli et al, 2013). Port construction and operation and the associated dredging and habitat loss is a major pressure on many European estuaries (European Commission, 2011b; Pascual et al, 2012). There is, however, evidence to suggest that biodiversity protection can be successfully integrated into port operation (European Commission, 2011d; Snep and Ottburg, 2008; Vikolainen et al, 2013).

Member States reported utility and service lines as a high-level pressure on some bird species, for which the literature review provides evidence of significant mortality of soaring bird species due to certain power lines (Birdlife International, 2015b; Demerdzhiev, 2014; Rubolini et al, 2005). However, mortality rates can be significantly reduced by better design and spatial positioning of power line infrastructure (Scrase, 2015).

Mining and quarrying, energy production

Member States reported mining and quarrying as a high-level pressure on some wetland habitats, sparsely vegetated habitats, and freshwater habitats. This corresponds to evidence from the literature review of the impacts of peat extraction (Friends of the Irish Environment, 2011; Kimmel et al, 2010; Stallegger, 2008), including oil shale extraction on bogs and fens in Estonia (Minayeva et al, 2009), and gravel extraction in rivers affecting fish (Freyhof and Brooks, 2011). The review, however, also found evidence of species benefiting from the habitats created by quarrying activities (European Commission, 2010a).

Member States reported marine renewable energy (i.e. wind farms) as a high-level pressure on some bird species, but did not report any high-level pressures from onshore wind. The literature review shows evidence of mortality from onshore wind farm collisions affecting some bats (Camina, 2012; Georgiakakis et al, 2012; Rydell et al, 2010a; Rydell et al, 2010b; Voigt et al, 2012), and birds of prey species (Bellebaum et al, 2013; Hötter et al, 2014). There is also evidence of displacement of some birds (Gove et al, 2013; O'Donoghue et al, 2011) while other species are attracted to food resources associated with turbine structures (Lindeboom et al, 2011).

Invasive native and non-native species

Member States reported invasive non-native species as a high-level pressure on some habitats, bird species and other species primarily in sparsely vegetated, freshwater and marine ecosystems. Evidence shows that that invasive alien species are a significant pressure on particular species groups, notably threatened freshwater fish (Freyhof and Brooks, 2011) and amphibians (Temple and Cox, 2009), and certain threatened forest habitats (Guimaraes and Olmeda, 2008; WWF Hungary, 2011), but there is insufficient evidence to assess the overall impact on biodiversity of the more than 11,000 invasive alien species present in Europe (Malak et al, 2014). One review documented negative ecological effects of 101 invasive alien species in the EU (Kettunen et al, 2009b). Intro-

duced diseases are an emerging threat, particularly to amphibians (IUCN, 2015; Price et al, 2014) and freshwater invertebrates²⁰³. However, while there is some evidence with respect to the impact of invasive alien species on marine habitats and species, major data gaps remain (Katsanevakis et al, 2014; Ojaveer and Kotta, 2015; Piazzini et al, 2012). IUCN Red List experts assessed invasive alien species as a major pressure/threat on 21 endangered bird species in Europe, and invasive native species as a major pressure/threat on 14 endangered bird species in Europe (Birdlife International, 2015b).

Climate change

Member State reports frequently mention climate change as a threat but it was ranked as a high-level threat for only a subset of species groups and habitats (EEA, 2015a). Climate change impacts provided in the literature are largely predictions based on modelling, with some emerging direct evidence of impacts on certain species (Delgado et al, 2009; Koskimäki et al, 2014; Lehtikoinen et al, 2013). Only limited information is available to assess current pressures (Bertzky et al, 2011; Malak et al, 2014). Climate change is expected to shift some species ranges and shrink others, particularly alpine and arctic species (Kujala et al, 2011; Rassi et al, 2010; Sajwaj et al, 2011; Virkkala et al, 2013; Vos et al, 2008). Mismatches between suitable climatic zones for species and their food are predicted for butterflies and their food plants (Settele et al, 2008), and for Iberian lynx²⁰⁴ and rabbits²⁰⁵ (Fordham et al, 2013). Assessments predict significant impacts of climate change on the terrestrial Natura 2000 network (Araujo et al, 2011; Balzer et al, 2007; Beierkuhnlein et al, 2014; Wilke et al, 2013), and marine habitats and species (Marbà et al, 2014; Micheli et al, 2013). Some species are predicted to be less protected by the Natura 2000 network (Mazaris et al, 2013), including amphibians (D'Amen et al, 2011; Popescu et al, 2013), while other species will benefit from Natura 2000 areas to a greater extent than they do currently (Johnston et al, 2013; Kujala et al, 2011).

There is evidence that Natura 2000 sites are facilitating species range shifts (Hiley et al, 2013; Thomas et al, 2012) and climate-driven abundance changes (Pavón-Jordán et al, 2015). Appropriate management of Natura 2000 sites may, therefore, be able to slow climate-related declines and accelerate species expansions (Thomas and Gillingham, 2015).

Whether the Nature Directives address key problems

As described, the Nature Directives are considered to address key problems where the Directives apply to the problem, and provide for procedures and mechanisms to deal with it.

36 of the 50 valid stakeholder responses to the evidence gathering questionnaire clearly expressed the opinion that the Directives do apply to key problems.²⁰⁶ Of these positive responses, six stated that this is so 'by definition', as the application of the Directives is triggered by the existence of negative effects on protected habitats and species, regardless of the underlying cause.²⁰⁷ 10 responses did not provide any clear view on whether or not the Directives apply to all relevant key problems. Four respondents expressed the view that the Directives do not cover all key problems, mainly because climate change is not sufficiently addressed.

Clear opinions on whether or not the Directives provide for procedures or mechanisms to address each of the key problems, was provided by 31 of the responses received. The majority (27) expressed the view that the Directives provide for procedures to address

²⁰³ Vrålstad, T., Johnsen, S. I. and Taugbøl, T. (2011) NOBANIS – Invasive Alien Species Fact Sheet – *Aphanomyces astaci*. – From: Online Database of the European Network on Invasive Alien Species – NOBANIS www.nobanis.org, Date of access 13/09/2015. https://www.nobanis.org/globalassets/speciesinfo/a/aphanomyces-astaci/aphanomyces_astaci.pdf

²⁰⁴ *Lynx pardinus*.

²⁰⁵ *Oryctolagus cuniculus*.

²⁰⁶ This opinion was clearly expressed in 36 of the 50 valid responses received.

²⁰⁷ See Article 1(a) and 2 of Directive 92/43/EEC and Article 2 of Directive 2009/147/EC.

key problems. Those who disagreed essentially saw the Directives' approach as being too static to adapt to change (whether natural or caused by climate change).

Before reviewing the Directives in detail, it is worth pointing out that the role of Directives, as set out in the Treaty,²⁰⁸ is to set results to be achieved, with Member States free to decide their own methods and processes. The Nature Directives respect the Member States' discretionary power to choose how to implement them. Consequently, whether or not the objectives of the Directives are met largely depends on how Member States put their provisions into action.

The Nature Directives' approach is not problem-specific and sets conservation objectives for habitats and species that are considered important at EU level. On that basis, Member States are required to take measures, although it remains within their discretionary power to choose how to achieve the objectives and avoid adverse effects on habitats and species, irrespective of their cause.

In order to investigate if the Directives address key problems, we carried out a legal analysis of the Directives and relevant case law. The results are presented below, following the structure of the Directives themselves. This structure avoids repetition where, as is often the case, the same provisions apply to several key problems.

The objectives of the Birds and Habitats Directives

The overall objective of the Birds Directive is to maintain or adapt the population of relevant species at a level that corresponds to ecological, scientific and cultural requirements, while taking into account economic and recreational requirements.²⁰⁹ The overall objective of the Habitats Directive is to ensure the conservation of natural habitats, wild flora and fauna, in particular by maintaining or restoring relevant habitats and species at favourable conservation status.²¹⁰ In doing so, economic, social and cultural requirements, as well as regional and local characteristics, must be taken into account.²¹¹

The Natura 2000 Network

Article 3 of the Habitats Directive requires Member States to establish special areas of conservation²¹² (SACs) in proportion to the representation within their territories of protected habitats and species.²¹³

Article 4 of the Birds Directive requires Member States to take special conservation measures concerning the habitats of species listed in Annex I to the Directive. In doing so, they must take into account, among other things, species' vulnerability to changes in their habitats and their rarity (e.g. because the populations are small or narrowly distributed). These measures include the designation of sites as special protection areas (SPAs). In this regard, Member States must classify as SACs 'the most suitable territories in number and size as special protection areas for the conservation of these species in the geographical sea and land area where this Directive applies'.²¹⁴

²⁰⁸ Art. 288(1), third subparagraph, TFEU. (Trouwborst and Fleurke, 2014) stresses the role that the legal nature of the Directives and the interpretation of the Court of Justice of the European Union (CJEU) have played in fostering biodiversity protection. According to this source, the possibility for individuals to directly enforce the Directives in national courts vis-à-vis national authorities, provided certain conditions are met, has enabled biodiversity protection, which would not otherwise have been 'easily represented in court', to obtain legal protection. The requirement that national courts must interpret domestic law in the light of the Directives once the deadline for their transposition has expired, and the possibility, under certain conditions, for individuals to hold a Member State liable for damages caused by a failure to correctly apply the Directives, have further contributed to establishing an adequate legal framework that covers a broad range of threats and problems for effective bio-diversity protection. Finally, the dialogue between the CJEU and national courts through the preliminary ruling procedure has helped national courts to interpret and apply a complex area of law.

²⁰⁹ Article 2, Birds Directive.

²¹⁰ Article 2(1) and (2), Habitats Directive.

²¹¹ Article 2(3), Habitats Directive.

²¹² Article 3(1), Habitats Directive.

²¹³ Article 3(2), Habitats Directive.

²¹⁴ The Court has clarified that the designation of SPAs is obligatory for Member States where Annex I species occur in their territory. It is not possible to avoid designation by adopting other types of special conservation

Unlike the Habitats Directive, the Birds Directive does not make any explicit reference to the SPAs being designated in such a way as to foster the ecological coherence of the network. However, because SPAs are part of the Natura 2000 network,²¹⁵ and Article 3 of the Habitats Directive refers to this network being coherent, the designation of SPAs should also foster the ecological coherence of the network.

Where the Member States consider it necessary, according to Article 3(3) of the Habitats Directive, they should endeavour to maintain features of the landscape essential for the migration, dispersal and genetic exchange of wild species.²¹⁶ Article 10 of the Habitats Directive provides that Member States should further endeavour to encourage the management of features of the landscape which are of major importance for wild flora and fauna.

These provisions enable Member States to protect landscape features to ensure the achievement of the conservation objectives of the Directives and the Favourable Conservation Status (FCS) of the habitats and species. They potentially affect the following key problems: agriculture and forestry-related pressures; habitat fragmentation; disturbances due to recreational activities; urbanisation, residential and commercial development; transportation and service infrastructure; mining and quarrying, energy production.

In addition, improving the ecological coherence of the Natura 2000 network can improve habitats' and species' resilience to climate change, for example by strengthening habitats' biological diversity and by providing stepping stones for species to migrate because of the changing climate. The full potential of the role of the Natura 2000 network to provide solutions for mitigating and adapting to climate change has been described in the European Commission Guidelines on climate change and Natura 2000.

The Habitats Directive prescribes that Member States must consider conservation objectives in **designating** SACs.²¹⁷ Such designation is to be made based on the criteria set out in Annex III and relevant scientific information²¹⁸. According to Article 4(1) of the Habitats Directive, Member States may propose to the Commission **adaptations** to the list of sites, in light of the results of the surveillance referred to in Article 11, which requires Member States to undertake monitoring and surveillance of the conservation status of habitats and species. Member States, for their part, 'may not reduce the surface area of an SPA or alter its boundaries unless the areas excluded from the SPA are no longer the most suitable territories for the conservation of species of wild birds within the meaning of Article 4(1) of the Directive'.²¹⁹ The process for setting up or adapting the Natura 2000 network through Articles 3 and 4 of the Habitats Directive would allow for the Natura 2000 network to adapt to climate change, although the procedures and mechanisms set out in the Directives were not originally intended to address this threat. In addition, while the Habitats Directive refers to the possibility of declassifying SACs, no equivalent possibility is explicitly given under the Birds Directive. This situation could lead to uncertainty and lack of confidence for decisions at site level.

Under Article 9 of the Habitats Directive, it is for the Commission, with the involvement of the representatives of the Member States, to periodically review the contribution of the Natura 2000 network towards the achievement of the Directive's objectives. Upon review, if natural developments so warrant and, as a result of the monitoring under Article 11, declassification of an SAC may be considered. This provision could, in principle, be used to adapt the Natura 2000 network to natural changes by declassifying SACs which

measures.

Member States' margin of discretion in implementing the requirement to classify sites as SPAs only concerns the identification of the most suitable territories for the conservation of relevant species, and does not therefore include the assessment of whether or not designating such territories as SPAs is appropriate. Thus, 'where it appears that a Member State has classified as special protection areas sites, the number and total area of which are manifestly less than the number and total area of the sites considered to be the most suitable, it will be possible to find that that Member State has failed to fulfil its obligation under Article 4(1)' (C-3/96).

²¹⁵ Article 3(1), second subparagraph, Habitats Directive.

²¹⁶ Article 3(3), read in conjunction with Art. 10, Habitats Directive.

²¹⁷ Article 3(2), Habitats Directive.

²¹⁸ Article 4(1), Habitats Directive

²¹⁹ C-191/05.

no longer require protection. Such adjustments may be appropriate, for example, where a protected species hitherto present on a SAC/SPAs migrates away. In those cases, in addition to declassification, re-adjustment of the site under Article 3(3) or 4(1) of the Habitats Directive might be considered. However, the Directive only allows this in the case of 'natural developments' – a term not defined in the Directive and one which raises the question of whether climate change can be considered a natural development for the purposes of this provision.²²⁰

Box 79 - The Natura 2000 Network and climate change

The European Commission has published guidance on Natura 2000 management in relation to climate change (Alterra and Eurosite, 2013). Recommended adaptation measures for the Natura 2000 network include increasing protected area size, number and connectivity as well as adaptive management, restoration and habitat creation.

A recent literature review (Van Teeffelen et al, 2014) of the adequateness of the Directives to cope with climate change found some significant shortcomings, which essentially result from the tension between the need to support habitats and species where they are now, and the need to help them shift their distribution to adapt to climate change. The major weaknesses identified include insufficient cross-national cooperation,²²¹ insufficient expansion of Natura 2000 network to anticipate climate change,²²² incomplete network connectivity,²²³ and insufficient support for habitat restoration for climate change adaptation.²²⁴

²²⁰ No case law was found that would specifically clarify whether climate change can be considered as 'natural change' for the purposes of declassifying a Natura 2000 site under Article 9 of the Habitats Directive. However, in case C-191/05, the ECJ ruled that a Member State, in order to justify the reduction of an SPA protected under the Birds Directive, must prove that the deterioration in conservation status is due to objective circumstances over which the Member State has no control. An example of such objective circumstances is volcanic eruptions. In another judgment – case C-6/04 – the Court qualified climate change as a 'structural environmental [change] that [jeopardises] the conditions for the continued existence of the protected habitats and species in the Natura 2000 sites concerned'. While the Court did not address in either case the question of whether or not climate change qualifies as 'natural change' within the meaning and for the purposes of Article 9 of the Habitats Directive, they both contribute to the impression that climate change-induced developments may not warrant declassification under Article 9.

²²¹ The literature also finds insufficient cross-border cooperation in relation to other problems. For example, a study (Trouwborst and Fleurke, 2014) on large carnivores states that cross-border cooperation 'is not yet taking place on any meaningful scale', and suggests that this may be linked to the 'lack of express obligations and accompanying mechanisms' in the Directives, as well as the focus on compliance at individual Member State level.

²²² The Directives provide for extending the network, but insufficient guidance is given on what, where and when extension would be effective. Cliquet (2014) argues that, while the criteria for designating Natura 2000 sites and for establishing the Community list do not explicitly mention climate change adaptation, the references to the potential for ecological restoration and to migration routes leave sufficient room to accommodate spatial responses to climate change. It recalls that Member States are under an obligation to designate new sites (ECJ C-209/04) and adapt existing ones if this becomes appropriate. In extreme cases, a Member State may even declassify a protected area (or part thereof) if it proves that the areas 'are no longer the most suitable territories for the conservation' (ECJ C-191/05), although the CJEU has been quite strict in permitting such declassification. A study by Pavón-Jordán et al. (2015) supports the notion that – in the specific case of the Smew, a wintering waterbird – climate change is driving modifications in the patterns of bird migrations, with populations appearing concentrated farther North than usual. However, the authors note that while policy changes are needed to respond to increased population numbers in the North, harsh winters still regularly send migratory birds back to their more traditional breeding grounds, and it would thus be wise to maintain high levels of conservation in currently designated sites to act as refuges in cases of extreme weather. Furthermore, Pavón-Jordán et al. (2015) point out that, in the North-Eastern regions – which saw a significant increase in the number of wintering Smew – the increase in Smew numbers was higher inside designated sites than outside, giving weight to the argument for expanding the Natura 2000 network in areas seeing climate change-driven increases in wintering waterfowl population.

²²³ While the directives contain legal provisions in this regard, they are, according to (Van Teeffelen et al, 2014) not strict enough and are insufficiently implemented. A legal analyst (Cliquet, 2014) finds that the Directives' provisions on connectivity (notably Articles 3 and 10 of the Habitats Directive) are quite weakly worded, so the emphasis so far has been on conserving habitats and species in core areas rather than implement the connectivity measures that would help adaptations to climate change. This is despite the fact that other provisions of the Directives (in particular, Articles 6, 11 and 17 of the Habitats Directive, and Articles 3 and 4 of the Birds Directive. For a discussion see (Cliquet, 2014) would, if more proactively implemented, enable better connectivity to be achieved within the current legal framework. Squintani (2012) concurs that, although the creation of ecological corridors to improve the connectivity of the Natura 2000 network is widely recognised as important, the Directives do not clearly require Member States to develop such corridors. This has resulted in uncertainty in the interpretation and application of the Directives. For example, in the Netherlands, the government established in 2010 interpreted the Directives as merely allowing – but not requiring – the development of ecological

Other sources, however, explain that the Directives are fit to respond to climate change. Huntley et al(2007) say 'We have many of the instruments we need to help wildlife. In particular, full and imaginative implementation of the EU Birds and Habitats Directives can help wildlife both inside and outside protected areas.' Cliquet (2014) indicates that the Directives – although not mentioning climate change expressly – do allow sufficient flexibility to cope with/adapt to climate change.²²⁵

The management/protection measures

Article 6(1) of the Habitats Directive requires Member States to establish conservation measures for SACs. These conservation measures can include, for example, management plans that correspond to the ecological requirements of the habitats and species present within each SAC.²²⁶

When setting the conservation objectives in the Natura 2000 sites, threats from land-use activities can also be dealt with. As explained in a note by the European Commission on the management of Natura 2000,²²⁷ conservation measures should define whether and how economic activities are carried out inside and, where appropriate, outside Natura 2000 sites, or across multiple sites.²²⁸ For example, in the case of marine sites, the regulation of fisheries activities can constitute a significant element of conservation measures.

The full extent of the key problems faced by the habitats and species presented in the first section of this question, cannot be dealt with by the Directives on their own. The Directives do not exist in isolation and other instruments and measures also affect specific key problems (whether positively or negatively). Box 1 illustrates this through the example of agriculture and forestry. A more thorough analysis of the relationships between the Directives and other policies can be found in the "Coherence" section of this report.

Box 80 - The interaction between the Directives and initiatives under other policy areas: The example of agriculture and forestry

Agriculture- and forestry-related pressures are primarily addressed through incentive programmes for land managers within and outside Natura 2000 sites, most frequently agri-environment schemes, and through species protection measures for key affected species, for example, forestry protection measures for Flying Squirrels.

Some respondents to the evidence gathering questionnaire also mentioned the use of national

corridors. Thus, they considered the development of such corridors (started in 1990 and planned to continue until 2018) as beyond the requirements of the Directives (a practice called "gold plating") and decided to discontinue it. This decision was strongly opposed by Dutch academics.

²²⁴ While legal provisions exist, there are no specific and coordinated plans at Member State level. Furthermore, funding allocation (e.g. through Life+) is not aligned to climate change adaptation needs.

²²⁵ In relation to the designation of sites, Cliquet (2014) argues that, while the criteria for designating Natura 2000 sites and for establishing the Community list do not explicitly mention climate change adaptation, the references to the potential for ecological restoration and to migration routes leave sufficient room to accommodate spatial responses to climate change. It recalls that Member States are under an obligation to designate new sites (ECJ C-209/04) and adapt existing ones if this becomes appropriate. In relation to biodiversity targets, the source argues that conservation objectives can be defined in qualitative – rather than quantitative – terms, in order to allow some flexibility to reflect effects due to climate change. In extreme cases, a Member State may even declassify a protected area (or part thereof) if it proves that the areas 'are no longer the most suitable territories for the conservation' (ECJ C-191/05), although the CJEU has been quite strict in permitting such declassification.

²²⁶ Article 6(1), Habitats Directive.

²²⁷ Commission note on setting conservation objectives (European Commission, 2012g)

²²⁸ The Commission note (European Commission, 2012g) underlines that conservation measures must correspond to the ecological requirements of habitats and species. Therefore, while they are generally established at the site level, they may also be designed at regional, national, cross-border, biogeographical or EU level, if this is more appropriate in the light of those ecological requirements. For the same reason, they may include areas that are not part of the Natura 2000 network, e.g. to foster the connectivity of the ecological network. The concept of 'ecological requirements' is not defined in the Directives, but, according to the Commission, can be understood as referring to 'all the ecological needs of abiotic and biotic factors necessary to ensure the favourable conservation status of the habitat types and species, including their relations with the environment (air, water, soil, vegetation, etc.)'. See Commission guidance on Article 6 (European Commission, 2000)

or regional regulations prohibiting certain activities in Natura 2000 sites, for example a prohibition on ploughing grassland in Natura 2000 sites in Slovakia.

Others pointed out that agricultural policy, notably agri-environment schemes, are failing to address the key problems for habitats and species, but that this is an issue of the integration of biodiversity objectives into Common Agricultural Policy (CAP) implementation, rather than a weakness of the Nature Directives themselves (see responses to Qs C3, C4 and C7).

While the Directives do not lay down strict requirements about the type of conservation measures to be adopted, the Commission has issued guidance in this regard.²²⁹ Conservation measures can be used to reverse key problems such as the modification of natural conditions and restore fragmented habitats, as explained in Box 81.

Box 81 - Conservation measures can help reverse habitat fragmentation

Pressures from the modification of natural conditions on habitats and species usually need to be addressed through active management measures and often require restoration actions at various scales. Some respondents to the evidence gathering questionnaire pointed out that the Directives have played a key role in stimulating restoration to deal with the legacy of habitat modifications that were carried out before the designation of Natura 2000 sites, for example, hydropower dams that cause fragmentation of river populations and habitats. The Water Framework Directive (WFD) was also mentioned as an important driver of freshwater restoration projects that benefit European protected habitats and species, and the key role of LIFE funding. (See also responses to development and transport infrastructure pressures below.)

Article 4(4) of the Birds Directive provides that Member States should take appropriate steps to avoid, among other things, pollution or deterioration of habitats or any disturbances that may significantly affect relevant species. Article 6(2) of the Habitats Directive requires that any significant deterioration of habitats and disturbance of species present on Natura 2000 sites²³⁰ must be avoided.²³¹ These two provisions clearly apply to any key problem, e.g. pollution. They also apply where disturbance originates from activities such as fishing, aquaculture, hunting and hunting-related activities, even where these activities are practised under the conditions, and in the areas, authorised by national laws and regulations.²³² While the provisions do not lay down any procedure or mechanism to ensure that Member State measures are appropriate, evidence indicates that, when ambitiously applied, the Directives' provisions constitute an effective framework for relevant actions, as illustrated in Box 82 in relation to nitrogen pollution.

Box 82 – The Directives as catalysers for actions against nitrogen pollution: Examples from the Netherlands and Belgium

One of the main pollution problems is nitrogen deposition (largely as a result of intensive agricultural production) which affects the objectives related to Natura 2000 sites. The intensity of the problem and its impact on the Directives' objectives to ensure FCS of the habitats and species through site designation and species protection measures, requires strategic approaches that go beyond Natura 2000 site management.

For example, the Netherlands have developed the Programmatic Approach to Nitrogen (PAN)²³³, which aims to reduce impacts on Natura 2000 sites, while at the same time enabling economic developments (such as increasing livestock numbers overall). Before the adoption of this plan, the granting of permits to certain activities was frozen as they would result in increased Nitrate emissions. The PAN now provides some scope for increasing nitrate emissions in some areas.

²²⁹ http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

²³⁰ Article 6(2), Habitats Directive refers to SACs. However, it is also applicable to SPAs through Article 7, Habitats Directive.

²³¹ Article 6(2), Habitats Directive.

²³² C-241/08.

²³³ Information provided during the mission to the Netherlands on April 2015 within the framework of the project task.

Nitrate pollution applies to many countries and the Dutch strategic approach provides evidence of the Directives as a catalyst for the development of a solution to the pollution problem.

The Flanders region in Belgium has developed a nitrogen strategy to create a sustainable path to significant reduction in emissions, giving more certainty to economic sectors, including agriculture.

Some respondents to the evidence gathering questionnaire regarded the Directives as key drivers to strategic action to tackle nitrogen deposition, while others regarded it as a weakness that the Directives do not directly address diffuse pollution issues? No evidence, however, was provided to substantiate this latter argument.

The assessment of the impacts of plans and projects on Natura 2000 sites

Article 6(3) of the Habitats Directive requires that any plan or project likely to have a significant effect on a Natura 2000 site²³⁴ must undergo an appropriate assessment of its implications for the site and its conservation objectives. Authorities may only consent to the plan or project after ascertaining that it will not adversely affect the integrity of the site, after having carried out - where appropriate - a public consultation. Where the assessment finds that the plan or project would adversely affect the site, Article 6(4) allows Member States to permit it anyway, in the absence of alternative solutions, if justified by imperative reasons of overriding public interest.²³⁵

Article 6(3) and (4) of the Habitats Directive concern plans or projects which may affect Natura 2000 sites, whether they take place within or outside a site.²³⁶ They do not distinguish among key problems. Rather, their application is triggered by potential impacts on sites, regardless of the source of the impacts. Thus, these provisions can be regarded as applying to all key problems. (An example concerning transport and service infrastructure is provided in Box 5.) The procedures and mechanisms are detailed in the Directive, which can thus be considered to deal with the key problems insofar as they may affect Natura 2000 sites. Certain reservations are maintained due to the vagueness of the requirement for compensatory measures²³⁷ and the effectiveness of the Commission opinion where such compensation is required.²³⁸

Box 83 – The assessment of transportation and service infrastructure: Opportunities for project developers

Vikolainen et al (2014) report that the Dutch dredging industry is promoting the *Building with Nature*²³⁹ approach to designing water infrastructure in harmony with the environment. The initial expectation was that the Directives would obstruct the implementation of that innovative approach. However, the concrete projects reviewed by Vikolainen et al (2014) led the authors to conclude

²³⁴ Article 6(3) and (4), Habitats Directive refer to SACs. However, they are also applicable to SPAs through Article 7, Habitats Directive.

²³⁵ In this case, the Member State concerned must take compensatory measures to ensure that the overall coherence of the Natura 2000 network is protected and inform the Commission thereof. If the site hosts a priority habitat or species, an opinion from the Commission must be sought before approving a plan or project for imperative reasons of overriding public interest which do not relate to human health, public safety or beneficial consequences of primary importance for the environment.

²³⁶ See C-98/03.

²³⁷ For example, the Directive makes the agreement to the plan or project conditional on compensatory measures having actually been planned, adopted or executed. Therefore, Member States may promise to take compensatory measures, but then fail to do so. Nor is there any clear requirement that the compensatory measures must be such as to compensate for the damage done by the proposed plan or project.

²³⁸ The Directive does not clarify the grounds on which the Commission must issue its opinion, thus leaving much to its discretion. Nor is it necessary to make the opinion public, which would ensure transparency and help clarify the considerations that the Commission believes are relevant in balancing nature protection with public interest objectives other than those mentioned in Article 6(4). Indeed, a review of 11 opinions issued by the Commission concluded that 'there is hardly one which completely lives up to the requirements of Article 6(4) of the Habitats Directive and the Commission's own guidance documents...[N]ot one of the positive Commission Opinions would, with the reasoning made, successfully survive scrutiny by the Court of Justice.' See (Krämer, 2009)

²³⁹ 'Building with Nature', also called 'Working with Nature', involves a shift in the approach to project development, placing the establishment of project needs and objectives, the understanding of the environment, and meaningful stakeholder engagement before project design. See <http://www.pianc.org/workingwithnature.php>. Also see guidance from the Commission.

that 'Natura 2000 requirements actually provided opportunities to satisfy *Building with Nature* principles in the case studied'. The authors thus recommended that, '[r]ather than attempting to modify the legislation,...a project developer could choose to proactively work with the legislation'. Vikolainen et al (2013) also provides corroborating evidence from a Belgian case study.

The protection of species

The Birds Directive contains a number of Articles which provide the legal framework for the establishment of species protection systems and which address specific threats to species. Article 5 of the Birds Directive envisages a strict system of protection under which deliberate killing or capture must *inter alia* be prohibited. Article 7 allows certain species to be hunted, but requires Member States to regulate hunting in such a way that it does not jeopardise conservation efforts. However, the Directive forbids hunting during the rearing season and the various phases of reproduction, as well as, for migratory species, during their return to rearing grounds. Article 8 further prohibits particularly harmful forms of hunting (e.g. hunting through large-scale, non-selective means, or those otherwise capable of causing the local disappearance of a species). Derogations from these provisions are only permitted on limited grounds of general interest.²⁴⁰ Article 12 of the Habitats Directive prohibits, among other things, the deliberate capture or killing, the deliberate disturbance, the deliberate destruction or taking of eggs, and the deterioration or destruction of breeding sites and resting places.²⁴¹ Article 15 of the Habitats Directive obliges Member States to prohibit the use of indiscriminate means for the capture or killing of certain species that are capable of causing the local disappearance of, or serious disturbance to, those species.

These provisions apply to hunting, and they set out procedures and mechanisms that are clear and relevant to deal with this key problem (see Box 84), while leaving sufficient flexibility for Member States' derogations necessary in the public interest.

Box 84 - Species protection and the case law of the CJEU: The example of hunting

Article 5(b) of the Birds Directive requires Member States to prohibit the deliberate destruction of, or damage to, nests and eggs, or removal of nests. This provision can thus address the key problem of hunting. Derogations are allowed on limited public interest grounds (e.g. public safety), provided no other satisfactory solution is available.

The Court has interpreted Article 7(4) of the Birds Directive - which prohibits hunting during rearing periods and the various stages of reproduction and dependency and, in the case of migratory species, during their return to their rearing grounds - as seeking to 'secure a complete system of protection in the periods during which the survival of wild birds is particularly under threat'.²⁴² This provision, too, may be addressed to hunting.

Article 9 of the Birds Directive allows Member States to derogate from prohibitions related to marketing and hunting on three strict conditions: (i) no other satisfactory solution exists; (ii) the derogation is based on one of the reasons listed in Article 9(1); (iii) the formal conditions of Article 9(2) are complied with. Local interests are not among the reasons that could justify derogations.²⁴³ However, derogations are possible for species specified in national legislation which 'cause serious damage to crops and orchards or are responsible for pollution and noise in towns or certain regions'.²⁴⁴

In addition, the provisions of the Birds Directive on species protection can address disturbances caused by human activities other than hunting. This is demonstrated by the famous *Caretta caretta* case,²⁴⁵ in which the CJEU found that, 'given the pressure and the erosion caused to the breeding beaches by the construction of access routes...and given the noise resulting from human activity...Usage of mopeds on the sand beach, the pres-

²⁴⁰ Article 9, Birds Directive.

²⁴¹ Article 12(1), Habitats Directive.

²⁴² C-157/89 and C-38/99.

²⁴³ C-247/85.

²⁴⁴ C-247/85.

ence of pedalos and small boats in the sea and the presence of illegal buildings on the beach', Greece had breached the requirement to prevent the disturbance of a species of turtle.

Non-native species

Article 11 of the Birds Directive requires Member States to ensure that any introduction of non-native species does not prejudice local flora and fauna. Member States are required to consult the Commission in this regard. Article 22(b) of the Habitats Directive requires Member States to ensure that the introduction into the wild of non-native species is regulated in order not to prejudice habitats, wild flora and fauna, and they may even prohibit such introduction if they consider it necessary. Both provisions are relevant as regards invasive alien species. However, no procedure or mechanism is set out in the Directive,²⁴⁶ thereby leaving it to Member States to regulate the matter.

Conclusions from the legal analysis

The Directives establish a framework of mechanisms to identify threats (the establishment of a coherent network of protected sites, adoption of management plans, appropriate assessment of projects or activities' impacts, etc.) and avoid their negative effects (permitting, prohibitions of activities, plans or projects). It can be concluded that, while the Directives have provisions enabling Member States to address the key problems to the habitats and species in the EU, those provisions do not generally aim to address *specific* key problems. Rather, the Directives, in line with the Treaty, set the biodiversity conservation goals to be achieved, leaving methods of implementation to the discretion of individual Member States.

Table 27 provides an overview of the Directives' provisions which may apply to key problems and, in certain cases, contain procedures and mechanisms to deal with them. Where a provision applies to a key problem, but without setting out procedures and mechanisms to deal with it, the symbol '☹' is designated. In these cases, the success of the Directives will be largely determined by how ambitiously Member States interpret and apply the provisions. Where the Directives also include such detailed procedures and mechanisms, the symbol '😊' is used. In these cases, Member States' discretion is more limited, and the Directives' provisions, if complied with, give sufficient assurance that conservation objectives will be achieved. A blank cell indicates that a specific provision might not apply directly to a key problem. The provisions of the Directives which are not reported in the table are not considered relevant for the key threats identified.

Table 27 - Overview of the provisions of the directives addressing key problems

Key problems	Main provisions	Article 3 and 9 Habitats Directive, Article 4 Birds Directive	Article 6(1) Habitats Directive	Article 6(3)-(4) Habitats Directive	Article 5, 7, 8, 12 and 15 Birds Directive	Article 22(b) Habitats Directive Article 11 Birds Directive
	Subject-matter	Natura 2000 network	Management / protection measures	The assessment of the impacts of plans and projects on Natura 2000 sites	Protection of species	Non-native species
Agriculture-related pressures		☹	☹	😊		
Modification of natural conditions			☹	😊		
Changes in hydraulic				😊		

²⁴⁶ Article 22(b), last sentence. The Habitats Directive, however, requires Member States to share information with the committee set out under Article 20 of the Directive.

Key problems	Main provisions	Article 3 and 9 Habitats Directive, Article 4 Birds Directive	Article 6(1) Habitats Directive	Article 6(3)-(4) Habitats Directive	Article 5, 7, 8, 12 and 15 Birds Directive	Article 22(b) Habitats Directive Article 11 Birds Directive
	Subject-matter	Natura 2000 network	Management / protection measures	The assessment of the impacts of plans and projects on Natura 2000 sites	Protection of species	Non-native species
conditions						
Habitat fragmentation		☹	☹	☹		
Forestry-related pressures and threats		☹		☹		
Natural processes (excluding catastrophes)				☹		
Pollution				☹		
Disturbances due to human activities (recreation and associated structures e.g. golf courses, ski pistes)		☹		☹	☹	
Use of living resources other than agriculture and forestry (hunting, commercial fishing, collecting, etc., both legal and illegal)			☹	☹	☹	
Urbanisation, residential and commercial development		☹		☹		
Transportation and service infrastructure		☹		☹		
Mining and quarrying, energy production		☹		☹		
Invasive native and non-native species				☹		☹
Climate change		☹		☹		

7.1.4 Key findings

Identification of key problems

- The **most frequently reported pressures** on European protected habitats and species are **linked to agricultural land use**. This reflects the large proportion of bird species and other European protected species that depend at least partly on agricultural ecosystems, and the number of grassland habitats in Annex I, plus other habitats, that require regular management through grazing and/or cutting.
- The second most frequently reported pressures relate to the **modification of natural conditions**, which result from a number of activities, such as agriculture (e.g. water abstraction for agricultural use), forestry (e.g. modification of natural fire dynamics), or navigation and flood protection (canalisation, weirs & dams, changed water flow, embankments, dredging, cutting off of wetlands and grasslands from river and tidal dynamics, coastal defences, etc.).
- Terrestrial and marine pollution** were identified by Member States as a high-level pressure/threat on freshwater birds, other species and habitats, and on some wetland, forest, grassland and heath/scrub habitats. Modelling studies confirm that **nitrogen deposition from air pollution is a significant pressure** on wetlands, grasslands, dunes, forests, heath and scrub, and rocky habitats, particularly in North-Western and Central Europe.

- Other frequent pressures relate to forestry, hunting, fishing and other activities using living resources, both legal and illegal, and to human disturbance related to recreational activities.
- **Habitat loss** (land take) and other pressures **from build developments and mining and quarrying, are moderately frequent overall**, with some areas of greater prevalence (e.g. in the Black Sea and Mediterranean regions). Modern after-mining and after-quarrying approaches may include land rehabilitation, thereby reducing the potential negative impact on biodiversity, or even enhancing, as stated in the European Commission Guidance on Natura 2000 for the non-energy extractive industry, its potential to benefit wildlife.
- **Invasive alien species** are not frequently listed as a pressure, but are a particular threat to freshwater fish and amphibians.
- Climate change is reported to be a fairly infrequent pressure, but **the impacts of climate change are expected to increase considerably** and to exacerbate other existing threats.

Whether the Directives address key problems

- Legal analysis shows that the provisions of the Directives enable Member States to address the key problems that habitats and species face. The general approach of the Directives is not problem-specific, i.e. their provisions do not, as a rule, target specific key problems. Rather, they require Member States to take measures to avoid adverse effects on habitats and species (i.e. in providing FCS), irrespective of which particular key problem may be the cause. The full extent of the key problems cannot, however, be addressed in isolation, and, while the Directives are capable of addressing key problems if well-implemented, they should be supported by coherent policies in other sectors.
- Analysis also shows that the Nature Directives' operational objectives (i.e. the Natura 2000 network, the systems of species protection, the assessment of impacts on sites and species and the potential management of landscape features) form a framework capable of addressing key problems. However, with some exceptions (e.g. the requirements for the assessment of plans and projects under Article 6(3) of the Habitats Directive), the Directives allow for significant flexibility for Member States to choose the procedures and mechanisms deemed suitable to achieve the Directives' objectives. The CJEU interpretation of the Directives provides for the necessary harmonisation, while respecting national discretion in implementation.
- The evidence gathering questionnaires support the conclusion that the Directives address the key problems faced by species and habitats.
- The literature indicates that the Directives provide an adequate framework to address climate change, provided they are more proactively implemented. Evidence shows that Natura 2000 sites are facilitating species range shifts, and appropriate management of sites may slow climate-related declines, and the literature therefore recommends increasing the size, number and connectivity of protected sites, as well as enhancing monitoring and cooperation.
- A small minority of evidence gathering questionnaires stated that the Directives do not adequately address key problems, as their approach is too static to deal with the protection of dynamic habitats and species, natural ecosystem dynamics and climate change. No evidence was provided to substantiate this argument.

7.2 R.2 - Have the Directives been adapted to technical and scientific progress?

7.2.1 Interpretation and approach

The Nature Directives aim to contribute to the conservation of overall biodiversity in the EU. However, the EU itself has expanded since the Directives came into force. The pressures facing biodiversity have also changed, for example in terms of the growing threats from urbanisation and climate change, while actions taken under the Directives have had impacts on habitats and species. Scientific knowledge of the status of habitats and species has increased, with more known about the factors affecting them, their conservation management requirements and conservation techniques. Consequently, views on the conservation needs of some species and habitats have changed.

To answer this question, the changes to the Directives and their Annexes in response to scientific and technical progress are described. We have then sought to establish if there is a need to further adapt the Directives, in order to keep pace with changes and to improve their ability to achieve their overall objectives

7.2.2 Main sources of evidence

A number of studies have investigated issues relevant to this question, including the extent to which EU level and nationally threatened habitats and species are covered by the Directives, and the need for amendments to the Directives (Evans et al, 2013; Hochkirch et al, 2013a; Hochkirch et al, 2013b; Maes et al, 2013; Opermanis et al, 2008). These and other studies were considered in the ETC_BD literature review of the ecological effectiveness of the Natura 2000 network (McKenna et al, 2014). Since these studies have been published a number of other IUCN Red Lists have been published, or updated, and this evaluation has, therefore, updated the comparisons.

Other studies are relevant to Annex IV of the Habitats Directive, i.e. the requirements for strict protection of species, e.g. in relation to some species that now have populations that are increasing and/or have FCS.

A large proportion of stakeholders responded to this question, with many citing the studies noted above and others. Their responses also provided views on whether or not progress towards the achievement of the Directives would have been, and would now be, enhanced were the Directives' provisions and Annexes adapted. Although these were largely subjective opinions, they come from informed stakeholders with a range of relevant experience on complex policy implementation issues that cannot be readily studied objectively.

7.2.3 Analysis of the question according to available evidence

Changes to the Directives, Annexes and associated official documents

Amendments of the Annexes

The legal texts of the Directives have not been changed since they came into force, other than the codification of the original Birds Directive 79/409/EEC as Directive 2009/147/EC (as amended by the Standardised Reporting Directive 91/692/EEC). The provisions in the original Directive are unaffected by the codification.

Under Articles 15 and 16 of the Birds Directive, Annexes I to V can be updated in response to scientific and technical progress. This is done by the Commission, with the assistance of the Committee for Adaptation to Technical and Scientific Progress, now known as the Ornis Committee. The procedure for amending the annexes of the Habitats Directive is less straightforward, as, in accordance with Article 19, any necessary adaptation of Annexes I, II, III, V and VI to technical and scientific progress shall be adopted by the Council acting by qualified majority on a proposal from the Commission. However, amendments of Annex IV shall be adopted by the Council acting unanimously on a proposal from the Commission.

The annexes of both Directives have been expanded a number of times, primarily in response to countries acceding to the Union. These updates were carried out through a process of consultation with Member States, submission of proposals, screening by experts followed by discussions in joint seminars, resubmission of proposals and agreement by other affected Member States (Evans et al, 2013). Proposals were also discussed in the Habitats Committee or Ornis Committee. During the 2004 and 2007 accession negotiations, candidate Member State proposals were assessed according to a number of guidelines, including no introduction of new taxonomic groups, no changes to habitats and species only occurring in the 15 existing Member States, and amendments that resulted in new obligations in existing Member States were subject to their approval (Evans et al, 2013). Sufficient information should be available to allow assessment and implementation, and taxonomically disputed species or groups, together with apomictic species and hybrids, should be avoided, with preference given to species rather than other taxa, protection of habitat types rather than individual species, and for amendments to existing habitat definitions rather than adding very similar habitat types. Little information is available on how widely Member States in the 2004 and 2007 accessions consulted with scientific bodies, NGOs or other ministries, but most of them involved research institutions and experts, with participation by NGOs limited, other than a few exceptions (Evans et al, 2013).

Some amendments have been made to the Birds Directive annexes independently of the accession of new Member States. Corncrake was added to Annex I in 1987, and Great Cormorant subspecies (*Phalacrocorax carbo sinensis*) was deleted from Annex I of the Birds Directive in 1997, because its populations had increased considerably in Europe (European Commission, 1997).

Directive 94/24/EC added six new species to the original list of 48 species in Annex II/2. This was in response to representations made by several Member States that wanted to extend hunting rights for game species and to a number of species causing significant damage to agriculture (IEEP, 2011). It was argued that the species could not be dealt with satisfactorily through the derogation procedure provided for in Article 9 of the Birds Directive. At the same time, the Directive also removed three species from the list of birds which may be hunted in Italy because of their similarity to the Slender-billed Curlew, which is a globally endangered species and therefore particularly vulnerable to accidental killing.

Updating of the species checklist under the Birds Directive

In preparation for the 2007-2012 reporting exercise, the Ornithological Committee agreed an updated list of birds naturally occurring in the wild in the EU, taking into account recent enlargements and natural changes, as well as a clear indication of migratory species. This checklist clearly defines whether or not the bird species falls within the scope of Article 4(2) as a regularly occurring migratory bird species in the EU relevant for SPA designation²⁴⁷.

Revisions of taxonomic status under the Habitats Directive

The ETC/BD coordinated two rounds of consultations with Member States on taxonomic issues related to Habitats Directive species' in preparation for the 2007-2012 reporting exercise. A list of proposals were published for solutions to problematic taxa (ETC/BD, 2014), together with a check-list of accepted names and synonyms²⁴⁸. In addition, the EUNIS database is regularly updated with recognised synonyms. There are, however, some inconsistencies between the IUCN database of EU threat status and the EUNIS database.

Stakeholder views on the need to update the Annexes

Overall 71 stakeholders provided relevant responses to Question R2.

Many respondents, especially amongst the nature conservation NGOs explicitly stated that, in their view, the Directives' principles and overall approach remain valid and appropriate. Fewer comments were received from other stakeholders on the principles and aims of the Directives, but none proposed any fundamental changes to the provisions in response to scientific and technical progress. A few did note that it is difficult to update the annexes under the current provisions, especially those of the Habitats Directive, because the endorsement of the Council is required for them. However, no stakeholders proposed specific changes to these legislative provisions (i.e. excluding the annexes), although some proposals for regular updates of the annexes, discussed below, would probably require this in practice.

Of the 71 relevant responses, 54% clearly indicated that the annexes should not be amended, 31% said that the annexes should be amended, and 15% provided relevant observations but no clear opinion as to whether or not the annexes should be updated. However, as indicated in Table 28, the views of the different stakeholder groups varied considerably.

Table 28 Stakeholder questionnaire responses relating to whether the Annexes should be updated

	Nature author- ity	Other author- ity	NGOs	Private Enter- prise / industry
Number who gave a response relevant to question R2	22	3	35	11
Number who said Annexes should be updated	13	2	2	5
% who said Annexes should be updated	59%	67%	6%	45%
Number who said Annexes should not be updated	6	1	29	2
% who said Annexes should not be updated	27%	33%	83%	18%
Number who gave an ambiguous answer	3	0	4	4
% who gave an ambiguous answer	14%	0%	11%	36%

²⁴⁷ Checklist for bird species at: http://bd.eionet.europa.eu/activities/Reporting/Article_12/reference_portal

²⁴⁸ Checklist for species at: http://bd.eionet.europa.eu/activities/Reporting/Article_17/reference_portal

Most obviously, all but two of the NGOs who expressed a clear opinion stated that the annexes should not be amended. This included all responses from nature conservation NGOs. The two NGOs stating that the annexes should be updated represented hunting organisations: the Swedish Hunters Association and the Federation of Associations for Hunting and Conservation of the EU (FACE). However, FACE indicated that it had little desire to open Annex II, and its proposed changes appeared to relate only to the annexes of the Habitats Directive. Answers from national authorities were more divided, with 59% stating that the annexes should be updated, compared to 27% against. Only 11 responses were received from private enterprise / industry, most of whom provided no clear opinion. However, 45% favoured amending the Directives whilst 18% did not. The number of respondents from other national authorities was very low, making reliable conclusions impossible.

The responses to the evidence gathering questionnaire and the literature indicates that there are three main reasons for updating the annexes (in addition to expansion of the EU): 1) to make technical revisions in relation to changes in species taxonomy and habitat classification systems etc.; 2) to add species and habitats to the annexes (or to increase their priority status) to fill gaps in coverage or to reflect deterioration in their conservation status; or 3) to remove species and habitats from the annexes or decrease their protection level in response to improvements in their status. Table 29 presents the number of responses that gave these reasons for proposing that the annexes should be amended.

Table 29 The reasons given by stakeholder questionnaire for updating the Annexes

	Nature authority	Other authority	NGOs	Private Enterprise / industry
Number who proposed amending the Annexes	13	3	2	5
Technical reasons (eg relating to changes in species taxonomy and habitat classification)	6	0	0	0
% Technical reasons	46%	0%	0%	0%
Changes in status of species and habitats	13	1	2	5
% Changes in status	100%	33%	100%	100%
Explicit mention of the need to add or upgrade species or habitats	6	0	0	0
% add or upgrade species or habitats	46%	0%	0%	0%
Explicit mention of the need to remove or downgrade species or habitats	10	1	2	4
% remove or downgrade species or habitats	77%	33%	100%	80%

Note: Some responses indicated that the changes should be made to take into account changes in the status of species in general, while others may also have indicated explicitly that this should be in relation to adding / upgrading, and/or removing / downgrading.

Arguments for and against updating the annexes

Changes in status: amendments to remove or downgrade habitats and species with an FCS

The most frequent reason put forward for updating the annexes of the Directives is to take into account changes in the status of habitats and species so that conservation resources can be focused on the highest priorities (Hochkirch et al, 2013a). Indeed, this was indicated by all but one of the 31% of respondents that clearly considered that further amendments should take place (Table 29). Some stakeholders provided detailed responses from which it was possible to ascertain whether they favoured updates that

remove/downgrade and/or add/upgrade species and habitats. These indicated that removing/downgrading species and habitats in response to changes in conservation status (whether real or based on better information) was the most frequently stated reason (77% of national authorities) and the only reason given by other stakeholder groups.

Several nature authorities suggested that it is important to update the annexes to ensure that limited conservation resources focus on conservation priorities and/or because having conservation requirements for common species leads to other problems, such as with building developments or extractive industries that frequently encounter the species in question. For example, DEFRA in the UK noted this is a problem with Great Crested Newts, whilst several representatives from the extractive industry noted that problems occur with this and other common reptiles and amphibians elsewhere in Europe (see section 6.4).

Some national and regional authorities (e.g. Wallonia, Belgium; Finland and Sweden) and two hunting organisations (FACE and the Swedish Association for Hunting and Wildlife Management) state that species that have achieved FCS – and especially those that have increasing populations – should have lower protection levels so that they can be controlled or hunted without the need for derogations.

This is particularly called for with respect to large carnivores (particularly Wolf and Brown Bear), as these have increased considerably in recent years across much of their EU range (Kaczensky et al, 2013), such that medium or large populations are no longer declining (Chapron et al, 2014). Large carnivores lead to some social and economic conflicts, such as the taking of sheep, Reindeer and other livestock (Kaczensky et al, 2013). As a result, some stakeholders such as COPA – COGECA consider that human conflicts with large carnivores are increasingly significant and problematic. Most livestock losses are from wolves, with economic costs based on known compensation in Europe estimated to be in excess of EUR 8m per year (Kaczensky et al, 2013). However, such public compensation costs are a small proportion of national authorities CAP budgets. The annual depredation of about 10 hunting dogs by wolves, and perceived competition for game species is also an important cause of a relatively low acceptance of wolf populations in rural areas of Sweden (Darpö and Epstein, 2015; Kaczensky et al, 2013), and a probable driver of demands by hunting organisations to allow greater control of wolves and their transfer from Annex IV to V. There is also evidence that the acceptance of wolves is decreasing as their populations increase (Sanderström et al, 2015).

Some suggest that allowing carefully controlled sustainable hunting (by listing species on Annex V of the Habitats Directive or Annex II of the Birds Directive) might be the best way of managing populations of large carnivores and other species that cause problems, while also encouraging acceptance of their presence. For example, the Wildlife Agency of Finland gives the situation in Estonia, where the Eurasian Lynx is on Annex V (unlike in other EU countries), as a good example where a lynx management plan enables the management of population without the bureaucracy related to Articles 12 and 16. In their response, FACE refer to research from the FP7 HUNT study, that suggests that public attitudes to Brown Bears in Croatia was generally positive before accession to the EU, in part due to the trophy hunting of Brown Bears²⁴⁹. It was therefore suggested that attitudes would change after accession to the EU and the subsequent protection of Brown Bears. However, no evidence was provided to support this suggested change.

Some stakeholders have also stated that increases in some bird populations that are ineligible for hunting (except under derogations) cause significant problems. For example, COPA-COGECA in Denmark and the Swedish Hunting Association, note that the Barnacle Goose population that winters in, or migrates through, Denmark and Sweden has increased considerably, leading to significant crop damage (Frank et al, 2015).

As noted above, species that give rise to human conflicts and other problems can be hunted/killed (i.e. where lethal control is appropriate) under derogations (see xx). Under Article 9 of the Birds Directive, the derogations can be applied where there are problems concerning public health and safety, air safety, serious damage to crops, livestock, for-

²⁴⁹ <http://fp7hunt.net/Portals/HUNT/Reports/Croatian-Slovenian%20Research%20Briefings.pdf>

ests, fisheries and water, and for the protection of flora and fauna. Similar provisions apply under the Habitats Directive, in situations where there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the FCS of the species population concerned. These provisions are used frequently by Member States to deal with conflicts and other problems, and have, for example, been used to deal with large carnivore conflicts and damage resulting from birds and other species.

Nature conservation NGOs have expressed the view that changes to the annexes are not necessarily required to deal with these issues. The use of derogations, they claim, is more responsive to changes and national, regional and even local requirements, while the annexes generally apply to the species (sub-species) across the EU as a whole (although there are exceptions). Some respondents have suggested that the annexes could be more regionalised to take account of geographic variations in status etc., but this would clearly complicate the process of agreeing the annexes in a consistent way to ensure an even EU playing field.

Some national authorities, industries and COPA-COGECA have stated that the use of derogations to deal with problems relating to common species results in a high administrative burden. Moreover, there are clear limits to the scope of using derogations to manage populations, as confirmed by the findings of the CJEU concerning the Commission's infringement proceedings against Finland for authorising hunting of wolves. Although the court did not rule entirely in the Commission's favour, it did confirm that the derogation provisions in Article 16(1) must be interpreted strictly, and that national authorities must show that the necessary conditions were present in each individual case (Darpö and Epstein, 2015).

Similarly, the Commission considered the use of derogations by Sweden to implement its management of the wolf population to be illegal, and therefore instigated infringement proceedings in 2010. This arose because the Swedish authorities' licensed wolf hunting, in order to cap wolf numbers in Sweden at no more than 210 individuals and to exclude wolves from the year-round reindeer herding region in northern Sweden. According to Darpö and Epstein (Darpö and Epstein, 2015) the legal justification for the hunting-based management of wolves is that it is the only way to deal with social conflicts arising from the presence of wolves and to increase their acceptance in rural areas. However, in their view, the Swedish wolf policy is in breach of the obligations under EU law to protect endangered species. Despite some dialogue with the Swedish authorities, the Commission sent a reasoned opinion in June 2015 requesting Sweden to amend its wolf policy²⁵⁰.

The reasons put forward for removing species from the annexes, or downgrading their protection levels, are particularly controversial. This is because the majority of nature conservation NGO respondents (such as BirdLife Europe) make the case that species that have an FCS may remain dependent on the conservation actions that have been taken to achieve that status. This does not mean that species should never be removed from the protective annexes, but, rather, that there is a strong argument for applying the precautionary principle. Thus, a species should only be removed from an annex or downgraded if its FCS is certain (i.e. not a short-term fluctuation), and there is reasonable evidence that the factors that caused it to have an unfavourable status no longer apply, or are dealt with by other measures than those covered by the Nature Directives. They argue that this is particularly important for species that remain relatively scarce and vulnerable to impacts (e.g. as a result of their slow population growth rates), such as large carnivores. Furthermore, the review of the status of large carnivores concludes that their protection by the Nature Directives is one of the factors that has contributed to their recovery (Chapron et al, 2014).

Some stakeholders proposed that some species of large carnivore should be downgraded from Annex IV to V. While some provided evidence that the species in question have attained an FCS, no information was provided on how the species would be adequately protected from the additional potential pressures that they could be subject to by downgrading, including sport hunting or killing in response to conflicts with economic interests.

²⁵⁰ http://europa.eu/rapid/press-release_IP-11-732_en.htm

Evidence that this is a real risk comes from observations that illegal killing remains significant in some populations, including in Sweden, where almost half of wolf mortality is estimated to result from poaching (Liberg et al, 2012).

A further argument put forward by some respondents against downgrading the large carnivores from Annex IV to V is that methods other than hunting / lethal control can often be used to avoid or reduce human–carnivore conflicts to acceptable levels (Boitani et al, 2015; Kaczensky et al, 2013; Linnell et al, 2015). Indeed, Chapron et al (2014) note that a variety of local cultural and regulatory practices make the co-existence of large carnivores and people possible. These include traditional livestock protection measures, such as sheepherding, the use of livestock-guarding dogs, and corrals at night, and investing in new techniques such as electric fences. The European has established an EU Platform on Co-existence between People and Large Carnivores²⁵¹, which aims 'To promote ways and means to minimise, and wherever possible find solutions to, conflicts between human interests and the presence of large carnivore species, by exchanging knowledge and by working together in an open-ended, constructive and mutually respectful way'.

Changes in status: amendments to add habitat and threatened species to the annexes or change priority status

Of the 13 respondents that believe the annexes should be updated, six (43%), all of whom are national authorities (Spain, Greece, Malta, the Netherlands, Sweden and the UK), state that this should include the addition or upgrading of habitats and species. The primary reason is to address gaps in the coverage of species of conservation concern. Some gaps exist as a result of historic decisions made when the Directive's annexes were drawn up, most notably, the dominance of vertebrates in the annexes. However, there are also biases in the selection of invertebrates. For example, a study of the coverage of arthropods in Annex I and IV of the Habitats Directive found taxonomic, geographic, range, size and aesthetic biases in the selection of species (Cardoso, 2012). Consequently the species on the annexes of the selected taxa (Lepidoptera, Coleoptera, Odonata and Orthoptera), are disproportionately from Northern or Central Europe, relatively widespread, of a large body size and attractive compared to species of other taxa from Southern and Mediterranean Europe, which are endemic or relatively small or inconspicuous. Cardoso also notes that the same biases found in the arthropod lists occur with other invertebrate taxa, such as molluscs (Bouchet et al, 1999). Bias also occurs, although probably to a lesser extent, with relatively well-known organisms such as plants (Lozano et al, 1996).

Cardoso (2012) concludes that as a result of selection biases, the annexes are not representative of the most endangered, vulnerable, rare or endemic species. Also, knowledge of the invertebrate fauna of Europe has improved considerably since the annexes of the Habitats Directive were drawn up. Therefore, 'even if more remains to be known, it would be possible with current knowledge to considerably update and reduce the bias in the Annexes'. They propose that the annexes should be updated regularly, but also note that objective and transparent criteria need to be developed to select species for protection. They suggest that a possible approach would be that used by Martins et al (Martín et al, 2010) to develop priority lists for the Azores, Madeira, Selvagens and Canary Islands.

Gaps in coverage have also arisen since the preparation of the annexes as a result of changes in the status of species, or improved knowledge of their status, such as following an IUCN Red List assessment. As a result of this and the initial biases in selection (see question S.2) while the annexes include a large proportion of threatened vertebrate species, there are clear deficiencies in the coverage of invertebrates and plants although the threat status of the latter has not been fully evaluated.

Hochkirch et al, (Hochkirch et al, 2013a) propose that the Natura 2000 network should be based on 'adaptive annexes rather than fixed species lists', produced through the following four-step process:

²⁵¹ http://ec.europa.eu/environment/nature/conservation/species/carnivores/coexistence_platform.htm

- 'Maximise knowledge on the existing biodiversity and its spatial distribution (inventory).
- Assess the threat status of these species using objective criteria (IUCN Red List assessments) in order to identify the species with the highest extinction risks, the regions with highest conservation value as well as the major threats.
- Use this information to prioritise the conservation of the species with the highest extinction risk and their habitats.
- Regularly renew this prioritisation process to revise the annexes.'

Mismatches between the annexes and Red List assessments (e.g. as revealed by van Sway et al (van Swaay et al, 2011) with respect to butterflies), and the biases revealed by Cardoso (2012), created a situation where 'a major drawback of the current implementation of the Habitats Directive is the lack of regular updates of Annexes II and IV'. They propose that the annexes should be updated at least annually on the basis of IUCN Red List criteria, as this will result in better coverage of highly threatened species. They also state that more flexible annexes will increase the effectiveness of conservation efforts by avoiding a long-term focus on non-threatened species. They recognise that this could result in some degazetting of Natura 2000 sites, which is possible under Article 9 of the Habitats Directive. However, this could be subject to misuse, so they suggest 'a minimum time span of 10 years with mandatory management and monitoring before degazetting'.

The six stakeholder questionnaire responses from nature authorities that proposed adding species to the annexes to fill gaps, provided few details on how and when this should be done, and none referred to the proposals of Hochkirch et al, (Hochkirch et al, 2013a). However, SEPA (Sweden) suggested that there should be a system in place for updating the annexes and that 'Any changes of course must be founded on robust scientific evidence'.

Many respondents acknowledged that some taxa are not well-represented and that there are inevitably gaps in coverage of IUCN Red Listed species on the annexes. However, they argue that because there is a large number of species drawn from a variety of habitats and taxa groups in the annexes, these have a substantial umbrella effect (see question S.2 in section 5.2 for further discussion). However, Cardoso (2012), (citing (Cabeza et al, 2008; Martín et al, 2010; Muñoz, 2007; Roth and Weber, 2008; Simberloff, 1998)) states that protection of a few flagship species fails to provide broader biodiversity conservation achievements in some situations. This argument and comparison does not seem to be closely aligned with the situation where the Nature Directives' annexes contain [xx species and xx habitats], rather than a few charismatic species.

In their response to the evidence gathering questionnaire, IUCN points out that IUCN Red Lists simply estimate the relative extinction risk faced by species. They are not, therefore, an appropriate single system for setting conservation priorities, as other information needs to be taken into account. Consequently, IUCN believe it inappropriate to automatically include Red Listed species in legislation (e.g. in lists such as the annexes) without considering the underlying cause of the threat and other relevant factors (IUCN, 2011).

As discussed under question S.2 (see section 5.2), evidence shows that the Natura 2000 network contains the majority of the most diverse and species-rich habitats. While it is difficult to quantify the umbrella effect that results from this (i.e. the effectiveness of conserving biodiversity as a whole through the conservation of the selected suite of species) there are numerous examples of wider benefits of site protection and management that go beyond the target species (see Box 85). Few quantitative studies have been carried out of the umbrella effect, but those that do exist indicate that it is significant for vertebrates and butterflies (see S.2 Annex 1).

Box 85 - Examples of benefits of protected area designation for non-target species, ie the umbrella effect

At Termoncarragh Meadows the key management is for breeding Corncrakes through restoration of flower-rich meadows. This has benefited not only Corncrakes but also wider wildlife especially pollinators, such as the Great Yellow Bumblebee (a species on the verge of extinction in Ireland) such that these meadows are now one of the primary sites for this endangered species, as well as the Red-shanked Carder Bee (a species in serious decline in Ireland – listed as Vulnerable) and the Large Carder Bee (a species now beginning to decline in Ireland). The Annagh Marsh reserve is managed sympathetically for breeding waders but benefits wider wildlife, especially pollinators, due to floristic composition (machair grasslands). These again include the Great Yellow Bumblebee, Red-shanked Carder Bee and the Large Carder Bee. The area has also become very important for Northern Colletes (a small mining bee), as well as the click beetle *Selatosomus melancholicus* which in Ireland is only known from this area, the ground beetle *Carabus clatratus* (a species in serious decline in Ireland) and the Red Banded Sand Wasp, which is the only remaining population in Ireland. At BirdWatch Ireland's East Coast Nature Reserve, work carried out on restoring fen habitat has benefited the rare Desmoulin's Whorl Snail, and this is the only place on the east coast of Ireland where the snail is found.

Source: adapted from the response to the stakeholder questionnaire from An Taisce (the National Trust for Ireland).

As discussed under question S.2 (see section 5.2), Member States and others can also take steps to address the conservation needs of threatened species without adding them to the EU level annexes of the Directives. Indeed, many threatened species that are not currently on the annexes are likely to be national endemics, or have small ranges, or occur in the EU on the edge of their range. For such species, it would be entirely appropriate for their conservation requirements to be dealt with by national strategies and measures rather than through EU level listing on the annexes of the Nature Directives. Furthermore, some respondents note that LIFE nature funding is now available for all Red Listed species, so there is no longer any benefit to being listed on the annexes in this respect.

Several of the BirdLife International respondents stated that the conservation NGOs stand ready to cooperate on other measures for habitats and species to:

- 'Develop targeted EU wide or multi-country action plans for any taxa that require particular extra attention (e.g. freshwater molluscs, other invertebrates), including specific conservation projects, additional hunting restrictions, additional protected areas and monitoring efforts above the level required by the Nature Directives.
- Mobilise targeted funding for threatened species conservation: the EU LIFE Programme allows funding for Red List species not covered by the Nature Directives' annexes. Member States are free to allocate additional resources to these species (or habitats).
- Maximise co-benefits with the WFD, MSFD, air quality legislation and other environmental legislation for Red Listed species. Improving the ecological status of all waters, as required under the WFD, would for example yield high benefits to all freshwater biodiversity including potentially endangered mussels and macro-invertebrates.
- Make use of measures under Target 2-5 of the EU's Biodiversity Strategy, e.g. establishment of green infrastructure and ecosystem restoration, integrate biodiversity concerns into agriculture, forestry and fisheries policy and tackle invasive alien species.'

Amendments in relation to technical changes in species taxonomy and habitat classification systems etc

Many of the responses noted that some problems arise from taxonomic changes causing uncertainty over how species should be treated and their legal status.

- **Taxa that are no longer protected:** The taxon *Unio crassus* originally listed in Annexes II and IV has been revised into the taxa *Unio tumidiformis* with reference to the populations in Europe outside the Iberian peninsula and *Unio pictorum* for the populations in the Iberian Peninsula. *Unio tumidiformis* is considered to be covered by the annexes, but *Unio pictorum* is not, as the taxonomy of Iberian *Unio* was already controversial when the annexes were drafted (ETC/BD, 2014).
- **Taxa with unclear coverage:** The species *Carabus variolosus* was listed on Annexes II and IV following a proposal by Hungary and the Czech Republic, with reference to the populations in these countries now recognised as *Carabus variolosus variolosus* (ETC/BD, 2014). The status of *Carabus variolosus nodulosus* in Central and Southern Europe is more ambiguous, and some authors consider it to be a distinct species, which would exclude it from legal protection under the annexes (Müller-Kroehling, 2013). However, Slovenia and Austria have designated Natura 2000 sites for the taxon. The European Carabiologist's Meeting (ECM) issued a statement in 2007 calling for the inclusion of ssp. *nodulosus* in the interpretation of annex species *Carabus variolosus* (Müller-Kroehling, 2013), and the ETC/BD have followed this recommendation in the checklist for Article 17 reporting (ETC/BD, 2014).
- **Invalid taxa:** *Discus defloratus* was considered to be a snail endemic to Madeira but the validity of the taxon was contested at the time of drafting of the annexes and the specimen has now been confirmed as an erroneous identification of the common species *Trochulus (Trichia) striolata*, which is not protected by the Habitats Directive. *Centaureum rigualii* is no longer recognised as a Spanish endemism but as a local form of *Centaureum quadrifolium barrelieri*, which is not covered by the Directives. The ETC/BD have not retained these species in the Article 17 reporting checklist (ETC/BD, 2014).
- **Taxa queried in one Member State but not in others:** *Myotis blythii* is regarded in Austria (Spitzenberger, 2001) and by some taxonomists as *Myotis oxygnathus* in Europe, whilst *Myotis blythii* should only refer to the populations in Asia. However, the IUCN SSC Chiroptera Specialist Group has not yet justified the specific separation of *M. blythii* and *M. oxygnathus* (IUCN, 2015). The separation of the taxon *Myotis punicus* from *Myotis blythii* has, however, been recognised in the Habitats Directive checklist.
- **Taxa revised to cover populations rather than species/subspecies:** *Rhynchosinapis erucastrum* ssp. *cintrana* was described as an endemic of the Sintra mountains in western Portugal when it was listed in the annexes, but is now recognised as a population of the more widespread taxon *Coincya monensis* spp. *cheiranthos* (ETC/BD, 2014). Portugal reported for 2007-2012 under the original name, but has designated its Natura 2000 sites for the synonym *Coincya cintrana*. The Canary Islands endemic *Euphorbia lambii* is now regarded as a synonym of *Euphorbia bourgeana* (ETC/BD, 2014). Spain was asked to report on the status of the La Gomera island populations previously regarded as *Euphorbia lambii*, but not on the *Euphorbia bourgeana* populations on La Tenerife island.

In order to take account of such taxonomic issues, the ETC/BD has developed a species checklist with synonyms, updating the EUNIS database accordingly. Following a precautionary approach, the ETC/BD has recommended the application of the reporting obligations to taxa that have changed their taxonomic status, unless there is a clear consensus that the taxon does not correspond to the criteria that justified its original listing. For example, plant populations originally defined as species or subspecies in the annexes have now been found to be part of more widespread taxa, but are still regarded as being covered by the reporting obligations.

Uncertainties over the legal status of species could affect the legal protection status of some taxa. This is because the ETC/BD does not have the competence to make any statements about the legal status of taxa listed in the Directives. It clearly states that the

species checklist and associated recommendations give practical guidance to Member States with regard to the 2007-2012 Article 17 reporting exercise, and do not provide legally binding definitions (ETC/BD, 2014).

Some national nature authorities raised problems with the habitat classification system used in Annex I of the Habitats Directive and the related Interpretation Manual [ref]. For example, the Ministry of Environmental and Nature Protection in Croatia states that 'new Member States are being encouraged to interpret their specificities in a way to fit into descriptions of existing habitat types according to the Interpretation Manual, rather than to list new habitat types on Annex I of the Habitats Directive. They believe that this leads to problems when defining adequate conservation objectives and management practices for certain habitat types, including 1160 Large shallow inlets and bays (described from German), 3180* Turloghs (described from Ireland), 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. (described from the Boreal region) or 3170* Mediterranean ponds (the only corresponding category is from the Azores).

Several Member States have also noted that the classification of marine habitats in Annex I uses very broad categories. For example, the Ministry of Reconstruction of Production, Environment and Energy in Greece states that the Annex I marine classification does not follow the existing scientific classifications, such as that used for benthic marine habitat types for the Mediterranean region of UNEP/MAP [ref?]. This leads to difficulties in defining the habitat types and therefore in managing them. For example, they note that 'sandbanks are different units in the Baltic and in the Mediterranean and can't be treated the same way'.

46% of the national authority stakeholders who stated that the annexes should be updated, indicated that one reason would be to address changes in species taxonomy and habitat classification systems (Table 29). However, the majority of those that proposed updates did so for other reasons, with some noting that checklists and the Directives' flexibility were sufficient to deal with such problems.

No evidence was provided by any stakeholders of major implementation problems arising from taxonomy related issues.

Conclusions on updating the annexes

The majority of respondents indicated that the annexes have not required further updating in the past, nor do they require updating now (Table 28). A variety of reasons was given, but, for the nature conservation NGOs, the primary reason is that it would be counter-productive in terms of overall progress towards achieving the aims of the Nature Directives. While many recognise that improvements could be made to the annexes they consider that to do so would create substantial risks, as there is no agreed evidence-based system or objective criteria in place for deciding the species and habitats which should be in the annexes. Both Cardoso (2012) and Hochkirch et al (2013) explicitly state that any amendments should be based on clear and objective criteria.

Most importantly, the nature conservation NGOs, along with other stakeholders, consider an amendment of the annexes to be counter-productive because it would slow down the completion of the Natura 2000 network and the development of management plans and measures for the network, as well as other actions under the Directives. Several BirdLife International partners and FOE Europe, conclude that 'overall, it is clear that the negative impact of a change to the annexes (e.g. implementation delays, legal uncertainty) far outweigh any potential benefits in terms of better coverage of all threatened species'. Butterfly Conservation Europe come to a similar conclusion, stating that 'It clearly isn't the priority right now; Better connectivity, more sustainable management of the network and improvements in ecosystem resilience and biodiversity outcomes to achieve the EU Biodiversity Strategy headline and specific targets are the pressing priorities for several years ahead.'

With respect to this point, many refer to the response by conservation scientists (Maes et al, 2013) to the call by Hochkirk et al to update the annexes. Maes et al recognise that there are some gaps in the coverage of threatened species on the annexes, and indeed

one of the authors had previously pointed this out for butterflies (van Swaay et al, 2011). However, they state that 'The priority now should be to fund and implement the necessary management measures to achieve favourable conservation status across the 18% of EU terrestrial area currently designated as Natura 2000 sites. This would benefit listed and other characteristic species of a wide range of habitats.' They also encourage individual countries to identify priorities for additional actions for threatened species that are not on the annexes.

Several responses suggest that amending the annexes now would lead to uncertainty for businesses (e.g. over possible additional Natura 2000 sites and changes in their boundaries and conservation objectives) leading to increasing costs for business and administrations. This point is mainly made by the nature NGOs, and is not shared by two of the four industry respondents, who provided a clear view on whether or not the annexes should be updated (Confederation of Finnish Industries and UEPG, the European Aggregates Association). However, BirdLife Europe point out that electricity grid operators, the cement industry and others have spoken out against changes to the Nature Directives including the annexes, as this would threaten planning certainty for their operations (CEMBUREAU and Birdlife International, 2014; RGI, 2014). Indeed, the other two industry respondents who gave a clear opinion on whether or not the annexes should be updated, do not support amendments (i.e. RGI and Danubia Invest a.s.). RGI notes that 'risks include delays to and uncertainty around implementation (diverting effort and resources away from much-needed full implementation and placing a burden of uncertainty on business). While there are potential arguments for review of the annexes, in our view the costs of doing so would not justify the benefits.'

Given the biodiversity concerned, and the economic risks and potential counter-productive impacts on progress towards the objectives of the Directives, some stakeholders (such as the WWF EPO) note that any proposal to change the annexes should be subject to a careful impact assessment of the likely economic, social and environmental impacts of potential amendments (as inferred from the Commission's Impact Assessment Guidelines (SEC(2009) 92)). Natuurpunt vzw, Natagora in Belgium note that 'any annex change must support and not weaken the overarching strategic objectives of the Directives', adding that, 'The decision whether an update of the annexes is appropriate should therefore be guided by a thorough analysis of risks and benefits of such an update for all biodiversity collectively, and not only for individual species or habitats. These risks include delays to and uncertainty around implementation (diverting effort and resources away from much-needed full implementation and placing a burden of uncertainty on business).'

In conclusion, there was a general consensus among stakeholders that the Directives' principles and overall approach remain valid and appropriate, with no stakeholders proposing fundamental changes to any provisions in response to scientific and technical progress. However, three main potential reasons were given in support of further updating the annexes of the Directives: 1) adjusting the annexes in relation to species that have an improved conservation status (through real changes or better knowledge); 2) adding threatened species and habitats that are not on the annexes to fill gaps in coverage; and 3) adjusting the annexes in relation to technical issues such as changes in species taxonomy. Of these, the case for removing species or downgrading protection status is especially controversial as many species are likely to be dependent on ongoing conservation and protection, and therefore a precautionary approach would be appropriate for them. The extent to which there is a real need to expand the annexes and update them according to technical developments is uncertain, and any benefits that could arise might be outweighed by the delays and uncertainty that such an update would cause. There is, therefore, a strong case for taking a cautious approach to any amendments to the annexes and ensuring that any proposals are subject to a full and comprehensive impact assessment.

7.2.4 Key findings

- There was a general consensus among stakeholders that the Directives' principles and overall approach remain valid and appropriate, with no stakeholders proposing fundamental changes to any provisions in response to scientific and technical progress.
- The annexes to the Habitats and Birds Directives have been amended on several occasions in response to the accession of new Member States to the EU. To date, however, they have not been significantly updated with respect to new scientific information, technological advances or changes in the status of species.
- Some stakeholders noted that under the provisions of the Directives it is not easy to update the annexes.
- Although they have not been updated in response to monitoring results and IUCN Red List assessments, scientific studies show that the annexes, for the most part, contain species and habitats of high conservation importance that continue to require conservation measures to either maintain or restore them to FCS (as confirmed by the recent EU conservation status assessments). Although some species now have an FCS and increasing populations, this is often at least in part as a result of the Directives' actions. Some respondents to the evidence gathering questionnaire proposed that some species with an FCS and increasing populations should be removed from the annexes (or downgraded from Annex IV to V of the Habitats Directive) but it was not indicated how their FCS would be assured with lower levels of protection. Nature conservation NGOs often stated that the precautionary principle should be followed in such situations.
- A comparison with the recently published IUCN Red List assessments shows that the annexes cover almost all threatened vertebrate species, including the majority of threatened freshwater fish, where knowledge and taxonomy have increased significantly since the annexes were drafted. The Habitats Directive annexes have low coverage of threatened invertebrates (particularly with regard to Southern Europe and Macaronesia), and omit some species-rich groups almost entirely.
- However, scientific studies show that the European protected habitats and species targeted by the Directives, and their designated Natura 2000 sites, indirectly protect many threatened species that are not on the annexes and other species (i.e. they have an umbrella effect, as described under S.2). In addition, where necessary, Member States can undertake actions for threatened species that are not listed on the annexes, for example through LIFE projects as all Red Listed species are eligible for funding.
- While the annexes do not use the most up-to-date taxonomy, nomenclature, or habitat classification systems, there is no evidence to suggest that this has caused significant problems, with many stakeholders pointing out that Member States have sufficient flexibility in the interpretation and implementation of the Directives to deal with such issues. The ETC/BD and Ornithological Committee, in consultation with Member States, have also produced complete listings of the currently accepted taxa names and synonyms covered by the annexes, together with guidance on taxonomically critical or uncertain taxa.
- Many national authorities, some scientists, and some other stakeholders stated that the annexes should be updated, primarily to reflect taxonomic changes, gaps in coverage of threatened species and changes in the status of species.
- In contrast, all nature conservation NGOs, some scientists and national authorities, considered it more important to implement the Directives as they are now, rather than to update the annexes. Many believed that such an update would be counter-productive, especially regarding Annex I of the Birds Directives and Annexes I and II of the Habitats Directives, as it would slow the completion of the Natura 2000 network and the establishment of management plans and conservation measures. They, along with some national authorities and businesses, also believed that such

an update would create uncertainty, and the possibility of new sites needing to be designated, boundaries changed and conservation objectives and management plans updated.

7.3 R.3 - How relevant are the Directives to achieving sustainable development?

7.3.1 Interpretation and approach

Sustainable development means that 'the needs of the present generation should be met without compromising the ability of future generations to meet their needs' (WCED, 1987). It is typically considered to encompass three essential pillars: environmental, social and economic sustainability. Sustainable development is an overarching objective of the EU, enshrined in Article 11 of the TFEU and recognised in various EU documents including the Sustainable Development Strategy adopted in 2001 and subsequently renewed in 2006.

The relevance of the Directives to the aims and principles of sustainable development was examined in three parts:

- What are the sustainable development objectives of the EU?
- Would achievement of the Directives' objectives contribute to sustainable development?
- Do the measures in the Directives allow developments to take place that are not linked to biodiversity objectives provided such developments are compatible with the Directives' objectives?

7.3.2 Main sources of evidence

Key policy documents used to judge the contribution of the Directives to sustainable development include the 2006 EU Renewed Sustainable Development Strategy, the Communications on 'A strategy for smart, sustainable and inclusive growth', 'A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy', the EU's Seventh Environmental Action Plan, and the UNDP Sustainable Development Goals.

Although no studies have specifically examined the contribution of the Directives to sustainable development, this analysis has drawn on a number of relevant sources, including Commission funded studies (e.g. on the benefits of Natura 2000 and on the permitting procedure in Article 6(3) of the Habitats Directive), as well as national studies such as the UK review of the Habitats and Birds Directives implementation, responses to the evidence gathering questionnaire and online public consultation. Many of these sources - and the issues they describe - have already been discussed under previous questions. (See question Y.1 for discussion of the ecosystem services and related social and economic benefits (jobs, tourism), and question Y.5 for a discussion of sustainable growth of ports and renewables). The text below, therefore, makes frequent reference to previous sections and their sources of evidence, rather than duplicating earlier discussions.

7.3.3 Analysis of the question according to available evidence

What are the sustainable development objectives of the EU?

Sustainable development has been an overarching objective of the EU since 1997, when it was included in the Treaty of Amsterdam. It is now enshrined in Article 11 of the TFEU, which states: 'Environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities, in particular with a view to promoting sustainable development'. It follows from this statement that there is a clear obligation for the EU institutions to integrate environmental requirements into the structure and implementation of other EU policies.

Accordingly, sustainable development has been taken up to some degree in EU policies and their objectives, and most explicitly in the Sustainable Development Strategy (SDS) adopted in 2001. This was renewed in 2006, and includes the 2005 Declaration on Guiding Principles for Sustainable Development adopted by the Council in June of that year²⁵² (see Box 86). The 2006 SDS aims to 'identify and develop actions to enable the EU to achieve continuous improvement of quality of life both for current and for future generations, through the creation of sustainable communities able to manage and use resources efficiently and to tap the ecological and social innovation potential of the economy, ensuring prosperity, environmental protection and social cohesion'.

Its aims incorporate the three pillars of sustainable development, in addition to recognising the international dimension:

- Environmental protection
- Safeguard the earth's capacity to support life in all its diversity, respect the limits of the planet's natural resources and ensure a high level of protection and improvement of the quality of the environment. Prevent and reduce environmental pollution, and promote sustainable consumption and production to break the link between economic growth and environmental degradation.
- Social equity and cohesion
- Promote a democratic, socially inclusive, cohesive, healthy, safe and just society with respect for fundamental rights and cultural diversity that creates equal opportunities and combats discrimination in all its forms.
- Economic prosperity
- Promote a prosperous, innovative, knowledge-rich, competitive and eco-efficient economy which provides high living standards and full and high-quality employment throughout the EU.
- Meeting our international responsibilities
- Encourage the establishment, and defend the stability, of democratic institutions across the world, based on peace, security and freedom. Actively promote sustainable development worldwide and ensure that the EU's internal and external policies are consistent with global sustainable development and its international commitments.

In response to worsening environmental trends the SDS identifies seven key challenges and associated targets and actions, including the conservation and management of natural resources, with the overall objective 'To improve management and avoid overexploitation of natural resources, recognising the value of ecosystem services'. The targets relating to biodiversity are:

²⁵² COM(2005) 218 final.

- Improving management and avoiding over-exploitation of renewable natural resources such as fisheries, biodiversity, water, air, soil and atmosphere, and restoring degraded marine ecosystems by 2015 in line with the Johannesburg Plan (2002), including achievement of the Maximum Yield in Fisheries by 2015.
- Halting the loss of biodiversity and contributing to a significant reduction in the worldwide rate of biodiversity loss by 2010.

Box 86 Guiding Principles for Sustainable Development in the 2006 SDS

Promotion and protection of fundamental rights

Place human beings at the centre of EU policies by promoting fundamental rights, combatting all forms of discrimination and contributing to the reduction of poverty and the elimination of social exclusion worldwide.

Solidarity within and between generations

Address the needs of current generations without compromising the ability of future generations to meet their needs in the EU and elsewhere.

Open and democratic society

Guarantee citizens' right of access to information and ensure access to justice. Develop adequate consultation and participatory channels for all interested parties and associations.

Involvement of citizens

Enhance the participation of citizens in decision-making. Promote education and public awareness of sustainable development. Inform citizens about their impact on the environment and their options for making more sustainable choices.

Involvement of businesses and social partners

Enhance social dialogue, corporate social responsibility and private-public partnerships to foster cooperation and common responsibilities in achieving sustainable consumption and production.

Policy coherence and governance

Promote coherence between all EU policies, as well as between local, regional, national and global actions, in order to enhance their contribution to sustainable development.

Policy integration

Promote integration of economic, social and environmental considerations so that they are coherent and mutually reinforce each other by making full use of instruments for better regulation, such as balanced impact assessment and stakeholder consultations.

Use best available knowledge

Ensure that policies are developed, assessed and implemented on the basis of the best available knowledge and that they are economically sound and cost-effective.

Precautionary principle

Where there is scientific uncertainty, implement evaluation procedures and take appropriate preventative action to avoid damage to human health or to the environment.

Make polluters pay

Ensure that prices reflect the real costs to society of consumption and production activities and that polluters pay for the damage they cause to human health and the environment.

In December 2009 the European Council confirmed that 'Sustainable development remains a fundamental objective of the European Union under the Lisbon Treaty', as emphasised in the Presidency's report on the 2009 review of the EU SDS²⁵³. It noted a number of unsustainable trends to be tackled, including the loss of biodiversity and natural resources.

²⁵³ <http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%2016818%202009%20INIT>

In accordance with the EU's integration principle (Article 11 of the TFEU) the SDS objectives and principles are being applied to the Europe 2020 Strategy, which was launched in 2010 to create the conditions for smart, sustainable and inclusive growth.

The SDS is also taken up in the seventh Environmental Action Programme²⁵⁴ (EAP), which sets out to guide EU environment policy to 2020, according to the following three objectives:

- To protect, conserve and enhance the EU's natural capital.
- To turn the EU into a resource-efficient, green, and competitive low-carbon economy.
- To safeguard EU citizens from environment-related pressures and risks to health and wellbeing.

The seventh EAP is based on three principles: the polluter pays principle, the precautionary principle and preventative action, and the principle of rectification of pollution at source.

Would achievement of the Directives' objectives contribute to sustainable development?

No studies were identified that directly address this question, and the analysis therefore relies to a large extent on the views of the stakeholders and the supporting evidence, if any, provided in their responses. As the evidence gathering questionnaire consisted of open questions it was not possible to reliably quantify the impact ascribed by stakeholders to the Directives on the EU's sustainable development goals. However, it was possible to establish whether or not each respondent considered the Directives to help or hinder sustainable development. It was also possible to identify, in some cases, the main reasons for considering that the Directives contributed to, or were a barrier to, sustainable development.

82 stakeholders provided relevant responses to the question, of which 68% (56) indicated that the Directives contribute to sustainable development. 11% (9) considered them to be barriers, with 9% (7) indicating that they probably had mixed effects on sustainable development. The remaining 12% (10), despite making relevant observations, did not provide a clear view on the impact of the Directives on sustainable development.

Views differed considerably among the different stakeholder groups, and a more detailed breakdown of the responses is provided in Table 30.

Table 30 Evidence gathering questionnaire responses to the contribution of the Directives to sustainable development

	Nature authorities	Other authorities	NGOs	Private Enterprise/Industry
Number who gave a relevant response to question	20	10	34	18
Number who said the Nature Directives contribute to sustainable development	16	4	31	5
%	80%	40%	91%	28%
Number who said the Nature Directives are a barrier to sustainable de-	1	2	1	5

²⁵⁴ DECISION No. 1386/2013/EU on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'.

velopment				
%	5%	20%	3%	28%
Number who said the Nature Directives have mixed impacts on sustainable development	2	2	1	2
%	10%	20%	3%	11%
Number who did not give a clear or relevant answer	1	2	1	6
%	5%	20%	3%	33%

The vast majority of NGOs consider the Directives to contribute to sustainable development (including all respondents from nature conservation NGOs). Other groups agreeing with this statement were most nature authorities, and 40% of other authorities (although the number of respondents was low), as well as 28% of respondents from private enterprise and industry.

Similar views were expressed by the majority of respondents to the online public consultation on the extent to which the Directives provide economic benefits (question 12) and social benefits (question 13). The vast majority stated that they contribute to both (93% for each), but there were substantial differences in opinion between the respondent groups (see question Y.1 for a more detailed discussion).

Of the 56 evidence gathering questionnaire respondents that indicated that the Directives do contribute to sustainable development, 70% (39) clearly indicated that one reason is the positive impact of biodiversity conservation on the environmental pillar of sustainable development, but also the associated ecosystem service benefits that contribute to social and economic sustainability. This view was particularly prevalent among the NGOs and nature authorities (Table 31).

Table 31 Responses to whether or not the Directives contribute to sustainable development through biodiversity and ecosystem service benefits

	Nature authorities	Other authorities	NGOs	Private Enterprise /Industry
Number who said the Directives support sustainable development	16	4	31	5
Number who said the Nature Directives contribute to sustainable development through biodiversity and ecosystem service benefits	11	2	24	2
%	69%	50%	77%	40%

Many of the stakeholders pointed out that the Directives' contributions to sustainable development arise in the first instance because the conservation of biodiversity is a sustainable development objective in itself (as clearly indicated in the EU 2007 SDS). The Directives also contribute to social and economic components of sustainability through their delivery of a wide range of ecosystem services to society, contributing to:

- Resource management (e.g. fisheries benefit from marine protected areas, the maintenance of habitat for game species, soil management).
- Climate change mitigation and adaptation.
- Health and social benefits (e.g. the protection of quality green space, with high aesthetic values).

- Provision of sites for recreation, education and research, with associated economic benefits from tourism, etc.

These views were supported by a number of examples (see summaries in Box 87 and Box 90 below), and studies (e.g. Gantioler et al, 2010; Snethlage et al, 2012; Tsiafouli et al, 2013) of the benefits of conserving and restoring biodiversity and associated ecosystem services. (See question Y.1 for a detailed discussion.) As described in the Y.1 analysis, there is strong evidence of the social and economic benefits of the Directives, linking them to sustainable development and the Europe 2020 Strategy. For example, 30,000 jobs are estimated to be supported by each EUR 1bn expenditure in Natura 2000 (compared to 3,000 to 6,000 FTE jobs per EUR 1bn expenditure of the current CAP and 16,800 FTE jobs per EUR 1bn of Cohesion Policy investment)(GHK, 2011). The full implementation of the Natura 2000 network, involving annual expenditures of EUR 5.8bn, would support 104,000 FTE jobs directly and 174,000 FTE jobs in total (including multiplier effects) in the EU (Jurado et al, 2012; Rayment et al, 2009).

The Y.1 analysis concluded that the benefits of the Directives include protecting habitats and species, safeguarding and enhancing the delivery of ecosystem services with related benefits to wellbeing, and benefits for local economies (including jobs and incomes in nature conservation and benefits to the tourism sector). The benefits are of substantial value and, at least in gross terms, they exceed their costs at all scales. However, with respect to the specific relevance of the Directives to sustainable development, the European Centre for Nature Conservation 2000 considers the contribution of Natura 2000 to local sustainable economic activity and livelihoods to be most evident in economically deprived areas where mainstream agricultural income is hampered by remoteness or absence of markets, poor soils and low productivity (Snethlage et al, 2012). In such places, innovative business models based on branding, niche products, rural / eco-tourism, in combination with local history and cultural heritage, are often successfully implemented. However, the case for competitive models based on Natura 2000 in areas of high agricultural productivity is much more difficult, and, according to some members of the agricultural sector, impossible to make.

Box 87 Example of the contribution of biodiversity related land management actions to sustainable development in rural areas in Austria

In the programming period 2007-2013, Austria carried out 1,026 nature protection projects with total funding of EUR 75m following the measure 323a (Pinterits et al, 2014) p13). 25% of these projects, according to their applicants, made a contribution to improving agricultural revenues, e.g. by establishing landscape preservation associations or jointly developing certified products from nature parks or reserves of the biosphere (e.g. grass-fed cattle from the Biosphärenpark Wienerwald or the Biosphärenparksteige with products from the Lungau Region). Such products provide farmers with sustainable revenues.

In 90% of cases, the project promoters believe that their endeavour contributes to the advancement of knowledge and the development of competences in nature conservation matters. Through the projects, personnel are trained in specific areas (e.g. National park Ranger Hohe Tauern), seminars are organised for municipalities (Biodiversity in your Community) and other task-specific training is also offered (e.g. nature watching). Projects aiming at the protection and development of biotopes also have indirect effects. For instance, the revitalisation of particular areas creates new opportunities for external guides to organise nature tours, which can also be offered to schools (Pinterits et al, 2014).

The valuable areas are very important for the redistribution of funding in economically weak regions: the size of HNV farmland in Austria is - depending on the stringency of the delimitation criteria -between 288,000 ha (delimitation through stringent criteria) and 1.14 million ha (delimitation through more general criteria). These valuable areas include many EU protected habitats and species. They consist of extensively used meadows and pastures, especially species-rich grasslands (hay meadows and pastures used once or twice) and alpine meadows and high pastures. There are also extensively used agricultural crop lands, seldom fertilised and on which little if no pesticide is used (Bartel et al, 2011).

HNV farmlands are located in economically weak regions, such as mountain areas or remote rural areas, i.e. where an economically profitable agriculture is difficult, given the unfavourable natural conditions. Such regions harbour forage grower farms and mixed agricultural holdings, yielding revenues close to minimum incomes. For these farms, nature conservation programmes play a particularly important role (Suske, 2014).

The supporting measures of the ÖPUL 'nature protection', 'mowing of steep hillsides', 'management of mountain meadows', as well as 'relinquishment of silage' are of greatest benefit to HNV farmland areas. The volume of aid provided by these measures between 1995 and 2013 amounted to approximately EUR 1.6bn (Schwaiger et al, 2014). Measures supporting environmental protection have thereby indirectly contributed to the support of regions exposed to economic difficulty.

Source: Austrian NGOs (WWF, Member Organisations of the Umweltdachverband (BirdLife Austria) and others).

Box 88 Example of the contribution of Natura 2000 to sustainable development in rural areas in the Czech Republic

Under the LIFE+ project in Lounské Středohoří (NAT/CZ/000363), i.e. proactive management of a Natura 2000 site, traditional farming methods are renewed and new people are attracted to the region to graze sheep in Natura 2000 grasslands, bringing socio-economic benefits to the area.

Case 1: Residents in Šumava (SPA and SAC) have an income well above average

Thanks to nature protection and increased tourism, as well as jobs created by Natura 2000 itself, the average income of residents in the Šumava SPA/SAC is twice the respective district average, according to the Czech Statistical Office and Labour Office of the Czech Republic.

Case 2: Natura 2000 creates new workplaces in peripheral regions

Protected areas, including Natura 2000 sites, attract tourists and the Czech state is building a network of interpretation centres ('Dům přírody' – House of Nature), bringing work opportunities, particularly to remote areas with a traditionally low labour market. In all, eight such interpretation centres are built or under construction, in close co-operation with local stakeholders, creating several tens of jobs. The highest possible sustainability is secured by inviting local authorities (municipal, forest or others) to operate the facilities on their opening²⁵⁵.

Source: Zelený Kruh, Czech Republic.

Box 89 Example of the contribution of Natura 2000 to sustainable development through tourism and recreation in Germany

Synergies can also apply in the areas of tourism and recreation. In this case, conflicting interests were identified early on and joint solutions developed, leading to positive impacts for sustainable tourism (for examples, refer to (BfN, 2010). Tourism, forestry and nature conservation representatives in some regions also view the designation of Natura 2000 sites as an opportunity for tourism, by preserving a landscape perceived as aesthetically pleasing (Garbe et al, 2005) and enhancing its value through formal recognition. 40% of respondents anticipate financial benefits from the funding possibilities associated with Natura 2000 sites. Although many fear obstacles to further tourism development, and limitations on certain leisure activities, only a small proportion (16%) expect adverse changes to existing tourism. However, it should be noted that these synergies may at the expense of land users, such as the forestry sector.

Source: Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit, Germany.

Box 90 The contributions of conservation measures for the Iberian Lynx to sustainable development through increased tourism in the Andújar region of Spain

Following the improvement in the Iberian Lynx population in Andújar, a company, in collaboration with WWF, has started to develop lynx sighting and photographic activities on private properties practicing lynx conservation actions.

²⁵⁵ <http://www.ochranaprirody.cz/prace-s-verejnosti-a-evvo/domy-prirody/>

- There is a reported 33% success rate in lynx sightings, bringing an estimated annual income of EUR 50.000-60.000 per estate.

- There is an estimated annual income from sighting activities (excluding photography) of up to EUR 20.000 per estate. (These are gross income estimations, before salaries, lodging, etc.)

Direct jobs have been generated by the LIFE project 'Recovery of Iberian Lynx in Andalucía' (2002-2006). 31 fixed-term contracts, with EUR 29,740 in wages and wage-related benefits for 486 SMEs. Estimates for LIFE Iberlynx (2011-2016) were given at EUR 52,800 in wages, making it an important source of forestry and agrarian incomes in the region.

- There are no equivalent estimates for indirect job creation. However, given the amount of field work required (installation of rabbit warrens, fences, etc.), and also taking into account tourism activities related to lynx sighting, it is assumed that these would also be very high. In addition, the lynx is an important tourism attraction, bringing many tourists to the two distribution areas of the species.

Source: SEO/BirdLife.

Box 91 The contributions of conservation measures in a forest area to sustainable development through increased tourism, Greece

Dadia (GR 1110002/SPA and GR1110005/SCI/SAC) is one of the most popular ecotourism destinations in Greece. Its unique forests are home to 36 of the 38 European birds of prey, and it is one of the few places in Europe where three out of four vulture species co-exist. Since 1993, when WWF Greece opened an information centre (3907/91/10-11/ACNAT – 1995), a complete ecotourism complex has been created, including a hostel, a refreshment area, forest trails, and visitor infrastructure. Today, the entire ecotourism complex is managed by the Management Body of the Dadia-Lefkimi-Soufli Forest National Park. At its peak, more than 50,000 visitors from all over Greece and Europe visited the ecotourism complex per year. Ecotourism in Dadia has yielded considerable economic benefits to the local community and neighbouring areas, such as the creation of considerable job opportunities for local women and young people, and increased demand for local services.

Source: WWF Greece.

Do the measures in the Directives allow developments to take place that are not linked to biodiversity objectives if such developments are sustainable (i.e. if they align with the Directives' objectives)?

Under Article 2 of the Birds Directive, Member States must take into account economic and recreational requirements when taking requisite measures to maintain populations of birds. Similarly, Article 2(3) of the Habitats Directive requires that measures shall take account of economic, social and cultural requirements and regional and local characteristics. Consequently, the recitals to the Directive note that it makes a contribution to the general objective of sustainable development.

These requirements were referred to by many stakeholders, with several pointing out that the Directives have been designed to allow and facilitate sustainable development not linked to biodiversity objectives where this is compatible with the aims of the Directives. In particular, Natura 2000 is based on a wider concept than maintaining nature reserves, and it allows for sustainable human activities that are compatible with the conservation objectives of the sites in question. The Directives do not apply rigid site protection with predetermined restrictions on activities, but, rather, they allow for the suitability of activities to be judged on a case-by-case basis.

Articles 6(3) and 6(4) of the Habitats Directive (which also apply to SPAs designated under the Birds Directive) are of key relevance to sustainable development. Article 6(3) requires potential impacts to be assessed before allowing activities provided they do not have an adverse effect on the specific objectives of the site, whilst taking a precautionary approach. Under Article 6(4), developments with adverse effects may also go ahead if

there are imperative reasons of over-riding public interest, and no alternatives. At the same time, in accordance with the 'polluter pays' principle, the project promoter must compensate for any negative impacts on the coherence of the Natura 2000 network (e.g. through the restoration of habitats elsewhere). Consequently, the UK's Commission on Sustainable Development recognised that the Directives serve as a litmus test of sustainable development, as they do not prevent development, but, rather, ensure that it is undertaken in a way that is compatible with the protection of wildlife (Sustainable Development Commission, 2007).

WWF EPO also point out that IUCN recognises Natura 2000 as being a 'local experiment of sustainable development', because it 'gives local stakeholders the opportunity to experience the principle of sustainable development at a local scale: managing the natural area to maintain natural habitats and species, while also maintaining ecosystem services that provide benefits for the human population' (Ferdinandova, 2011). Natura 2000 has introduced a very different type of nature conservation to that of the traditional approach of regulation and prohibitions in an attempt to 'reconcile nature conservation with features of sustainable development' (Grodzinska-Jurczak and Cent, 2011). It is considered as being of practical importance for the implementation of a sustainable development strategy, 'mainly due to its firm legal basis (including the possibility of national decisions to be revised by the European Commission), the scale of this undertaking and the principles of the nature conservation system itself' (Grodzinska-Jurczak and Cent, 2011).

Of the 56 (68%) stakeholder responses that consider the Directives to contribute to sustainable development, 46% (26) indicated one reason as being that they allow developments to go ahead that are not contributing to environmental objectives, but which contribute to social and economic goals, where these do not conflict with the aims of the Directives. However, as noted above, 11% of stakeholders (primarily from private industry and business) stated that the Directives do not contribute to sustainable development, the primary reason for which was that they did not consider the Directives to facilitate sustainable development in practice. Views across stakeholder types were fairly consistent, although the number of respondents was low for other authorities and private enterprise / industry.

Table 32 The number of respondents that said the Directives permit sustainable development

	Nature authorities	Other authorities	NGOs	Private Enterprise/Industry
Number who said the Directives support sustainable development	16	4	31	5
Number who said the Nature Directives allow other sustainable developments	8	1	15	2
%	50%	25%	48%	40%

An issue raised by several stakeholders (e.g. Euromines, FACE, Copa-Cogeca, CEPF), was that the Directives do not aim to balance environmental, economic and social interests, but instead give primacy to the Directives' objectives. The Federation of German Industry noted that, in accordance with CJEU jurisprudence, only nature protection criteria may be taken into account when Natura 2000 areas are selected, but not economic and social interests. In addition, the assessment of the acceptability of impacts on Natura 2000 sites under Article 6(3) of the Habitats Directive, is entirely based on whether or not the Directive's environmental aims will be met. Economic interests are only considered at the secondary level of derogation under Article 6(4).

The Ministry of Economic Affairs in the Netherlands made similar points, citing a study that found that current CJEU rulings confirm one-sided testing on narrow and pre-defined

conservation objectives that relate to the integrity of the site (Kistenkas, 2013; Kistenkas, 2014). Thus, they argue, it does not balance social, economic and environmental benefits in relation to the three pillars of sustainable development, but, rather, focuses on environmental criteria. They also state that the test does not consider environmental benefits in the round, but only impacts on species and habitats listed in the Directives and for which the Natura 2000 site in question is designated.

However, there is a scientific rationale for this approach: if decisions on the acceptability of biodiversity impacts are based on a balancing of interests, then biodiversity will almost certainly continue to decline (as ecological requirements themselves are fixed and cannot be subject to compromise). For example, if a critical pollution threshold is crossed, a habitat may be destroyed. Reducing the degree to which the threshold is crossed will not affect the outcome. As the EU's overall biodiversity objective is to halt the loss of biodiversity then it follows that incremental losses need to be avoided or compensated (if they cannot be avoided according to the mitigation hierarchy) to achieve no net loss of biodiversity. As the species and habitats that are listed in the annexes of the Directives are of EU level importance, it is appropriate for these to be given a high level of protection under Article 6(3). Nevertheless, if economic and social considerations are sufficiently significant, then the development can go ahead under Article 6(4) if there are no alternatives. Compensation measures are then required to ensure that the integrity of the network is retained.

The AA should be viewed as part of a process, in which the project proponents consider the options for a development and, in so doing, avoid environmental impacts if at all possible. Thus, the rationale should be to seek win-wins rather than to balance impacts. This is often possible, as evidence from a Commission study (Sundseth and Roth, 2013) and other sources shows that, on the whole, a very small proportion of developments actually require AAs and, in most cases, the proposals are allowed to proceed. (See question Y.1 for more discussion.)

Where the Directives' measures have blocked sustainable development, this has often been due to implementation issues in the Member States, as described in the Commission's study of AAs (as discussed in section 8). There is also evidence that, over time, many of these problems are dealt with by increased experience, new technologies and better availability of biodiversity data, which can help to avoid impacts early in the planning cycle. For example, problems have occurred with the presence of some common strictly protected species (such as Great Crested Newts) occurring within development sites, which has led to disproportionate burdens and costs (see question Y.4 for more). However, a new approach to dealing with development impacts on Great Crested Newts is now being trialled in England, appearing to result in swifter decisions on developments, lower mitigation and compensation costs for developers, and potentially better strategic conservation outcomes (see Box 92). [we are trying to get the required information to complete this]

Some stakeholders noted that the Directives are, in fact, stimulating new and better approaches to development planning and decision-making. For example, MEPA/WBRU in Malta note that because the provisions of the Nature Directives are evaluated according to site-specific environmental considerations (as well as the purpose and nature of the proposals), this has resulted in innovation in design, as alternative solutions are sought for more environmentally-sound projects. Gradually, this is leading to a more environmentally conscious cohort of architects and planners, encouraging applicants to consider environment-friendly measures and solutions to avoid or suitably mitigate the impacts of their projects on Natura 2000 sites.

The RGI states that complying with the Directives also has knock-on benefits for sustainability. They give the example of the upcoming major German grid projects managed by the licensing authority, the Bundesnetzagentur, in a new approval scheme, Bundesfachplanung. Here, the Directives are taken into account by the authorities at a very early stage of the planning²⁵⁶. The first step identifies routes of new power lines, with

²⁵⁶ http://www.netzausbau.de/cln_1411/DE/Bedarfsermittlung/Charlie/NEP-UB_Charlie/NEP-UB_Charlie-node.html

considerations of the Natura 2000 network forming part of the underpinning data. This is, however, just one of the sustainable development objectives built into this approach.

According to WWF Poland, the Nature Directives have led to the introduction of strategic planning, which is helping to facilitate sustainable development and better designed projects with lower environmental impacts (see Box 92).

Box 92 The benefits of strategic planning and a strategic approach to the Via Baltica in Poland.

Around 2006 the Rospuda River Valley (Upper Rospuda Valley, PLH 200022) was threatened by planned construction of the Augustów bypass expressway, which was to cut across the protected wilderness area and Natura 2000 sites in the valley (Fundacji EFORT, 2012). The Polish daily newspaper, *Wyborcza*, launched an online petition which was signed by over 140,000 people, asking the Polish President to respect the law, preserve the Rospuda Valley and direct the Augustów bypass via a different route. After an intense campaign of protests in Poland and the EU, the plans were changed and the highway re-routed to completely avoid the SPAs. Following the Rospuda case Polish NGOs continued the campaign to halt construction of the expressway through other protected sites: the Knyszyn Primeval Forest, the Biebrza Marshes and the Augustów Primeval Forest. Developers initially ignored SEAs that had recommended viable, less damaging alternatives for the Via Baltica Expressway. However, since the end of 2009, the Polish government has agreed to re-route the whole controversial section of the expressway, effectively sparing these critical natural areas from destruction. WWF suggest that the experience with Via Baltica will help regional and local authorities, politicians, companies or investors in future during decision-making processes for other major infrastructure projects situated in areas with special ecological value.

Source: WWF Poland.

Although the Directives do give primacy to their biodiversity objectives, and do prevent some developments, there is no clear evidence that the Directives are a significant constraint on overall sustainable development. In fact, the only available study that examined this particular issue was carried out in the UK, and concluded that the Directives are working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained (HM Government, 2012).

The fact that some authorities and businesses stated that the Directives are a constraint on development may represent an issue of perception. As pointed out by some nature conservation NGOs, evidence suggests that there may be a considerable disparity between perceptions of regulatory quality and actual measurable results i.e. there may be a gap between business perceptions of regulation and 'objective reality' (OECD, 2012b).

Although the majority of the literature and the stakeholders consider the Directives to generally facilitate sustainable development, studies have indicated that improvements could be made in their implementation. Areas for improvement identified in the DEFRA study are summarised in Box 8 below. (see section 0 for more on the Commission review of AAs and section 6.5 for a discussion of good practice.)

Box 93 Key areas for improving implementation of the Directives in England, as identified in the UK HM Government Review of the Birds and Habitats Directives

- **The complexity of the legislation and guidance:** The transposing terrestrial regulations alone, covering approximately 134 regulations and 7 schedules over 94 pages, and Guidance documents (EU and national and non-Government) amounts to over 60 documents totalling over 1,600 pages. This can be difficult for competent authorities to navigate and is daunting for developers, large and small. It also reinforces a perception of inconsistency and lack of transparency in the process.
- **The complexity of the authorisation process for development:** Responsibilities for the Directives fall across a range of bodies, each potentially with different priorities and different experience in dealing with the issues. Where there is a lack of coordination between them, there is the potential to add to costs and delays.

- **The availability and comparability of data:** This has implications for every stage of the decision-making process, with uncertainty in evidence requirements and interpretation potentially increasing the risk of delay and higher costs. The shortage of baseline data is a particular issue in relation to the marine environment.
- **The culture and capacity of all organisations involved in the process:** While good practice exists, there is still scope to strengthen the customer-focused, collaborative culture in statutory bodies. Skills and capability gaps also occur in all bodies – statutory bodies, developers and their ecological consultants.

Source: HM Government (2012).

Some of the questions included in the online public consultation questionnaire are relevant to this question on sustainable development. In particular Question 9, asked, 'While the Directives are primarily focused on conserving nature, to what extent have other aspects been taken into account in implementing them?' Respondents were asked if the aspects included economic aspects, social concerns, cultural concerns and regional and local characteristics. Overall, the majority of respondents agreed that all aspects were being taken into account when implementing the Directives (93-94%). However, there were clear differences in opinion between the various respondent groups. 94% of individuals and around two-thirds of NGOs believed that all the aspects were addressed when implementing the Directives. Academic research institutions also had high agreement, with percentages ranging from 62% (local characteristics) to 72% economic resources. However, only a third of private organisations or associations believed that all the aspects were addressed when implementing the Directives.

7.3.4 Key findings

- The 2006 Renewed EU Sustainable Development Strategy aims to tackle the conservation and management of natural resources, sustainable consumption and production, sustainable transport, climate change and energy, public health, social inclusion, demography and migration, and global poverty and sustainable development challenges. The Nature Directives are a key element of the environmental pillar of sustainable development, directly contributing to the first of these aims, but also contributing indirectly to responses to climate change and public health (as described in section 6.1).
- The Directives' contributions to sustainable development arise because the conservation of biodiversity is a sustainable development objective in itself, and also because they contribute to a wide range of other sustainable development goals. Most notably, they contribute to resource management (e.g. fisheries benefit from marine protected areas, the maintenance of habitat for game species, soil management), health and social benefits (e.g. the protection of quality green space, with high aesthetic values), provision of sites for recreation, education and research, and the delivery of a wide range of other ecosystem services to society.
- The Directives also explicitly take other social and economic goals into account, and have been designed to allow and facilitate sustainable development not linked to biodiversity objectives where this is compatible with the aims of the Directives. Consequently, Natura 2000 is based on a wider concept than maintaining nature reserves, and it allows for sustainable human activities that are compatible with the conservation objectives of the sites in question. The Directives do not result in rigid site protection with predetermined restrictions on activities, but, rather, the sustainability of activities is judged on a case-by-case basis.
- The provisions in Articles 6(3) and 6(4) of the Habitats Directive are of key importance in enabling sustainable development by allowing activities, provided they do not have an adverse effect on the specific objectives of the site, whilst taking a precautionary approach. Developments with adverse effects may also go ahead if

there are imperative reasons of over-riding public interest, and there are no alternatives. At the same time, in accordance with the polluter pays principle, the project promoter must compensate for any negative impacts on the coherence of the Natura 2000 network (e.g. through the restoration of habitats elsewhere).

- The species protection measures within the Directives have led to problems in some development projects (e.g. regarding some widespread species, as described in section 6.4). However, there is evidence to suggest that, in some cases, this may arise from disproportionate or overly risk-averse implementation practices in some Member States (combined with knowledge constraints – see question Y.8). In others, the measures are generally considered by most nature authorities and other stakeholders to have sufficient flexibility to enable activities that impact on protected species, provided steps are taken to ensure that the overall objectives of the Directives are not hindered (i.e. the maintenance of FCS).
- A number of stakeholders stated that the Directives do not aim to balance environmental, economic and social interests, but instead give primacy to the Directives' objectives, for example, in the context of selecting Natura 2000 sites and in decision-making under Article 6(3). There is no evidence, however, that the Directives are a significant constraint on overall sustainable development. A UK review of the Directives concluded that 'the Directives are working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained'. While evidence of the situation in other Member States is limited, the majority of respondents to the evidence gathering questionnaire expressed similar views to the UK study's conclusions.
- Both the UK review and the evidence gathering questionnaires indicated that improvements can be made in the Directives' contribution to sustainable development. Examples given were focusing on the achievement of strategic objectives rather than rigidly following processes, identifying potential conflicts early in the development planning cycle (e.g. improved linkages to spatial planning and SEA), improving data coverage, quality and accessibility, and providing training and guidance for permitting authorities.

7.4 R.4 - How relevant is EU nature legislation to EU citizens and what is their level of support for it?

7.4.1 Interpretation and approach

This question encapsulates two elements. The first concerns the relevance for Europeans²⁵⁷ of EU nature legislation, i.e. how closely connected Europe's citizens feel they are to the nature legislation. Indicators of relevance include awareness of the Natura 2000 network, whether or not they access protected areas, and the extent to which they take action based on the Directives (e.g. by participating in public consultation procedures for the permitting of relevant projects).

The second element investigates the extent of Europeans' support for EU nature legislation, i.e. whether they are in favour of it or not. Indicators of relevance include whether or not Europeans favour the expansion of protected areas and whether they prioritise nature protection over other activities.

7.4.2 Main sources of evidence

Evidence used to answer this question consisted of surveys of public opinion at different levels – EU wide (Eurobarometer), national (e.g. surveys carried out by authorities or organisations in a specific Member State) or sub-national (notably academic articles investigating public attitudes in certain regions or around Natura 2000 sites).

Additional evidence was drawn from responses to the evidence gathering questionnaires and the results of the online public consultation. While these were not intended to be representative, they nonetheless provided relevant stakeholders with the opportunity to express their views on the Nature Directives.

7.4.3 Analysis of the question according to available evidence

EU studies

The 2015 Eurobarometer 'Attitudes towards biodiversity' report²⁵⁸ indicates that the majority of Europeans (60%) have heard of the term 'biodiversity', though less than one-third (30%) know its meaning. Almost four in ten (39%) have never heard the term.

Knowledge of the Natura 2000 network is even lower. Nearly three quarters of Europeans (73%) have never heard of it, and only 10% have heard of it and know what it is. One in six Europeans (16%) has heard of the Natura 2000 network but does not know what it is.

²⁵⁷ We understand the evaluation question to use the term 'EU citizens' in a broad, non-technical manner to refer to all natural or legal persons that have EU citizenship, registered residence or seat in a Member State of the EU (whether currently within EU territory or not), as well as any other person present in the territory of the EU. In answering the question, we therefore prefer to use the term 'Europeans', as it makes no reference to citizenship and has a broader meaning of 'characteristic of Europe or its inhabitants', or 'relating to the European Union' (www.oxforddictionaries.com).

²⁵⁸

<http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

Behind the averages lie considerable differences in knowledge of Natura 2000 across Member States. While very few have heard of the network in the United Kingdom (4%), higher percentages are recorded in Bulgaria (75%), Finland (74%) and Slovenia (58%).²⁵⁹

More than four in ten Europeans (44%) do not feel well-informed about the loss of biodiversity. Almost a quarter (22%) feel they are not informed at all, and only one-third (33%) feel they are well- or very well-informed²⁶⁰. Similarly, the 2014 Eurobarometer on the attitudes of Europeans towards the environment shows that a sizeable proportion do not feel informed about a number of issues related to biodiversity in general and the Nature Directives in particular, e.g. soil degradation (29%), depletion of natural resources (28%), invasive species (28%), water and agricultural pollution (28%), and the loss or extinction of natural ecosystem, species and habitats (25%)²⁶¹.

Europeans' views about the reasons why the Natura 2000 network is important are shown in the table below.

Table 33 - Percentage of Europeans that think the stated roles of the Natura 2000 network are either very important or somewhat important²⁶²

Problem	Very important	Somewhat important	Total
Protecting endangered animals and plants	69%	27%	96%
Safeguarding nature's role in providing clean air and water	67%	28%	95%
Preventing the destruction of valuable areas on land and at sea	66%	28%	94%
Promoting nature friendly land use	56%	36%	92%
Increasing the quality of life of local people	53%	37%	90%
Stimulating local socio-economic development (e.g. via eco-tourism and nature-related leisure activities)	43%	42%	85%

Interestingly, the importance of the network for eco-tourism and nature-related recreational activities is confirmed by another recent Eurobarometer report. The 2014²⁶³ report on the attitudes of Europeans towards the environment found that nature was one of the main reason for going on holiday for 31% of Europeans²⁶⁴. The survey shows that Europeans' belief that environmental protection and economic growth do not contradict, but rather support each other. This will be further discussed below.

Initiatives such as the 2004 agreement between the nature conservation organisation BirdLife International and FACE (the Federation of Associations for Hunting and Conservation of the EU), under the umbrella of the Commission's sustainable hunting initiative (SHI), appear to confirm that diverse interest groups appreciate the role of the Directives. With the agreement, the two organisations 'recognise that the Birds Directive is an appropriate legal instrument for the conservation of both wild birds...and their habitats', 'support the establishment of the Natura 2000 Network' and 'the importance of effective habitat protection' (Birdlife International and FACE, 2004).

²⁵⁹

<http://ec.europa.eu/COMMFfrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

²⁶⁰

<http://ec.europa.eu/COMMFfrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

²⁶¹ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

²⁶² Own elaboration based on data in <http://ec.europa.eu/COMMFfrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

²⁶³ http://ec.europa.eu/public_opinion/flash/fl_414_en.pdf

²⁶⁴ There are however broad national differences – in Belgium, the Czech Republic, Lithuania and the Netherlands, enjoying nature is the main reason for taking a holiday for 55%, 52%, 48% and 43% of respondents respectively. The percentage is only 14% for Ireland.

The high relevance of the Directives to Europeans is corroborated by their contribution to securing the proper application of their provisions. Examples of such activity are citizen petitions to the European Parliament, (European Parliament, 2014 [124]) complaints to the Commission, participation in relevant procedures (e.g. the assessment of impacts of plans or projects²⁶⁵, the establishment of site management plans (Eurosite, 2010)²⁶⁶ and legal challenges to resulting decisions²⁶⁷.

Although Europeans have limited specific knowledge of biodiversity issues, they still strongly perceive biodiversity loss to be serious and detrimental. The table below identifies the aspects of biodiversity loss that Europeans find to be most concerning, according to the 2015 Eurobarometer 'Attitudes towards biodiversity' report.

Table 34 - Seriousness of specific aspects of biodiversity loss, according to Europeans²⁶⁸

Problem	Very serious	Fairly serious	Total
The degradation and loss of natural habitats like forests, meadows, wetlands	61%	33%	94%
The loss of benefits that we get from nature, such as crop pollination, soil fertility, prevention of floods and droughts, climate regulation, clean air and water	59%	34%	93%
The decline and disappearance of animal and plant species	58%	35%	93%
The disconnection from nature in urban areas and modern lifestyles	42%	43%	85%
The negative economic impacts of biodiversity degradation, such as the loss of income from nature-oriented tourism or fisheries	36%	44%	80%

Europeans' concerns about the state of the environment in general, and biodiversity in particular, are not only related to the global situation. An overwhelming majority consider the decline and possible extinction of animals, plants, natural habitats and ecosystems to be a serious problem in Europe (80%) and in their own country (76%)²⁶⁹.

Whether biodiversity loss is already having an effect, or whether its impacts lie mainly in the future, seems to be more controversial. Less than one-quarter of Europeans (23%) already feel affected by the loss of biodiversity, while a further one-third thinks that they (35%) or their children (33%) will only be affected in the future²⁷⁰, 95% of Europeans also state that environmental protection is important to them personally²⁷¹, with three-quarters (75%) thinking that the state of the environment affects their quality of life.

²⁶⁵ See, for example, an online petition that obtained nearly 10,000 signatures (in a city of some 256,600 inhabitants in the UK) to stop a new development of 57 houses that, according to the petitioners, would have endangered the survival of a species of spider found nowhere else in the world: https://www.researchgate.net/publication/273835475_The_performance_of_Protected_Areas_for_biodiversity_under_climate_change, 16.12.15. See also another online petition, signed by about 3,000 people, supporting a moratorium on the killing of wolves in the period 2012-2013 in Slovenia:

²⁶⁶ A review of best practice on dealing with conflicts in the implementation and management of the Natura 2000 network at local site level

²⁶⁷ For further examples of these activities, see the section on results from the evidence gathering questionnaires below.

²⁶⁸ Own elaboration based on data in <http://ec.europa.eu/COMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

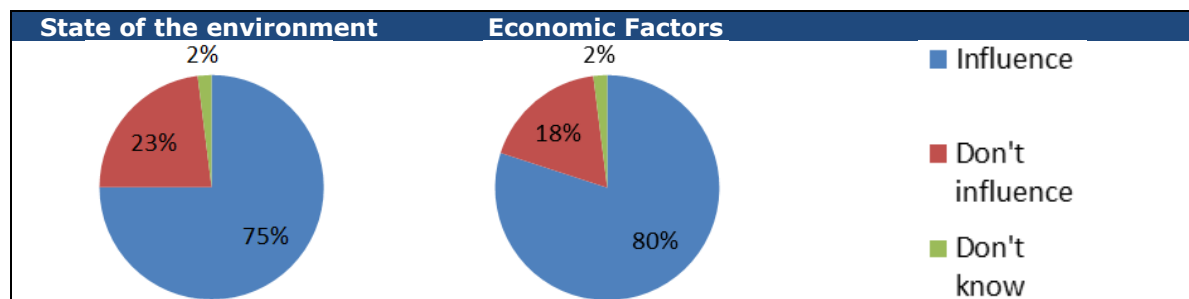
²⁶⁹ <http://ec.europa.eu/COMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

²⁷⁰ A very small minority (6%) believe biodiversity loss will have no effect. See <http://ec.europa.eu/COMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

²⁷¹ For 53% it is very important, for 42% it is fairly important. See http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

This is almost equal to the number (80%) identifying economic factors as determinants of their quality of life²⁷².

Figure 20 - Share of Europeans that believe their quality of life is affected by the state of the environment and by economic factors²⁷³



When it comes to the debate about the economy and the environment, Europeans do not see contradictions between the two. The significant majority (74%) believe that environmental protection can boost economic growth and only a small minority disagree (16%)²⁷⁴. Most Europeans (59%) think that social, environmental and economic criteria contribute equally to measuring societal progress²⁷⁵.

As the table below shows, there is considerable agreement among Europeans (97%) that we have a responsibility to look after nature. Most Europeans also support biodiversity protection because it is essential to tackle climate change (94%), because they believe our health and well-being depend on it (93%), because biodiversity is important for long-term economic development (91%) and indispensable for the production of goods such as food, fuel and medicines (89%).

Table 35 - Reasons why it is important to halt biodiversity loss, according to Europeans²⁷⁶

Reasons why it is important to halt biodiversity loss	Totally agree	Tend to agree	Total
We have a responsibility to look after nature	76%	21%	97%
Looking after nature is essential in tackling climate change	67%	27%	94%
Our health and well-being are based upon nature and biodiversity	60%	33%	93%
Biodiversity and healthy nature are important for our long-term economic development	56%	35%	91%
Biodiversity is indispensable for the production of goods such as food, fuel and medicines	53%	36%	89%

Similarly, very few (7%) see economic development as taking precedence over nature protection, or being an appropriate justification for destroying or damaging protected areas. A higher proportion of Europeans (41%) believe that damage or destruction is only acceptable for projects of major public interest, provided that the damage is fully

²⁷² http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

²⁷³ Own elaboration based on data in http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

²⁷⁴ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

²⁷⁵ 20% think that social and environmental criteria take precedence over economic criteria. By contrast, 14% hold that economic criteria are more important. See

http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

²⁷⁶ Own elaboration based on data in <http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

compensated. But 46% of Europeans would prohibit damage to, or destruction of, protected areas altogether²⁷⁷.

A wider special survey of EU public opinion carried out in 2014 provides insight into the issues that Europeans feel most concerned about. In this survey, respondents were asked to identify the two most important issues that they are facing at the moment. More Europeans (5%) mentioned environmental, climate and energy issues than terrorism (2%)²⁷⁸.

A study presenting the results of a large poll²⁷⁹ of over 200 conservation scientists in 24 Member States indicates that, in the respondents' opinions, people are generally quite sensitive to environmental issues, but poor knowledge and the negative attitudes of local stakeholders hinder the implementation of the Natura 2000 network. Respondents recommended public awareness and educational initiatives as priorities for the success of Natura 2000, stressing the need to keep local stakeholders well-informed.

The study further indicates that farmers, foresters, landowners and residents living close to protected sites see Natura 2000 as a hindrance and often oppose its implementation, depending on the economic interests involved. While the study suggests that public participation can help to reduce opposition, it can also result in the role of science being diluted in site management decisions, as nature conservation goals are compromised by other interests.

National studies

National level sources lend weight to the finding that Europeans generally support nature protection and protected areas. They show that while the level of familiarity with Natura 2000 is very variable - and sometimes very low - people appear to be supportive of the aims of Natura 2000 once made aware of them.

A Nature Awareness Study published by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Schell et al, 2012) found that the vast majority of the German population regard nature conservation as a moral obligation (95%) and an important political task (86%). Most believe that the diversity of flora and fauna, as well as their habitats, must be safeguarded (93%). Although a significant majority of people (71%) have heard the term biodiversity, a far smaller proportion (42%) know what it means. Nevertheless, most interviewees (67%) expressed the belief that biodiversity is decreasing and that its preservation is a social task of prime importance (71%). Similarly, 68% of Germans believe that the consumption of land for the development of residential, commercial or transport infrastructure should be reduced. A public opinion survey carried out in France asked respondents to name the two most important environmental problems. The state of biodiversity was mentioned by 33% of respondents, making it the third highest environmental concern after climate change (40%) and natural disasters (35%)²⁸⁰.

Environmental protection is also highly regarded among most Romanians (89%), according to a survey (IRSOP Market Research & Consulting, 2013). The same publication reports that, while 71% of Romanians have heard about protected areas, and 54% about biodiversity, only a small minority (11%) has ever heard of the Natura 2000 network. Even among people that live within a Natura 2000 site, only 28% are aware of its designation. While knowledge of the network is low, there is significant support for it, with 60% of respondents considering it very useful, and 92% seeing it as beneficial for the community. Other research also in Romania (CNDD, 2012) confirmed that 88% of

²⁷⁷

<http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

²⁷⁸ But less than, for example, the cost of living (27%) and unemployment (16%). See http://ec.europa.eu/public_opinion/archives/eb/eb83/eb83_publ_fr.pdf

²⁷⁹ <http://onlinelibrary.wiley.com/doi/10.1111/cobi.12366/abstract>. Also see the literature cited therein.

²⁸⁰ https://www.researchgate.net/publication/273835475_The_performance_of_Protected_Areas_for_biodiversity_under_climate_change, 16.12.15.²⁸¹ The survey is reported in:

interviewees hold positive opinions of the Natura 2000 network and believe it is important for tourism (74%) and job creation (57%), among other things.

A study carried out in Greece²⁸¹ found a high level of environmental concern in communities living around Natura 2000 sites. Most inhabitants highly prized their close contact with nature (80.5%). Contrary to findings in other countries, most locals were aware of the existence of protected areas (71.3%) and knew that they were part of the Natura 2000 network (64%). When asked about the objectives of the network, 80.2% referred to the protection of flora and fauna, 51.2% to the protection of natural habitats and landscape, 47.2% to the development of the area, and 12.7% to eco-tourism.

Inhabitants of the Polish Carpathians were also found to be widely supportive of initiatives to legally protect nature in their area (92%)(Pietrzyk-Kaszynska et al, 2012). However, while they generally had correct knowledge of the form of nature conservation in their region (national park, landscape park, reserve), only one-third had heard of the Natura 2000 network, with an even smaller minority (17%) aware of the existence of designated sites in the vicinity.

A survey in Slovakia also demonstrated support for protected areas, in which there was opposition from 73.4% of respondents to a proposal to reduce the boundaries of a protected area²⁸². The protected area hosted a forest which had been ravaged by a storm, and the contentious proposal sought to allow more intensive management of the forest (Dimitrakopoulos et al, 2010).

A survey in Spain found indications of positive socio-economic impacts on local communities from protected areas (Hidalgo et al, 2011). Benefits, such as job creation and increased tourism were stated to outweigh costs from hunting restrictions. Rural populations were generally happy about the effects of national parks in their area.

Research on public attitudes towards Brown Bears in Slovenia (Kaczensky et al, 2004). documented very positive attitudes towards the animals. Only 6% of respondents held negative attitudes (although they expressed their views more strongly and frequently than others). Interestingly, the key factor influencing people's opinions of Brown Bears was not the level of damage actually caused by bears, or whether or not the respondent was a hunter, but, rather, perceptions about how dangerous bears are to humans (Linnell, 2013)²⁸³.

Evidence gathering questionnaire responses

Of the 112 stakeholders surveyed, nearly half (55) responded to the question about the relevance of EU nature legislation to its citizens. However, 16 responses provided no evidence²⁸⁴.

The economic benefits connected to the Directives were most often cited by respondents (14). Some of these benefits derive from access to EU funding. For example, the active management of semi-natural grasslands now represents an important part of the income of about 900 individuals and organisations in Estonia. Furthermore, there are indications that in both Estonia and Ireland, the availability of EU funding has encouraged forest managers and farmers to better integrate sustainability considerations into their practices.

However, the strongest emphasis was placed on increased tourism (8 respondents). Respondents indicated that, in Estonia, EU funds have allowed the renovation of trails, birdwatching towers and other infrastructure to attract visitors. In Poland and the Czech

²⁸¹ The survey is reported in:

https://www.researchgate.net/publication/273835475_The_performance_of_Protected_Areas_for_biodiversity_under_climate_change, 16.12.15.

²⁸² Tatra national park.

For further insights into the relationship between people, large carnivores and institutions.

²⁸⁴ From the 39 conclusive answers received, 14 (35%) came from Member State nature protection authorities, 22 (56%) from NGOs and three were provided by stakeholders from the business sector. The information from these answers is taken into account here.

Republic, the Natura 2000 network has provided opportunities for sustainable agriculture and tourism. The economic opportunities of sustainable tourism were also highly valued in Spain, e.g. in the Canary Islands 200,000 signatures were collected calling for an economy based on nature and tourism. This has led to the adoption in 2014 of a regulatory framework for Natura 2000 and tourism, aiming to provide incentives for the promotion of this type of business. In Portugal, nature- and wildlife-related tourism is reportedly experiencing significant growth, with over 400 new nature tourism operators opening for business in the last five years.

Europeans' enjoyment of, and interest in, nature seem confirmed by their active participation in nature-related events, some of which relate directly to the Directives.

Four respondents to the evidence gathering questionnaire mentioned participation in public consultations related to the Directives²⁸⁵, with almost twice that number (9) citing civil society's involvement in monitoring activities and other actions promoting compliance with the Directives. Examples include the 1984 occupation of the Hainburger Au flood plain in Austria, a 2011 demonstration against illegal logging in a site²⁸⁶ protected as Lynx habitat in the Czech Republic, individuals volunteering to manage protected areas (about 3,000 every year in Denmark), monitor birds (about 350 people in Ireland every winter), survey the conservation status of marine species and large carnivores (several examples from Italy), and petition for new Natura 2000 sites (around 34,000 signatures collected in support of including the Salgados lagoon in Spain, into the network²⁸⁷). The Rospuda case in 2006 was a landmark example of intense involvement of citizens in Poland and civil society at EU level. The Rospuda River Valley (Upper Rospuda Valley) was threatened by planned construction of the Augustów bypass expressway, which was to cut across the protected wilderness area and Natura 2000 site in the valley. An online petition launched by the Polish daily newspaper, *Gazeta Wyborcza*, was signed by over 140,000 people²⁸⁸. At the same time, representatives of landowners, users and foresters at EU level (Eustafor) mentioned that while they are knowledgeable about the impacts of their activities on nature conservation, they have not been properly involved in the development and adoption of conservation measures in many cases.

Other respondents also cited citizens' role in promoting the judicial control of administrative decisions, thus contributing to the correct application of the Directives²⁸⁹.

Europeans' participation in nature-related events was also put forward by five respondents as an indication of their interest in biodiversity and the environment. In Germany, for example, over 1,000 events take place each year, attracting up to 300,000 participants²⁹⁰. In Greece, too, events such as Eurobirdwatch attract thousands of people every year to 35 different areas of the country. Every March, 7,000-10,000 children construct nests for swallows on Swallows Nest Day.

Seven respondents expressed the view that a lack of knowledge of, or resistance to, the Directives is often the result of communication failures. In several countries, authorities did not carry out information campaigns about the Directives and the consequences of site designation, thus leaving space for (allegedly exaggerated) negative perceptions to arise.

A respondent pointed out that Europeans' support for EU policies and legislation depends on the level of information that they receive on the matter. In support of this statement,

²⁸⁵ An example explicitly mentioned by respondents was the participation of 51 individuals and associations in the designation of the National Park of Mount Olympus in Greece.

²⁸⁶ The Sumava National Park.

²⁸⁷

https://secure.avaaz.org/en/petition/Save_Salgados_a_unique_internationally_recognized_birding_sanctuary_from_being_destroyed/?pv=30

²⁸⁸ http://www.natura2000.efort.pl/pliki/2012/rospuda_case.pdf

²⁸⁹ See, for example, the disputes that led to cases C-38/99 and C-258/11. Examples of challenges to administrative decisions by national bodies deemed to violate the Nature Directives were also put forward. See <http://www.irliepaja.lv/lv/raksti/vide/turpinas-karot-pret-rapsoil-veja-parka-buvi/>

²⁹⁰ International Day for Biological Diversity, International Migratory Bird Day, European Bat Night, International Day of the Baltic Sea Porpoise, GEO Species Diversity Day, the Birdrace event and Biodiversity Hiking Day, are some examples. About 100 Junior Ranger groups offer 1,500 children educational and recreational activities linked to nature.

the respondent gave the example of efforts made by hunting organisations in Greece to inform hunters and stakeholders about the Nature Directives. This information initiative resulted in a significant decrease of negative attitudes towards the Directives.

Another respondent explained that it is difficult for rural populations – who are directly concerned by the impacts of the Directives on hunting, farming and fishing – to understand why the Annexes to the Directives are not updated in response to changes in species conservation status. In this regard, please see the response to evaluation question R.2.

Results from the online public consultation

- The results of several questions in the online public consultation provide useful information in addressing the relevance of the Nature Directives to Europeans²⁹¹.
- The results of the online public consultation indicate that an overwhelming majority of respondents (98%) believe nature conservation is important, and see the Directives as crucial to achieving this objective. An overwhelming majority of respondents considered the benefits of the Directives to outweigh their costs (93%), and believed that the Directives take sufficient account of economic, social and cultural concerns (93-94%).
- While these were the overall results, it is worth noting that the analysis of the responses from business show a weaker belief (75%) that the costs of implementing the Directives exceed their benefits, while only 13% shared the view that the Directives take sufficient account of economic, social and cultural concerns.
- Another important indication of the relevance of the Nature Directives for Europeans is the unprecedented number of responses submitted by individuals to the online public consultation organised by the Commission between April and July 2015, in relation to the Nature Legislation Fitness Check. This online public consultation generated an unprecedented level of interest from a wide range of individuals. In total, 552,472 replies were received, of which 547,516 (99.1%) were from individual members of the public. This is the largest response the Commission has ever received to one of its online consultations.
- Consistent with the results of the studies described above, the overwhelming majority of respondents to the online public consultation declared nature to be (very) important to them.
- Although familiarity with EU nature legislation was limited among individual respondents, they nevertheless expressed the opinion that the Directives are very important for nature and biodiversity conservation. This view was not shared by the majority of business respondents, who considered the Directives to be relatively unimportant. Even more contentious was the question of whether or not the Directives' objectives and approach are appropriate for protecting nature in the EU. Only individuals, NGOs and academic/research institutes gave a strongly positive answer to this question. Businesses offered the more cautious opinion that they are only somewhat appropriate. Similar results were recorded in relation to a question about the importance of the Natura 2000 network for protecting species and habitats.

7.4.4 Key findings

- There is a strong consensus among Europeans about the importance of nature protection. The overwhelming majority of Europeans (80%) consider biodiversity loss to be a serious problem. They are not only concerned about global biodiversity loss, but also about biodiversity loss in their own country.

²⁹¹ For more on the issues related to the results being influenced by organised campaigns and other features of the public consultation methodology, see the report presenting the results of the online public consultation.

- Europeans' enjoyment of, and interest in, nature is demonstrated not only by surveys and other studies, but also by their active participation in the online public consultation carried out for this analysis (over 550,000 participants), in nature-related events and campaigns, in activities that contribute to the implementation of the Directives (e.g. volunteering in protected sites, species monitoring, public consultations), and to their correct application (e.g. complaints to the EU institutions, challenges to relevant decisions of competent authorities).
- At least two-thirds of respondents consider nature protection areas such as Natura 2000 to be very important in protecting endangered animals and plants (69%), safeguarding nature's role in providing food, clean air and water (67%) and preventing the destruction of valuable nature areas on land and at sea (66%).
- Despite the importance attached to nature, Europeans are generally not well-informed about biodiversity, the Nature Directives, or the Natura 2000 network. However, significant differences in awareness of the network exist among Member States (ranging from 4% to 75% of the national population having heard of it) and there are indications of public authorities' failure to carry out the required awareness raising or information provision about the Directives.
- Most Europeans do not view economic growth and environmental protection as conflicting objectives. On the contrary, most appear to believe that we have a responsibility to protect nature, and that the state of the environment and economic factors are equally important determinants of societal progress and individual quality of life. Both the literature reviewed and stakeholder responses to the evidence gathering questionnaire emphasise the economic benefits arising from the Directives, particularly increased (eco)tourism and related job creation. While contrasting views emerged from the online public consultation, those responses were more polarised and appeared to have been influenced by campaigns led by different interests. Over 520,000 Europeans participating in the online public consultation stated that the Directives are important for nature conservation.
- Almost 60% of Europeans believe that environmental factors should be as important in measuring progress as economic criteria (e.g. GDP).
- A strong commitment to European nature is confirmed by the fact that 46% of Europeans would prohibit all damage to, or destruction of, protected areas. 41% would only accept such consequences for projects of major public interest, and provided any damage or destruction is fully compensated. Only 9% would prioritise economic development over nature protection and justify the associated destruction of, or damage to, protected areas. While there are some differences among Member States in the exact shares of population supporting the different positions, they do not invalidate the finding.
- Most Europeans are unwilling to trade damage or destruction to nature in protected areas, for economic development.

7.5 R.5 - What are citizens' expectations for the role of the EU in nature protection?

7.5.1 Interpretation and approach

This question examines Europeans²⁹² opinions on whether or not the EU should act to protect nature, and, if so, to what extent. The analysis considers Europeans' support for EU action on nature protection, and their views on the types of initiatives that the EU should put in place. This information will help to identify those tasks that Europeans believe belong at EU level, and those that should remain within the purview of Member States.

7.5.2 Main sources of evidence

The main sources of evidence are Eurobarometer surveys of EU public opinion (designed to be representative) on the Nature Directives in particular, but also on biodiversity and the environment more broadly. Two studies carried out at national level (UK and France) were also reviewed. Responses to evidence gathering questionnaires (although there were limited responses of stakeholders to this question) and the online public consultation provided further sources of evidence.

7.5.3 Analysis of the question according to available evidence

EU studies

A 2014 survey of European public opinion²⁹³ found that the majority of Europeans (60%) think that environmental decisions should be taken jointly between national governments and the EU. In contrast, about one-third (36%) believes that only national governments should take such decisions.

These averages mask significant differences in opinions across Member States, neither do they reveal the shift in European public opinion since a previous survey in 2011. The more detailed data presented in the table below show that while in most Member States (20) the absolute majority of people still favour joint action at EU level, that percentage has decreased in all but five Member States (the United Kingdom, Portugal, Sweden, Belgium and Austria). In four countries (Finland, Estonia, Czech Republic and Lithuania) the majority of people believe that environmental protection should be decided at national level.

²⁹² The term 'EU citizens' is understood in a broad, non-technical manner to refer to all natural or legal persons that have EU citizenship, registered residence or seat in a Member State of the EU (whether they are currently within the EU territory or not), as well as any other person present in the territory of the EU. The term 'Europeans' is preferred in this review, as it does not evoke issues of citizenship and has a broader meaning of 'characteristic of Europe or its inhabitants', or 'relating to the European Union' (www.oxforddictionaries.com).

²⁹³ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

Table 36 – Europeans' views on whether decisions on environmental protection should be made jointly within the EU or by national governments only²⁹⁴

Member State	Jointly within the EU	Change since 2011	National governments	Change since 2011
UK	45%	↑ 5%	50%	↓ 8%
Portugal	76%	↑ 3%	21%	↓ 2%
Sweden	60%	↑ 3%	38%	↓ 3%
Belgium	73%	↑ 1%	25%	↓ 2%
Austria	48%	= 0%	46%	↓ 3%
Denmark	58%	↓ 1%	41%	↓ 2%
Spain	77%	↓ 1%	18%	= 0%
Slovenia	51%	↓ 1%	47%	↑ 4%
Malta	61%	↓ 2%	37%	↑ 2%
France	63%	↓ 5%	34%	↑ 5%
Ireland	59%	↓ 6%	37%	↑ 2%
Greece	62%	↓ 6%	37%	↑ 6%
Latvia	58%	↓ 6%	39%	↑ 6%
Hungary	59%	↓ 6%	39%	↑ 1%
Finland	42%	↓ 6%	56%	↑ 6%
Germany	66%	↓ 7%	31%	↑ 7%
Italy	61%	↓ 7%	34%	↑ 8%
Netherlands	65%	↓ 7%	34%	↑ 8%
Romania	51%	↓ 8%	44%	↑ 11%
Bulgaria	58%	↓ 9%	35%	↑ 11%
Poland	50%	↓ 9%	44%	↑ 8%
Cyprus	70%	↓ 11%	27%	↑ 10%
Luxembourg	61%	↓ 11%	37%	↑ 12%
Slovakia	56%	↓ 11%	42%	↑ 11%
Estonia	44%	↓ 12%	54%	↑ 13%
Czech Republic	42%	↓ 14%	56%	↑ 14%
Lithuania	37%	↓ 24%	61%	↑ 26%
Croatia	54%	N/A	44%	N/A

The same study²⁹⁵ shows that a significant majority of Europeans (77%) believe that EU environmental legislation is necessary for protecting the environment in their country. Here, too, while support for EU legislation continues to command an absolute majority everywhere, it has decreased in all but five Member States (Slovenia, Portugal, Spain, Malta and Romania) since the 2011 survey. The number of people who do not think that EU legislation is necessary for environmental protection in their country is increasing everywhere, except for six Member States (Slovenia, Portugal, Malta, Bulgaria, Sweden and the United Kingdom).

The proportion of Europeans who think that the EU should be able to assess compliance with environmental laws in Member States is a majority view everywhere, with highs of 92% and 91% in Cyprus and Spain, and lows of 66% and 59% in the United Kingdom and Denmark, respectively²⁹⁶.

Despite this trend, seven out of 10 (70%) Europeans surveyed stated that their national governments are not doing enough to protect the environment. About one-fifth (21%) think that they are doing about the right amount, and an extremely small minority (1%) that they are doing too much. It is, however, important to note that, since 2011, the proportion of people who believe their governments are doing about the right amount has increased in 16 Member States. Only five Member States (Italy, Cyprus, Spain, Portugal and Greece), show an increase in the share of people who think that their governments are not doing enough²⁹⁷.

²⁹⁴ Own elaboration based on data in http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf. The remainder of responses were 'don't know' and are not shown.

²⁹⁵ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

²⁹⁶ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

²⁹⁷ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

A majority of Europeans (56%) think that the EU is not doing enough, nearly one-quarter (23%) believes that it is doing about the right amount, and a tiny minority (1%) think it is doing too much. A sizeable minority (18%) stated that they do not know. Here again, there has been a marked decrease (7%) in the proportion of Europeans thinking that the EU is not doing enough, but this may be explained by an almost equal increase in the share of those who do not know²⁹⁸.

When it comes to instruments used to tackle environmental problems, Europeans think that the most effective tool is imposing heavier fines on offenders (40%), followed by providing financial incentives to industry, business and citizens (33%), and information on environmental issues to the public (31%). Less than one-third cite better enforcement of environmental legislation (30%) or the introduction of stricter environmental laws (25%).²⁹⁹ In particular, the proportion of people considering better enforcement of existing laws to be the most effective way to protect the environment was highest in Hungary (38%) and lowest in Denmark (15%). It was also the least supported option in four countries (Denmark, Estonia, France and the Netherlands). The percentage of people regarding the introduction of stricter laws as most effective was instead highest in the Netherlands (29%) and lowest in Romania (11%). This was the least supported option in 22 Member States³⁰⁰.

Another survey of EU public opinion carried out in 2015 on the attitudes of Europeans towards biodiversity³⁰¹ provides information on the measures that the EU should take to protect biodiversity. The main findings are presented in the table below. The high support for expanding the areas where nature is protected (89%) and for strengthening existing nature and biodiversity conservation rules (88%) is particularly important for the purposes of this study.

This finding may appear to be inconsistent with the result above that found only 25% of Europeans support the introduction of stricter environmental laws. However, the results of this survey give an indication of the *relative* support for different instruments among respondents. In particular, respondents were asked to select the two instruments that they believed would be most effective in tackling environmental problems. The 2015 survey, instead, gives insight into the *absolute* support of respondents for each of a number of measures. In this case, respondents had to state their level of agreement with each of those measures, without being limited to selecting only two among them, or expressing any opinion as to their relative effectiveness.

The proposition (supported by 91% of Europeans) that subsidies to sectors such as agriculture and fisheries should consider biodiversity, is also relevant to coherence between the Nature Directives, as well as measures in other policy areas.

Table 37 - Measures that the EU should take to protect biodiversity, according to Europeans³⁰²

Measures that the EU should take to protect biodiversity	Totally agree	Tend to agree	Total
Better inform citizens about the importance of biodiversity	61%	32%	93%
Ensure that biodiversity concerns are taken into account when planning new infrastructure investments	55%	37%	92%
Better implement existing nature and biodiversity conservation rules	55%	37%	92%
Restore nature and biodiversity to compensate for damage caused by human activities or infrastructure outside protected areas	54%	37%	91%

²⁹⁸ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

²⁹⁹ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

³⁰⁰ http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

³⁰¹

<http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

³⁰² Own elaboration based on data in <http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

Make sure that subsidies to agriculture and fisheries do not harm biodiversity	54%	37%	91%
Expand the areas where nature is protected	51%	38%	89%
Promote research on the impact of biodiversity loss	48%	41%	89%
Strengthen existing nature and biodiversity conservation rules	50%	38%	88%
Allocate more financial resources to nature protection in Europe	47%	41%	88%
Create innovative forms of financing for nature conservation	46%	41%	87%

National studies

While the literature reviewed for provided useful information about Europeans' expectations with respect to the environment in general, only limited sources have investigated public sentiment within individual Member States about the role of the EU in nature protection. These sources are reviewed here.

The Review of the Balance of Competences between the United Kingdom and the European Union: Environment and Climate Change³⁰³ found that there is broad agreement in all sectors of society that it is in the UK's interest for the EU to have competence in the area of the environment. How far this competence should extend was less decisive. Insofar as biodiversity is concerned, the majority of stakeholders who expressed an opinion, indicated that the EU should primarily focus on making current rules work as well as possible and improving their implementation.

A survey was conducted in 2014 in France in advance of the election of the members of the European Parliament, commissioned by an NGO³⁰⁴. The survey reported that 57% of respondents hoped that the EU would take a greater role on environmental conservation, with 9% wanting a lesser role for the EU than it currently has. Three-quarters (75%) of respondents wanted the EU to move towards a development model that better allows the conservation of natural resources. A quarter (25%), however, thought that the EU had other more important priorities to pursue.

Evidence from questionnaire responses

Of the 112 stakeholders surveyed, 50 (45%) responded to this question. Of these, 23 were of a very general nature, or actually addressed a different issue and were excluded from the analysis. Of the 27 remaining responses, 10 (37%) came from Member State nature protection authorities, 15 (55%) from NGOs and two (7%) from the business sector.

The EU role most frequently referred to by stakeholders (17) related to the responsibility to ensure proper monitoring and enforcement of the Directives.

11 stakeholders stated that Europeans place high expectations on the EU for protecting nature.

Only two suggested that the EU already has an excessive role in nature protection and should not do more.

As many stakeholders noted, most Europeans do not really make any distinction whether a policy or initiative comes from the EU or the national level, therefore their expectations are not targeted specifically at EU Institutions.

Results from the online public consultation

Although the online public consultation questionnaire did not include specific questions on this aspect of the nature legislation, it nonetheless provided some useful indications about Europeans' expectations for the role of the EU in nature conservation³⁰⁵.

³⁰³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284500/environment-climate-change-documents-final-report.pdf

³⁰⁴ http://www.ifop.com/?option=com_publication&type=poll&id=2642, 16.12.15.

³⁰⁵ The issues raised by organised campaigns and other features of the online public consultation methodology

The vast large majority of respondents (93%) considered the Directives to add significant value to what could have been achieved at national or sub-national level. This data can be complemented with the information received from the open question, where many individuals (mainly interested/active in nature and environment) stated that the EU legislation is necessary and adds value over and above national legislation. These individuals do not want to see the Directives abolished.

In contrast, most business respondents (70%) stated that the Directives added no value at all. This data may be complemented by the results of the open question, in which many respondents from the business sector (agriculture and forestry, as well as fisheries and hunting and construction) stated that the Directives do not take account of regional and local circumstances or socio-economic considerations.

This divergence in opinions is confirmed by the answers to the question of whether there remains a need for EU legislation to protect species and habitats. As before, the overwhelming majority of respondents (98%) replied positively, while the majority of the business sector (63%) disagreed. However, in this case the sector was divided, with respondents active in the fields of agriculture and forestry, fisheries and hunting providing negative responses (84% and 72% respectively), while others, for the most part, supported the ongoing need for EU nature protection legislation.

The report on the online public consultation describes the considerable effect on the results by at least 12 identified campaigns from different interest groups. While this generated an unprecedented level of interest - with more than 550,000 survey participants - the weight of each campaign and its influence on the results has not been quantified in a precise manner since not all campaigns published a list of suggested replies, and some respondents may have been influenced by campaigns without following a prescribed set of responses.

7.5.4 Key findings

- The majority of Europeans (60%), believe that environmental decisions should be taken jointly between national governments and the EU, while a little over one-third (36%) believe that only national governments should take such decisions. A significant majority of Europeans (77%) believe that EU environmental legislation is necessary for protecting the environment in their country.
- Most Europeans think that neither their national governments (70%) nor the EU (56%) are doing enough to protect the environment and should do more. There are, however, significant minorities who believe that both national governments and the EU are doing what they should (21% and 23% respectively).
- As to the types of instruments to be used for environmental protection, 93% of Europeans think that the EU should better inform citizens about the importance of biodiversity. Taking into account biodiversity concerns when planning new infrastructure developments and improving the implementation of existing biodiversity legislation also receive wide support (92%). The overwhelming majority of Europeans (89%) believe that areas where nature is protected should be expanded, with about as many (88%) supporting the idea of strengthening existing nature and biodiversity conservation rules.

7.6 Conclusions concerning Relevance of the Nature Directives

- According to Member State reports, the most frequent pressures on European protected habitats and species are linked to habitat loss and degradation arising from agriculture. Pressures also frequently result from forestry, pollution, hunting, fishing, building development and extractive industries. Invasive alien species affect some species groups and habitats. Climate change is an increasing threat. The provisions of the Directives, if well implemented, form a framework capable of addressing key problems that habitats and species face. However, to fully address these problems the Directives need to be integrated with the relevant policies in other sectors.
- Stakeholders generally agree that the Directives' principles and overall approach remain valid and appropriate. The Annexes have been updated mainly in response to EU enlargements. Many national authorities, and some other stakeholders, consider that the Annexes should be further updated, primarily to reflect taxonomic changes, new scientific information, gaps in coverage of threatened species and changes in the status of species. In contrast, all of the consulted nature conservation NGOs and some of the national authorities and businesses consider it more important to properly implement the Directives as they are now rather than risk legal uncertainty through further updates.
- The Directives make positive contributions to sustainable development broadly and to specific related goals, such as resource management, health and social benefits. They have been designed to allow economic development when compatible with the Directives' biodiversity objectives. Although the Directives give primacy to biodiversity objectives in decision-making, no evidence has been provided showing that this significantly constrains overall sustainable development. Sustainable development could however be further facilitated, for example, by identifying potential conflicts early in the development planning cycle.
- There is a strong consensus among Europeans about the importance of nature protection. A significant majority (80%) of Europeans consider the decline and possible extinction of animals, plants, natural habitats and ecosystems to be a serious problem in Europe. The interest of EU citizens in nature is further demonstrated by the unprecedented participation rate in the online public consultation carried out for this evaluation. While many contrasting views emerged from this consultation, over 520,000 citizens stated that the Directives are important for conserving nature.
- A majority of Europeans (60%) believe that environmental decisions should be taken jointly between national governments and the EU; a significant majority (77%) consider EU environmental legislation necessary for protecting nature in their country. Most Europeans think that neither their national governments (70%) nor the EU (56%) are doing enough to protect the environment. The overwhelming majority of Europeans (89%) believe that areas where nature is protected should be expanded, and about as many (88%) support strengthening existing nature and biodiversity conservation rules.

8 Evaluation and analysis of coherence questions

Evaluating the coherence of legislation, policies and strategies means assessing if they are logical and consistent, internally (i.e. within a single Directive), with each other (i.e. between the two Directives) and with other legislation as well as with relevant policies. This includes determining whether there are significant contradictions or conflicts that stand in the way of their effective implementation or which prevent the achievement of their objectives.

In order to function effectively, the Nature Directives need to be part of a coherent, integrated framework of EU policies that support and reinforce each other and contribute to the relevant strategic objectives of the Union. Article 11 of the TFEU requires that environmental protection requirements are incorporated into 'the definition and implementation of other EU policies and activities, particularly with a view to promoting sustainable development.' This requirement has been in the Treaty since the 1987 Single European Act, when the provisions on environmental policy were incorporated. Article 3(3), Article 3(5) and recital 9 of the TFEU recognise sustainable development as a strategic objective of the EU based on balanced economic growth and a high level of environmental protection. These provisions constitute the bridge between environmental policy and all other EU policies.

The Nature Directives form part of a complex and wide-ranging framework of EU and global environmental legislation and policy. EU environmental laws and policies covering water, marine areas, climate change, and horizontal instruments (e.g. EIA, SEA and the ELD) support and reinforce the provisions of the Nature Directives in important ways, but also require coordination in order to be effective. EU and global strategies and instruments aimed at biodiversity conservation also support or complement the Directives. Most environmental policies have goals that are consistent with and complement nature protection, but the implementation in practice is more complex.

Some EU sectoral policies have the potential to threaten nature and biodiversity. Nature protection concerns should be effectively integrated into the relevant sectoral policies, but the relationship between objectives, instruments and actual outcomes can be complex and may lead to unintended negative impacts. Some EU sectoral policies govern the funding instruments which should be accessible to Member States for supporting the protection of habitats and species, including management of the Natura 2000 network. The Nature Directives also form part of the EU's approach to managing the internal market, as they create a level playing field in many sectors with regard to the costs of minimising the impacts from economic activities on species and habitats.

To assess the coherence of the Nature Directives with other relevant legislation and policies for the purposes of this study, we have looked at the aims or objectives of policies as well as how they are implemented in practice. This has considered the following:

- **Objectives:** Are the individual objectives, targets and tasks harmonious or conflicting and if so to what degree? How do the policy areas interact and what is the potential impact on nature conservation?
- **Implementation and instruments:** Are the instruments applied compatible in their focus and approach? Are incentives, timetables, scope, operational implementation and reporting obligations aligned? What measures are in place to prevent negative interactions and what has been the experience in practice over time?

This assessment focuses on providing a high-level view, to capture key inconsistencies and synergies, as well as highlight good implementation practices and note where there may be room for improvement.

8.1 C.1 - To what extent are the objectives set up by the Directives coherent with each other?

8.1.1 Interpretation and approach

This question focuses on the coherence between objectives within each Directive, and/or between objectives of the Birds and Habitats Directives. It covers not only the strategic objectives but also the specific and operational objectives presented in 0 of this report (Intervention logic). This question provides evidence of the consistencies or inconsistencies between the objectives of the Directives that impact on their implementation. It examines if there are similarities or major differences between the Directives (in provisions, wording or structure), and whether or not the differences identified lead to conflicts or inconsistencies in implementation that make the Directives incoherent.

Each difference or similarity identified through all available sources of information is analysed in relation to the objectives of the Directives.

8.1.2 Main sources of evidence

The first step of the analysis of the coherence between the objectives of the Birds Directive 2009/147/EC and the Habitats Directive 92/43/EEC requires reviewing the legal provisions of both Directives and the formulation of their strategic and specific objectives. This analysis is complemented by the interpretation of those provisions in literature, case law and responses to the evidence gathering questionnaires provided by stakeholders.

Key sources of information are the Guidance documents developed by the Commission interpreting key provisions of the Directives, and Guidance documents developed by Member States or associations. Publications providing an EU level overview based on comparative assessments have been prioritised.

In relation to other published literature, few studies were identified which specifically focused on the analysis of the coherence of both Directives. Where such studies exist, they have been developed mainly as a response to the announcement of the Fitness Check of the Nature Directives. They include a recent study on the legal aspects of the Directives related to the Fitness Check (Day, 2015). Other publications review the interpretation of certain provisions, or examples of implementation. They are complemented by information found in national studies, or examples provided by stakeholders contributing to the evidence gathering questionnaire.

Of the 114 stakeholders who completed the evidence gathering questionnaire, 72 provided responses to this question. Most (66) considered the two Directives to be coherent. While 10 provided examples of conflicts in implementation, only five stated that those problems are due to the Directives not being coherent.

This question was also addressed in the online public consultation, but responses were inconclusive, with a polarisation of views according to type of interests. While respondents from agriculture and forestry, fisheries and hunting to a large extent disagreed (mostly or totally) with the statement that the Directives are consistent with each other, respondents from environment and nature bodies, as well as industry, generally agreed mostly or totally with this statement.

8.1.3 Analysis of the question according to available evidence

The coherence of the objectives of the Habitats Directive

The assessment of the literature reviewed and the evidence from the stakeholders' contributions leads us to conclude that the Habitats Directive sets up a coherent legal framework for the achievement of its objectives.

The Habitats Directive 92/43/EEC³⁰⁶ aims 'to contribute towards ensuring biodiversity through the conservation of natural habitats and of species of wild fauna and flora in the European territory of the Member States to which the Treaty applies'. This overarching objective provides the framework for specific objectives to set a system for the conservation of habitats and species in the EU.

Examining the provisions of the Directive itself, and, in particular, the literal interpretation of Article 2(1), indicates that the **aim of the Directive** is limited to contributing towards ensuring biodiversity. The Directive does not itself aim to ensure biodiversity, but, rather, to contribute to it, together with other legal and policy instruments. This is confirmed by the literature and by the scope of the Directive, which is limited to habitats and species of European interest.

The preservation of biodiversity is a policy objective of the European Union and goes beyond the Habitats Directive (M. Clément, 498 (Born et al, 2015))³⁰⁷. The Member States' obligation of results defined by the Directive relate to the preservation of European nature. It is 'not possible to identify in the text of the Directive a clear indication that if the conservation status of a species is declining, then the Member State has not fulfilled its obligation (M. Clément, 498 (Born et al, 2015))³⁰⁸. The obligation of results applies to the necessary measures that Member States are required to take, such as the establishment of the Natura 2000 network³⁰⁹.

The scope of the Habitats Directive does not cover all natural habitats and wild species existing in EU Member States territory. The natural habitat types of Community Interest covered by the Directive are those listed in Annex I of the Habitats Directive, while the wild species of Community Interest covered by the Directive are listed in Annexes II, IV or V. The Directive, therefore, has a limited scope in relation to the species and habitats it covers. Several stakeholders³¹⁰ have raised this, in relation to the evolving conservation status of certain species which might require different protection measures, or the lack of protection at EU level of certain species that are important at national level.

The strategic objective of the Directive³¹¹ requires Member States to adopt measures designed to maintain or restore, at FCS, those natural habitats and wild species of Community Interest. This provision also requires that those measures take into account economic, social and cultural requirements³¹².

The concept of FCS is defined both in relation to habitats and to species. The Directive establishes a system based on the adoption of site protection measures, species protection measures and different supporting measures, each intended to ensure the FCS of the habitats and species concerned. Those measures correspond to specific and operational objectives of the Directive and include:

- The establishment of a coherent Natura 2000 Network of special areas of conservation (SACs).

³⁰⁶ Article 2(1) of the Habitats Directive.

³⁰⁷ P.11.

³⁰⁸ P.12.

³⁰⁹ P.13.

³¹⁰ Other public authority Malta, nature authority Spain.

³¹¹ Article 2(2) of the Habitats Directive.

³¹² Article 2(3) of the Habitats Directive.

- The adoption of conservation measures for the SACs (Article 6(1)).
- Avoidance of any deterioration of habitats and disturbance of the species in SACs for which the areas have been designated (Article 6(2)).
- Conditions for authorising plans and projects likely to have a significant effect on SACs, including AA of impacts of such activities (Articles 6(3) and 6(4)).
- The establishment of a system of strict protection of species.
- Prohibition of killing, capture (including hunting) of species (Article 12).
- Derogation of the prohibitions based on the conditions and procedures established under Articles 14 and 16.

This system, based on site protection measures, including the assessment of the impacts of activities, plans or projects on Natura 2000 sites, and species protection measures, seems to be coherent for the achievement of the Directive's objectives. No evidence was identified, either in the literature or from stakeholders' responses that pointed to inconsistencies or significant conflicts between the different objectives of the Habitats Directive.

Some nature authorities (Estonia, Germany, Romania) and NGOs (Poland) refer to the internal coherence of the system designed by the Habitats Directive and highlight in particular, its clear concept outlining the interrelations between the objectives (Article 2), measures (Articles 4, 6, and 12), and assessment of targets through the monitoring and reporting requirements (Articles 11 and 17), each of which is linked to the definitions in Article 1. The principal mechanisms of the Directives - species conservation, designation of protected areas, establishment of conservation measures and measures dealing with new developments - are likewise coherent, and there are no significant conflicts.

The coherence of the objectives of the Birds Directive

The Birds Directive 2009/147/EC (replacing Council Directive 79/409/EEC) is aimed at the general conservation of wild birds in the EU. It establishes a system based on site protection measures and species protection measures - including the requirement to assess the impacts of activities, plans and projects - which are coherent for the achievement of the Directive's objective. This system addresses aspects of conservation, including safeguards for habitats, controls on trade and hunting, and promotion of research (European Commission, 2008b).

The aim of the Birds Directive is the conservation of all species of naturally occurring birds in the wild state in the European territory of the Member States to which the Treaty applies. The system established by the Birds Directive 'covers the protection, management and control of these species and lays down rules for their exploitation'.³¹³

The **scope** of the Directive covers all bird species that occur naturally in the Member States, including accidental visitors. It does not cover introduced species, except where they are explicitly mentioned in one of the annexes to the Directive, or when introduced species in one Member State are native to another Member State (European Commission, 2008b).

The Birds Directive³¹⁴ requires Member States to take the requisite measures to maintain/adapt the population of all bird species, referred to in Article 1, at a level which corresponds to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements³¹⁵.

The system established by the Birds Directive includes site protection measures, including the assessment of the impacts of activities, plans or projects on Natura 2000 sites,

³¹³ Article 1 of Directive 79/409/EEC.

³¹⁴ Article 2 of Directive 79/409/EEC.

³¹⁵ Article 2 of Directive 79/409/EEC.

and species protection measures which seem coherent for the achievement of the Directive's objectives. No evidence has been identified either in the literature or from stakeholders' responses that points to inconsistencies or significant conflicts between the different objectives of the Birds Directive.

The first assessment of the consistency of the Birds Directive is based on the analysis of the provision as frequently interpreted by the CJEU.

The requirement to classify the most suitable territories in number and size as SPAs for the conservation of birds in the geographical and land area where the Directive applies, has been subject to clarification. The Directive did not establish a specific process and timetable. The Court established ('Lappel Bank' case C-44/95, C-3/96, *Commission v. Netherlands*) that the ornithological criteria laid down in paragraphs (1) and (2) of Article 4, are to guide the Member States in designating and defining the boundaries of SPAs. Member States' margin of discretion is not concerned with classifying SPAs according to ornithological criteria, but relates only to the application of those criteria in identifying the most suitable territories for conservation of the species in question. The general scheme of Article 4 of the Birds Directive requires that, where a given area fulfils the criteria for classification as an SPA, it must be made the subject of special conservation measures. The Court pointed to the Inventory of Important Bird Areas in the European Community (IBA) as a reference tool.

Article 2 of the Birds Directive sets the frame for the interpretation and application of the rest of the provisions, ensuring internal coherence. The CJEU case law refers to the relationship between Article 2 and Article 7 of the Birds Directive, and specifically to the question of whether or not this article comprises a derogation from the general protection requirements of the Directive' (*European Commission, 2008b*) regarding economic considerations. The Court states in case C-247/85 *Commission v. Belgium* and case C-435/92 *Association pour la protection des Animaux Sauvages and others* that Article 2 does not constitute an autonomous derogation from the general system of protection, but, rather, shows that **the Directive** takes into consideration both the necessity for effective protection of birds and the requirements of public health and safety, the economy, ecology, science, farming and recreation. Article 2 sets the frame for the entire Directive, and all provisions should to be interpreted accordingly.

Article 5 of the Birds Directive requires Member States to ban the deliberate killing or capture of all species of wild birds by any method, as well as the deliberate disturbance of these birds. Similarly, Article 8 prohibits the use of large-scale non-selective means of bird killing or with the capability to cause the local disappearance of a species, in particular for Annex IV a) species. Several elements of flexibility, however, are included. For example, it allows for the exploitation of Annex II listed birds, within the conditions of national legislation respecting the principles and criteria set out in Article 7 of the Birds Directive. The practice has to comply with the principles of wise use and ecologically balanced control of the species, particularly population level, taking into account the geographical distribution and reproductive rate. Hunting of Annex II listed bird species should be prohibited during reproduction season. In addition, Article 9 enables Member States to grant derogations to the prohibitions under Articles 5 and 8, where there is no other satisfactory solution, for specific reasons such as public health and safety interest or the protection of flora and fauna. The permit has to be granted on a selective basis, with supervised conditions for the judicious use of certain birds in small numbers.

In case C-262/85, *Commission v. Italy* the CJEU confirms the coherence between Article 7 and Article 9(1) which allows Member States to derogate from the general scheme of protection in a more extensive manner than that provided for in Article 7. However, such derogation must comply with the three conditions of Article 9: firstly, the Member State must restrict the derogation to cases in which there is no other satisfactory solution (reiterated in other cases such as C-10/96, *ASBL*); secondly, the derogation must be based on at least one of the reasons listed exhaustively in Article 9(1) a), b) and c); and thirdly, the derogation must comply with the precise formal conditions set out in Article 9(2), which are intended to limit derogations to those that are necessary, supervised by the Commission.

On several occasions the Court has referred to the interpretation and implementation of the derogation under Article 9(1)c) which needs to be applied on a 'strictly controlled and selective basis so that the birds in question are captured in only small numbers and in a judicious manner. In this respect, it is apparent from Article 2 of the Birds Directive, in conjunction with the 11th recital of the preamble to the Directive, that the criterion of small quantities is not an absolute criterion but rather refers to the maintenance of the level of total population and to the reproductive situation of the species concerned.'³¹⁶

The Birds Directive, therefore, sets up a coherent legal framework for the achievement of its objectives. No evidence was identified either in the literature or by the stakeholders pointing to inconsistencies within the Birds Directive.

The coherence between objectives of the Birds and Habitats Directives

Coherence in relation to the general aims of the Directives and their scope

The Birds Directive aims to ensure the conservation of all species of naturally occurring birds in the wild in the European territory of the Member States. Similarly, the Habitats Directive aims 'to contribute towards ensuring biodiversity through the conservation of natural habitats and of species of wild fauna and flora in the European territory of the Member States to which the Treaty applies'. A recent study (Day, 2015) found the general aims of both Directives to be consistent.

To a certain extent, the interpretation of these objectives by the CJEU³¹⁷ underlines the importance of an international approach to bird protection. Stakeholders (e.g. NGOs Greek, IE) consider the Directives to be a key instrument supporting the EU's global leadership in the efforts to halt biodiversity loss, setting up processes that either guide or implement the growing number of multilateral environmental agreements. The Nature Directives have led to the formation of the Natura 2000 network, one of the most advanced networks of protected areas in the world.

The Directives' aim is not to single-handedly ensure biodiversity, but, rather, to contribute to it, together with other instruments. The conservation of biodiversity is a policy objective of the EU which goes beyond the Nature Directives (see the analysis of the coherence of the Habitats Directive for specific references).

Both Directives establish a similar system requiring Member States to adopt measures covering site and species protection, management and control of activities and laying down rules for species exploitation and derogation of species protection measures. The evidence gathering questionnaires generally considered both Directives to form a coherent legislative framework as follows:

Box 94 Views of the stakeholders on the coherence between the directives

Most comments from **public authorities and NGOs at national and EU level** accept that the Directives form a coherent legislative framework with no significant differences in objectives or measures that would hamper the common aim of nature protection. Some (e.g. the Luxembourg nature authorities,) refer to their complementarity creating a coherent legislative instrument for nature conservation.

While some NGOs (Germany, Bulgaria) responses used similar wording - stating that the Directives are coherent and together create a coherent legislative framework for nature conservation with no reported significant problems with their implementation arising from the fact that they are two Directives - the evidence reflected the specificities of their countries and the comments are, therefore, considered separately.

³¹⁶ C-252/85, Commission v. France.

³¹⁷ Commission v. Belgium (case 247/85), the Court, following the recital 4 in the preamble of the Directive, noted that the Directive is based on the consideration that effective bird protection is typically a trans-boundary environment problem entailing common responsibilities for Member States.

Several NGOs at national (Belgium, Czech Republic, Germany, Netherlands) and at EU level (EEB, Butterfly Conservation Europe, BirdLife Europe) pointed to the original expectation or justification for the development of the Habitats Directive, which was initially conceived as a step building on the foundations laid by the Birds Directive. It was repeatedly stated that the original choice of expanding the scope of the Birds Directive through a complementary piece of legislation, rather than repealing and replacing it, has been amply vindicated, with the two Directives representing one coherent framework. German NGOs' consultation of experts in the field (i.e. professors, site managers or members) did not provide any evidence of inconsistencies between the objectives that negatively impacted on the coherence of the Directives.

Several **public authorities** (Belgian authorities, Finland nature authorities, Netherlands, Luxembourg nature authority, Maltese nature authority) recognise that although there are differences in the wording and approach between the two Directives, they can generally be considered to be sufficiently coherent, as both strive for the conservation of habitats and wild fauna and flora species. It is recognised that the complementarity of the Directives has resulted in a coherent system for nature conservation. The objectives set out by each Directive result in an effective set of measures for the protection of the environment and the creation of a coherent network of protected areas.

Most **private sector** EU level stakeholders responding to this question (e.g. Cembureau, Euromines, Eustafor, FACE) considered the Directives to complement each other, stating that their objectives are fully consistent and, together, create a coherent legislative framework for nature conservation. However, some of them point to coherence issues in implementation at project level regarding conflicting conservation objectives (e.g. protection of European Beaver vs. protection of certain habitats in decline due to beaver activity, particularly in lowland forests). This is confirmed at national level (e.g. Finnish farmer and forest owners' organisations). However, the examples provided do not relate to the coherence between the Directives but rather between different species or habitats in the same site. They relate to the national or local choice of management measures to ensure the protection of the different habitats or species. Therefore these inconsistencies are not retained.

The **scope of the Directives** is referred to as one of the main differentiating elements by several public and nature authorities (e.g. Belgium, Bulgaria, Denmark, Estonia, Netherlands, Spain) and some EU level organisations, such as FACE.

Under the Birds Directive, all wild birds (species of naturally occurring birds) are protected, while the Habitats Directive only applies to the species and habitat types considered to be of Community Interest and listed in the Annexes. The Birds Directive has a more holistic protection scope from that point of view. Most stakeholders acknowledged that the difference would not create inconsistencies that would have a significant negative impact on the implementation of the Directives. Others, however, such as nature authorities in the Netherlands, stated that the scope of the Birds Directive means that, in practice, species protection measures need to be adopted for all bird species, including those that are not threatened in any way. This raises difficulties in implementation, such as solutions to the nuisance of gulls and pigeons in cities. This statement does not take into account the flexibility provided by the Directive for granting derogations. Furthermore, the Estonian Ministry of Environment states that the problems that could be generated (mainly in agriculture or forestry activities) by an overly rigid interpretation of the Directive, can be solved with national implementation measures promoting sustainable management practices in agriculture and forestry. By contrast, the Spanish nature authorities stated that the holistic scope of the Birds Directive is more easily understood by the general public, making it easier to enforce.

Several nature authorities in Malta pointed to the organisational problems deriving from two separate instruments, each with its own comitology procedures. This, they felt, leads to a degree of complexity of coordination amongst the various departments in Member State administrations responsible for these instruments, as well as disjointed thinking and duplication of effort. However, other authorities consider the Directives to have promoted greater integration of administrations.

Evidence from some nature authorities (e.g. Denmark, Spain, Hungary, Sweden), NGOs (Latvia) and private sector (Latvian farmer representatives) justifies the internal coher-

ence of both Directives on the basis that the transposing legislation into the national legal systems is one piece of law covering both Directives. For example, in the Flemish legislation, various provisions of both Directives have been successfully mixed and integrated into one piece of legislation. Both the site-based protection obligations and the species-based protection obligations have been merged into combined provisions, with no distinction made between Habitats Directive or Birds Directive. The fact that this has been possible, without serious judicial difficulties, supports the notion of coherence between both Directives. However, the Spanish nature authorities argue that a legal system based on the transposition of the Directives through a single legal instrument - as followed in Spain - complicates implementation and enforcement, stating that merging of the Directives should not be recommended.

The concept of FCS

The Habitats Directive requires Member States to take measures to maintain or restore, at FCS, natural habitats and species of Community interest. The applicability of FCS to the Birds Directive has been recognised by different sources of literature based on the interpretation of the Directives' provisions. The Guide to sustainable hunting under the Birds Directive (European Commission, 2008b) states that the overall objective of the Directive is the maintenance of bird population at an FCS. The Guide explains that while the term 'favourable conservation status' is not explicitly mentioned in the Birds Directive, it is implied in the requirements of Article 2.

The same conclusion is reached by (Day, 2015) which states that while 'the Birds Directive does not recognise the achievement of favourable conservation status (FCS) of habitats and bird species as an objective, this obligation has been considered analogous to the objective to maintain or adapt the population of species at the level that corresponds to the ecological, scientific or cultural requirements while taking into account the economic and recreational requirements'. Another argument mentioned by (Day, 2015) considers SPAs to be part of Natura 2000, whose objective is to enable habitats to be maintained or restore at an FCS in their natural range (Article 3(1) of the Habitats Directive). Therefore, FCS is also an objective of the SPAs under the Birds Directive.

At a practical level, however, this might not yet be fully implemented as FCS targets (or reference values) have not been set for birds. Stakeholders from infrastructure development and extractive industry sectors recognise that both Directives require the achievement of FCS as a long-term objective and are, therefore, coherent. However, they point to conflicts of implementation of this objective in relation to the authorisation of development projects under Article 6(3) of the Habitats Directive (see questions S.3 and C.2 for further discussion)³¹⁸.

The consideration of socio-economic factors

Both Directives explicitly require Member States to take socio-economic factors into account when implementing the Directives. Recital 6 and Article 2 of the Birds Directive and recital 3 and Article 2(3) of the Habitats Directive recognise these as part of the Directives' objectives.

Some stakeholders from the private sector (i.e. Latvian farmer representatives) and from Latvian NGOs consider the concept of sustainability to be included in both Directives through the requirement for Member States to ensure the FCS of species and habitats while 'taking into account economic, social and cultural requirements'.

Other provisions, such as Articles 6(3) and 6(4) of the Habitats Directive in relation to SPAs and SACs, or Article 16 of the Habitats Directive and Article 9 of the Birds Directive

³¹⁸ This group of stakeholders states that while this objective is achievable even after development projects are authorised according to Article 6 of the Habitats Directive, certain authorities - mainly at local level - do not always allow these projects to be carried out. This is mostly linked to an alleged overuse of the precautionary principle at a local level, driven by fear of granting permits to activities that would cause irreparable damage to the FCS of biodiversity, leading to NGO challenges at national or EU Courts.

in relation to species protection measures, are designed so that socio-economic factors are considered when implementing the Directives.

The CJEU has recognised on several occasions (i.e. case C-247/85 *Commission v. Belgium*; *Leybucht* case C-57/89; case C-435/92 *Association pour la protection des Animaux Sauvages and others*) that the objective under Article 2 'the protection of birds' must be balanced against other requirements, such as those of an economic nature. Therefore, although Article 2 does not constitute an autonomous derogation from the general system of protection, it nonetheless shows that the Birds Directive takes into consideration both the necessity for effective protection of birds and the requirements of public health and safety, the economy, ecology, science, farming and recreation.

However, the CJEU has ruled on several occasions that economic, social and cultural requirements or regional and local characteristics cannot be taken into account when selecting and defining the boundaries of Natura 2000 sites. For example, the Court required in the UK 'Lappel Bank' Case C-44/95 that ornithological criteria stated in the Birds Directive under Article 4(1) and (2) should be used for designating and setting the boundaries of SPAs. Also in relation to SPAs, in cases C-371/98 UK, *First Corporate Shipping* and C-67/99, *Commission v Ireland*, the Court reiterated that a Member State may not take account of economic, social and cultural requirements or regional and local characteristics, as mentioned in Article 2(3), when selecting and defining the boundaries of the sites to be proposed to the Commission as eligible for identification as SCIs.

The Nature Directives do not establish a system whereby all development projects or socio-economic activities affecting a Natura 2000 site are forbidden. Rather, those projects or activities may be carried out if they do not undermine the conservation objectives defined under Article 6(1) of the Habitats Directive. In addition, Article 6(3) of the Habitats Directive requires any plan or project likely to affect the Natura 2000 sites to undergo AA before authorities can approve it. In the *Waddenzee* Case C-127/02, Case C-304/05 *Commission v Italy*, and Case C-404/09 *Commission v Spain*, the Court clarified that an assessment would be considered appropriate when it is based on 'complete, precise and definitive findings' and 'in light of the best scientific knowledge'. The Court establishes that the precautionary principle is applicable in the framework of Article 6(3) of the Habitats Directive, stating that only where no reasonable scientific doubts remain about the absence of an impact on the Natura 2000 site, can the activity go ahead.

The Court's interpretation of how the economic factors are to be taken into account when implementing the Directives is consistently applied to both Directives. However, some stakeholders from the private sector at national level, such as Energy UK, and at EU level (Euroelectric) consider that a too-strict implementation of these requirements is inconsistent with the implementation of the 'sustainable development' principle represented by recital 3 and Article 2(3) of the Habitats Directive.

The objective to take into account socio-economic considerations is implemented through Article 6(4) of the Directive, enabling the development of damaging projects if justified on imperative reasons of overriding public interest (IROPI). The Court states in case C-239/04 *Commission v Portugal*, that this Article is a derogation from the general criterion laid down in Article 6(3) establishing that projects affecting the integrity of the site cannot be authorised. It must, therefore, be strictly interpreted, with authorisation subject to the condition of demonstrating the absence of alternative solutions. This provision applies to both Directives, and similar rules are applicable to projects or activities affecting both SPAs, SCIs or SACs.

Coherence of specific objectives

With respect to the specific objectives of the Directives, some stakeholders pointed to inconsistencies in designation and management of protected areas, assessment of species and selected aspects of implementation, such as derogations and means of capture and killing.

Establishment of the Natura 2000 Network

Both Directives require the establishment of a coherent network of protected areas – the Natura 2000 network - based on the identification and designation/classification of SPAs or SACs (Day, 2015). Stakeholders from all sectors, whether nature authorities, public authorities, NGOs or private interest associations, all recognised that the two Directives have led to the formation of one of the most advanced networks of protected areas in the world. Some highlighted that the objectives set out by each Directive result in a coherent set of measures for the creation of a network of protected areas, while others pointed to the fact that the Natura 2000 Network covers both SPAs from the Birds Directive and SACs from the Habitats Directive.

However, both Directives follow a different **designation process**. The site designation process under the Habitats Directive is based on the scientific criteria listed in Annex III and a biogeographic regional approach. Member States are required to propose a list of sites to ensure the protection of the species hosted in their national territory. Once the SCIs are identified and jointly selected by the Member States and the Commission, Member States are then required to designate them as SACs.

The Birds Directive requires the classification of SPAs for bird species under Annex I and for migratory species, as well as the establishment of a 'coherent whole' in order to ensure bird protection. The site designation process is based on scientific criteria and the value of the IBA as a source of ornithological scientific data has been recognised by the CJEU³¹⁹.

According to the UK nature authority, this difference in approach risks inconsistencies in the selection for SPAs across Member States, although no evidence of inconsistencies was provided. While the process of site selection and designation under the Habitats Directive is more complicated, and the French nature authorities consider that it leads to unnecessary administrative burden, the Romanian authorities believe the criteria for designating SACs to be more sound (determined in the biogeographical seminars by designating SCIs for each species and habitats in each biogeographical region) in comparison to the uncertain scientific criteria used for the designation of SPAs. However, this is due to the fact that IBAs are not officially recognised in Romania, despite their validity being confirmed by the CJEU. While differences exist in the selection processes of both Directives, these can be justified in the context of the existing knowledge for site selection required for birds and for other species/habitats. They are not considered the grounds of lack of coherence between the Directives.

Article 9 of the Habitats Directive provides for a mechanism to de-designate SACs as a consequence of natural developments and the results of the surveillance required by Article 11. Such a provision is not reflected in the Birds Directive, which might continue to require the management of sites for species that are no longer present.

Protection/management measures in Natura 2000 sites

The protection regime for SCAs and SPAs has been harmonised through Article 7 of the Habitats Directive, which states that the obligations arising under Article 6(2), (3) and (4) of the Habitats Directive shall replace any obligations arising under the first sentence of Article 4(4) of Directive 79/409/EEC in respect of areas classified in accordance with that Directive.

Stakeholders from public authorities (e.g. Spain, Belgium) recognise that both Directives rely on the same structure and share some of the key provisions, such as Article 6 of the Habitats Directive. Similarly most NGOs (e.g. Ireland, the UK) refer to the fact that Article 6(2) to (4) of the Habitats Directive apply to SPAs through Article 7 of the Habitats Directive and therefore site protection aspects of the two Nature Directives have been largely merged.

³¹⁹ For example, UK 'Lappel Bank' Case C-44/95 states- that ornithological criteria – as stated in the Birds Directive under Article 4(1) and (2) - should be used for designating and setting the boundaries of SPAs.

However, Article 7 does not refer to Article 6(1) of the Habitats Directive which requires the establishment of the necessary conservation measures for SACs, involving, if necessary, appropriate management plans specifically designed for the sites or integrated into other development plans. While there is no equivalent provision under the Birds Directive, its Article 4(1) requires Annex I species to be the subject of special conservation measures for their habitat, in order to ensure their survival and reproduction in their area of distribution. Article 4(3) of the Birds Directive refers to the need to take appropriate initiatives to ensure that the designated SPAs form a 'coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive applies'. The Commission Guidance document³²⁰ confirms that Article 4 of the Birds Directive provides for a similar approach for the management of SPAs to that set out in Article 6(1) for SACs. In practice, Member States tend to adopt management plans both for SACs and SPAs.

The necessary conservation measures according to Article 6(1) of the Habitats Directive need to be adopted for each SAC. These must take into account the priorities established for each site according to Article 4(4) in the context of the site's importance for e.g. the maintenance or restoration, at an FCS, of a natural habitat type in Annex I or a species in Annex II, and for the coherence of Natura 2000. Exposure of the site to the threat of degradation or destruction must also be considered. Some authorities (e.g. Netherlands) claim that implementation of Article 4(4) lead to management problems due to potential inconsistencies in the conservation objectives where SPAs and SACs overlap. The measures required to achieve objectives in a site targeting the protection of birds, for example, might conflict with measures required for other species and habitat types. This is the case when (endangered) Habitats Directive species are bulk food for birds that should be conserved (European Weather Fish and Purple Heron, or Tundra Vole and Hen Harrier), or where the objectives compete for space (e.g. geese and valuable grasslands in the river basins). The Austrian representative of farmers (COPA-COGECA) considers bird protection to be more restrictive, in practice, than species protection under the Habitats Directive, stating that the protection measures derived from the two legislations may hamper each other. The Austrian business representative from the Water/Energy sector provides an example of these potential conflicts at implementation level between the conservation objectives of SPAs for birds and SACs. In the Lower Inn river in Austria, the protection of habitats important for the breeding and refuge of birds could run against other interests (e.g. protection of fish, flood control, hydropower generation).

However, this argument is not supported. The described situation is not exclusive to overlapping SPAs and SACs. It is also possible in those sites where several Habitats Directive species co-exist in a Natura 2000 site and fall within the management choices of protected areas. Dutch NGOs state that no significant problems for implementation have arisen in the Netherlands resulting from the fact that the two Directives may differ in substance or wording. In particular, the site protection requirements are applied in an identical way to Natura 2000 sites designated under both Directives (Backes et al, 2011). In addition, NGOs (e.g. Belgium) confirm that Member States have the same approach for SACs and SPAs, as the criteria for setting objectives and the process for the adoption of management plans are the same. The Belgian authorities point out that even if the management measures or requirements of different protected species on a specific site might sometimes be contradictory, those differences can be resolved when setting the site's conservation objectives and designing the consequent conservation measures. The Directives offer adequate flexibility in that regard.

Member States are required to adopt measures to avoid pollution or deterioration of habitats and disturbance of species in Natura 2000 sites, under both Article 6(2) of the Habitats Directive and Article 4(4) of the Birds Directive.

Member States are required to ensure that projects likely to affect a Natura 2000 site designated under both Directives, are authorised only according to the permitting provisions of Article 6(3) and 6(4) of the Habitats Directive, including an AA of their impact on

³²⁰ Commission guidance document: Managing Natura 2000 sites, accessible at: http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

the site. Several stakeholders (e.g. Belgian NGOs) point to the Commission Guidance document on Article 6 of the Habitats Directive³²¹ as the crucial source explaining the linkages between both Directives and the implementation of AA. Some business stakeholders (e.g. Euromines, AT COPA-COGECA, AT Industry Water/Energy sector) believe that while these provisions and derogations of both Directives are coherent and proportionate, their implementation at a national level is not always consistent. The sectoral Commission guidance is useful but is not fully implemented at local level either because the document is not known or it is not translated or because it has a non-legally binding nature. The Transport authorities from Austria consider the conservation/protection objectives of both Directives to be consistent, and, while it is recognised that conflicts may arise at project level, different solutions can be found. Similarly, the Belgian authorities state that the consistency of both Directives allows for a common implementation scheme (Walloon Region).

The German nature authorities consider the Directives to provide the appropriate framework to ensure consistency of decisions related to the protection of various habitats or species which might require different type of actions and management measures. In such cases, the Directives provide the possibility to carry out assessments at area level (definition of conservation objectives and measures) to prioritise protected resources when formulating measures (e.g. forest development versus preserving open spaces). Furthermore, they highlight that suitable decision-making scope and criteria - including appropriate definition of the conservation status - are available.

Public authorities in Cyprus refer to inconsistencies in the decisions when there are different ministries responsible for the implementation of the Directives. However, the Directives themselves have led to an improved system of cooperation and policy development.

Strict systems of species protection

Both Directives require Member States to establish regimes of species protection inside and outside Natura 2000 sites. While the Birds Directive requires Member States to adopt *general* species protection systems, the Habitats Directive refers to the need to establish *strict* systems of species protection.

Some stakeholders raise the potential for conflict between competing protection objectives for different species covered by the Directives. For example, the Irish nature authorities refer to the salmon, a very important species for tourism and recreational angling while, at the same time, subject to substantial pressure in the marine stage of its life, arguing that measures for cormorant populations would help to maximise the return of spawning fish. However, other authorities acknowledge that this is an issue related to management measures and the Directives allow for sufficient flexibility to resolve such conflicts (BE nature authorities). For example the implementation of sustainable management practices in agriculture and forestry can avoid potential conflicts or damages (Danish nature authorities).

Similarly, the NGOs in Malta highlighted what could be viewed as an inconsistency in the implementation of both Directives, but which is actually an incorrect application of derogation at national level and due to specific circumstances in this country. The example relates to derogations granted under the Birds Directive which have led to the Maltese Wild Bird Regulation Unit (WBRU) issuing licences for finch trapping sites during spring hunting, irrespective of their presence in Natura 2000 sites under the Habitats Directive (Annex I habitat).

The German representative of COPA COGECA pointed to the inconsistency between Article 5 of the Birds Directive prohibiting intentional or deliberate killing, capture or disturbance of all species of wild birds, and Article 12(1)d of the Habitats Directive, which forbids not only intentional, but also unintentional acts.

³²¹ http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

Article 5 of the Birds Directive requires Member States to ban the deliberate killing or capture of all species of wild birds by any method, as well as the deliberate destruction of, or damage to, their nests and eggs and the deliberate disturbance of those birds. The CJEU³²² requires that the killing, destruction or damage under the Birds Directive should be purposeful. By contrast, Article 12(1)d of the Habitats Directive 92/43 does not require the acts of deterioration and destruction to be deliberate, with unintentional acts also forbidden. According to the Court³²³ prohibiting only the deliberate damaging or destruction of breeding sites or resting places of the species concerned, does not satisfy the requirements of Article 12(1)(d) of the Habitats Directive. Furthermore, in Case C-183/05 the Court established that Article 12(1)d) of the Habitats Directive 92/43 prohibits acts that 'interfere with or destroy breeding sites or resting places of wild species',... 'whether they are intentional or not.'

However, the CJEU has interpreted that Article 5 of the Birds Directive covers 'acts involving no intention to infringe the rules for the protection of birds' (Case C-412/85, *Commission v. Germany*). The Court considers the willing acceptance of deterioration sufficient to breach the prohibition under Article 5. In addition, it requires compliance with the criteria under Article 9 of the Birds Directive, stating that derogations should only be granted where there is no other satisfactory solution. This interpretation harmonises the interpretation of both provisions and confirms the proportionality of the prohibition under Article 12(1)d) of the Habitats Directive, given the importance of protecting biodiversity.

Contrary to the Habitats Directive, Article 5(1)d of the Birds Directive does not ban the deterioration or destruction of breeding sites or resting places, instead limiting the prohibition to the deliberate destruction of, or damage to, birds' nests and eggs. However, there is no evidence to suggest that this difference had led to any inconsistencies in implementation.

The analysis of the provisions of the Directives show that both Directives establish an enabling system for the 'exploitation' of certain species including, for example, hunting and fishing, by granting permits limited to legal and authorised activities. Article 14 of the Habitats Directive requires the exploitation of 'huntable' species to be compatible with their being maintained at an FCS. Derogations to the prohibitions under Articles 5 and 12 cannot allow large-scale or indiscriminate (non-selective) means of capture, killing or disturbance, or those activities causing the disappearance of local populations.

Article 16 of the Habitats Directive clarifies the circumstances and conditions under which Member States may derogate from the requirements of Articles 12, 13, 14 and 15(a) and (b) of the Directive. First of all, derogations may be granted provided there is no satisfactory alternative and derogating is not detrimental to the maintenance of the population(s) of the species concerned at FCS in their natural range. If those conditions are met, derogations may be granted if they are:

- In the interest of protecting wild fauna and flora and conserving natural habitats.
- To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property.
- In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.
- For the purpose of research and education, of re-populating and re-introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants.
- To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species listed in Annex IV in limited numbers specified by the competent national authorities.

³²² C-412/85.

³²³ Case C-98/03 *Commission v Germany*; Case C-6/04 *Commission v. United Kingdom*.

Similarly, Article 9 of the Birds Directive states that Member States may derogate from the provisions of Articles 5 to 8 where there is no other satisfactory solution, for the following reasons:

- In the interests of public health and safety.
- In the interests of air safety.
- To prevent serious damage to crops, livestock, forests, fisheries and water.
- For the protection of flora and fauna.
- For the purposes of research and teaching, of re-population, of re-introduction and for the breeding necessary for these purposes.
- To permit, under strictly supervised conditions and on a selective basis, the capture, keeping or other judicious use of certain birds in small numbers.

The requirements for derogation under Article 9 of the Birds Directive are stricter than those under Article 16(1)(c) of the Habitats Directive, which enables the granting of derogations for measures required for the protection of Annex IV species on the basis of **imperative reasons of overriding public interests**, including those of an economic nature. However these reasons cannot be used to justify derogations from Article 9(1) of the Birds Directive.

This inconsistency between the requirements of both provisions has been repeatedly raised (Netherlands nature authorities, Czech Republic environment authorities and German private sector). The representative of the industry sector in Germany and the nature authority in the Czech Republic argue that there is no justification for stricter protection rules being applied to birds compared to those applied to Annex IV species under the Habitats Directive.

On the other hand, NGOs in the Netherlands state that, despite the differences in wording of the derogation rules related to species protection, they are nonetheless applied in a coherent manner and have not led to major problems in practice. The NGOs refer to literature (Schoukens and Bastmeijer, 2014) which states that this derogation is strictly applied and CJEU has not yet approved derogations for this reason. It is argued that the CJEU definition of overriding public interest requires the activity for which derogation is requested to respond to interests of such importance that they can be weighed up against the Directive's nature protection objective³²⁴ and if there are no alternative solutions. The importance given to biodiversity protection in relation to other interests, which is considered by the Court proportional to the problem of biodiversity decline³²⁵, has led, in practice, to a situation similar to the Birds Directive. In other words, these strict requirements have led to a balanced way to consider economic and conservation objectives and have provided a good incentive for innovative approaches to reconcile economic aspirations with nature conservation objectives in a balanced way (Schoukens and Bastmeijer, 2014). Certain nature authorities (i.e. Belgium, Germany and Denmark) highlighted that while there are differences in the approaches of both Directives (mainly between Article 16 of the Habitats Directive and Article 9 of the Birds Directive), they do not reflect inconsistencies or conflicts in their implementation.

Measures outside protected areas

Both Directives encourage Member States to take measures outside Natura 2000 to improve the ecological coherence of the network. Article 4(3) of the Birds Directive refers to the need to take appropriate initiatives with a view to the coordination necessary to ensure that the designated SPAs form a 'coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive

³²⁴ C-239/04 Commission v. Portugal; C-182/10 Solvay and Others.

³²⁵ (C-182/10

applies'. Article 4(4) of the Birds Directive requires Member States to strive to avoid the pollution or deterioration of habitats outside SPAs.

Article 3(3) of the Habitats Directive enables Member States to improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora. Article 10 of the Habitats Directive urges Member States to endeavour to use land-use planning and development policies to improve the ecological coherence of the network and encourages the management of features of the landscape which are of major importance for wild fauna and flora³²⁶.

Stricter protection measures

The TFEU empowers Member States to go further than the requirements set out in the Directives adopted, pursuant to Article 192 (environment policy). Article 193 of the TFEU declares that the protective measures, 'shall not prevent any Member State from maintaining or introducing more stringent protective measures'.

In that spirit, Article 14 of the Birds Directive³²⁷ explicitly confirms the power of Member States to go beyond the EU environmental legislation. The Habitats Directive has no equivalent provision, however, this omission does not raise any problem of coherence between the two Directives due to the hierarchy of EU law (which gives precedence to primary legislation over secondary legislation, such as the Nature Directives. The articles of the Treaty are enough to justify any decision by Member States to exercise their discretionary power to go beyond the standards required by nature legislation and ensure the coherence between both Directives without the need for any explicit reference.

Introduction of alien species

Both Directives seek to ensure that the introduction of non-native species to EU territory does not prejudice local species of fauna and flora or natural habitats within their natural range.

The Habitats Directive also requires Member States to study the desirability of re-introducing Annex IV listed species that are native to their territory where this may contribute to the achievement of FCS.

Monitoring and reporting

Both Directives place reliance on surveillance and reporting in order to ensure the objectives of the Directives are being achieved. Monitoring obligations of Natura 2000 sites are required under Article 11 and Article 14 of the Habitats Directive. While no such provision exists under the Birds Directive, the requirements of knowledge under Article 4(1) refers to the need to take into account trends and variations in population levels, which can only be ensured by carrying out monitoring activities. In addition, Article 7(1) of the Birds Directive refers to population levels, geographical distribution and reproductive rate, which require knowledge on population status and trends for its implementation.

Most NGOs, (at national level, e.g. Bulgaria, Netherlands, Ireland, and at an EU level, EEB) refer to the fact that the reporting obligations and other procedures under both Nature Directives have been streamlined and harmonised through the agreement by the Ornithological Committee³²⁸ for a new reporting scheme on a six-year basis, synchronising the timing for reporting under Article 12 of the Birds Directive and Article 17 of the Habitats Directive, in order to avoid duplication or extra burden. While each Directive establishes

³²⁶ See recital 13 of the preamble of the Directive.

³²⁷ Article 14 states: Member States may introduce stricter protective measures than those provided for under this Directive.

³²⁸

<http://ec.europa.eu/transparency/regcomitology/index.cfm?do=search.documentdetail&5K404K2W+x90U5FmL1eFAfrLn1cgkj7Mn+InW96bkwDftvKFOKx2dvStAkqOOq>

its own reporting framework, the DG Environment has acted in order to avoid duplication or extra burden.

This is confirmed by EU level private sector organisations (e.g. Cembureau) which refer to the fact that reporting requirements and timings have been harmonized for both Directives, even if each Directive established its own reporting framework.

However, national nature authorities (Bulgaria, Malta, Sweden) hold the view that while steps have been taken at EU level to harmonise the reporting approach, there is scope for further harmonisation and simplification in this regard. This also applies to the reporting scheme of the derogation measures under Article 9 of the Birds Directive and Article 16 of the Habitats Directive. Despite recognising the streamlining efforts undertaken by the Commission, the existence of different reporting periods is highlighted as an inconsistency requiring a solution.

Research

Both Directives recognise the value of necessary research and scientific work, including the exchange of information in the interests of coordination at the EU level.

Provision to amend the Annexes

Both Directives provide for a mechanism to review the Annexes in the light of technical and scientific progress. (Please for more information see question R.2)

Some public authorities (Malta) point to examples requiring more flexibility in relation to the Annexes of the Directives. The protection of Annex II species through habitat protection is not always suitable, due to changing conditions, as in the case of the Elaphe Situla in Malta, which has seemingly adapted locally to urban environments, leading to the belief that protection through habitat conservation is no longer adequate. Some stakeholders from the private sector (e.g. FACE, COPA-COGECA) consider the Annexes of the Directives to be poorly adapted to changes in the conservation status of species, stating that the existing mechanisms and procedures are complicated and ineffective.

Article 15 of the Birds Directive refers to the comitology procedure to adopt amendments that are necessary for adapting Annexes I and V to technical and scientific progress and that are considered non-essential elements of this Directive. The comitology regulatory procedure requires both the Committee composed of representatives of Member States and the Commission for the adoption of the decision. This procedure has yet to be updated to comply with the Lisbon Treaty.

The Habitats Directive provides for a different procedure. Following a proposal from the Commission to adapt Annexes I, II, III, V and VI to technical and scientific progress, the Council can adopt a decision by qualified majority. For Annex IV, however, the Council has to act unanimously to adapt it to technical and scientific progress.

While the difference in the procedures does not have a major impact on the Directives' coherence due to their different scope, it could affect the ability of the Directives to evolve over time.

8.1.4 Key findings

- Both Directives have a system based on site protection measures and species protection measures, with specific requirements for the assessment of the impacts of activities, plans and projects. The system seems to be coherent for the achievement of each Directive's objectives.
- While there are differences in wording, a higher degree of harmonisation between the Directives has been ensured through their interpretation by the CJEU. No evidence has been identified to show that the differences in wording lead to

inconsistencies or conflicts either between the objectives of the Birds and Habitats Directives, or within the Directives.

- Both Directives are coherent in their approach to the overall aim or objective, as they do not aim at ensuring biodiversity but rather *contributing* towards ensuring biodiversity together with other instruments. While the Birds Directive aims to conserve populations of species, the Habitats Directive aims at biodiversity in a broader sense. However, there is no evidence that this difference has led to inconsistencies in implementation between the Directives.
- There is a difference in **scope** between the Directives, as the Birds Directive applies to all birds, while the Habitats Directive focuses on species and habitats of Community Interest. This difference was not been considered to be a source of inconsistency between the Directives. Although the broad scope of the Birds Directive may lead to issues of implementation and interpretation for species that are not threatened, the Directives allow for flexibility (through derogations) and for prioritisation of measures and promotion of sustainable management practices when setting conservation objectives or management plans.
- The Habitats Directive requires Member States to take measures to maintain or restore, **at FCS**, natural habitats and species of European interest. Although this is not explicitly stated as an objective of the Birds Directive, its applicability is justified by the fact that the Natura 2000 network includes SPAs classified under the Birds Directive. Evidence from the literature and EU Guidance documents also state that this objective is implicit in Article 2 of the Birds Directive.
- **Natura 2000 network** site selection under both Directives is based on scientific criteria and evidence, as required by the Directive and clarified by the CJEU. While representatives from several national nature authorities consider the difference in selection procedures of the Directives to pose a risk of inconsistencies in the designation process between SACs and SPAs, the evidence does not support this.
- Similarly, no evidence was provided of any conflict deriving from the fact that the Habitats Directive provides for the possibility to de-designate SACs, something not explicitly provided for in the Birds Directive, but which has been applied in practice, for similar reasons.
- The protection regime for SCIs, SACs and SPAs has been harmonised through Article 7 of the Habitats Directive. While the proactive management provisions of Article 6(1) of the Habitats Directive do not apply to SPAs, Article 4(1) and 4(2) of the Birds Directive provides for a similar approach. In practice, Member States apply **management plans** for both SACs and SPAs.
- Both Directives explicitly require Member States to take **socio-economic factors into account** when implementing the Directives. The CJEU has confirmed that these factors do not apply in site selection, but must be considered when developing site conservation measures and assessing the impact of economic activities and development projects in relation to sites and species. Both Directives are coherent in this respect. (See questions S.1 and S.3 for further discussion.)
- Both Directives require Member States to **establish systems of species protection** inside and outside Natura 2000 sites. A potential inconsistency has been raised in that the Habitats Directive³²⁹ forbids not only intentional killing or disturbance of species but also unintentional acts, and is, therefore, stricter than the Birds Directive. However, the CJEU interpretation confirms that Article 5 of the Birds Directive covers not only intentional acts but also 'acts involving no intention to infringe the rules for the protection of birds' (Case C-412/85, Commission v. Germany). It also confirms the proportionality of the prohibition under Article 12(1)(d) of the Habitats Directive that is not limited to deliberate acts, given that the aim of the Directive is the protection of biodiversity. Contrary to the Habitats Directive, Article 5(1)(d) of the Birds Directive does not ban the deterioration or

³²⁹ Article 12(1)(d) of the Habitats Directive.

destruction of breeding sites or resting places, limiting the prohibition to the destruction of, or damage to, birds' nests and eggs. No evidence has been identified that this difference had led to any inconsistencies in implementation.

- The Habitats Directive³³⁰ enables the granting of **derogations for Annex IV species** on the basis of reasons of overriding public interest, including those of an economic nature, while Article 9 of the Birds Directive has no such consideration. However literature and stakeholders refer to the CJEU's restrictive interpretation of this derogation (Commission v Finland) to support the argument that this provision has led to a balanced way to consider economic and conservation objectives, and that the rules are applied in a coherent manner with no major inconsistencies in practical implementation.

³³⁰ Article 16(1).

8.2 C.2 - To what extent are the Directives satisfactorily integrated and coherent with other EU environmental law e.g. EIA, SEA?

8.2.1 Interpretation and approach

This question focuses on the extent to which the EU Nature Directives are coherent with and integrated into other EU environment legislation, and the extent to which they are mutually supportive. The Habitats Directive and Birds Directive are the core legal instruments of the EU's biodiversity policy aiming at protecting the EU's species and natural habitats. They establish protected areas which together form the Natura 2000 network and other measures for bringing the EU's protected species and habitats into an FCS³³¹. Several other legal instruments aiming to protect the environment in the EU interact with these Directives, either because of their mutually supportive objectives or because of the use of complementary instruments.

In this question we focus on coherence with the following horizontal environmental instruments:

- Strategic environmental assessment of policy plans and programmes 2001/42/EC Directive (SEA).
- Environmental impact assessment of projects 85/337/EC Directive as codified by Directive 2011/92/EU (EIA).
- Environmental Liability Directive 2004/35/EC (ELD).

Other areas of EU environmental policy, including water, marine, floods and climate change are addressed under question C.3.

8.2.2 Main sources of evidence

The main sources of information for this question are the responses provided in the evidence gathering questionnaire, the texts of the legal instruments concerned and the reviewed literature. This information is complemented by further discussions in the focus groups and national missions.

Many of the responses to the evidence gathering questionnaire provided only a general overall assessment of legal coherence rather than information on specific issues of coherence and evidence, with few respondents providing evidence to back up the expressed opinions on legal coherence. Of the 63 national questionnaires, only 33 answered C2. The literature review and case-law from the CJEU have provided a more in-depth understanding of the legal coherence of these instruments. Case law has been particularly important in interpreting certain provisions of the legal texts of the Nature Directives and the EIA Directive.

This assessment uses a number of Guidance documents prepared by the EU, as well as implementation reports and horizontal studies. Finally, some publications of national scope were used to provide information on specific issues of implementation. Very few documents explicitly address the issue of coherence between the Directives, but many

³³¹ Recital Habitats Directive and Birds Directive.

cover the interactions and similarities or differences between the different assessment procedures.

8.2.3 Analysis of the question according to available evidence

28 of the 33 national stakeholder respondents noted that they find the overall legal framework in this matter coherent, with only five stating that the coherence of the legal framework overall is insufficient. EU stakeholders, overall, find the Nature Directives to be coherent with other EU environmental legislation, with a further seven (mostly environmental NGOs) also considering the legal framework to be coherent. Two business representatives stated that legal coherence is insufficient.

28 respondents stated that implementation issues at national level have affected the coherence in specific situations. These respondents represent all types of stakeholders, although primarily NGOs (12 respondents) and the Member State authorities (eight respondents).³³² The few private sector respondents that raised the issue of implementation problems highlight situations whereby the requirements have been ‘excessively’ implemented. A Slovak and a UK private sector representative specifically refer to situations where national law goes beyond the EU requirements or implements them in an overly strict manner. As summarised by one stakeholder: in terms of practical implementation, much seems to depend on the attitudes, approach and cultures of those involved. Both Member States and NGOs have also noted that better coherence between the policies at national level is complicated due to the compartmentalisation of the competencies across competent authorities and a lack of coordination between them. Several respondents from NGOs and Member State authorities pointed to the usefulness of guidance on the implementation of the several Directives in this context and their particular usefulness in ensuring a coherent implementation of the requirements under several Directives.

Environmental NGOs from several Member States expressed the opinion that there is a need for additional legislation in support of the Nature Directives and other EU environmental law. These respondents refer regularly, in this context, to the need for a Soil Directive, an EU Directive on environmental inspections and a Directive on access to justice in environmental matters. Several business representatives stated that the effects of other EU legislation, such as air emissions legislation for industrial installations and the transport sector, have contributed to the restoration of natural habitats. One business representative added that the burden from these measures should be considered when developing additional measures.

Coherence with the EIA and SEA Directives

The 2011 EIA Directive and its predecessor, Directive 85/337/EC, aimed at harmonising the principles used in the Member States for assessing the environmental impacts of certain *projects* in the EU Member States.³³³ The SEA Directive aims to provide for a high level of protection of the environment through the integration of environmental considerations into the preparation and adoption of *plans and programmes*.³³⁴ The Directive makes the SEA mandatory for all plans and programmes which are prepared for a number of sectors listed in the Annex to the Directive and which set a framework for future development of projects and for those which have been determined to require an assessment under Article 6(3) of the Habitats Directive.³³⁵

The EIA Directive was subject to a thorough review in 2014 with a view to adapting the initial Directive in the light of the considerable policy, legal and technical evolutions.³³⁶

³³² Also raised by five nature conservation charities and three business respondents.

³³³ Recitals, EIA Directive.

³³⁴ Article 1 SEA Directive.

³³⁵ Recital 10 SEA Directive.

³³⁶ Recital 2 Directive 2014/52/EU.

The outcome was Directive 2014/52/EU adopted with the aim of strengthening the quality of the EIA procedure, aligning the procedure with the principles of smart regulation and enhancing coherence and synergies with other Union legislation and policies (in particular the Habitats Directive), as well as strategies and policies developed by Member States in areas of national competence.³³⁷ The reviewed EIA Directive 2014/52/EU entered into force on 15 May 2014. The analysis of its implementation thus covers a very short period. For that reason, our assessment and the evidence gathered for this exercise refer mainly to the previous version of the EIA Directive, 2011/92/EC. The changes adopted in the new Directive eliminate some of the implementation problems identified in the previous version and insert several additional measures to ensure improved effectiveness, reduce administrative complexity and increase economic efficiency through the streamlining of procedures under several Directives.³³⁸ These changes will be introduced below where relevant together with a conclusion on the impact this may have on the legal coherence between both instruments. While the SEA Directive has not yet been subject to a similar review, a report on the application of the SEA Directive is currently being prepared which will assess potential for simplification and may lead to a REFIT evaluation.³³⁹

Of the 32 national respondents to question C.2., 25 consider the EIA Directive to be coherent with the Nature Directives, with seven referring to a lack of coherence or to specific inconsistencies. Of the four EU respondents, all find the Nature Directives to be coherent with the EIA Directive. It should be noted that some of the comments refer to the legislation implementing the previous EIA Directive, prior to the changes introduced by the 2014 review of the Directive. One respondent pointed, for example, to a lack of coherence in timing and timeframes for the assessments under the EIA Directive and the Habitats Directive, while Member State representatives highlighted the need for clear links between both Directives. One other Member State authority urged the integration of assessment procedures under both Directives, whereas one business respondent stated that the EIA assessment is considerably more complex than the AA.

The majority of these stakeholders recognise the *complementarity* in scope and objective of the assessments under the EIA Directive and the Habitats Directive, with most inconsistencies relating to issues of implementation. Austrian NGOs, in particular, mentioned that conflicts between goals may understandably arise at the level of individual projects, although they note that there is not an appreciable conflict of goals at policy level.³⁴⁰ Such conflicts are then addressed in the course of the procedures, depending on the technical and legal possibilities available.

The Guidance documents with sectorial focus have been identified by stakeholders as particularly useful.³⁴¹

Of the 24 national responses on coherence with the SEA Directive, 20 consider the SEA Directive to be coherent with the Nature Directives, and four referred to a lack of coherence or to specific inconsistencies. Of the four EU respondents, all find the Nature Directives to be coherent with the SEA Directive. Several respondents from NGOs, business and Member State authorities, however, noted that the SEA in some Member States is too generic in nature, being a mere administrative step to be taken, rather than an instrument for enhancing implementation of the Nature Directives. Some Member States have developed specific Guidance documents to avoid this generic approach and ensure improved consistency between the SEA and the AA.

Objectives and scope of the EIA/SEA and AA

Article 2(1) of Directive 2014/52/EU requires that, before development consent is given, certain public and private projects likely to have significant environmental effects by vir-

³³⁷ Recital 3 Directive 2014/52/EU.

³³⁸ Recitals 29, 35 and 37 of Directive 2014/52/EU.

³³⁹ Study concerning the preparation of the report on the application and effectiveness of the SEA Directive (Directive 2001/42/EC), Tender Specifications, ENV.D.1/ETU/2015/0002r.

³⁴⁰ Evidence gathering questionnaire of the Austrian environmental NGOs.

³⁴¹ Focus groups with sector representatives.

tue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an EIA. The projects listed in Annex I of the EIA Directive shall be subject to a mandatory EIA. Those listed in Annex II shall be subject to a screening procedure, followed by an EIA when thresholds established at national level or a case-by-case examination demand it. The EIA Directive thus ensures that environmental considerations are taken into account as early as possible in the decision-making process.³⁴²

Article 3(1) of the SEA Directive requires an SEA to be carried out for those plans and programmes specified in paragraphs 2 to 4 which are likely to have significant environmental effects. Paragraph 2 lists the types of plans and programmes for which an SEA is mandatory, as being those for specific sectors which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC, or which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC.³⁴³ This means that all plans and programmes for which an AA is required shall automatically be subject to the requirement to undergo an SEA. Other plans and programmes only need an SEA when the Member State in question determines that they are likely to have significant environmental effects.³⁴⁴

Article 6(3) of the Habitats Directive, on the other hand, requires any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, to be subject to AA of its implications for the site in view of the site's conservation objectives.

The coherence between both types of assessment has been the subject of literature and case law from the CJEU. It has also been extensively considered by the Commission during the review of the EIA Directive, which subsequently introduced amendments to improve coherence between both procedures.³⁴⁵ As mentioned in the EU guidance document on wind energy developments, there are many similarities between the procedures for EIA, SEA and AA, but also some important distinctions between them (de Sadeleer et al, 2009; European Commission, 2000; European Commission, 2010b).

Firstly, the Habitats AA is *more targeted as well as less multidisciplinary* than the traditional EIA or SEA (de Sadeleer et al, 2009). It is narrower in scope than an assessment under the EIA Directive, being confined to implications for the site in view of its conservation objectives (European Commission, 2000). As noted by the CJEU, the wording of the EIA Directive indicates that it has a wide scope and a broad purpose.³⁴⁶ Secondly, in relation to biodiversity specifically, the SEA, EIA and AA have unique but complementary objectives and emphasis. The AA focuses solely on the impact of plans, programmes and projects on the European sites that form the Natura 2000 network, with specific attention to their qualifying interests, conservation objectives and site integrity (Gonzalez et al, 2012). By contrast, as concluded in an Irish report on integrated biodiversity impact assessment, SEA and EIA have a wide environmental focus, encompassing the assessment of potential impacts on habitats and species within and outside European sites, examining the overall implications for biodiversity as part of the wider environment (Gonzalez et al, 2012). The Commission Guidance document on integrating climate change and biodiversity into SEA notes that *all the aspects of biodiversity* and the quality of the surroundings should be looked at in the SEA (McGuinn et al, 2013). This in parallel to the more targeted approach of the AA, whereby the likely significant effects of the plan on the *conservation objectives of a Natura 2000 site* will be assessed. The Commission Guidance document also explains that an SEA considering biodiversity as a whole can be particularly supportive of Habitats Directive objectives when carried out in a manner which avoids snapshot analyses and considers trends, because of the long timeframe to be considered in biodiversity management.

³⁴² Article 6(4) of the EIA Directive.

³⁴³ Article 3(2) of the SEA Directive.

³⁴⁴ Articles 3(3) and 3(4) of the SEA Directive.

³⁴⁵ European Commission. Impact Assessment accompanying the Proposal for a Directive of the European Parliament and of the Council amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, SWD(2012), 355.

³⁴⁶ Case C-72/95, Aannemersbedrijf P.K. Kraaijeveld BV e.a. v Gedeputeerde Staten van Zuid-Holland., [1996] ECR I-05403.

A 2013 study for DG Environment on evaluating and improving the Article 6(3) procedure noted that the initial resistance to the AA – which was seen to lack a specific purpose, given the already existing EIA procedure – was lessening (Sundseth and Roth, 2013). The report stated that, in the past, problems sometimes occurred when the EIA/SEA was combined with the AA as, in these cases, the specificity of the AA was sometimes overlooked and the assessment focused too much on impacts on ‘nature and biodiversity’ in general rather than on those of the habitat types and species for which the Natura 2000 site had been designated (Sundseth and Roth, 2013). The online survey carried out in the framework of the 2013 study found that this was no longer a problem for 80% of respondents, and that, in most cases, the assessment of potential impacts on Natura 2000 target features and conservation objectives is analysed and reported on separately (Sundseth and Roth, 2013).

Nevertheless, the European Commission impact assessment of the proposal for a reviewed EIA Directive identified some specific overlaps between environmental assessments resulting from either EU or national law, leading to a duplication of efforts and costs for developers and for public authorities.³⁴⁷ The report noted, for instance, that there could be overlaps for some of the environmental information required as part of the AA under the Habitats Directive.³⁴⁸ The report also concluded that possible synergies between the various environmental assessments had not yet been sufficiently exploited (e.g. conclusions from one environmental assessment may reinforce the conclusions of another) and that this is linked to the fact that different authorities often deal with the different environmental Directives.

In relation to the AA under the Habitats Directive, on the other hand, the 2013 DG Environment study noted that when transposing the Habitats Directive no Member State seems to have put in place an entirely new or distinct administrative system to deal specifically with the Article 6(3) permit procedure (Sundseth and Roth, 2013). Instead, each has tended to ‘graft’ the process on to already existing permit procedures (e.g. existing EIA/SEA procedures, or other forms of planning consent) which are generally designed for other purposes and often have different objectives and approaches (Sundseth and Roth, 2013).

With a view to ensuring coherence between the assessments and reduce these inconsistencies, the reviewed EIA Directive requires Member States to establish *coordinated or joint procedures* where assessments are required under the EIA and the Birds and Habitats Directives.³⁴⁹ The new Article 2(3) of the EIA Directive requires Member States to endeavour to coordinate the various individual assessments of the environmental impact of a project required by relevant Union legislation, by designating a single authority for this purpose (coordinated procedure) and to endeavour to provide for a single assessment of the environmental impacts of a project required by Union legislation (joint procedure).

Under the SEA Directive, the organisation of coordinated or joint procedures is optional.³⁵⁰ The Commission report on the application of the SEA Directive states that only a few Member States report the existence of guidance for coordination of the procedures for fulfilling the requirements governing assessments under other directives (COWI, 2009). Despite this, no major problems are reported, with Member States stating that they have taken steps to avoid duplication and overlapping, mainly by means of a coordinated approach (COWI, 2009). It should be noted, however, that the same report describes concerns of NGOs (COWI, 2009). Several stakeholders noted that the increased coordination and integration between the EIA and the Nature Directives since the revision of the EIA Directive, is an important improvement in coherence of the legal framework and, in particular, the assessment procedures. One Member State, in particular, pointed out that clear links are needed between the Nature Directives and the SEA Directive, such as those developed for the EIA Directive. However, another Member State authority stated

³⁴⁷ European Commission. SWD(2012), 355.

³⁴⁸ European Commission. SWD(2012), 355.

³⁴⁹ Article 2(3) of the EIA Directive. These new provisions shall be transposed in national legislation by 16 May 2017.

³⁵⁰ Article 11(2) of the SEA Directive.

that similar integration of SEA and Nature Directives might not necessarily be achievable, as the assessments are not part of the same development consenting process and thus not undertaken at the same time.

The Commission is required to develop guidance on setting up coordinated and joint procedures under the EIA Directive.³⁵¹ Prior to the revisions of the EIA Directive, specific Guidance documents were prepared, aimed at streamlining the procedures, for example, for large infrastructure projects. The Guidance document on 'Streamlining environmental assessment procedures for energy infrastructure projects of common interest (PCIs)' (European Commission, 2013a) recommended roadmapping the different assessments from an early conceptual stage, to identify the aspects to be assessed at each stage, in order to ensure complementarity and reduce the risk of repetitive assessments and to scope the assessments. It also recommended the early integration of environmental assessments required under the different pieces of EU environmental legislation so that the authority and developer can build on the information in the several stages of the process (European Commission, 2013a).

Finally, the impact assessment for the review of the EIA Directive noted that EIAs tend to cover impacts on Natura 2000 sites, but that the *species protection* provisions are often neglected (Born et al, 2015).³⁵² The document states that an obligation for developers to assess impacts on biodiversity (rather than just the impacts on fauna and flora and/or the impacts on Natura 2000 sites), would be more in line with some of the actions of the 2006 EU Biodiversity Action Plan requiring that 'all EIAs should take full account of biodiversity concerns'. To resolve this, the EIA Directive was revised and now specifically requires impacts on biodiversity to be assessed, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC. This amendment is intended to enhance coherence between the EIA procedure and the species protection provisions in EU law, but it is as yet too soon to assess its impact on the consideration of protected species in the EIA procedures.

The definition of 'plan' and 'project'

Article 2(1) of the EIA Directive defines 'project' as 'the execution of construction works or of other installations or schemes and other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources'. The CJEU has given a broad interpretation of the concept of 'construction'. Nevertheless, a purposive interpretation of the Directive cannot disregard the clearly expressed intention of the EU legislator, which establishes the limit of the interpretation of this concept (Day, 2015). The plans and programmes for which an SEA shall be required are listed in the Directive. The plans and programmes shall be public, relate to explicitly mentioned sectors and set the framework for future development consent, or require an AA.³⁵³ Minor modifications to such plans and programmes or small-scale local plans may be subject to a screening procedure.³⁵⁴ The same applies for all other plans and programmes. The terms 'plans and programmes' are not further defined.

The Habitats Directive, on the other hand, does not define the concept of 'project' or 'plan'. The concepts should, however, be interpreted broadly, due to the wording of Article 6(3) which covers 'any plan or project', and the conservation objectives, on the strength of which the SACs are set up (de Sadeleer et al, 2009). The Guidance document 'Managing Natura 2000 sites' notes that a distinction needs to be made with 'plans', which are in the nature of policy statements, i.e. policy documents which show the general political will or intention of a ministry or lower authority (European Commission, 2000). It does not seem appropriate to treat these as 'plans' for the purpose of Article 6(3) (European Commission, 2000). The WWF Fitness Check legal assessment refers to the fact that the EIA definition has been used by national courts and the CJEU to define

³⁵¹ Article 2(3) of the EIA Directive.

³⁵² European Commission. SWD(2012), 355. Also mentioned in the EEB response to the evidence gathering questionnaire. This view is also supported by several other stakeholders.

³⁵³ Article 3 of the SEA Directive.

³⁵⁴ Articles 3(3), 3(4) and 3(5) of the SEA Directive.

the concept of project in the Habitats Directive. A 2010 ruling of the CJEU condemning France for incorrect transposition of Article 6 (2) and (3) of the Habitats Directive, clarified that Member States are required to carry out AAs of impacts in Natura 2000 sites from all type of activities including fishing, aquaculture, hunting and even other hunting-related activities practiced. France was condemned because it systematically exempted these activities from the procedure of assessment, stating that they did not constitute activities causing disturbance or having an effect on Natura 2000 sites.³⁵⁵

The requirement of ‘likely significant effects’

The EIA, SEA and AA all require an assessment of the effects on the environment to take place when ‘significant’ effects are likely. Projects without likely significant effects can proceed without further procedural requirements (de Sadeleer et al, 2009).

The CJEU has clarified, in the context of the AA, that ‘in the light, in particular, of the precautionary principle, the probability of a risk that a plan or project will have a significant effect on a site concerned exists if it cannot be excluded on the basis of objective information that the plan or project will have a significant effect on the site concerned’.³⁵⁶ As mentioned in the C Guidance document for large-scale trans-boundary projects, if there is any doubt as to the absence of significant adverse environmental effects, an EIA or SEA must be carried out.³⁵⁷ The significance of effects is not further defined in either of the Directives, although the EIA and SEA Directives provide more detailed criteria for when a plan or project shall be considered to have likely significant effects in their Annexes. The Habitats Directives also provides some contextual factors to be taken into consideration when determining significance.

The EIA and SEA Directives list types of plans or projects which shall be subject to a mandatory impact assessment.³⁵⁸ As such, the significant impact of the effects on the environment of such projects is presumed. Other projects shall be made subject to an impact assessment following a screening by the authorities in the Member State on a case-by-case basis.³⁵⁹ For this assessment, the criteria set out in Annex to the Directives must be taken into account.³⁶⁰ The Habitats Directive does not contain any such criteria for assessing the likelihood of significant effects.

The WWF Fitness Check of EU Nature legislation outlines a number of changes which have been introduced by the 2014 EIA Directive in relation to screening, including the requirement to assess the impact of the whole of the project on the environment (Day, 2015). Competent authorities are now required to specify the information they will require from the developer in order to determine whether or not a project must be subject to an EIA, to identify the most relevant criteria to be considered and to take account of information available from other assessments required by EU legislation (Day, 2015).

For the AA, the significance of the effects needs to be determined in relation to the particular characteristics and environmental conditions of the projected site concerned by the plan or project, taking particular account of the site’s conservation objectives (SCOs) (European Commission, 2000). de Sadeleer mentions that the CJEU has developed this in the Waddenzee case³⁶¹: a plan or project is deemed not to entail significant effect where ‘it is considered not likely to adversely affect the integrity of the site concerned and, consequently, not likely to give rise to deterioration or significant disturbances within the meaning of Article 6(2) (de Sadeleer et al, 2009). The CJEU has held that any activity affecting the SCOs applying to the area is assumed to have a significant effect (de Sadeleer et al, 2009). The information on the SCOs must be based on scientific knowl-

³⁵⁵ Case C-241/08 European Commission v. French Republic, [2010] ECR I-01697.

³⁵⁶ Case C-6/04 Commission v. United Kingdom, ECR [2005] I-09017 and C-418/04 Commission v Ireland, ECR [2007] I-10947.

³⁵⁷ Guidance on the Application of the Environmental Impact Assessment Procedure for Large-scale Trans-boundary Projects, 2013.

³⁵⁸ Article 4 and Annex I of the EIA Directive and Article 3 of the SEA Directive.

³⁵⁹ Article 3(5) of the SEA Directive and Article 4(2) and Annex II of the EIA Directive.

³⁶⁰ Article 4(3) of the EIA Directive.

³⁶¹ Case C-127/02. Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij, [2004] ECR I-07405.

edge and included in the conservation measures or management plans for the sites (European Commission, 2000).³⁶² Against this background, it is clear that what may be significant in relation to one site may not be the case for another (European Commission, 2000). As the Commission Guidance document on Article 6 notes, a loss of a hundred square metres of habitat may be significant in relation to a small rare orchid site, while a similar loss in a large steppic site may be insignificant (European Commission, 2000). The CJEU has recognised that even a small-scale project can have a significant effect on the environment if located in a situation in which the environment factors of the EIA Directive are sensitive to the slightest alteration (Day, 2015). The same applies for the Nature Directives where the significance of the effects needs to be determined in relation to the specific features and environmental conditions of the projected site concerned by the plan or project, taking particular account of the site's conservation objectives (European Commission, 2000).

Overall, it can be concluded that all Directives use a similar concept for defining when a project shall be subject to an assessment, namely the *likely significance of effects on the environment*. The context within which the screening of such effects shall take place, however, depends considerably on the objective of each of the three assessments, either a broad context, taking account of several environmental factors and a consideration of all environmental impacts of a plan or project in the EIA and SEA, or a more targeted habitats-oriented assessment in view of the specific conservation objectives of a site for the AA. For all assessments, a case-by-case approach needs to be adopted by the competent authority, though guided by the criteria or objectives established in the legislation. For the EIA, certain types of projects - those listed in Annex I - are presumed to have significant effects on the environment.

The Commission study on the Article 6(3) procedure noted that the screening procedure as part of the AA remains problematic in several countries. In Estonia, for example, it is integrated into the EIA /SEA procedure, but the majority of EIA/SEA screening decisions did not consider the impacts on Natura 2000 sites. It is also a problem in cases where screening procedures are used in a pro-forma manner (Sundseth and Roth, 2013). This seems consistent with the comments from the evidence gathering questionnaires, where practical implementation issues were raised.

Cumulative effects

Both the EIA and AA procedures require consideration of cumulative effects of planned projects with other ongoing or planned activities, and do not allow a project to be divided into smaller components to avoid having to carry out assessments. The Court has explicitly pronounced itself on this issue in the context of the EIA Directive on several occasions.³⁶³ The CJEU clarified that failing to take into account the cumulative effect of projects means that, in practice, all projects of a certain type may escape the obligation to carry out an assessment, despite the fact that when taken together, they are likely to have significant effects on the environment. This matter of law is also considered applicable in the context of the Habitats Directive AA (de Sadeleer et al, 2009). Article 6(3) of the Habitats Directive explicitly includes a requirement to cover cumulative effects of multiple projects in its wording: 'either individually or in combination with other projects'. The Dutch comparative report on Article 6 of the Habitats Directive concludes that the obligatory assessment of the cumulative effects under Article 6(3) is treated differently in the countries studied. In some countries the cumulative effects are taken into consideration in the legislation (Austria, France), in other countries in practice (explanatory documents from the administration) or in case law (Germany, Belgium and the Netherlands) (Backes et al, 2006). In England, there is a single Guidance document completely devoted to the evaluation of cumulative effects. Two Member State represen-

³⁶² Art. 6(1) of the Habitats Directive.

³⁶³ Environmental Impact Assessment Of Projects - Rulings Of The Court Of Justice, 2013, http://ec.europa.eu/environment/eia/pdf/eia_case_law.pdf; Case C-392/96, Commission v. Ireland, [1999] ECR I-05901; Case C-142/07 Ecologistas en Acción-CODA v Ayuntamiento de Madrid., [2008] ECR I-06097; Case C-205/08, Umweltanwalt von Kärnten v Kärntner Landesregierung. [2009] ECR I-11525; Case C-275/09, Brussels Hoofdstedelijk Gewest and Others v Vlaamse Gewest, [2011] ECR I-01753.

tatives³⁶⁴ mention ongoing problems with the application of provisions on cumulative effects.³⁶⁵

Content of the assessments

Article 3 of the EIA Directive requires the EIA to identify, describe and assess in an appropriate manner, in the light of each individual case, the *direct and indirect significant effects* of a project on the following factors: population and human health; biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; land, soil, water, air and climate; material assets, cultural heritage and the landscape; as well as the interaction between these factors. Article 5 of the Directive specifies the information to be recorded in the EIA report. This Article also requires the inclusion of the reasonable alternatives studied by the developer in the report. Article 5(1) of the SEA Directive requires the SEA to identify and evaluate the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme.

As described, the AA under the Habitats Directive is narrower in terms of the scope and content of the assessment (European Commission, 2000). It aims at enabling an appropriate assessment of the significant impact of a plan or project in terms of its implications for the site in view of the site's SCOs and the site's integrity as defined in the SCOs (de Sadeleer et al, 2009). The content of the AA is not defined more precisely in the Directive, as this is inherently related to the SCOs and is thus more in need of a decision on a case-by-case basis. The issue of the content of the assessment was, however, raised by some stakeholders (de Sadeleer et al, 2009). This is confirmed by the EP study on the national implementation of the Habitats Directive, which presents case studies showing that the required content of an AA is set out in very general terms by the general EIA or SEA law without taking into account the specificity of Natura 2000 (e.g. Spain, Romania). This is an issue of transposition of the Directives by the Member States rather than one of coherence between the Directives.³⁶⁶

The AA might consider alternative solutions, as this would be required in cases of overriding public interest under article 6(4) of the Habitats Directive. (de Sadeleer et al, 2009) A Greek stakeholder noted that the need for coherence between the EIA Directive and Nature Directives has been repeatedly recognised by the Greek Courts. A permit for a marble quarry was annulled because no alternative locations had been examined.³⁶⁷

The EIA Directive explicitly refers to the habitats and species protected under the Habitats Directive, although the assessment under the EIA Directive is part of a wider environmental assessment, where several factors and their interactions are assessed. The reviewed EIA Directive ensures specific procedural links coordinating or integrating both assessment procedures with a view to ensuring coherence between the EIA and AA, and the full exploitation of synergies between the assessments (i.e. the use of conclusions from one assessment for the other).³⁶⁸

Implications of the outcome of the assessment

One of the key distinctions between the SEA and EIA, on the one hand, and the AA, on the other hand, is how the outcome of the assessment is followed (European Commission, 2010b). The SEA and EIA Directives lay down essentially procedural requirements and do not establish obligatory environmental standards. The EIA is aimed at making the planning authorities fully aware of the environmental implications of a proposed project so that these are taken into account in their final decision providing devel-

³⁶⁴ Romania and Slovakia.

³⁶⁵ Two Member State representatives noted that the assessment of cumulative effects is problematic, resulting in a focus on local conditions.

³⁶⁶ Conclusion based on stakeholders statements that there are no issues of legal coherence between the Directives in this respect, but problems arise in relation to national implementation.

³⁶⁷ Council of State, Greece, 293/2009.

³⁶⁸ European Commission. SWD(2012), 355.

opment consent (European Commission, 2010b). The AA, by contrast, lays down obligations of substance, mainly because it introduces an environmental standard, i.e. the conservation objectives of a Natura 2000 sites and the need to preserve the site's integrity (European Commission, 2010b). If the AA thus determines that a project will adversely affect the integrity of a Natura 2000 site, the authority cannot agree to the project as proposed, unless the conditions of Article 6(4) apply (European Commission, 2010b). There is, in other words, an obligation of result under Article 6(3), paragraph 2 of the Habitats Directive, where the outcome of the assessment is binding for the competent authority (Sundseth and Roth, 2013). Under the SEA and EIA Directives, there is only the obligation to take the outcome of the assessments into account when adopting a decision on development consent for a plan or programme.

Article 6(4) of the Habitats Directive provides a framework within which projects likely to significantly affect the integrity of a Natura 2000 site can exceptionally be authorised. The provisions of Article 6(4) thus apply when the results of the preliminary assessment under Article 6(3) are negative or uncertain (European Commission, 2000). As a first step, the national competent authority is required to assess alternative solutions. This should have normally have been prepared under the AA (European Commission, 2000). A second step is the examination of reasons of overriding public interest.³⁶⁹ If such a reason is accepted, compensatory measures shall be taken to ensure that the overall coherence of Natura 2000 is protected.³⁷⁰ Stricter requirements apply where priority habitats and species are likely to be affected. No similar requirements to adopt compensatory measures exist under the EIA or SEA.

Public participation

Contrary to the SEA and EIA Directives, the Habitats Directive does not require mandatory public consultation. Article 6(3), in its second paragraph, leaves the involvement of the public in the AA to the discretion of the Member States where it says: 'the competent authority shall agree to the plan or project [...], and, if appropriate, after having obtained the opinion of the general public.' This is most likely explained by the fact that the Habitats Directive is significantly older than the EIA and SEA Directives and was adopted at a time when the integration of public participation rights into domestic and EU law was in its infancy.(Day, 2015) The SEA and EIA Directives establish detailed requirements for public participation.³⁷¹ The Directives require the public concerned to be provided with early and effective opportunities to participate in the environmental decision-making procedures, and to be entitled to express comments and opinions when all options are open and before a decision on development consent is taken. The revised EIA Directive has established specific timeframes for participation. No such requirements exist in the SEA Directive. Depending on the level of integration between the EIA and AA procedures in a Member State, aspects of the AA may - by association - be subject to public consultation, e.g. in case of integration both assessments.(European Commission, 2000)

Coherence with the ELD

The ELD³⁷² establishes a framework of environmental liability based on the polluter pays principle, to prevent and remedy environmental damage.³⁷³ The ELD was adopted in the wake of incidents damaging the environment in the EU for which no liability could be established in the Member State concerned due to the heavy burden of proof (Milieu and IUCN, 2014). With this in mind, the ELD was adopted, establishing strict liability for environmental damage (to biodiversity, land and water) linked to specific operational activi-

³⁶⁹ The CJEU has interpreted the concept of 'imperative reasons of overriding public interest' (IROPI) in Case C-182/10 Solvay and Others (paragraphs 71 – 79).

³⁷⁰ Article 6(4) of the Habitats Directive.

³⁷¹ Article 6 of the EIA Directive and Article 6 of the SEA Directive.

³⁷² Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, OJ L 143, 3.4.2004, p.56.

³⁷³ Article 1 of the ELD.

ties and a fault-based liability scheme for other operational activities (Milieu and IUCN, 2014).

Under Article 5 of the ELD, an operator is made responsible for the adoption of preventive measures where there is an imminent threat of environmental damage. Where environmental damage has occurred, the operator shall inform the competent authority without delay of all relevant aspects of the situation and take all practicable steps to immediately control, contain, remove or manage the damage factors to avoid further environmental damage and adverse effects on human health and the impairment of services.³⁷⁴ The operator shall adopt the remedial measures decided upon by the competent authority. Article 8 of the ELD makes the operator responsible for bearing the cost of such preventive and remedial measures. To this end, Article 14 allows the Member State to require the operator to provide a financial guarantee. The ELD establishes an EU-wide framework for administrative liability for environmental damage, as distinct from a civil liability system for 'traditional damage' (damage to property, economic loss).³⁷⁵ The competent authorities have a prominent role in the implementation of the ELD, such as in assessing the significance of the damage occurred, and in determining which remedial measures shall be adopted.³⁷⁶ The Directive establishes clear links to existing environmental legislation. Recital 8 of the Directive notes that the activities covered by the ELD should be identified, in principle, by reference to the relevant Community legislation which provides for regulatory requirements in relation to certain activities or practices considered to pose a potential or actual risk for human health or the environment. In its Recital 5, the ELD notes that when a concept derives from other relevant Community legislation, the same definition should be used so that common criteria can be used and uniform application promoted.

Complementary objectives: conservation efforts and liability for damage

The ELD contains several explicit references to the Nature Directives, such as in the definition of environmental damage and in the use of the concept of FCS. As outlined in the Commission report on 'Experience gained in the application of the ELD to biodiversity damage', there are clear links between both legal regimes as the ELD is designed to complement the EU's nature protection legislation (Milieu and IUCN, 2014). Both instruments aim to halt biodiversity loss in the EU. While the Nature Directives aim to maintain and restore the conservation of natural habitats and of wild species in the EU, the ELD aims to prevent and remedy environmental damage, including to such protected species and habitats (Milieu and IUCN, 2014).

The 2013 implementation report on the ELD revealed that the transposition of the ELD into national law has not resulted in a level playing field but a patchwork of liability systems for preventing and remedying environmental damage – as shown by the considerable variations in numbers of ELD cases across the Member States (BIO Intelligence Service and Lowndes, 2013). There are significant variations in the implementation and enforcement of the ELD across Member States, with the report noting that in several countries there is a misperception that the ELD applies only to the most severe instances of biodiversity damage (BIO Intelligence Service and Lowndes, 2013).

The report also highlights that the poor implementation of the ELD Directive in relation to the cases of 'biodiversity damage' that it covers, jeopardises the achievement of its objective to establish a complementary system to the Nature Directives whereby the ELD would ensure that the polluter pays principle is applied to biodiversity damages, while under the Nature Directives, the public authorities are ultimately responsible. Nevertheless, the ELD is highlighted by several stakeholders (NGOs and Member States) as an important added value for the Nature Directives.

³⁷⁴ Art. 6(1) of the ELD.

³⁷⁵ European Commission website, introduction to the ELD, <http://ec.europa.eu/environment/legal/liability/>

³⁷⁶ European Commission, "Environmental Liability Directive, a short overview", <http://ec.europa.eu/environment/legal/liability/pdf/Summary%20ELD.pdf>

Thresholds for application of the ELD and Nature Directives: the concept of significant environmental damage and FCS

The ELD defines environmental damage as ‘damage to protected species and natural habitats, which is any damage that has significant adverse effects on reaching or maintaining the FCS of such habitats or species. The significance of such effects is to be assessed with reference to the baseline condition, taking account of the criteria set out in Annex I’.³⁷⁷ Annex I excludes fluctuations or negative variations due to natural causes, or damage from which the habitats and species can recover within a short timeframe and without intervention. The definition excludes previously identified adverse effects which result from an act by an operator which was expressly authorised by the relevant authorities in accordance with provisions implementing Article 6(3) and 6(4) of the Habitats Directive, or in the case of habitats not covered by Community law, in accordance with equivalent provisions of national law on nature conservation.³⁷⁸ Protected species and natural habitats are further defined as those species mentioned in the Nature Directives, the habitats of species mentioned in the same Directives, as well as any habitats or species not listed in the Annexes to these Directives which the Member States designate for equivalent purposes as those laid down in the Directives. The scope of the protected species and natural habitats covered by the ELD is thus larger, but explicitly includes those of the Nature Directives. The definition of environmental damage also refers to the concept of FCS, which is defined in Article 2(4) of the ELD in the same manner as in Article 1 of the Habitats Directive, thus establishing a clear link and shared baseline in both regimes.

One important difference between the ELD and the Nature Directives lies in the fact that the ELD only applies when adverse effects on the FCS of a species or habitat are ‘significant’. The report on the application of the ELD to biodiversity damage concluded that analysis of the implementation of the ELD in Member States has shown that the interpretation of significant biodiversity damage varies significantly from one Member State to another (Milieu and IUCN, 2014). The report notes that ‘whilst some countries interpret that the ELD regime is limited to severe, almost catastrophic cases of biodiversity damage, other Member States apply this concept to any damages to biodiversity beyond small variations (Milieu and IUCN, 2014). Under the Habitats Directive, however, Article 2 requires all measures taken under the Directive to be designed to maintain or restore natural habitats and species of wild fauna and flora at FCS. A deterioration or disturbance is, according to Article 6(2), assessed against the conservation status of the species concerned,³⁷⁹ and are considered significant if they trigger change in indicators of the conservation status of protected species in such a way as to affect the conservation status of the species concerned (Milieu and IUCN, 2014). This is a significantly lower threshold than that required by the ELD. The report therefore recommends amending the definition of environmental damage under the ELD to bring it in line with the Habitats Directive. The report does not identify changes to be made to the Nature Directives in this respect. This issue is also raised by Member State authorities in the evidence gathering questionnaires.

Preventive measures

Both the ELD and the Habitats Directive refer to measures to prevent any damage to, or deterioration of, biodiversity in protected areas (Milieu and IUCN, 2014). The ELD deals with environmental damage and has, thus, in its essence, an ex-post nature. However, Article 5 of the ELD, establishes specific preventive requirements in cases where environmental damage has not yet occurred, but when there is an imminent threat of such damage occurring. Similarly to the issues raised above, the concept of significant environmental damage creates a different threshold for the application of the preventive requirements of both instruments, as the obligations under the ELD are linked to the definition of environmental damage. The report on the application of the ELD states that this

³⁷⁷ Article 1(a), first indent of the ELD.

³⁷⁸ Article 1(a), second indent of the ELD

³⁷⁹ Article 6(2) of the Habitats Directive.

creates differences in thresholds for the application of the ELD across the Member States (Milieu and IUCN, 2014). The report, however, does not suggest any modifications to the Nature Directives, but rather recommends bringing the concept of preventative measures and significant environmental damage under the ELD in line with the concept used under the Nature Directives (Milieu and IUCN, 2014)

Remedial measures and compensatory measures

Remedial and compensatory measures under the ELD and the Nature Directives are different in nature, given the different purposes of each piece of legislation.

When environmental damage has occurred, Article 6 of the ELD requires the operator to inform the competent authority of all relevant aspects of the situation without delay. The operator must take steps to control, contain, remove or otherwise manage the contaminants or damage factors to limit or prevent further damage. Finally, the operator is required to take remedial measures. The determination of such remedial measures is further regulated in Article 7 of the ELD. The operator is required to identify potential remedial measures in line with the requirements of Annex II, while the final decision on which remedial measures shall be implemented is taken by the competent authority, in line with the same criteria of Annex II. Annex II of the ELD provides for three types of remediation measures: primary remediation measures, which return damaged natural resources and/or impaired services to baseline conditions; complementary measures, which aim to provide a similar level of natural resource and/or service, even at an alternative site, as would have been provided if the damaged site had returned to baseline condition; and compensatory measures, which aim to compensate for interim losses of natural resources until primary remediation has achieved its full effect. Article 6(4) of the Habitats Directive requires compensatory measures to be taken when a project may be authorised in spite of a negative assessment of likely effects under Article 6(3). Contrary to the approach adopted under the ELD, the Habitats Directive does not define the types of compensatory measures which shall be adopted. The Guidance document on Article 6 of the Habitats Directive, however, indicates that compensatory measures would aim to offset the negative impact of a project and to provide compensation corresponding precisely to the negative effects on the species or habitat concerned (European Commission, 2000).

As noted in the report on the application of the ELD to biodiversity damage, the effects of the complementary and compensatory measures under the ELD are more ambitious and stringent than those of the Habitats Directive. Under the ELD, the complementary and compensatory measures are not related to the conflicting interest of the damaging project or activity, but rather to the effectiveness of the remediation measures and the requirement to compensate for interim losses undergone by the EU's biodiversity, pending its recovery (Milieu and IUCN, 2014).

8.2.4 Key findings

- Overall, the Nature Directives are considered to be **coherent with the EIA, SEA and the ELD Directives**, a view clearly expressed by stakeholders in both the evidence gathering questionnaire and the online public consultation. However, there was some suggestion from the evidence gathering questionnaire that conflicts may arise in individual projects.
- The **overall legal framework for EIA/SEA and the AA procedure** required under the Habitats Directive, including the objectives and scope, definition of projects subject to the assessments, likely significant effects, cumulative effects and public participation, is coherent. However, AA is confined to implications for Natura 2000 sites, whereas EIA and SEA focus on wider environmental impacts of projects, plans and programmes. Furthermore, AA conclusions require that any negative impacts are addressed within proposed developments, while the outcomes of SEA and EIA merely need to be taken into account. SEA typically involves a broader scope and longer timeframe than AA. Commission guidance explains that an SEA considering

biodiversity can be particularly supportive of nature protection objectives when carried out in an appropriate manner.

- The Commission impact assessment for the proposal to revise the EIA Directive in 2013 noted that **synergies between EIA and AA assessments** had not been sufficiently exploited. In addition, the regulatory impact assessment of the revised EIA Directive noted that species protection provisions tend to be neglected in EIAs, an issue raised by several stakeholders in the evidence gathering questionnaire. The revised EIA Directive establishes coordinated and joint procedures for EIA and other environmental assessments, and specifically requires effects on biodiversity to be assessed, with particular attention paid to species and habitats protected under the Nature Directives.
- Issues of **legal uncertainty regarding interpretation of key terms and approaches** used in the different environmental assessments have been clarified over time, either through case law or Guidance documents. For example, the meaning of the terms 'project' and 'plan' and of 'significant effect' have been clarified by the CJEU. Stakeholders highlighted problems with access to data on specific habitats and species, or their conservation status, or the lack of clarity on which information should be used as part of the assessments. This issue has been addressed in the UK by means of a publicly available risk matrix for all regulated activities, which identifies the focus of investigation for every activity.
- **Inconsistencies** raised by stakeholders mostly related to issues of national implementation. For example, case studies show that the specific impacts on Natura 2000 sites are not always assessed in detail in countries where EIA and AA procedures are integrated. Stakeholders believe that new requirements for integrating EIA and AA procedures still lack sufficient emphasis on the need to properly consider the impacts on conservation objectives, an oversight which may exacerbate this situation. Several stakeholder types stated that SEA sometimes functioned as more of an administrative requirement, rather than an instrument for enhancing implementation of the Nature Directives. Some Member States have developed Guidance documents to encourage a more focused approach to SEA.
- Legal literature and an EC Study on the implementation of ELD on biodiversity damage note the **complementary role of the ELD and the EU nature protection legislation**. Published studies refer to the potential to improve the coherence between the ELD and the Nature Directives, both in terms of the definition of environmental damage, and the adoption of preventative measures to avoid significant deterioration and disturbance in relation to the FCS of habitats and species. While responses specifically addressing the ELD were more limited in number than for the EIA and SEA Directives, the ELD was generally believed to be coherent with the Nature Directives, a view corroborated by the online public consultation.
- The EC Study on the implementation of the ELD biodiversity damage highlights that **uneven implementation of the ELD Directive with regard to biodiversity damage** jeopardises its objective to complement the Nature Directives by ensuring application of the polluter pays principle for biodiversity damage.

8.3 C.3 - Is the scope for policy integration with other policy objectives (e.g. water, floods, marine, and climate change) fully exploited?

8.3.1 Interpretation and approach

The extent to which the objectives of the Nature Directives have been integrated into, support, or are supported by, the objectives of other relevant EU environment policies has been assessed. The protection of biodiversity, sustainable use of water and marine resources, the control of water and air pollution and adaptation to climate change are priorities of the environmental policy framework of the European Union. Specific pieces of legislation are in place to achieve each of these distinct but interlinked objectives. Ultimately, success in one area is dependent on progress made in the others, making coherence in the regulatory and implementation framework essential to efficiently achieve the respective goals of these different instruments. For example, reducing nutrient loads under the WFD will combat eutrophication of the marine environment and will support the maintenance or improvement of the conservation status of protected fishes and riparian habitats.

This section covers environmental policies targeting the sectors most likely to impact the implementation of the Nature Directives. It covers the water, marine and floods sectors which ensure sustainable management of resources that are critical for habitats and species, and which require strong coordination with nature protection efforts. It also considers climate change, as efforts to mitigate and adapt to the impacts of climate change interact significantly with nature protection. While the status of species and habitats in Natura 2000 sites is threatened by climate change, at the same time, well-managed habitats provide options to adapt to climate change. Mitigation efforts cut across many policy sectors – e.g. energy, agriculture, transport – and coherence with EU climate change policies that fall within these sectors is considered under question C.4/C.5. This section considers climate change adaptation and efforts to reduce airborne pollution through the National Emissions Ceiling Directive.

The EU environmental legislation and policies relevant to this question are:

- Directive 2000/60/EC (Water Framework Directive, WFD).
- Directive 2007/60/EC (Floods Directive, FD).
- Directive 2008/56/EC (Marine Strategy Framework Directive, MSFD).
- Communication (2013) 216 (EU Strategy on Adaptation to Climate Change).
- Directive 2001/81/EC (National Emissions Ceiling Directive, NEC Directive).

8.3.2 Main sources of evidence

The provisions of the relevant Directives and policies were assessed for their coherence with the Nature Directives. This information was complemented by available reports at EU and Member State levels, including the work carried out in the context of an EU workshop on coordinated implementation of nature, biodiversity, marine and water policies (European Commission, 2015d).

Evidence regarding implementation was, for the most part, obtained from the evidence gathering questionnaires. Of 112 questionnaires, 50 responded to this question, from 23 Member States and EU level organisations. About half of the responses came from environmental NGOs (who generally expressed similar opinions and referred to the same evidence). 14 nature protection authorities and two marine-related authorities responded, with a further five responses received from industry.

8.3.3 Analysis of the question according to available evidence

Coherence of the Nature Directives with the WFD

Legal requirements under the WFD

The main objectives of the WFD are to prevent any deterioration of the current status and to reach Good Ecological Status and Good Chemical Status in all surface waters, including rivers, lakes, transitional waters and coastal waters. For groundwater the WFD establishes the objective of Good Chemical and Good Quantitative Status, which includes the protection of associated surface water and terrestrial ecosystems. For heavily modified and artificial water bodies, Good Ecological Potential (GEP) is to be achieved. Good Status in all waters (surface water and groundwater) is to be achieved by 2015, or, where exemptions are granted, in 2021 or 2027. Detailed provisions exist on the field monitoring of the water status.

To achieve Good Status, a Programme of Measures (PoM) must be established as part of the River Basin Management Plan (RBMP). The PoM comprises both basic measures and supplementary measures. Basic measures are the minimum requirements for compliance, including those measures necessary to implement the Birds and Habitats Directives. In addition, the WFD requires measures under the Nature Directives to be included either directly into the RBMPs or by reference to the relevant Natura 2000 management plan. Every six years, a new version of the RBMP is submitted, in which progress is reported and an updated PoM proposed. March 2016 is the deadline for the second version of the RBMP.

Synergies

The Nature Directives and the WFD each aim to ensure healthy aquatic ecosystems, and measures taken under the WFD will generally be beneficial for the objectives under the Nature Directives (European Commission, 2012h) (European Commission, 2015d). The WFD provides a framework for the implementation of measures required to satisfy both its own terms and those of the Nature Directives. Under the WFD, the basic environmental conditions for water-dependent species and habitats are to be restored and conserved, and explicit cross-references are included in the text of the WFD with regards to applicable requirements for protected areas.

Many protected species under the Habitats Directive are water-dependent. The water quality and quantity in a water-dependent Natura 2000 site, however, largely depends on the conditions upstream (i.e. outside) of the Natura 2000 site, which are managed under the WFD. Also, water bodies, such as lakes, rivers and ponds are essential for the migration, dispersal and genetic exchange of wild species. On the other hand, well-managed water-dependent ecosystems also contribute to achieving the objectives of the WFD (EC, 2003 [1900]), as they retain floodwater, recharge groundwater, provide drinking water and purify water. Water-dependent ecosystems can also function as a spawning area for species that are important for the status elsewhere in the river basin.

Several reports at EU level found the WFD and the Nature Directives to be coherent and mutually supportive. The 'EU guidance on the links between the WFD and the Nature Directives' (European Commission, 2012h) states that the WFD and Nature Directives pro-

vide a sound basis for joint management. The 'Fitness check on the EU Freshwater Policy' (European Commission, 2012i) found some elements of divergence in the objectives and deadlines of the WFD and Nature Directives, but concluded that the problems are linked to issues of practical coordination rather than to legal considerations. The 'EU workshop on the coordinated implementation of nature, biodiversity, marine and water policies' particularly focused on finding solutions for a better coordinated implementation of the WFD, Nature Directives and MSFD (EC, 2015 [1140]). Day (2015), representing WWF, also found many synergies, and stated that the implementation of measures under the WFD will generally benefit the objectives of the Nature Directives, if implementation is coordinated. Evidence of the coherence of implementation was provided by 12 respondents e.g. the nature authorities from Denmark and Luxembourg, who each confirmed the complementarity of the Directives. The Danish nature authority stated that the WFD has been supportive in achieving the objectives of the Nature Directives, while the nature authority of Luxembourg stated that well-managed water-dependent Natura 2000 sites are essential to achieve the goals of the WFD.

Challenges

The strong dependencies between the Nature Directives and the WFD have led to a number of issues in implementation. The Directives have different requirements, such as the scales of assessment, monitoring and the planning of measures, reporting and public consultation procedures. An overview of issues is provided in the background document of the 2014 coordinating workshop (EC, 2014 [1139]). The outcomes of the workshop identified options to increase integration and coordination (European Commission, 2015d). Responses to the evidence gathering questionnaires reflected similar concerns, summarised below.

Streamlining of assessments

Given that inter-related assessments are required under the different legislations, Member States are keen to prevent unnecessary duplication of work. Methodological differences exist, however, complicating comparison of the assessments carried out under the WFD and the Nature Directives. Better streamlining is needed, in particular with respect to the indicators used, the typology and the geographic scale of the assessments (European Commission, 2012h; European Commission, 2015d).

Firstly, the indicators used to quantify Good Ecological Status (or similar) and FCS (or similar) are different and not directly comparable. Ecological status is classified for all water bodies on the basis of a concrete list of quality elements (hydromorphological, physico-chemical and biological), while the classification of FCS is more flexible and qualitative. For example, criteria to assess the status of protected species include: 'populations are maintaining themselves in the long term and do not show signs of continuing decline' and 'their natural range is not being reduced'. Member States are relatively free to interpret the assessment requirements for FCS, resulting in a range of methods used in Member States. Some of the WFD quality elements overlap with water-dependent protected habitats and species (e.g. certain protected fish or macrophytes species).

Secondly, the need to assess status at different levels under the different legislations - i.e. at water body level under the WFD, and at the levels of protected species and habitat under the Nature Directives - further complicates the comparison. Under the WFD, water bodies are distinct parts of surface water (rivers, lakes, transitional and coastal waters) or groundwater. The typology of water bodies required under the WFD is, therefore, more detailed than water-related habitats under the Habitat Directive. Under the WFD, for example, one type of surface water is 'small gravel-dominated lowland river' and a type of coastal water is the 'inner coastal rivers of the Baltic Sea', while under the Habitats Directive, habitat types are '3220 - Alpine rivers and the herbaceous vegetation along their banks' or '1150 - coastal lagoons' (European Commission, 2012h; European Commission, 2015d). The linking of protected species to water bodies is even more complex, as some species use a range of water bodies and ecosystems during their life cycle. A method to relate protected species to broad ecosystems is given in the 2015 State of

Nature Report (EEA, 2015a). The broad ecosystems relevant for the WFD are 'rivers and lakes', 'marine inlets and transitional waters' and 'coastal'. Consequently, a Natura 2000 site typically may include several water bodies. At a higher geographic level, there is also no direct correspondence between the WFD water types and the habitat types under the Habitats Directive, further complicating a comparison of status.

Streamlining of monitoring and reporting

The different assessment needs require distinct monitoring and associated databases. Under the WFD, detailed monitoring requirements are specified, while in the Nature Directives monitoring details are not specified. Also, the provisions on the reporting of the progress of implementation by the Member States to the Commission have different timelines. Reporting is done in cycles of three years under the Birds Directives and six years under the WFD and Habitats Directive. More coordinated reporting and monitoring could reduce the administrative burden and facilitate the development of communication platforms (e.g. databases and internet sites) (European Commission, 2015d). Currently, the Commission and Member States are assessing the extent to which joint monitoring is possible, while the possibility of a more coordinated reporting process is also being examined.

Coordination of the planning and implementation of measures

Given that the WFD explicitly requires the integration of measures under the Nature Directives into the RBMPs, planning and implementation of measures must be coordinated. Challenges arise in terms of implementation, most often due to insufficient coordination and dialogue, as well as lack of experience of the competent authorities (European Commission, 2015d). It was also noted in (European Commission, 2015d) that inter-governmental communication is sometimes lacking between and within ministries and within the Commission itself. (European Commission, 2015d) identified the central importance of dialogue early in the planning process.

Natural Water Retention Measures (European Commission, 2014f) also provide benefits for the WFD and the Nature Directives. Conflicts may arise, presenting planning and implementation challenges, such as the restoration of heavily modified water bodies (HWMB) to a more natural state, as required under the WFD. The restored water body would provide new habitats in which new valuable species could sustainably develop. While the Nature Directives do allow for such restoration, stakeholders reported that such restoration can also damage to protected habitats and species. Such damage as a consequence of restoration activities is, stakeholders believed, in breach of the Nature Directives, and leads to increased costs and delays for the implementation of projects that may, overall, have ecological benefits. The text of the Nature Directives does not block such restoration, but, rather, requires a revision of the conservation objectives, adapted to the restored habitat conditions. An example of such a conflict is Lake Grevelingen in the Netherlands. The objective of the restoration in Lake Grevelingen is to restore some tidal influence by partly opening the dykes. While this will lead to an increase of the salinity and an improvement of the water quality, it will also impact some species and habitat types protected under the Nature Directives. This situation directly raises the question of whether it is better to conserve the present status than to restore "pristine" conditions with inevitable loss of 'artificial' yet protected habitats.

Coherence of the Nature Directives with the FD

Legal requirements of the FD

The FD aims to establish a framework for the assessment and management of flood risks, in order to reduce limit the consequences for human health, the environment, cultural heritage and economic activity. Flood hazard and flood risk maps (FHRM) are developed to show the potential adverse effects of floods on, amongst others, the Natura 2000 sites, with Flood Risk Management Plans (FRMP) then developed to reduce the ad-

verse consequences of floods. FRMP may promote sustainable land use practices and the improvement of water retention e.g. by implementing Natural Water Retention Measures (NWRM). The Directive requires the FRMP to be coordinated and synchronised with the WFD. The FRMP also consider spatial planning, land use and nature conservation. The FD is relatively recent (it was adopted in 2007), and its first cycle of implementation will end in 2016 with the submission and evaluation of the first version of the FRMP.

(Day, 2015) concludes that while the FD does not make explicit reference to the Nature Directives, Member States have to coordinate the implementation of the FD with the WFD, which has strong synergies with the Nature Directives.

Synergies

The main synergies between the FD and the Nature Directives are expected through the implementation of the Natural Water Retention Measures (NWRM). These are defined as 'multi-functional measures that aim to protect and manage water resources using natural means and processes' (European Commission, 2014f). NWRM have the potential to provide multiple benefits, including flood risk reduction, water quality improvement, groundwater recharge and habitat improvement. As such, they can help achieve the goals of key EU policies such as the Water Framework Directive (WFD), the Floods Directive (FD), the EU Adaptation Strategy and the Habitats and Birds Directive. Evidence for the multiple benefits of NWRM is demonstrated in the catalogue of measures (www.nwrm.eu), and a practical guide to support the selection, design and implementation of NWRM in Europe has been published (Strosser et al, 2015). The guide states that while a number of local practices exist, the practical implementation of an integrated flood-nature management approach remains lacking in many Member States. Of the eight responses on the interactions between the FD and the Nature Directives, most were of the opinion that practical experience in the implementation natural flood risk management is limited.

Challenges

While several examples of NWRM are available at local level, the use of NWRM in flood risk management is not widespread (European Commission, 2014f; Strosser et al, 2015). To encourage water managers to support the uptake of NWRM in FRMPs – among other tools – and to facilitate their implementation via enhanced coordination with other sectors, the EU Policy Document on NWRM was developed (European Commission, 2014f). This explains the policy relevance of NWRM and provides recommendations on overcoming existing challenges:

- Make policy coordination truly operational: Barriers that hinder the selection of NWRM are related to knowledge gaps on the performance (cost and benefits) of NWRM, limited awareness of the mutual benefits of coordination and the perception that grey infrastructure is better than green infrastructure.
- Give more attention to land use planning in water management: The implementation of NWRM often requires large areas of land. These might not be available or difficult to access due to private ownership of land and water or regulations on spatial planning.
- Mobilise and combine financial resources: Limited financial resources are often mentioned as a barrier to the implementation of NWRMs. Many NWRM projects benefit from European, national, regional or local public funds. But experience shows that the financing potentials of public funds often remain largely untapped.
- Raise awareness and strengthen the knowledge base and exchange of best practices on NWRM: the implementation of NWRM is often challenging from a technical point of view. Considering that NWRM can be used to pilot integration and coordination across sectors and policies, the implementation of NWRM may also be challenging from an institutional point of view especially in the start-up phase.

The German nature authority described how the two largest dyke relocations on the River Elbe have provided more floodwater storage and better abiotic conditions for the Natura 2000 sites enshrined by the relocated dykes, pointing to this as an example of coordinated implementation of the FD and the Nature Directives.. The example provided by the Netherlands describes conflict in the implementation of NWRM, whereby the temporary change of soil nitrogen during the restoration of a floodplain led to additional stress to protected species. This was perceived by the Dutch authorities as a breach of the Nature Directives. Additional efforts were needed to compensate for the negative effect, resulting in increased administrative burden and delay in implementation.

Similar issues can be found in the restoration of heavily modified water bodies under the WFD, where the Nature Directives are perceived to offer little or no flexibility (section 3.1, Question C.3).

Coherence of the Nature Directives with the MSFD

Legal requirements of the MSFD

The MSFD aims to achieve or maintain Good Environmental Status (GES) in marine waters. The status has 11 descriptors, the majority of which are directly related to marine biodiversity. Marine waters include coastal waters - which are already covered under the WFD - and off-shore waters, for which no prior EU legal framework existed. The Directive states that cooperation is essential to achieve its objectives, and, to this end, it includes cross-references to other pieces of environmental legislation, including the Nature Directives, to guard against incoherent interpretation and implementation.

The MSFD makes direct reference to the Nature Directives with respect to the monitoring programmes and the habitat types. The monitoring programmes must be compatible with the requirements of, among others, the Nature Directives, while the habitat types under the MSFD include the habitat types under the Habitats Directive. In comparison with the very detailed breakdown of water bodies under the WFD, the habitat types under the MSFD are broader and more comparable to the Habitats Directive. An overview of the linkages between the habitat types of the MSFD and the Habitats Directive is made in (Evans et al, 2014) and the 2015 State of Nature report in the EU (EEA, 2015a)

To achieve or maintain GES, Programmes of Measures (PoMs) are developed and implemented in order to protect, preserve or restore the marine environment. PoMs include spatial protection measures contributing to coherent and representative networks of marine protected areas (MPAs). The network of MPAs must include previously designated marine Natura 2000 sites. In addition, the MPA network is to be extended with newly designated sites, which may also be designated as new Natura 2000 sites. This is not, however, obligatory under the MSFD.

Synergies

Adopted in 2008, the MSFD is a relatively recent Directive, and its first cycle of implementation is due to end in 2016 with the submission and evaluation of the first version of the marine PoM. While the majority of stakeholders addressing the MSFD in the evidence gathering questionnaires state that it is not yet possible to draw reliable conclusions, they nonetheless expect good synergy between the MSFD and the Nature Directives, as the conservation of marine biodiversity is a strong component of the MSFD. Also, the provision to designate new Marine Protected Areas (MPA) will extend the current marine Natura 2000 network. Respondents included NGOs from 16 Member States (sharing the same opinion), in addition to the nature and other authorities of five Member States. Progress made in establishing the MPAs is described in (European Commission, 2015e). The report presents three types of MPAs in Europe: marine Natura 2000 sites, MPAs designated under Regional Sea Conventions, and individual national MPAs, cautioning that the designation processes and legal requirements of each MPA may be different. A draft method to assess the parameters of a 'coherent and representative' network of MPAs is

currently being developed (EEA, 2015e). A first version of the MPA network is to be submitted as part of the PoM under the MSFD by March 2016.

Challenges

The challenges described under the WFD (section 3.2) are generally applicable to the MSFD as well, albeit with less implementation experience. The 2014 workshop on the coordinated implementation of nature, biodiversity, marine and water policies highlighted options to convert challenges of implementation into synergies (European Commission, 2015d). It is generally accepted that improved harmonisation could lead to more streamlined implementation approaches, reducing costs for Member States and improving the effectiveness of the Directives (European Commission, 2015d). Aspects that could be streamlined are assessment methods, including the assessment of GES and FCS at the scale of a marine region or subregion, the use of a common set of indicators and more coordinated monitoring programmes.

Several projects highlighted the challenges for more coordinated monitoring programmes, including the projects MARMONI and BALSAM (Baltic Sea), JMP NC/CS (North Sea/Celtic Sea), MONIT (North Sea) and IRIS-SES (Mediterranean & Black Sea). With a large knowledge gap on biodiversity in marine areas, and given the high cost of monitoring, the use of MSFD data for other monitoring programmes (including the Nature Directives) remains problematic due to a lack of common indicators and coordination across borders (European Commission, 2015d). Efforts are also ongoing to better coordinate the implementation of the MSFD with the implementation of programmes at the Regional Sea Conventions.

While the number of respondents was limited, the majority (16 NGOs, two Member State authorities and one respondent from the fisheries sector) suggested that the management of MPAs should be better coordinated between the competent authorities for the MSFD, the Nature Directives and the Common Fisheries Policy (CFP).

Coherence of the Nature Directives with the EU Adaptation Strategy

Requirements of the EU Adaptation Strategy

The 2013 EU strategy on adaptation to climate change aims to make Europe more climate-resilient. The Adaptation Strategy in particular refers to three main priorities:

- **Promote action by Member States**, in particular through the development of Member State adaptation strategies, and promotion of LIFE projects on adaptation.
- **Better informed decision-making** by addressing gaps in knowledge of adaptation and further developing the European climate adaptation platform, called Climate-ADAPT.
- **Climate-proofing action at EU level** by promoting adaptation in key vulnerable sectors, including biodiversity.

Synergies

The EU adaptation strategy makes multiple references to the advantages of ecosystem-based adaptation, including cost effectiveness and multiple benefits for flood risk reduction, improved water and air quality and reduced heat-island effect. It refers to the mainstreaming of adaptation in the EU Biodiversity Strategy, and to Commission guidelines on adaptation and the Natura 2000 network, which were issued shortly after the 2013 adoption of the adaptation strategy.

Certain habitats, including Natura 2000 sites, are considered to be under threat from climate change and, therefore, need to adapt. The EU guidelines on climate change and Natura 2000 report the growing evidence of Natura 2000 sites as natural solutions for

mitigating and adapting to climate change, while at the same time delivering Natura 2000 objectives (Alterra and Eurosite, 2013). Examples given in (Alterra and Eurosite, 2013) on the functioning of Natura 2000 sites as a climate adaptation and mitigation option are: the capturing and storage of carbon dioxide in peatlands and forests; water retention in riparian and coastal Natura 2000 sites to reduce the risk of droughts and floods; heat regulation in heavily urbanised areas; and reduction of the impact of rising sea levels. The EU Policy Document on Natural Water Retention Measures also recognises ecosystems as adaptation and mitigation options. Examples of NWRM that also have benefits for climate change adaptation are the Dutch projects 'Room for the River' and the 'Delta programme' (European Commission, 2014f).

Peatland conservation and restoration was most frequently mentioned as having benefits for nature conservation, carbon sequestration (climate mitigation) and flood prevention (climate adaptation). Stakeholders also stated that they had used the LIFE programme to develop ecosystem-based adaptation practices.

Challenges

Despite guidelines and references within the EU adaptation strategy, there is limited evidence that ecosystem-based adaptation to climate change is widely practiced. The 12 stakeholders (eight NGOs and four nature authorities who addressed climate change adaptation in the evidence gathering questionnaire, confirmed this. An overview of EU adaptation policies (EEA, 2014b) showed that an assessment on the risk and vulnerability to climate change for biodiversity has been carried out in 20 Member States. Only six Member States, however, prioritised biodiversity as a priority sector for adaptation.

Global environmental changes have been driving large-scale shifts in the distributions of species and in the composition of biological communities. Many species have shifted to higher elevations or towards the poles. Natura 2000 sites have fixed borders and there is concern that they may lack the flexibility to maintain populations of species whose distributions move in response to climate change and other environmental drivers (Araujo et al, 2011; Thomas and Gillingham, 2015). Empirical evidence, however, highlights that protected areas remain important to protect species under climate change. Protected areas act as stepping stones for the migration of species (Thomas and Gillingham, 2015), and losses from some protected areas are offset by increases in others. In addition, protected species remain more abundant within than outside protected areas. The challenge for Natura 2000 site managers will be to balance the need to conserve current species while also encouraging colonisation by new species.

Climate change adaptation is at an early stage and it remains to be seen how future efforts to adapt will reinforce or undermine the implementation of the Nature Directives.

Coherence of the Nature Directives with the NEC Directive

Requirements of the NEC Directive

Directive 2001/81/EC on National Emission Ceilings for certain pollutants (NEC Directive) establishes upper limits for the total emissions in 2010 of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution (sulphur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (NMVOC) and ammonia (NH₃)). A new legislative proposal³⁸⁰ extends the 2010 ceilings to 2020.

The legislative proposal also establishes new national emission reduction commitments for 2030 for SO₂, NO_x, NMVOC, NH₃, fine particulate matter (PM_{2.5}) and methane (CH₄). The proposal for a Directive on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC (the NEC proposal) aims to address some of the shortcomings in the implementation of the Union air policy frame-

³⁸⁰ Proposal for a Directive of the European Parliament and of the Council on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC.

work and the need for enhanced coordination between emission reductions and air quality, as well as climate change and biodiversity protection.³⁸¹

The Directive requires Member States to develop national programmes in 2002 to meet their fixed ceilings of national emissions by 2010, with an interim revision of plans in 2006. Member States are required to report their emission inventories to the EEA and the Commission in order to monitor progress and verify compliance.

Article 4 of the NEC proposal requires Member States to limit their annual emissions of SO₂, NO_x, NMVOC, NH₃, PM_{2,5} and CH₄, to meet their reduction commitments applicable from 2020 and 2030, and establishes intermediary objectives for 2025. Article 6 requires Member States to adopt, implement and regularly update their national air pollution control programmes (NAPCPs), describing how their reduction commitments shall be met. Annex III of the proposal provides guidance on the measures to be adopted.

Of particular relevance for the objectives of the Nature Directives is Article 8 of the NEC proposal which requires Member States to monitor, where practicable, the adverse impacts of air pollution upon water and terrestrial ecosystems. Member States are entitled to make use of monitoring systems established under other EU instruments. There are no explicit links in the revised NEC proposal to the EU legislation on nature protection.

Synergies

Atmospheric deposition of the pollutants responsible for acidification and eutrophication is additional to the current diffuse pollution from non-air sources e.g. from discharges to surface water and groundwater. Given that diffuse pollution is a key factor for the loss of biodiversity, the reduction in levels of atmospheric pollution required under the NEC Directive would contribute to achieving the objectives of the Nature Directives.

Challenges

Unlike the other EU legal instruments, stakeholders did not consider the NEC Directive to be coherent with the Nature Directives, with eight of 12 respondents citing inconsistencies. Both NGOs and Member States provided specific views in relation to the lack of ambition of the coherence between the NEC Directive and the Nature Directives. For example, the German stakeholders noted that the aims of the NEC Directive to reduce diffuse pollution on Natura 2000 sites and elsewhere, are not ambitious enough to meet the objectives of the Nature Directives. The 'critical loads' of pollutants to habitats are currently exceeded in 70% of the Natura 2000 territory in Europe. According to (Slootweg et al, 2014), the Commission proposals for a revision of these ceilings remains insufficient to comply with the critical loads in all sites.

8.3.4 Key findings

- The coherence of the objectives of the Nature Directives with the objectives of the WFD, the MSFD, the FD and the EU Adaptation Strategy is generally considered adequate. Despite their different objectives, these Directives have the common goal of environmental protection and maintenance. The Nature Directives aim to achieve FCS - or equivalent - of the listed habitats and species which they seek to protect. The WFD aims to achieve 'Good Ecological Status' (or similar) of rivers, lakes, transitional waters and coastal waters and good quantitative status of groundwater. The MSFD aims to achieve 'Good Environmental Status' for marine waters. The objectives under the FD and EU Adaptation Strategy are more descriptive, but nonetheless coherent with the objectives of the Nature Directives.
- The differences between the Nature Directives, the WFD and the MSFD have led to conflicts in implementation. Solutions can be found under the current legal

³⁸¹ Proposal for a Directive of the European Parliament and of the Council on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC, 18.12.2013, COM(2013) 920 final.

framework through better cooperation and dialogue, which would also reduce the administrative burden for Member States e.g. in reporting to the Commission. An EU level process to develop a common agenda for nature, biodiversity, marine and water policies is ongoing, with the aim of improving such coordination.

- Examples of apparent conflicts in the implementation of the Nature Directives and the WFD relate to the restoration of heavily modified water bodies to a more natural state, as required by the WFD. While the Nature Directives allow for such restoration, stakeholders referred to the damage caused to existing habitats and species due to restoration measures, increasing costs and delaying projects with overall ecological benefits.
- NWRM are an important type of measure that can strengthen synergies between the Nature Directives, the WFD, the FD and the EU Adaptation Strategy. NWRM are multi-functional measures that aim to protect and manage water resources using natural means and processes, therefore building up Green Infrastructure, for example, by restoring ecosystems and changing land use. The EU Policy Document on NWRM provides an overview of the synergies and challenges, while practical tools on NWRM are provided by the catalogue of measures and the practical guide.
- Good synergy is expected between the MSFD and the Nature Directives. The MSFD aims to achieve a Good Environmental Status of marine waters where these provide ecologically diverse and dynamic oceans and seas. The Good Status has 11 descriptors, the majority of which are directly related to marine biodiversity. In addition, under the MSFD, MPAs are to be designated. Some stakeholders stated that the management of MPAs will be coordinated between the competent authorities for the MSFD, the Nature Directives and the Common Fisheries Policy (CFP).
- While the EU Adaptation Strategy only refers briefly to ecosystem-based adaptation, the importance of biodiversity for adaptation to climate change was highlighted by most respondents to question C.9. Natura 2000 sites are considered to be natural solutions for mitigating and adapting to climate change in the Commission 'Guidelines on climate change and Natura 2000'. A substantial number of good practices were highlighted by the stakeholders, such as the peatland protection projects, with benefits for nature conservation, carbon sequestration (climate mitigation) and flood prevention (climate adaptation). Projects on flood and drought risk management were also cited as examples of adaptation measures. In conclusion, climate change adaptation is in an early stage and it remains to be seen how future efforts to adapt will reinforce or undermine the implementation of the Nature Directives.
- The coherence of the Nature Directives with the NEC Directive is considered to lack ambition, with the ceiling to reduce diffuse atmospheric pollution considered insufficient to meet the objectives of the Nature Directives.

8.4 C.4 - To what extent do the Nature Directives complement or interact with other EU sectoral policies affecting land and water use at EU and Member State level (e.g. agriculture, regional and cohesion, energy, transport, research, etc.)?

C.5 - How do these policies affect positively or negatively the implementation of the EU nature legislation?

8.4.1 Interpretation and approach

Questions C.4 and C.5 are addressed jointly as they relate to the same sectoral policies and the mandate for the Fitness Check links them together. While the focus of the first question is on coherence in legislation and policy documents, the focus of the second is on implementation of policy provisions. The assessment covers the Common Agricultural Policy (CAP) and the Cohesion Policy, as well as policies covering the energy, fisheries, non-energy extractive industries, research and transport sectors.

The evaluation of question C.4 assesses whether the provisions of the EU Nature Directives are sufficiently considered and integrated in EU sectoral policies. This includes an assessment of the content of the relevant EU sectoral legislation and policies, examining the extent to which they support or contradict the objectives of the Nature Directives and outlining the main reasons for any lack of consistency.

The evaluation of question C.5 involves assessing the impact of sectoral policies on the practical implementation of the Nature Directives. The analysis presents examples where specific policies exert a positive or negative influence on the implementation of the Nature Directives, including, where relevant, the implementation of EU funding programmes. Where appropriate, based on the evidence obtained, the question also considers the impact that the Nature Directives have on the implementation of sectoral policies.

The answers to these questions are divided into subsections corresponding to each of the seven sectoral policy areas mentioned above. Each subsection contains information on policy provisions relating to the objectives of Nature Directives stemming from key regulatory framework (question C.4) followed with description of implementation issues that are relevant for these policy provisions (question C.5).

8.4.2 Main sources of evidence

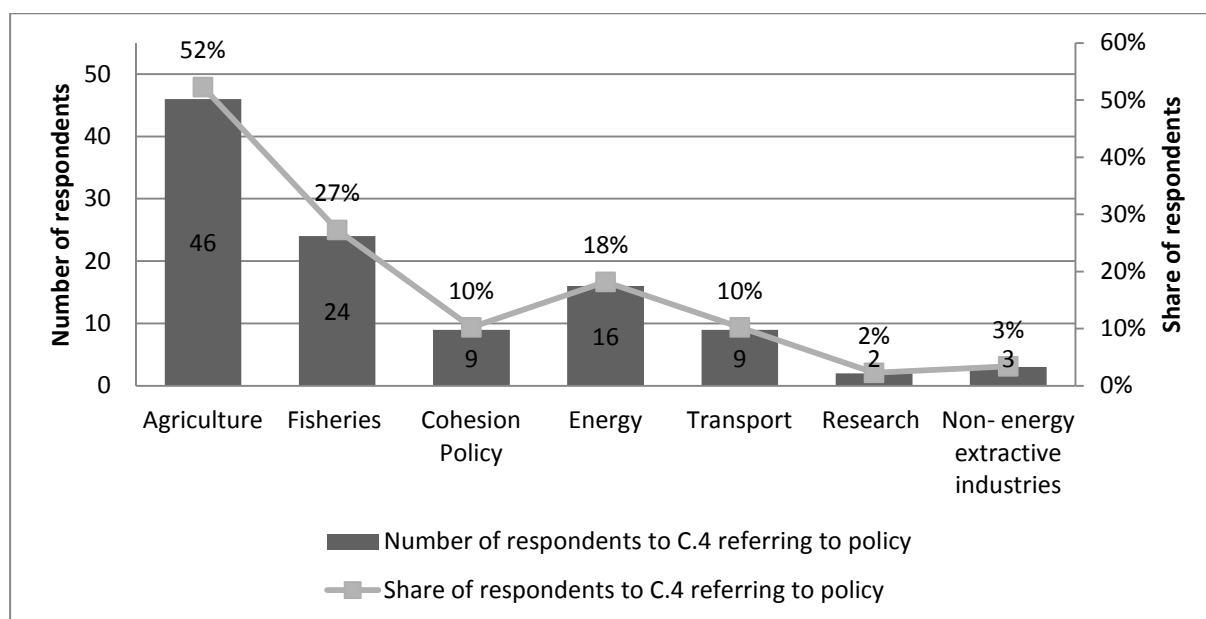
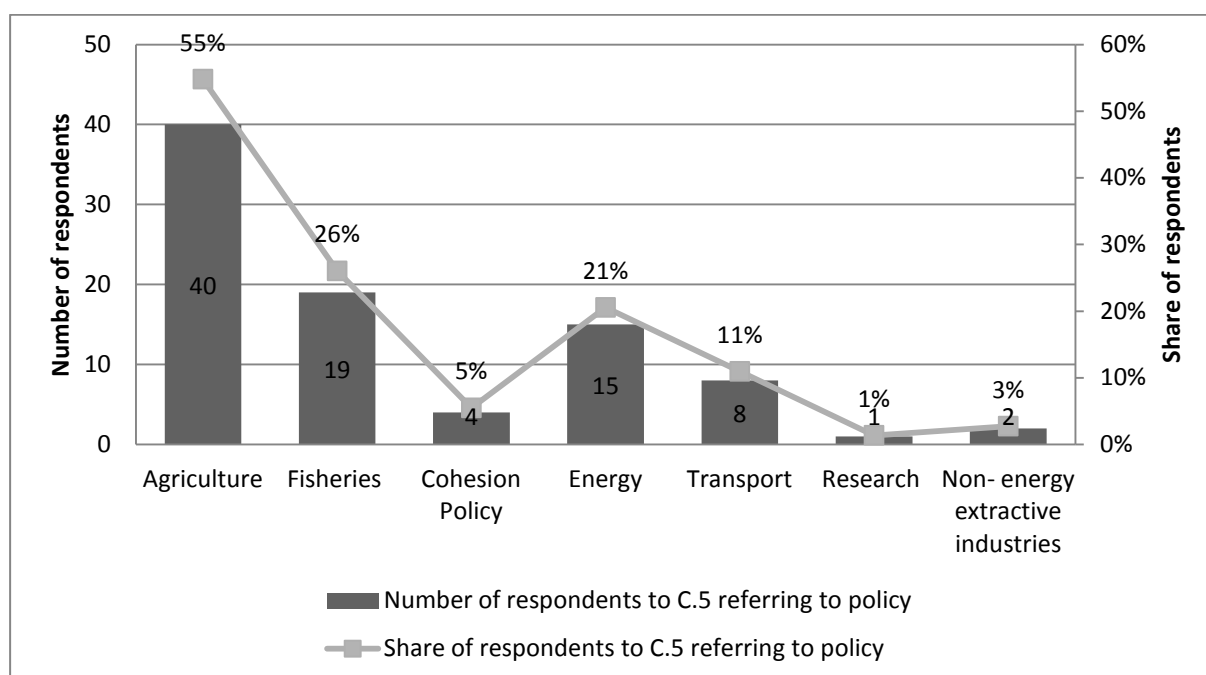
Sources of evidence varied considerably across the sectors, both that provided through stakeholder consultation, as well as the relevant studies and reports addressing the issues.

The review of documentary sources relied, first of all, on EU legislation and policy documents relating to each of the sectors, including Guidance documents and other sources of legal and policy interpretation. Additional literature sources - in many instances have been suggested by the stakeholders - complement this assessment.

Responses to the evidence gathering questionnaire were relatively limited in number and extent of evidence provided. A total of 75 Member State level stakeholders replied to question C.4 (67% of total) and 61 responded to question C.5 (54% of total). At the EU level, 13 stakeholders replied to C.4 (54% of total) and 12 responded to C.5 (50% of total). Replies did not address all sectors consistently.

Agriculture was addressed most frequently, followed by fisheries. The Figure 21 and Figure 22 below show the rate of response to questions C.4 and C.5 by policy sector³⁸².

³⁸² The response rate is calculated by dividing the number of stakeholders referring to a given policy by the number of stakeholders; all types of respondents are aggregated.

Figure 21 Responses to question C.4 by policy sector addressed**Figure 22 Responses to question C.5 by policy sector addressed**

Examined by individual sectors, the number of replies is relatively low compared to other questions. Most stakeholder responses consisted of general opinions about the impact of the sectors on nature and biodiversity, with some citing individual cases where such impacts occurred. A limited few, mostly from EU level NGOs or business, gave more detailed explanations and evidence to support their views. General conclusions from the stakeholder consultation for each policy sector were difficult to infer.

Coherence with EU sectoral policies was also addressed in the online public consultation. Question 10 asked whether EU policies in some of the areas addressed in this question generally support the objectives of the Nature Directives. Responses varied considerably across types of respondents – those from the business sector were much more likely to believe that sectoral policies are supportive of the Nature Directives than individuals, NGOs or government. These responses are also considered within the analysis of evidence, for those sectors specifically addressed by the consultation.

8.4.3 Analysis of the question according to available evidence

8.4.3.1 Common Agricultural Policy

8.4.3.1.1 Introduction and sources of information

Agriculture has a major influence on the EU's biodiversity since a substantial number of semi-natural habitats listed in Annex I of the Habitats Directive, as well as many species that are covered by the Directives, are affected by agricultural management. Many depend on low intensity traditional farming systems, including those often referred to as High Nature Value (HNV) systems³⁸³ (Olmeda et al, 2014). Some species covered by the Nature Directives, such as farmland birds, occur in a wider range of farmland habitats. As indicated in the 2015 State of Nature report (EEA, 2015a), and as discussed in relation to question R.1 (section 7.1), there is strong evidence of widespread historic and ongoing declines in biodiversity in agricultural habitats. This is primarily as a result of agricultural improvements, intensification and specialisation, but also agricultural abandonment, primarily in some HNV areas. However, pressures on biodiversity result from several drivers of change, including technological and market developments, and ongoing structural adjustments in agriculture, as well as the policy interventions. Given the importance of these issues, this section focuses on the interactions between agricultural policy, particularly the CAP and the implementation of the Directives, and the resulting impacts on EU protected habitats and species.

Coherence with the EU Forest Strategy and Multi-annual Implementation Plan are covered separately. However, as rural development programming (RDP) is the main instrument at Community level funding the implementation of the EU Forestry Strategy and Plan, RDP measures applicable to forestry are also considered in this section.

The objectives and content of the new CAP legislative framework for 2014-2020 have been assessed to ascertain their coherence with the objectives of the nature Directives, with reference to specific current regulations highlighted by stakeholders and experts. However, a significant element of the analysis refers to the legislative framework for 2007-2013, as it is this period for which most empirical evidence is available (as shown, for example, in the 2015 State of Nature report).

The analysis relies on a literature review carried out by the consultants and the evidence supplied by the respondents to the evidence gathering questionnaire; 46 respondents referred to the CAP in their response to C.4, and 40 in their response to C.5.

8.4.3.1.2 Objectives and interactions

As discussed under question R.1 (see section 7.1), there is clear evidence that some CAP measures have supported farming activities or investments that gave rise to habitat degradation and biodiversity losses. Historically, support payments under the CAP were coupled to production, providing an incentive to increase production, as well as investment to increase productive capacity and modernise holdings. This, to some extent, encouraged agricultural improvements and intensification that led to well-documented detrimental biodiversity impacts (e.g. through losses of semi-natural habitats and overgrazing) (e.g. Donald et al, 2001; Stoate et al, 2001; Stoate et al, 2009). In response to

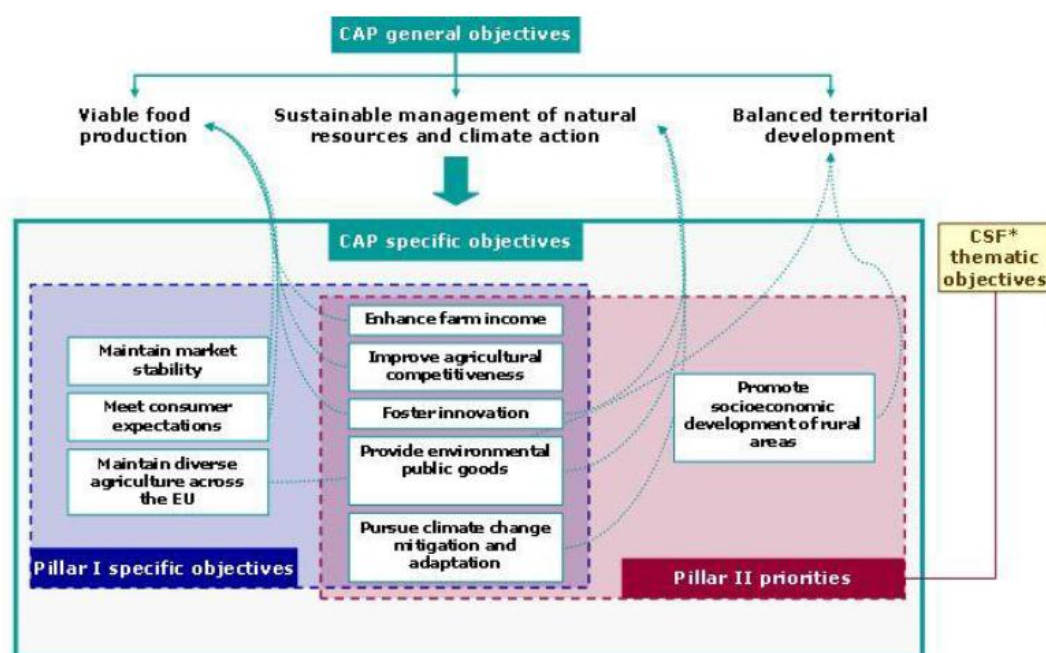
³⁸³ HNV farmland can be defined as areas where agriculture is a major (usually) dominant land use and that supports, or is associated with, either a high species and habitat diversity, or the presence of species of European, and/or national, and/or regional conservation concern or both (Beaufoy and Cooper, 2008; Cooper et al, 2007; Oppermann et al, 2012). HNV farmland includes most of the farmland within Natura 2000 areas and other farmland with species and habitats listed in the annexes of the Nature Directives, but can include further areas characterised by a mosaic of low intensity agriculture and natural and structural elements and/or a high proportion of semi-natural vegetation and/or other species of conservation concern.

these impacts, nature conservation and other environmental objectives and measures have been progressively incorporated into the CAP since the 1990s.

The distribution of Pillar 1 direct payments between farms is related to a number of factors, including historic output levels, and generally provides lower levels of support per hectare of more extensively managed farms which play a key role in the management of EU protected habitats and species.

The overarching objectives of the current CAP for 2014-2020 are: viable food production, the sustainable management of natural resources and climate action, and balanced territorial development. More detailed goals contributing to one of more of these objectives are set out in Figure 23.

Figure 23 General and specific objectives of the CAP



* CSF: Common Strategic Framework including the ERDF, ESF, CF, EAFRD and EMFF

Source: (European Commission, 2015f).

These objectives are similar to those of the 2007- 2014 framework. The CAP's environmental objectives now span both Pillar 1 and Pillar 2, and should, in principle, enable complementarity with the objectives of the Nature Directives. However, since the environment is only one of the three CAP objectives, the CAP measures target a range of outcomes, not all of which are intended to contribute to the objectives of the Nature Directives. In practice, the coherence and complementarity of the CAP with the Nature Directives can only be assessed by looking at the more detailed priorities under each Pillar and the intervention logics of specific measures. It is acknowledged here that it is difficult to distinguish between the positive and negative impacts of the CAP on biodiversity.

The CAP primarily uses financial support or incentive measures to achieve its objectives, with conditions attached, some of which have a bearing on the environment. The cross-compliance mechanism, for example, places conditions on all CAP area based agricultural payments, whereby recipients of payments must adhere to a baseline of environmental, hygiene and other standards.

The 2014-2020 CAP also incorporates environmental objectives and standards into Pillar 1 through the 'greening payment', comprising three measures with which farmers entitled to Pillar 1 direct payments (with exceptions including small farms & organic farms) must comply: maintenance of permanent grasslands, crop diversification, and the provision of Ecological Focus Areas (EFAs) or equivalent practices to these, intended to pro-

vide direct or indirect benefits for biodiversity³⁸⁴. EFAs should comprise at least 5% of eligible arable land (applicable as of 15 ha threshold of the arable land on a farm).

In the 2007-2013 period, Member States/regions (the managing authorities) were required to align their Pillar 2 funded RDPs with four axes, including axis 2 'improving the environment and the countryside'. For the 2014-2020 period, managing authorities must align their RDPs to the Union priorities for rural development³⁸⁵, including Union priority 4, which integrates the objectives of the Nature Directives: *'restoring, preserving and enhancing ecosystems related to agriculture and forestry, with a focus on restoring, preserving and enhancing biodiversity, including in Natura 2000 areas, and in areas facing natural or other specific constraints, and High Nature Value farming, as well as the state of European landscapes; improving water management ...; ... improving soil management'*. Managing authorities must also align their RDPs to the cross-cutting objectives of innovation, environment and climate change, and allocate at least 30% of their RDP funding to measures (pre-defined in the regulation) that support environment and climate change objectives³⁸⁶. Managing authorities must take account of the specific needs of Natura 2000 areas according to the Prioritised Action Framework (PAF) in their RDP needs assessment³⁸⁷ and in the overall design of their RDPs³⁸⁸.

However, the Union rural development priorities of enhancing farm viability and competitiveness, promoting food chain organisation including competitiveness, and promoting economic development in rural areas, create scope for supporting activities that are not necessarily compatible with the Nature Directives, including agricultural and forestry investments and actions that have the potential to damage European protected habitats and species. A number of safeguards and processes have been put in place within the 2014-2020 regulations to ensure that damaging activities are not funded. At the same time, other policies influence agricultural activities with potentially negative impacts, such as pesticides, nitrates and water policy, and it is difficult to distinguish impacts. At the broad level, the Rural Development Regulation³⁸⁹ states that rural development priorities should be pursued in the framework of sustainable development and the aim of protecting and improving the environment, taking into account the polluter pays principle³⁹⁰. RDPs are subject to *ex ante* conditionality, including arrangements for the effective application of the EIA Regulation, and regulatory minimum requirements for fertiliser use, pesticide use, and water use management³⁹¹.

RDPs must be subject to SEA before submission to the Commission, as should all subsequent major programme changes that could affect Natura 2000³⁹². However, it should be noted that these impact assessments are procedural and do not in themselves result in an obligation to avoid biodiversity impacts, unless they identify impacts that would contravene legislation, such as the damage to Natura 2000 sites or species listed in Annex IV of the Habitats Directive (see question C.2 in section 8.2).

The rural development regulatory framework includes specific conditions and safeguards that apply to investments relating to irrigation, physical investments and afforestation (see below for details). The EIA process should be used to prevent damage from agricultural developments (see question C.2 in section 8.2). Planned agricultural and forestry investments on Natura 2000 sites should be subject to an AA where there is a possibility of significant damage to EU protected species and/or habitats. This is discussed further in question S.1 (see section 0).

³⁸⁴ Regulation (EU) No 1307/2013 Preamble paragraph (44).

³⁸⁵ Member States must select at least four of the six Union priorities for rural development. All Member States have included Priority 4 because the compulsory agri-environment measure is mainly programmed under Priority 4.

³⁸⁶ Agri-environment-climate, organic farming payments, payments to areas facing natural or other specific constraints, payments for forestry, payments for Natura 2000 areas and climate and environment-related investment support. Regulation (EU) No 1305/2013 Preamble paragraph (22).

³⁸⁷ Commission Implementing Regulation (EU) No 808/2014 Annex I 4(b).

³⁸⁸ Regulation (EU) No 1305/2013 Preamble paragraph (24).

³⁸⁹ Regulation (EU) No 1305/2013 and Council Regulation 1698/2005

³⁹⁰ Preamble paragraph 5 of the Regulation (EU) No 1305/2013.

³⁹¹ As listed in Annex V of Regulation (EU) No 1305/2013.

³⁹² Directive 2001/42/EC Article 3(2)a and 3(2)b.

Of the 46 respondents who referred to the CAP in their response to question C.4, 17 (37%) considered the CAP objectives take into account the objectives of the Nature Directives, while 14 stated that it opposes the achievement of the objectives of the Nature Directives. Four respondents considered the implementation of the CAP to support the achievement of the objectives of the Nature Directives, while 26 stated that the implementation hindered it. Of the 40 respondents who referred to the CAP in their response to question C.5, eight considered the CAP to have a positive impact on the achievement of the Nature Directives objectives, while 22 considered it to have a negative impact, and nine note both positive and negative impacts.

8.4.3.1.3 Impacts of the CAP on implementation of the Nature Directives

This section reviews the evidence of the impact of specific measures within the CAP on the implementation of the Nature Directives. We begin with the most relevant rural development (Pillar 2) measures, followed by direct payments and cross-compliance under Pillar 1. Much of the literature on these topics stems from the period up to 2014. For the subsequent period we have relied on respondent positions and available information on Member State implementation decisions, and some recent publications predicting expected impacts of certain measures. Some changes in the CAP framework for the 2014-2020 period clearly have the potential to increase the protection provided for European protected habitats and species. Member States have considerable scope for flexible implementation, however, and the actual impact of their choices on biodiversity will vary. It is, as yet, too early to assess this.

Agri-environment schemes

As the only measure in Pillar 2 whose implementation is compulsory for all Member States, the agri-environment-climate measure is the primary policy measure used to incentivise farmers to adopt management practices that are beneficial to biodiversity, including EU protected habitats and species and Natura 2000 area management (Keenleyside et al, 2012; Olmeda et al, 2014; Poláková et al, 2011). The measure allows Member States to develop locally adapted voluntary schemes that reflect different biophysical, climatic, environmental and agronomic conditions.

Schemes vary greatly in their design, the level of payment offered, the degree of focus on biodiversity and the stringency of the environmental requirements. Higher-level (i.e. more demanding) agri-environment schemes often provide the greatest benefits for EU protected habitats and species because their implementation allows flexibility for individually tailored contracts at farm or site level, including specific provisions for management of the target species and habitats, provided skilled personnel are available on the ground and sufficient advisory support is provided (Olmeda et al, 2014; Poláková et al, 2011).

The literature and stakeholders cite many examples of improvements in the status of EU protected habitats and species as a direct result of targeted agri-environment schemes (eg Batáry et al, 2015; Broyer et al, 2014; MacDonald et al, 2012; Olmeda et al, 2014; Perkins et al, 2011; SEO, 2014; Whittingham, 2011). Czech and Greek NGO respondents, for example, both reported improved agri-environment schemes targeted at EU protected species in the 2007-2013 period. Improvements have been made in the monitoring and assessment of the outcomes of agri-environment programmes in some Member States, for example in the UK (Natural England, 2013). However, weaknesses in monitoring and assessment remain in parts of the EU (European Court of Auditors, 2011).

More funding and better tailoring to biodiversity priorities is required to increase the scale of the impacts of agri-environment schemes (Poláková et al, 2011). Several agri-environment programmes have been criticised for poor design of management requirements in relation to conservation objectives for rare or declining species (Blomqvist et al,

2009; Kleijn et al, 2006; Zimmermann et al, 2011), inadequate targeting to species and habitat requirements (Davey et al, 2010; O'Brien and Wilson, 2011), inadequate funding (Yang et al, 2013), and insufficient area coverage to achieve a pronounced improvement in population status (Arponen et al, 2013; Broyer et al, 2014; Holland et al, 2015; Kleijn et al, 2010; Perkins et al, 2011; Whittingham, 2007). Some studies recommend greater focus on incentivising delivery of results as a means of achieving better outcomes for biodiversity (Allen et al, 2015; Blainey, 2013; de Snoo et al, 2013). Many Member States recognise this and are planning improvements.

The extent to which species recovery and other goals can be achieved by measures on individual farms is found to vary. In many settings, the impact of schemes on individual farms is limited by the structure and management of the surrounding landscape (Batáry et al, 2015; Concepción et al, 2008), with few schemes found to have achieved landscape-scale coverage or impact (Baker et al, 2012; Davies et al, 2005). However, this may be partly because evidence gaps preclude many conclusions about large-scale impacts (Hiron et al, 2013).

The evidence provided both negative and positive examples of the effectiveness of particular agri-environment schemes for EU protected species. NGO respondents considered RDP payments to have contributed little to nature conservation objectives in Cyprus, France, Ireland, Luxembourg, Spain and Italy on the whole, although the positive effect of some schemes was noted. For example, the Little Bustard agri-environment scheme in SPAs in France competes with a whole-farm agri-environment scheme which is more attractive to farmers but does not provide the specific management required by the species³⁹³. Inadequate targeting of agri-environment schemes to Natura 2000 areas was raised by nature conservation authorities in Cyprus, Belgium (Wallonia), Ireland, the Netherlands (RLI, 2013), and Slovenia. Some respondents representing land managers, e.g. Copa-Cogeca (Denmark), cited the need for simpler, less demanding scheme implementation and more funding targeted at Natura 2000 farmland. The same respondents also reported that complex and multiple rules, as well as the fear of severe financial sanctions for minor infringements, are a deterrent to engagement with nature conservation schemes. It is unclear if this is attributable more to Pillar 1 or to agri-environment scheme requirements. However, the role of agri-environment schemes is widely acknowledged and in several Member States, NGOs raised concerns about reductions in agri-environment scheme budgets in the current period (see question Y.2).

As an example of identified problems and proposed solutions, the Danish RDP implementing authority listed several obstacles leading to the slow growth in uptake of agri-environment contracts for grassland management in Natura 2000. These included a perception of high risk of sanctions, insensitive eligibility control methods³⁹⁴, and inadequate payment rates, especially for smaller areas, abandoned areas, and areas on highly productive farms on which low intensity grazing is not part of the production. In the new period, the Danish grazing and cutting agri-environment scheme offers higher support for grazing on fields ineligible for direct payments, and the control method will focus on summer grazing density instead of plant cover.

Member States can apply specific conditions to their agri-environment-climate programmes to protect EU protected habitats and species, and apply payment cuts in cases of non-compliance³⁹⁵. As an example, the Austrian NGOs cited an improvement in the conditionality attached to the 2014-2020 agri-environment programme to prevent damage occurring to EU protected habitat types through intensification of management (Wanninger et al, 2013). The new Austrian RDP mandates that areas of 15 EU protected habitat types receiving agri-environment-climate payments must be used at least once annually, but cannot be mown more than twice annually, irrespective of whether or not this action is funded under the specific scheme³⁹⁶.

³⁹³ LPO (BirdLife France). Première analyse sur les mesures agro-environnementales pour les outardes en Poitou-Charentes. Unpublished submitted evidence.

³⁹⁵ Article 28 paragraph 3 of Regulation (EU) No 1305/2013.

³⁹⁶ Annex I habitat types 6170, 7230, 6260, 1530, 2340, 6210, 6230, 6410, 6520, 5130, 6240, 6250, 6130,

Individual agri-environment schemes can also include requirements that reduce damage to species as a condition of the payment. However, a number of preventative prescriptions are no longer being used in most 2014-2020 agri-environment programmes because of anticipated difficulties in control and verification³⁹⁷.

Non-productive investments

Agri-environment schemes can be supported by non-productive investments funded under the investment in physical assets measure³⁹⁸, including restoration actions such as tree and hedge planting, removal of undesired vegetation, re-establishment of semi-natural vegetation and hydrological measures. The Danish agriculture authority reported good uptake of RDP support for habitat restoration. The availability of funding for large carnivore damage prevention measures using the investment in physical assets measure was mentioned by the Greek NGO respondents, and evidence from the literature confirms its importance for the acceptance of large carnivores elsewhere (Linnell, 2013; Majic, 2014).

Natura 2000 measure

Where the conservation objectives for a Natura 2000 site impose clear legal restrictions on the agricultural or forestry use of the site which exceed those under cross-compliance, Member States can use the Natura 2000 measure to provide compensation for the practices required of land managers as a result of the site designation, and the restrictions based on which payments can be granted³⁹⁹. The application of the measure is therefore contingent on the existence of a site management plan or other provisions that set out the conservation objectives for the site and describe the requirements from which the real economic costs and income foregone can be calculated.

The Natura 2000 measure was implemented in 2007-2013 by 13 of the 27 Member States⁴⁰⁰; however, by 2012 payments had been made on only 3.9% of the agricultural area of the Natura 2000 network⁴⁰¹ (ENRD, 2014). There are a number of reasons for limited deployment of this measure. Some Member States prefer to concentrate resources on paying for voluntary commitments additional to legal requirements. Many Member States have yet to establish the necessary conservation objectives and plans, although progress has been made in part due to RDP funding (see question S.1). Ireland provided payments for areas with specific habitats and/or species in Natura 2000 for which farming conditions had been developed, including common land, and farmers were obliged to engage the services of an environmentalist to provide advice on appropriate farming practices compatible with the conservation of the site, and to undertake additional voluntary agri-environment commitments. However, in 2013 80% of the allocated budget for the measure was reallocated to other RDP measures (An Taisce, 2015). Poland programmed the measure, but ended up providing support through agri-environment schemes instead (CEEweb for Biodiversity, 2011).

Little information was provided in the evidence gathering questionnaire on the effect of the measure on Natura 2000, where it is applied. However, the Hungarian nature conservation authority and NGOs reported that the compensation payments for grasslands and forests within Natura 2000 have increased the acceptance of Natura 2000 site designation amongst landowners.

6440, 6510. Austrian Rural Development Programme 2014-2020 Annex 8.10.2a General ex ante requirements and standards applying to the agri-environment-climate programme ÖPUL, organic farming measure, Natura 2000/WFD measure, animal welfare measure.

³⁹⁷ Examples include reducing stocking rates, limiting fertiliser and pesticide use, mandating the mowing of grasslands from the centre instead of the edge, or the use of reduced-impact mowing machinery.

³⁹⁸ Previously the non-productive investments measure.

³⁹⁹ Annex I Part 1 Article 8(2)(e)11 in Council Implementing Regulation (EU) No 808/2014 of 17 July 2014

⁴⁰⁰ Hungary, Ireland, Bulgaria, Germany, Spain, Latvia, Estonia, Belgium, Lithuania, Czech Republic, Austria, Italy, Slovenia.

⁴⁰¹ 1,138,053 supported ha on a total Natura 2000 network area in 2012 of 76,814,198 ha, of which 38% is agricultural land. No data are available on the amount of forest land supported.

Other rural development measures that can directly support Natura 2000

The rural development measure for basic services and village renewal (previously rural heritage) and LEADER can be used to support Natura 2000 site management planning, site management, species and habitat monitoring, and information and awareness-raising activities to promote Natura 2000 management and protection. This was highlighted by the French nature authority. The basic services and village renewal measure also offers the possibility of setting up and supporting individually tailored farm or site management agreements, either within Natura 2000 sites or targeted to EU protected habitats and species more broadly. It has been widely used in Germany to support schemes delivered by a range of organisations, including nature conservation charities or farmer associations, complementing agri-environment schemes (Boller et al, 2013; DVL, 2007; Metzner, 2013).

A range of measures can be used to support the economic viability of extensive farming, including HNV systems, by building capacity and adding value to produce, including organic farming payments, farm advice and knowledge transfer, farm and business development support, producer groups, quality schemes, and label schemes including Protected Designation of Origin. While there are examples of positive impacts on Natura 2000 and EU protected species and habitats (e.g. cited in Poláková et al, 2011), an overall assessment of impacts is difficult.

Other measures for forests

The forest measures⁴⁰² can support a range of forestry practices that benefit EU protected habitats and species, such as the retention of more veteran trees, particular tree species, standing or lying deadwood, establishment of non-exploited areas, and forest habitat restoration or damage prevention (e.g. grazing fire breaks, blocking forest drainage, creating canopy gaps, or removing invasive alien species) (European Commission, 2015b). However, some forest investments have had negative effects on EU protected habitats and species. For example the fragmentation of Capercaillie habitat by the creation of forest roads was mentioned by the Slovak NGO respondent. There are new requirements for 2014-2020 RDPs regarding forest investments in area development and viability, and prevention and restoration of damage. The RDP must set a minimum holding size above which a forest management plan (or equivalent) in line with sustainable forest management is required.

Areas facing natural or other specific constraints (ANC) (previously Less Favoured Area LFA)

A large share of the farmland with EU protected habitats and species falls within areas of natural constraint so payments for these areas provide additional support for their farming systems⁴⁰³. However, these payments do not include any specific land management requirements to benefit biodiversity conservation (beyond cross-compliance and the new greening measures in the 2014-2020 period). Some managing authorities have set minimum grazing levels in order to maintain both pastures and agricultural activity, but there are examples where minimum grazing levels are set at rates that are too high to maintain the conservation value of some semi-natural habitats⁴⁰⁴.

The payments do not favour HNV farms over other producers in the areas concerned and, in some cases, may provide higher payments to more intensively managed farms. NGOs in Poland, for example, have criticised the 2014-2020 Polish RDP for assigning around

⁴⁰² Principally M8-3 Prevention of damage to forests, M8-5 Investments improving the resilience and environmental value of forest ecosystems, M15.1 forest-environmental & climate commitments.

⁴⁰³ In the 2009-2013 period these payments were made only under the RDPs, but in 2014-2020 Member States have the option of supporting ANCs under Pillar 1 also. Currently Pillar 1 ANC payments are only being made by Denmark for its islands.

⁴⁰⁴ For example, the Navarra RDP for 2014-2020 sets a minimum grazing rate of 0.6 to 1 LU/ha for cattle, a rate which excludes extensive grazing practices. Medida 13 en PDR de Navarra 2014-2020. Available at: http://gobiernoabierto.navarra.es/sites/default/files/13_ayudas_a_zonas_con_limitaciones_naturales_o_especificas.pdf

half of its RDP budget dedicated to environmental and climate issues, to the ANC/LFA measure, without setting specific conditions for farming methods other than cross-compliance⁴⁰⁵. According to a submitted analysis the lowland ANC regions include many areas with mineral fertiliser⁴⁰⁶ use at national average level, or higher, and are therefore unlikely to be maintaining high levels of biodiversity. At the same time, the agri-environment budget has been cut by 50% compared to the previous period. In Scotland, for example, in the 2007-2013 period, intensive systems less likely to contribute to the objectives of the Nature Directives received higher levels of support than HNV systems, since LFA payments were highly differentiated by location and historic stocking levels (Keenleyside et al, 2014).

Support for farming in ANCs contributes to the maintenance of a wide range of production systems and land management but is not focussed on biodiversity objectives directly.

Investment aid measures

A number of the NGO respondents referred to the negative biodiversity impacts of funding for physical capital under rural development measures, including investments in drainage, irrigation, farm modernisation, land consolidation, afforestation and other infrastructure⁴⁰⁷. The evidence provided by respondents, or identified by the consultants, on significant land use change in two areas is reviewed below. (Other impacts cited referred to land consolidation investments.)

In principle, afforestation can have both positive and negative effects on biodiversity conservation depending on the site and many other factors. A survey of experts in the Member States that have made significant use of the afforestation measure⁴⁰⁸ reported unquantified evidence that some Annex I habitat areas, as well as semi-natural grazed habitats, were lost to afforestation since 1992 in the Czech Republic, Estonia, Hungary, Ireland, Lithuania, the UK and Spain (Elbersen et al, 2014). A large proportion of the land afforested in Ireland, Spain and the UK has been unimproved grazing land, although it is not known how much of this area was ecologically valuable grassland and/or providing habitat to open-land specialist species. In most Member States no data are available on the previous use of land afforested under the CAP, and no record of the presence on afforested land of Annex I habitats or EU protected species. Nor are there any records of landscape context, land type, composition and structure of the newly established forest, or planting and maintenance techniques. It is therefore very difficult to draw conclusions across the EU on the impact of afforestation, either positively or negatively, on biodiversity (Elbersen et al, 2014).

In 2014-2020, RDPs that use the afforestation measure must identify minimum environmental requirements, including the selection of species to be planted, areas and methods to be used, in order to avoid the inappropriate afforestation of sensitive habitats such as peatlands and wetlands, and negative effects on areas of high ecological value, including areas under HNV farming⁴⁰⁹. On Natura 2000 sites the afforestation must be consistent with the site management objectives and agreed by the competent authority. However, there is no longer any regulatory requirement to identify land most suitable for afforestation for environmental reasons or to actively target such land in order to maximise the benefits for biodiversity. It is therefore unclear whether or not afforestation will bring increased benefits for biodiversity in the new period.

⁴⁰⁵ Greenpeace Poland, OTOP (BirdLife partner), WWF Poland. Letter to Commissioner Hogan June 30 2015. Submitted to supplement evidence gathering questionnaire.

⁴⁰⁶ Assessment of the influence of payments for LFAs on alleviating climate change or preventing the loss of biodiversity. Submitted by OTOP (BirdLife Poland).

⁴⁰⁷ NGOs from Spain, Slovenia in response to S.3 in evidence gathering questionnaire

⁴⁰⁸ 15 Member States have made significant use of the measure since 1992, and only five have an area afforested under the CAP that is above 1% of the UAA (Portugal 8.41% of UAA afforested, Ireland 5.06% of UAA afforested, Spain 2.83% of UAA afforested, UK 1.73% of UAA afforested, Hungary 1.6% of UAA afforested).

⁴⁰⁹ Annex I Part 1 Article 8(2)(e)(7) of Commission Implementing Regulation (EU) No 808/2014 and Article 6(a) of Commission Delegated Regulation No 807/2014 of 11 March 2014 supplementing Regulation (EU) No 1305/2013 of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and introducing transitional payments.

In the 2007-2013 period, there is evidence that some irrigation investments expanded the irrigated crop area without taking sufficient account of sustainability criteria or environmental impacts. An NGO review of EAFRD-funded investments in irrigation in Spain found that six out of eight irrigation projects led to an intensification of agricultural production, including increase in irrigated area and introduction of double harvesting (WWF, 2015). Several projects were in irrigation areas that had been established illegally, thus indirectly legitimising irrigation rights that did not previously exist. While the report did not specify impacts on biodiversity, the intensification of management associated with the installation of irrigation in dry habitats can be associated with negative impacts on biodiversity (De Frutos et al, 2015). In Portugal, the Alqueva dam development created 200,000 ha of new irrigated area in the Alentejo region, destroying EU priority steppe habitats (Boccaccio et al, 2009). The European Court of Auditors concluded that the 2007-2013 Good Agricultural and Environmental Conditions (GAEC) requirement for authorisation procedures for irrigation investments had had little or no influence on irrigation authorisation in countries that did not already have strong regulations (European Court of Auditors, 2014b). In the 2014-2020 period, irrigation investments must achieve minimum water efficiency improvements, and net increases in irrigated area must be subject to an environmental impact analysis⁴¹⁰.

Direct payments and eligibility conditions

Direct payments for agricultural land under Pillar 1, together with the ANC payment, can play an important role in supporting the continuation of farming in general, including those systems and associated habitats and habitat features that maintain EU protected habitats and species inside and outside Natura 2000. The most positive impact is likely to be in agriculturally disadvantaged areas, especially where the risk of land abandonment is high (Keenleyside et al, 2014; Keenleyside and Tucker, 2010). A study quoted by the Swedish nature conservation authority concluded that large areas of wood pasture habitat in Sweden would have been abandoned without the support of direct payments and the ANC/LFA payment (Hasund et al, 2014). However, it is not currently possible to identify at EU or Member State level the proportion of the total CAP direct payments and ANC/LFA compensation payments that have gone to HNV farms with EU protected habitats and species (Keenleyside et al, 2014).

Detailed application rules, however, are important considerations, as they can limit the scope of this positive impact and cause perverse damaging effects in some circumstances. There is evidence that during 2007-2013, substantial areas of EU protected habitats were deemed ineligible for direct payments because of the presence of scrub, shrubs and trees (Hart and Baldock, 2011; King, 2010; Poláková et al, 2011). These are often characteristic features of EU protected habitats and an essential part of their biodiversity value, but do not preclude the use of the habitats for grazing or other agricultural purposes, and can in fact provide additional forage. Eligibility issues have resulted from difficulties in the interpretation of past EU guidance, and the design of eligibility criteria to concentrate payments on more productive land (Olmeda et al, 2014). Around 60-70,000 ha heathland in Germany with less than 50% grass coverage (DVL and NABU, 2009), 25% of the total agricultural land in Estonia and two-thirds of the 1.6m ha of HNV farmland in Bulgaria was ineligible for direct payments (Hart and Baldock, 2011). In contrast, some Member States took a broad approach in the last period and included large areas of actively-farmed pastures with scrub and trees in their eligible areas for direct payments, such as the UK (DVL and NABU, 2009) and France (Beaufoy et al, 2011). Direct payment support was not available for small farmers below a size threshold, a fact raised by the Romanian nature conservation authority as a problem for Natura 2000 in Romania. Eligibility issues that have excluded Annex I habitat areas from direct payments in the previous CAP period were raised by NGO respondents from Sweden (Blom, 2010), Spain and Northern Ireland in the UK.

The revised eligibility criteria in the 2014-2020 CAP, including the broadening of the definition of permanent grassland to include herbaceous forage other than grasses and the

⁴¹⁰ Regulation (EU) No 1305/2013 Article 46.

presence of shrubs and/or trees, in addition to increased Member State flexibility, has the potential to extend direct payments to some previously excluded farmland, supporting EU protected habitats and species⁴¹¹. Respondents submitted reports that the eligibility of extensive grazing land is being restricted in the new CAP direct payment systems, so excluding areas of EU protected habitat in Spain (where 86% of pastures include trees and scrub⁴¹² (EFNCP, 2015), Ireland⁴¹³ and Northern Ireland and Wales in the UK (Hart and Radley, 2015). This is partly a consequence of tighter requirements for the control and inspection of eligible area⁴¹⁴, or inappropriate timing of inspections⁴¹⁵. Eligibility problems for wood pastures arise from the use of the limit of 100 trees per ha of pasture, measurement of tree density by tree canopy cover thus reducing payment rates, and emphasis on land cover data rather than use of data for classifying land use⁴¹⁶, as described in Spain (Ruíz and Beaufoy, 2015). In Romania, the deduction of tree canopy cover from payment rates provides an incentive for the felling of veteran trees (EFNCP, 2015). In Sweden the situation has improved, although some area is still excluded from direct payments and instead financed through agri-environment (EFNCP, 2015). France and England (UK) have taken approaches that include wood pastures as eligible areas⁴¹⁷ (EFNCP, 2015).

According to some NGO respondents and academic literature, decoupled direct payments continue to provide an incentive for intensification via wealth or risk-reducing effects (Mittenzwei et al, 2014). At the same time, direct payments prevent the complete abandonment of marginally or completely uneconomic farming systems including a large component of part-time farmers (Brady et al, 2009; Howley et al, 2012).

Cross-compliance: Statutory Management Requirements (SMRs) and Good Agricultural and Environmental Conditions (GAEC)

SMRs: Under the SMRs, Member State authorities can apply a penalty to farmers' payments⁴¹⁸ in Natura 2000 sites where the farmer contravenes the conservation measures and measures to avoid deterioration and disturbance defined for the site under the Birds Directive⁴¹⁹ and/or Habitats Directive⁴²⁰. This can only be applied if the site has a management plan or equivalent instrument⁴²¹ defining the relevant measures and compulsory obligations. Member States must ensure that farmers receiving CAP support in Natura 2000 sites are informed about their obligations, including prevention of damage, through farm advisory services⁴²². The European Commission reported in 2010 that the manda-

⁴¹¹ Article 4.2 in Regulation (EC) No 1307/2013.

⁴¹² EFNCP and others. 2015. Letter to Director-General Agriculture. CAP implementation discriminates against farmers using pastures with trees and shrubs in Spain and threatens to degrade biodiversity and increase the wildfire hazard. European Forum for Nature Conservation and Pastoralism and the Plataforma por la Ganadería Extensiva y el Pastoralismo on behalf of 60 signatories, Spanish farming, rural, research and conservation organisations. Available at: <http://www.efnecp.org/download/EFNCPLettertoMrJerzyBogdanPlewa.pdf>

⁴¹³ INHFA (2015) Open letter to Minister Coveney re land eligibility inspections. Irish Natura & Hill Farmers Association, Ireland. Available at: <http://www.agriland.ie/farming-news/new-farm-organisation-takes-minister-to-task-on-inspections/>

⁴¹⁴ As set out in new Commission Guidance documents.

⁴¹⁵ INHFA (2015) Open letter to Minister Coveney re land eligibility inspections. Irish Natura & Hill Farmers Association, Ireland. Available at: <http://www.agriland.ie/farming-news/new-farm-organisation-takes-minister-to-task-on-inspections/>

⁴¹⁶ The Spanish authorities are reclassifying many LPIS parcels originally classed as pastures with trees/shrubs as forest, thus removing those parcels from CAP Pillar 1 eligibility (Ruíz and Beaufoy, 2015). The guidance states that the only criterion is the land cover as interpreted from aerial photography and that farming use of the parcel should not be taken into account.

⁴¹⁷ For example in England, all scattered trees are regarded as part of the eligible area and claimants do not need to make any pro-rata deduction for tree cover (EFNCP, 2015).

⁴¹⁸ The relevant payments include area-based direct payments under Pillar 1, payments to vineyards, and annual payments for afforestation, agroforestry, agri-environment-climate, organic farming, Natura 2000/WFD, areas of natural and other specific constraints, animal welfare, and forest-environment-climate. Article 4 in Council Regulation (EC) No 73/2009 and Article 92 in Regulation EU No 1306/2013.

⁴¹⁹ Birds Directive Article 3(1) and 3(2)(b), Article 4(1), 4(2) and 4(4) (SMR 1 in 2007-13, SMR 2 in 2014-20). NB in 2007-13 SMR1 also included Birds Directive Article 5.

⁴²⁰ Habitats Directive Article 6(1) and 6(2) (SMR 5 in 2007-13, SMR 3 in 2014-2020).

⁴²¹ Member States can establish conservation measures and measures to avoid deterioration and disturbance using appropriate statutory, administrative or contractual measures (Habitats Directive Article 6(1)).

⁴²² In 2014-2020 according to Article 12 of Regulation (EU) No 1306/2013 of 17 December 2013.

tory inclusion of information on cross-compliance in farm advisory systems had raised farmer awareness of their obligations under the Birds and Habitats Directives (European Commission, 2010c).

No evaluation of cross-compliance has been carried out in recent years to assess the extent of additional protection brought about through the application of the SMRs and GAEC standards. The European Court of Auditors assessed the monitoring of cross-compliance in 2008 as weak, and, in some cases, non-existent (European Court of Auditors, 2008). Some respondents reported that the penalty for cross-compliance infringements of up to 5% of the farmer's annual payment entitlement⁴²³ is considered too low to be a real deterrent. An NGO report found almost no penalisation of farmers for habitat clearing in 12 Member States (Birdlife International, 2009).

In the 2014-2020 period, the SMRs referring to the Birds and Habitats Directives have been simplified by removal of the reference to Article 5 of the Birds Directive prohibiting the deliberate killing, destruction or disturbance of birds, bird nests and eggs. The GAEC standard on retention of landscape features has been expanded to include a ban on cutting hedges and trees during the bird breeding and rearing season. However, this does not give protection to species that nest in the fields, either in the crops or on the ground, including a number of species listed on Annex I of the Birds Directive⁴²⁴. A Cyprus NGO noted that the exclusion of Article 5 has cut short an enforcement action that sanctioned farmers with reduced payments who were repeatedly found with bird trapping materials on their land. In the UK, where several penalties for raptor poisoning have been imposed under the previous SMR⁴²⁵, Article 5 now applies only to SPAs. In the UK, NGOs report that the removal from GAEC 7 of the ban on ploughing and cutting of vegetation during the bird breeding season, means that there are now fewer safeguards during the breeding season.

GAEC: For the 2007-2013 period there is some evidence that some non-protected landscape features and vegetation features were removed from farmland in order to make the areas eligible for direct payments, in particular in response to the GAEC standard on removal of unwanted vegetation (cited in Poláková et al, 2011). For example, the Slovenian Ministry of Environment and Cyprus NGOs stated that farmer concerns about checks on direct payment eligibility have incentivised the removal of farmland features and semi-natural vegetation elements in and around fields. A study in Germany found that compliance with GAEC standard for avoiding the encroachment of unwanted vegetation through mowing and mulching of species-rich grassland, has kept the countryside open but reduced the biodiversity of fauna and flora (Oppermann, 2009). However, there is some evidence that the GAEC standard on retention of landscape features was effective in preventing the removal of landscape features. Anecdotal information pointed to the cutting down of hedges by some French farmers in response to temporarily weakened standards.

Cross-compliance: permanent grassland and designation of environmentally sensitive grassland

The cross-compliance rule requiring the maintenance of permanent grassland obliged Member States to take action to protect grassland if the ratio of permanent grassland to the total agricultural area fell more than 10% below the reference level (the threshold is 5% in 2014-2020)⁴²⁶. However, it is possible to plough, fertilise and re-seed grassland

⁴²³ The penalty can be higher if intentional non-compliance can be proved, i.e. that the farmer was informed of his/her obligations, but cannot be higher than the farmers' total annual payment entitlement. Account must be taken of the severity, extent, permanence and reoccurrence of the non-compliance. In cases of negligence, reductions shall not exceed 5% or 15% in cases of reoccurrence; in cases of intentional non-compliance, reductions shall in principle not be more than 20% but may go to total exclusion from aid schemes for one or more years. Article 99 in Regulation EU No 1306/2013.

⁴²⁴ E.g. Great Bustard, Little Bustard and Corncrake.

⁴²⁵ Raptor Persecution Scotland. 2015/11/15. Web article: 'Stoddy estate receives £221,000 subsidy penalty for mass raptor poisoning'. <https://raptorpersecutionscotland.wordpress.com/2015/11/15/stoddy-estate-receives-221000-subsidy-penalty-for-mass-raptor-poisoning/>

⁴²⁶ For the 2014-2020 period, Member States can choose to apply this requirement regionally or nationally, although authorisation procedures can be set at the level of individual farms. The reference ratio is defined by

provided the land is not sown to arable crops⁴²⁷, and grassland can in theory be converted to arable if it is replaced by new grassland elsewhere (as long as the threshold is not breached). As a result, the rule is of limited direct benefit for the protection of EU protected grasslands, as they will be destroyed or seriously damaged by these actions. Examples are shown by loss of Annex I grassland habitats in Germany (Nitsch et al, 2012) and Slovenia (see question R.1 in section 7.1 for details of grassland losses).

For the 2014-2020 period, Member States are obliged to designate those grasslands within Natura 2000 sites that are 'environmentally sensitive', and which need strict protection in order to protect species, HNV land, water quality and to protect against soil erosion, including peatland and wetland⁴²⁸. If farmers convert or plough these designated grasslands they lose part of the 'greening' element of their direct payment. Member States do not have to designate all permanent grassland within Natura 2000 sites as environmentally sensitive⁴²⁹, but authorities can add to the area of permanent grassland designated as environmentally sensitive each year. In 2015, 10 Member States designated all the grassland in their Natura 2000, five Member States designated between 50% and 100%, and eleven Member States designated less than half of the grassland within their Natura 2000⁴³⁰. However, there are indications that the option to designate grasslands outside Natura 2000 areas has not been adopted widely. For 2014, just three Member States and one region designated grassland areas outside Natura 2000 (Czech Republic, Latvia, Luxembourg, and the UK, Wales only) (European Commission, 2015g). The Bulgarian NGO pointed out that the Bulgarian permanent grassland layer in the LPIS does not include the actual scope of grasslands in the framework of Natura 2000, and therefore cannot provide complete protection.

Greening requirements 2014-2020

A recent review of greening implementation finds that in the majority of cases Member States seem to have used the flexibility available to them in the regulations. This has allowed them to maximise opportunities for arable farmers to meet their obligations with regard to crop diversification and Ecological Focus Areas (EFAs) without having to make significant changes that would benefit biodiversity, for example, by allowing continued monoculture crop production, using species that are not necessarily beneficial to biodiversity and permitting the use of fertilisers and pesticides (Hart, 2015). The NGOs and some of the nature conservation authority respondents generally have low expectations of benefits to biodiversity from greening, citing studies based on the legislative requirements that predict limited benefits for biodiversity overall (Pe'er et al, 2014) and for farmland birds (Chiron et al, 2013). Some sources indicated that farmers in the Netherlands are predominantly choosing the EFA options with lowest expected biodiversity benefits (catch crops and nitrogen-fixing crops)⁴³¹ (Doorn et al, 2015).

Results of the online public consultation

The online public consultation did not ask directly about coherence between the nature directives and the CAP, so the responses cannot be used to draw conclusions to this question.

the 2015 baseline.

⁴²⁷ See definition of permanent grassland according to Article 4(1)(h) of Regulation (EU) No 1307/2013 of 17 December 2013 for allowed management actions.

⁴²⁸ Article 45(1) of Regulation (EU) No 1307/2013 of 17 December 2013 and Article 41 of Regulation (EU) 639/2014.

⁴²⁹ Member States can argue that designation under the CAP is not necessary because they are already effectively protecting grassland in Natura 2000 sites through other measures outside the CAP.

⁴³⁰ In Hungary, ploughing of grassland in Natura 2000 sites is forbidden by Ministerial Decree.

⁴³¹ BirdLife in the Netherlands, 'Advies van zes groene organisaties over de invulling van de vergroening van het GLB in Nederland'. <http://www.vogelbescherming.nl/index.cfm?act=files.download&ui=F5484D54-0B36-6FF0-D4BD6156E83E01FA>

8.4.3.1.4 Key findings

- The overarching objectives of the 2014-2020 CAP are to support viable food production, the sustainable management of natural resources and climate action, and to achieve balanced territorial development. The CAP relies primarily on financial support and incentive measures, primarily in Pillar 2, often with conditions attached, some of which concern the environment (e.g. via cross-compliance). Moreover, the Habitats Directive contains a number of semi-natural habitats which depend on the continuation of extensive agricultural systems. Therefore the CAP and Nature Directives are primarily potentially complementary.
- The reformed CAP includes more potentially beneficial elements for biodiversity, however, it is as yet too early to assess its impacts on Natura 2000 and EU protected habitats and species, which are greatly influenced by Member State implementation choices.
- Historically, support payments under Pillar 1 of the CAP were mainly coupled to production, providing an incentive to increase agricultural production. This encouraged agricultural improvements and intensification in some areas, leading to well-documented detrimental biodiversity impacts (e.g. through losses of semi-natural habitats and overgrazing). The great majority of direct payments are now area-based. Although some voluntary coupled payments remain, evidence of their biodiversity impacts is scarce.
- At the same time, Pillar 1 direct payments (and additional payments for ANCs and those facing other specific constraints under Pillar 2), play a role in supporting the continuation of farming systems and practices, such as extensive grazing, associated with certain protected habitats and species. For the period 2007-2013, Pillar 1 eligibility rules (e.g. concerning scrub and trees), as interpreted in some Member States, excluded large areas of farmland with semi-natural habitats and/or EU protected species from receiving direct payment support. In some cases, this is stated to have detrimental effects on semi-natural habitats through land abandonment or degradation/destruction. The recent reform of the CAP gives Member States more flexibility to determine the eligibility of land for direct payments, but it is too early to assess if this has fully solved the problem.
- Cross-compliance measures aim to ensure a basic level of environmental protection (inter alia) on farmland. They include SMRs that refer to provisions within the Birds and Habitats Directives, and GAEC standards contributing to biodiversity. Although cross-compliance has improved awareness among farmers of environmental concerns, there is little documented evidence of beneficial biodiversity impacts, apart from an indication that GAEC 7 has helped protect landscape features.
- From 2015, the green payments (which comprise 30% of direct payments) provide increased opportunities for Member States to protect habitats. In particular, the ability to designate environmentally sensitive permanent grasslands could be beneficial. Several of the options for EFAs can also provide biodiversity benefits (e.g. fallow). The impacts of the greening measures will depend considerably on Member State implementation choices and the options farms put into practice. It is as yet too early to assess this.
- Within Pillar 2 at least 30% of EAFRD must be dedicated to environment and climate change objectives. The agri-environment-climate measure (supported by non-productive investments) is the primary measure through which incentives are provided for farmers to continue or adopt management practices that are beneficial to biodiversity, both in Natura 2000 sites and elsewhere. Many schemes have contributed to improvements in the status of EU protected habitats and species, although some have suffered from poor design and targeting. Greater application and better tailoring to biodiversity priorities is

required to increase the scale of their impacts. The Natura 2000 measure provides Member States with the opportunity to compensate for restrictions on farming and forestry activities in Natura 2000 sites. However, this is not widely used, due in part to the slow progress with establishment of site-specific conservation measures (e.g. development of site management plans). Other measures can provide additional support if Member States choose to do so. Although a small number of other Pillar 2 measures have in the past been reported as having detrimental biodiversity impacts in some cases (e.g. afforestation of sensitive habitats, irrigation), the new EAFRD rules/conditions have been designed to avoid such impacts where they are supported by proper checks and controls (e.g. through EIAs) by Member States.

- A substantial body of evidence suggests that without any support via the CAP, the conservation status of agricultural habitats and species would be worse than it currently is because of the poor profitability of the most extensive farming systems. However, the CAP could contribute more to the goals of the Nature Directives, especially if Pillar 2 funding was increased and Member States targeted their measures more towards biodiversity objectives.

8.4.3.2 Cohesion Policy

8.4.3.2.1 Introduction and sources of information

This section considers the coherence of EU Cohesion Policy with the Nature Directives. Cohesion Policy provides co-financing from the EU budget to support social and economic cohesion across the EU, with significant amounts of funding disbursed in the less developed parts of the Union. Co-financing is allocated according to strategic plans and spending programmes developed and implemented by the Member States and regions, and outcomes are highly dependent upon the priorities and practices of the individual Member States. Both positive and negative interactions with the Nature Directives have been observed over the years.

The sources of information for this analysis are mainly documentary, as few stakeholders directly addressed coherence with Cohesion Policy in their responses to questions C.4 and C.5. A total of 10 responses were received (several replied jointly to both questions), mainly from Member State level NGOs, providing general opinions about the mix of positive and negative interactions between Cohesion Policy and the Nature Directives. The main sources of information used, therefore, include the text of the Cohesion Policy regulations, studies and Guidance documents dedicated to the integration of the environment and nature into Cohesion Policy, and research documents and statements prepared by NGOs on the impacts of the EU budget and Cohesion Policy projects on the environment and nature.

8.4.3.2.2 Objectives and interactions

The main objective of Cohesion Policy has been to reduce significant economic, social and territorial disparities between European regions through the provision of co-financing from the EU budget to support investments in key areas. With the adoption of the Europe 2020 Strategy in 2010, the Cohesion Policy and its structural funds became the 'key delivery mechanisms to achieve the priorities of smart, sustainable and inclusive growth in Member States and regions'⁴³². In line with this, the broad, high-level objectives of Cohesion Policy are: fostering economic growth and job creation; investing in R&D and education; tackling climate change and energy dependence, and reducing poverty and social exclusion⁴³³.

⁴³² European Commission, 2010, A strategy for smart, sustainable and inclusive growth, Communication from the Commission, COM(2010) 2020 final, 3.3.2010, p.20.

⁴³³ http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm, accessed on 7.12.15.

These high-level objectives of Cohesion Policy do not address nature and biodiversity directly. Ultimately, the principle that economic growth should be achieved in a sustainable manner, and the Treaty requirement⁴³⁴ to integrate environmental protection requirements into the implementation of Community policies, would seem to suggest a need for coherence with nature protection objectives. However, the EU's targets under the sustainable growth objective address climate change mitigation⁴³⁵ and not biodiversity or nature protection. The Europe 2020 strategy is also driven by seven 'flagship initiatives', one of which concerns a resource-efficient Europe. This includes a long-term vision for incorporating sustainable resource use into socio-economic development and includes the EU Biodiversity Strategy as a medium-term measure⁴³⁶. Further specific thematic objectives address environment and nature directly – thematic objective 6 covers 'Protecting the environment and promoting resource efficiency'.

The total funding for Cohesion Policy in 2014-2020 amounts to EUR 351.8bn, which is about one-third of the total EU budget for this period. Similar amounts were available in previous seven-year funding periods. With co-financing by Member States, this amounts to around EUR 700bn over the seven-year period⁴³⁷. It is therefore a significant driver of public investment across the EU, with greater emphasis in the less-developed Member States and regions, mainly in the South, the East and peripheral areas.

Under the EU co-funding arrangements, financial support to implementing biodiversity conservation objectives (e.g. Natura 2000 network) has been integrated into different EU sectoral funds (Kettunen et al, 2014a). Cohesion Policy provides an important opportunity for funding to support, both directly and indirectly, nature conservation objectives, through dedicated measures for Natura 2000 management, investment and monitoring, green infrastructure projects, research, capacity building, training and many other measures. There is considerable potential for positive synergy between these measures and the fulfilment of biodiversity conservation objectives of the Nature Directives. (See question C.7 for a discussion of the integration of Natura 2000 into the main EU sectoral funds, and question Y.2 for more on availability and access to funding overall.)

At the same time, Cohesion Policy supports many types of measures that have the potential to impede nature objectives. These are mostly infrastructure investments, including transport, energy and even environmental and flood infrastructure (see below). These investments are driven by specific sectoral policy objectives, as discussed in other sections of this question (e.g. energy, transport). Nevertheless, awareness and recognition of the importance of the environmental impacts of Cohesion Policy has grown over the past decades. This can be observed both in the content of the relevant legislation and Guidance documents, and was noted in a key response to the stakeholder consultation for this evaluation⁴³⁸.

The first overarching 'Cohesion Policy' Regulations⁴³⁹ adopted in 1988 did not include any environmental conditions for funding (Coffey and Richartz, 2003). Since then, EU environmental legislation has developed considerably, not only in the field of nature protection but also water, air, waste and other areas, in line with Article 130r(2(3)) of the Maastricht Treaty⁴⁴⁰ and Article 11 of the TFEU⁴⁴¹. Consequently, the regulations adopted

⁴³⁴ Consolidated Version of the Treaty on the Functioning of the European Union Article 11, 2008 O.J. C 115/47.

⁴³⁵ The targets cover reduction in GHG emissions, increasing the share of renewables in energy consumption and increasing energy efficiency, http://ec.europa.eu/europe2020/pdf/targets_en.pdf, accessed on 7.12.15.

⁴³⁶ European Commission, 2011, A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM (2011) 21 final, 26.1.2011.

⁴³⁷ <https://cohesiondata.ec.europa.eu/>, accessed on 7.12.2015.

⁴³⁸ Information supplied by the WWF in the evidence gathering questionnaire.

⁴³⁹ Cohesion Policy as we know it today appeared in 1988 when the Structure Funds were integrated into an overall Cohesion Policy, focusing on poorest regions and using a strategic, multi-annual programming process. The first programming period was from 1988-1992; subsequent periods followed the EU seven-year budget cycles.

⁴⁴⁰ Article 130r(2(3)) of the TFEU signed in Maastricht on 7 February 1992, 29.07.1992 OJ C 191/1 states, among other things, that the Community policy on the environment follows the objectives of preserving, protecting and improving the quality of the environment.

⁴⁴¹ Consolidated Version of the Treaty on the Functioning of the European Union Art. 11, 2008 O.J. C 115/47. 'Environmental protection requirements must be integrated into the definition and implementation of the Un-

for Cohesion Policy since the 1994-1999 funding period have made explicit reference to the requirement that all spending comply with environmental legislation. This includes proper implementation of the SEA, EIA and Habitats Directive requirements on the environmental assessment of plans, programmes and projects that will impact the environment and/or Natura 2000 sites.

Since 2000 the requirement to comply with environmental legislation has expanded to a more systematic and comprehensive framework for integrating environmental considerations into all aspects of programme development and implementation (IEEP et al., 2011 [1884]). The 2000-2006 regulations set out environmental sustainability as a 'horizontal theme' and actively encouraged environmental authorities and stakeholders to participate in programme design and implementation. This has been maintained in the regulations for 2007-2013 (Article 17) and 2014 – 2020. For the latter, biodiversity is specifically mentioned in Article 8⁴⁴²: 'the Member States and the Commission shall ensure that environmental protection requirements, resource efficiency, climate change mitigation and adaptation, biodiversity, disaster resilience, and risk prevention and management are promoted in the preparation and implementation of Partnership Agreements and programmes'. This is reinforced by the Commission when it reviews and approves the strategic planning and programming documents.

In sum, the legal and policy frameworks for Cohesion Policy and the Nature Directives are coherent as written. The higher-level objectives of Cohesion Policy do not specifically reference nature protection or biodiversity, but sustainable growth driven by resource efficiency and the EU Biodiversity Strategy is part of the relevant strategic policy documents. Cohesion Policy regulations and implementation guidance have more explicitly recognised the importance of integration of environment and nature protection concerns over time, as well as the legal requirement to do so. Sustainable development - including biodiversity - is to be integrated into all spending plans and programmes, which must comply with relevant environmental legislation. Nevertheless, the actual impact of Cohesion Policy on nature and biodiversity depends upon the ways in which plans, programmes and projects are designed and implemented in the Member States, and the results over time have been mixed.

8.4.3.2.3 Impacts on implementation of the Nature Directives

Cohesion Policy has strong potential to build positive synergies with nature protection through the provision of funding for Natura 2000 site management planning and conservation measures, as well as capacity building, research and a range of other measures. (See questions C.7 and Y.2 for further discussion.)

Based on stakeholder responses to the evidence gathering questionnaire and the literature reviewed for this question, it is clear that a considerable proportion of Cohesion Policy funding also has the potential to adversely impact nature and biodiversity (WWF, 2006a), (RSPB and EEB, 2013), (EEA, 2009 [1885])⁴⁴³. These negative impacts relate to infrastructure within the energy, transport, environment and building sectors and include investments in roads, railways, ports and airports; inland water navigation; flood defences; water treatment plants and drains; power stations; hydropower; overhead electricity transmission and underground energy transmission infrastructure. Major impacts include: direct mortality such as bird and bat collisions with infrastructure; habitat frag-

ion's

policies

and activities, in particular with a view to promoting sustainable development.'

⁴⁴² Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006.

⁴⁴³ See also examples in sections related to energy and transport.

mentation, such as barriers to movement for species; ecosystem disruption; pollution and more (IEEP, 2014 [1886]).

EU environmental legislation provides a coherent framework of safeguards which, when effectively implemented, allows for the early and effective assessment of impacts of plans, programmes and projects on the environment and nature. Impacts on Natura 2000 sites receive special consideration through the AA requirements under Article 6(3) of the Habitats Directive. Nevertheless, proper implementation of these procedures remains challenging (Ecosystems, 2013 [1887]). In its response to the evidence gathering questionnaire, the EU level NGO WWF refers to improvements in planning and cross-compliance between EU sectoral policies (both generally and including Cohesion Policy) and the Nature Directives, brought on in part by the work of NGOs to expose conflicts and contradictions at policy level.

The procedures for review and approval of major projects (those for which the total eligible cost exceeds EUR 50m or EUR 75m in the transport sector) by the Commission has an important impact on the quality of those large investment projects, including their impacts on environment and nature. The application form for major projects⁴⁴⁴ requires applicants to provide a summary of actions taken in relation to the application of horizontal principles, including sustainable development with reference to biodiversity. In section F it requires an overview of the analysis of environmental impact, including: the consistency of the project with environmental policy (including the preservation of biodiversity and ecosystem services and respect of the precautionary principle); the application of, and compliance with, environmental directives including the Habitats Directive; and the cost of mitigation measures resulting from environmental assessment procedures. A declaration by the authority responsible for monitoring Natura 2000 sites is also required. Direct review and approval of applications for major projects by the Commission adds another layer of quality and compliance control to these projects, beyond that of the Member State authorities.

The Commission has taken additional measures to improve the overall quality of Cohesion Policy funded programmes and projects, as well as to ensure better compliance with EU legislation. The JASPERS initiative has been set up jointly by the Commission, the EIB and the EBRD to provide project preparation support for major projects in the new EU Member States. A range of assistance is provided, including independent quality review of projects, capacity building and horizontal assignments addressing specific themes. Through its networking platform, JASPERS carries out seminars on specific issues and topics relevant to project preparation and implementation, most recently on nature protection and the requirements of the Nature Directives⁴⁴⁵.

In 2014 the Commission published a 'Common Framework for Biodiversity-Proofing of the EU Budget' including a dedicated Guidance document for Cohesion Policy Funds (IEEP, 2014 [1886]). It suggests tools at various levels of the policy implementation cycle, such as:

- The integration of dedicated biodiversity objectives and selection criteria into project calls across all relevant sectors.
- The development of biodiversity indicators for all relevant types of projects.
- Guidance for the preparation of projects in all relevant sectors that assist in identifying nature and biodiversity impacts or opportunities for enhancement.

⁴⁴⁴ Commission Implementing Regulation (EU) No 2015/207 of 20 January 2015 laying down detailed rules implementing Regulation (EU) No 1303/2013 of the European Parliament and of the Council as regards the models for the progress report, submission of the information on a major project, the joint action plan, the implementation reports for the Investment for growth and jobs goal, the management declaration, the audit strategy, the audit opinion and the annual control report and the methodology for carrying out the cost-benefit analysis and pursuant to Regulation (EU) No 1299/2013 of the European Parliament and of the Council as regards the model for the implementation reports for the European territorial cooperation goal.

⁴⁴⁵ Jaspers Network, Knowledge and Learning Centre, Seminar on Nature Protection and Birds and Habitats Directives requirements, <http://www.jaspersnetwork.org/display/EVE/Seminar+on+Nature+Protection+and+Birds+and+Habitats+Directives+requirements>, accessed on 7.12.2015.

- The use of checklists by programme management authorities to highlight key considerations in biodiversity proofing across the programme implementation cycle.

These tools are based on good practices in place in various Member States and regions, and are intended to enhance planning and management processes, as well as working in synergy with environmental legal requirements.

The Commission also published 'The Guide to Multi-benefit Cohesion Policy Investments in Nature and Biodiversity' in 2014 (IEEP and Milieu, 2013), which looks at opportunities for positive synergies between biodiversity and nature and economic development investments funded by Cohesion Policy, including green infrastructure solutions.

Results from the public consultation

There are mixed views in the responses to the online public consultation on whether or not Cohesion Policy generally supports the objectives of the Nature Directives. The question as written is challenging to interpret, mainly because there is concrete evidence of ways in which Cohesion Policy supports the Directives (e.g. through funding of conservation measures) and threatens them through infrastructure projects, and respondents were not given the opportunity to distinguish between these two distinct aspects of the policy. However, few respondents from across the four groups felt that Cohesion Policy did not generally support the nature objectives, although - with the exception of business - many felt it could do more.

Table 38 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for Cohesion Policy

Individual	No	4%
	Yes	1%
	Could do more	94%
	I don't know	1%
Business	No	8%
	Yes	59%
	Could do more	20%
	I don't know	13%
Government	No	10%
	Yes	21%
	Could do more	46%
	I don't know	23%
NGOs	No	10%
	Yes	14%
	Could do more	63%
	I don't know	13%

8.4.3.2.4 Key findings

- The main objective of Cohesion Policy has traditionally been to reduce significant economic, social and territorial disparities between European regions through co-financing investments targeting socio-economic development. With the adoption of the Europe 2020 Strategy in 2010, Cohesion Policy and its structural funds became the 'key delivery mechanisms to achieve the priorities of smart, sustainable and inclusive growth in Member States and regions'.
- Cohesion Policy has evolved during the last three decades to provide more support for environmental policy, including biodiversity and nature-related issues, as confirmed both in literature and by stakeholders.

- Cohesion Policy provides relatively large amounts of funding (EUR 351.8bn or around 33% of the EU budget for 2014-2020) to co-finance investments in research, SME competitiveness, transport, low-carbon economy, labour and social inclusion, education and also environment and resource efficiency. Funding is available to directly and indirectly support the objectives of the Nature Directives (e.g. for conservation measures or management of Natura 2000 sites), as well as for activities that may directly threaten nature objectives, such as transport, energy and other infrastructure.
- Cohesion Policy objectives are very broad, some more coherent with those of the Nature Directives (e.g. sustainable growth) than others (e.g. the focus on economic growth and job creation, which has the potential to promote interventions that threaten nature conservation objectives). Ultimately, the concept that economic growth should be achieved in a sustainable manner seems to suggest broad coherence with the Nature Directives. Evidence shows that this is not always the case, however, with both stakeholders and literature supporting the idea that Cohesion Policy in practice has both positive and negative impacts on the objectives and implementation of the Nature Directives.
- At the implementation level, several instruments and procedures exist to assess, identify and mitigate the possible negative impacts on environment and nature from the programmes and projects supported by Cohesion Policy. These include EU legislation on environmental assessments – including SEA, EIA and AA as discussed in question C.2. The fact that the Commission reviews the quality of Member States' strategic plans and spending programmes (including SEAs), approves large investment projects (> 50m or 75m in the transport sector) and provides technical assistance for preparation of large infrastructure projects (including EIA and AA), places some additional emphasis on the quality of environmental assessment procedures for Cohesion Policy plans, programmes and projects. Guidance documents based on good practice from around the EU also exist.

8.4.3.3 Energy

8.4.3.3.1 Introduction and sources of information

Energy policy in the EU focuses on the availability of affordable energy across the EU, as well as sustainable energy production and use in line with the EU's climate change targets. There are important interactions with nature and biodiversity, particularly with regard to the infrastructure development and the cultivation of agricultural crops for fuel production.

The information base includes legal and policy documents, studies and reports, as well as responses to the evidence gathering questionnaire. While the energy sector was addressed by a relatively limited number of stakeholders (16 responses for C.4 and 15 for C.5), the replies came from a diverse set of stakeholders and provided an ample range of perspectives and examples to enable analysis. Where some stakeholders, particularly those from the private sector, provided information relevant for coherence with the energy sector within the answers to other questions, this has been incorporated into the analysis.

8.4.3.3.2 Objectives and interactions

The EU's Energy Union strategy consists of five closely related and mutually reinforcing dimensions⁴⁴⁶:

⁴⁴⁶ European Commission, 2015. State of the Energy Union. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, COM(2015) 572 final, 18.11.2015.

- Supply security – diversifying sources of energy and making more efficient use of them.
- A fully integrated internal energy market – removing technical and regulatory barriers so that energy can flow freely across the EU and that customers get the best, competitive prices.
- Energy efficiency – consuming less energy in order to reduce pollution and use energy sources sustainably.
- Emission reduction – promoting better international climate protection policy and private investment in new, low emission technologies.
- Research and innovation – supporting low carbon technologies by coordinating research and financing projects in partnership with the private sector.

The final three can be seen as generally coherent with the objectives of the Nature Directives, while the first two may pose risks to biodiversity, in particular in implementation of the investments which might be seen as investments of 'overriding public interest'. The objectives of the EU Climate and Energy Package as adopted in 2008 (20% reduction of GHG emissions, 20% improvement of energy efficiency, and reaching 20% share of renewables in final energy consumption by 2020) can also generally be expected to contribute to positive environmental effects. The energy efficiency objective, in particular, may contribute to positive impacts on nature and biodiversity, through reductions in demand for the production and distribution of energy. The renewable energy objective shifts part of the demand from conventional energy sources to renewable sources, and the effect on biodiversity depends on the type of renewable sources and how key issues such as locational sensitivity are addressed in project design and implementation. Finally, the GHG reduction objective is expected to bring indirect biodiversity effects, depending on geographical location.

Based on the literature review and the views of the stakeholders, the energy policy areas that pose the greatest risks to nature and biodiversity as well as interaction with the Nature Directives, are the Trans-European Networks for energy, renewable energy policy, particularly the use of biofuels and the development of wind farms, and the extraction of unconventional hydrocarbons such as shale gas.

8.4.3.3.3 Impacts on implementation of the Nature Directives

The Trans-European Networks for Energy

The Trans-European Networks for Energy (TEN-E) policy supports the planning, design and construction of the energy infrastructure needed for the EU to integrate its energy market, ensure security of energy supply and meet its climate and energy goals. The 2006 TEN-E Guidelines Decision⁴⁴⁷, which governed the 2007-2013 EU budget cycle, listed and ranked projects eligible for Community financial assistance, and introduced the concept of a 'project of European interest'. These are priority projects of a cross-border nature, which have a significant impact on cross-border transmission capacity. The 2013 TEN-E Guidelines Regulation⁴⁴⁸ takes the concept further, establishing 'projects of common interest' (PCIs) as the projects necessary to implement EU energy infrastructure priorities in the electricity, natural gas, oil and carbon dioxide transport sectors. A list of PCIs is adopted every two years. The most recent list was adopted in November 2015, containing 195 key energy infrastructure projects which will help deliver Europe's energy

⁴⁴⁷ Decision No 1364/2006/EC of the European Parliament and of the Council laying down Guidelines for Trans-European Energy networks and repealing Decision 96/391/EC and Decision No 1229/2003/EC.

⁴⁴⁸ Regulation EU No 347/2013 of 17 April 2013 on Guidelines for Trans-European Energy Infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009.

and climate objectives and form key building blocks of the EU's Energy Union. Between 2014 and 2020, financial support from the Connecting Europe Facility (CEF) of EUR 5.35bn will be available for these PCIs⁴⁴⁹.

Most PCIs will be energy network projects requiring the construction of pipelines and grids, and are therefore likely to have some impact on biodiversity and habitats and, may, in some instances, represent a risk to Natura 2000 sites through habitat loss or degradation, fragmentation, disturbance to fauna and flora or pollution. Power lines can pose a particular risk for birds and bats. The stepping-up of energy infrastructure development required to meet EU energy policy goals that include integration of renewable energy production could intensify the impact on nature.

The framework in place to mitigate impacts on environment and nature via spatial planning and environmental assessment also applies to energy infrastructure projects. However, PCIs under the TEN-E Regulation for 2014-2020 are entitled to streamlined permitting procedures that are specified in the TEN-E Regulation (Articles 7 - 9). Among the requirements for these procedures are that the PCIs be given the highest national significance possible and the most rapid treatment legally possible in each Member State. The Regulation also specifically states in Article 7(8) that PCIs shall be considered as being of public interest from an energy policy perspective and may be considered as being of overriding public interest with regard to the environmental impacts addressed in Article 6(4) of the Habitats Directive – provided that all of the conditions set out in the Directive are fulfilled.

There is also a provision regarding 'streamlining' of environmental assessments, whilst ensuring their coherent application (Article 7(4)). Member States are required to take 'legislative and non-legislative' measures to ensure this. The Commission has issued a Guidance document to support Member States in the identification and application of measures for streamlining environmental assessment procedures stemming from a range of EU legislation - including the Habitats Directive - for energy infrastructure projects (European Commission, 2013a). This Guidance document promotes good practice in carrying out environmental assessment procedures efficiently, emphasising their value in detecting and resolving any possible conflicts in project development as early as possible. It details requirements under Articles 6(3) and 6(4) of the Habitats Directive, including proof of compensation measures in cases of overriding public interest. The document promotes early integration of environmental issues into procedures, recommending that SEAs and, where applicable, AAs, are made mandatory at the planning stage for national energy policies and plans. It also emphasises the importance of public consultation and participation in ensuring smooth permitting procedures for energy infrastructure projects. Dedicated guidance on electricity, gas and oil transmission infrastructure and Natura 2000 is forthcoming from the Commission.

Despite the existing guidance, there are some concerns that some PCIs may exert negative impacts on nature and biodiversity, including in Natura 2000 areas (RSPB and EEB, 2013). According to information provided by the Renewables Grid Initiative (RGI - a network of NGOs and energy transmission system operators in the EU) in the evidence gathering questionnaire, energy policy could do more to support implementation of the Nature Directives through more detailed strategic planning for renewables and for grid development. Mapping specific ecological sensitivities would help to give developers clearer signals about the locations where additional work might be needed due to the requirements of the Directives, as well as possible mitigation measures. Strategic planning is also an opportunity for public engagement, which brings additional knowledge and support for infrastructure projects. The positive examples from RGI in the Box 95 below illustrate how this can be done in practice.

In 2011 the declaration⁴⁵⁰ was signed by 24 environmental NGOs and the biggest transmission system operators (TSOs) in Europe. It declares that there does not have to

⁴⁴⁹ <https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest>, accessed on 20.11.15.

⁴⁵⁰ <http://renewables-grid.eu/about.html>, accessed on 20.11.15.

be conflict between energy and biodiversity goals, and both parties pledge to work together⁴⁵¹.

Box 95 Positive examples from RGI

Continuous cooperation with WWF Italy

In 2009, WWF Italy and the Italian TSO Terna signed a three-year cooperation agreement focusing on more sustainable development of the Italian grid. A working group was established for a continuous dialogue on issues such as integration of environmental criteria in the Electricity Grid's Development Plan and action plan to mitigate impacts in priority areas (national parks). Terna regularly sends updates on a shared list of grid expansion projects to the national offices of WWF Italy. This office then forwards the information to their local member organisations. Resulting questions from WWF local bodies or requests to talk to Terna are addressed and organised via the national offices.

Interdepartmental guidance group in Flanders

During the development of the scoping document for the SEA, the Belgian TSO Elia, together with the Flemish administration, established an interdepartmental guidance group. Throughout the whole planning and permitting process, the group met regularly, both as a group and on a one-on-one basis. Important process steps such as the scoping document, public consultation, or the surveys during the SEA process, as well as their relevant implication on Elia's actions, were discussed. With this, Elia incorporated the views of the Flemish administration on route alternatives in the analysis before presenting the document to the public. For the consultation of the SEA scoping document, it was decided to hold information meetings. Citizens were invited by direct mailings. Meetings were divided into two parts: In the first part, people could have a direct one-on-one dialogue with employees to talk about specific issues. The second part was a plenary session where the plans were presented and open questions could be asked.

Source: (Schneider and Sander, 2013 [1219])

Bioenergy

Binding targets on the share of renewable energy in consumption and in the transport sector are important drivers of energy policy choices within Member States, and these have the potential to impact nature and biodiversity. Article 3 of the Renewable Energy Directive (RED) of 2009⁴⁵² sets a 20% target (energy content) for overall EU energy consumption coming from renewable sources and a 10% target for renewable energy in transport in 2020. One way in which Member States can meet these targets is through increased reliance on the use of bioenergy, mainly in the heating and transport sectors (Bowyer and Kretschmer, 2011).

While the use of bioenergy may reduce impacts on biodiversity from conventional energy sources, the production of biofuels and biomass may have negative effects on nature, mainly through land use intensification and indirect land use changes. The RED set the provision that biofuels used in transport cannot be made from raw materials obtained from land of high biodiversity value – primarily natural forests, protected areas, highly biodiverse grasslands, wetlands and peatlands. Furthermore, national support schemes for production of biofuels and bioliquids can be granted only under the condition that it does not interfere with nature protection objectives of the land where the biofuels are grown. The Fuel Quality Directive (FQD) as amended in 2009⁴⁵³ contains the same sustainability criteria for biofuels as the RED.

The provisions in the RED and the FQD have not been sufficient to address the indirect land use change brought about by the cultivation of crops for biofuels. For example,

⁴⁵¹ <http://renewables-grid.eu/documents/eu-grid-declaration.html>, accessed on 25.11.2015.

⁴⁵² Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

⁴⁵³ Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC.

negative impacts on biodiversity may arise from forest management measures to increase site productivity. Intense harvest regimes can lead to nutrient losses and soil compacting, which can cause adverse effects on forest growth and biodiversity (Aivelo, 2010 [1888]). As noted in (Birdlife International, 2011), the main classes of biomass currently used in energy production are forestry products, dedicated energy crops, agricultural residues, waste streams and by-products/co-products from other production processes. According to several stakeholders⁴⁵⁴ and the literature (e.g. BirdLife International et al., 2011 [940]) current biomass policies are not aligned with sustainable agriculture and forest management objectives. Kampman, B. et al. (2012 [1889]) show how EU transport energy policy could reduce its reliance on biofuels from food crops that are likely to cause negative impacts on nature and biodiversity. This could be achieved by using a mix of measures aimed at improving energy efficiency, combined with a strong focus on growth of renewable electricity use and biofuels from waste and residues.

The RED and FQD set sustainability criteria only for biofuels produced from biomass in the transport sector. They do not apply to biomass use for heating and electricity. This is seen as a major gap by several stakeholders, including the EEB, BirdLife Europe and Slovakian NGOs. In February 2010, the Commission adopted a report on requirements for a sustainability scheme for solid and gaseous biomass used for generating electricity, heating and cooling⁴⁵⁵. In 2014, the Commission published a report on the sustainability of solid and gaseous biomass for heat and electricity generation⁴⁵⁶. The report describes current and planned EU actions to maximise the benefits of using biomass while avoiding negative impacts on the environment. So far, however, no binding criteria have been established at European level.

In 2012, the European Commission proposed a Directive amending the RED and FQD to address the issue of indirect land use change (ILUC Directive). According to the requirements of this Directive, the Member States will establish target limits on production of certain types of biofuels with the objective of restricting production of so-called first generation biofuels (arable crops) and at the same time aiming at increased use of more advanced biofuels that are manufactured from various types of biomass and waste/residues. The ILUC Directive has now been adopted by the Council and Parliament, and is likely to enter into force in late 2015⁴⁵⁷.

Wind power

The use of land for the construction of wind farms can significantly affect species and habitats; particularly when there are multiple developments in sensitive areas. Wind turbines may act as barriers to movement of some bird species and may also pose a collision risk for certain types of birds and bats. The cumulative impact of large-scale constructions could thus be considerable. Off-shore wind farms can pollute marine habitats by disturbing contaminated sediments, and through leaking or leaching of oil and hydraulic fluids from construction vessels (Birdlife International, 2011), (Wilhelmsson, 2010 [1890]).

Several stakeholders responding to the evidence gathering questionnaire (including the NGOs from Croatia, Finland, Estonia, Italy and France as well as environmental authorities from Romania and Flanders) expressed concerns that the negative impacts of wind power on natural habitats and species are not sufficiently addressed. BirdLife Europe in response to the evidence gathering questionnaire reported that in Bulgaria, wind power plants have been planned in Kaliakra, which is an area with high concentration of Natura 2000 sites. According to RSPB, some areas of key habitat found in Kaliakra have already

⁴⁵⁴ Including EEB, BirdLife Europe, Polish and Slovakian NGOs, German and Finnish environmental authorities.

⁴⁵⁵ European Commission 2010, Report from the Commission to the Council and the European Parliament on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling, COM(2010)11 final, 25.2.2010.

⁴⁵⁶ European Commission 2014, Commission staff working document, State of play on the sustainability of solid and gaseous biomass used for electricity, heating and cooling in the EU, SWD(2014) 259 final, 28.7.2014.

⁴⁵⁷ Directive (EU) 2015/1513 of the European Parliament and of the Council amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

been destroyed. If the proposed developments are not stopped, soon the area will be unable to sustain the thousands of birds that depend on it⁴⁵⁸. Another example of a controversial wind power project is the Oreites windfarm in Cyprus. The windfarm received permission from the environmental authority in 2007 without an appropriate assessment and was subsequently built in an SPA designated for raptors. According to the environmental authorities, the windfarm was necessary to reach the renewable energy targets⁴⁵⁹.

In 2011, the Commission issued a non-binding guidance document entitled 'Wind energy developments and Natura 2000'⁴⁶⁰. The document does not make new rules but rather provides guidance on the application of those that already exist, in particular with regard to the Nature Directives. It complements the methodological guidance documents on the provisions of Article 6 of the Habitat Directives⁴⁶¹, placing them in the context of wind farm development. Another guidance document related specifically to impact of wind power infrastructure on birds has been prepared by RSPB and BirdLife (Gove et al, 2013). (Wilhelmsson, 2010 [1890]) provides guidance related to off-shore wind energy.

Practice shows that if these guidelines are applied, the potential negative environmental effects of wind farms can be avoided and moreover that some positive synergies can be created. The Box 96 below gives a few examples of good practices in this area.

Box 96 Good practices in respect to wind farms

Environmentally-friendly wind farm development in Scotland

In Whittle in Scotland, effective and successful cooperation between the wind farm developer and the Scottish Royal Society for the Protection of Birds (RSPB) led to reestablishment of 900 ha of peatland and blanket bog through clearance activities. Considerable habitat mitigation and enhancement provided benefits to breeding waders, farmland birds and other species. This was one of the first wind farm developments in Scotland to integrate habitat enhancement, working with key stakeholders throughout the process. It is a good example of an energy project developed according to the principles of sustainable land use and biodiversity protection.

Source: RSPB website,
<http://www.rspb.org.uk/whatwedo/campaigningfornature/casework/details.aspx?id=tcm:9-264454>, accessed on 25.11.2015 accessed on 7.12.15.

Biodiversity tracking system in Portugal

Bio3, a Portuguese company undertaking biodiversity consultancy and research, has developed a free online platform which helps users to properly apply existing methodologies and correctly estimate the mortality rate associated with human infrastructures such as wind farms. Two successful examples of how to reconcile wind projects and wildlife are the Portuguese Malhanito and Prados wind farms, which lie inside a Natura 2000 site. During the development of the project, baseline studies were conducted in order to identify areas and habitats of ecological relevance. Based on this information, sensitivity maps were developed and taken into account during the definition of the final layout. The potential impacts on two endangered species, the Bonelli's Eagle on Malhanito wind farm and the Montagu's Harrier on Prados wind farm, triggered the development of mitigation plans for both species.

Source: GP Wind Thematic Case Studies, revised May 2012,
http://project-gpwind.eu/jdownloads/Public%20Deliverables/deliverables_-_d3.4_-_thematic_case_studies_-_120509_-_pdf20.pdf, accessed on 7.12.2015.

Synergies with wind and wave power parks, Denmark

The viability of a combined wave and wind energy park is currently being tested in Denmark. Wind

⁴⁵⁸ <http://www.rspb.org.uk/whatwedo/campaigningfornature/casework/details.aspx?id=tcm:9-228284>, accessed on 6.11.2015

⁴⁵⁹ Information received in the Evidence Gathering Questionnaire from a Cypriot NGO

⁴⁶⁰ European Commission, 2011, Wind energy developments and Natura 2000. Guidance document.

⁴⁶¹ European Commission 2000, Assessments of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; European Commission 2001, Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC; European Communities 2012, 'Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'.

and wave power installations can share foundations and electricity transmission routes, with associated reduction in overall disturbance of the marine environment and reduction in the investment and maintenance costs. Moreover, wind and wave power may have complementary periods of optimal performance, and combining the output from both could provide a more continuous electricity supply, with less need for backup energy sources.

Source: Wilhelmsson, 2010 [1890]

Unconventional hydrocarbons

Unconventional gas extraction such as shale gas requires an intensive well stimulation technique, high-volume hydraulic fracturing, often referred to as "fracking". It is a process by which fracturing fluids – a mixture consisting primarily of water, sand and chemical substances (generally between 0.5% and 2% of the total fluid) are injected under high pressure into a geological formation that contains hydrocarbons so as to break the rock and to connect the pores that trap the hydrocarbons. Shale gas extraction mainly takes place on-shore and it typically covers much wider areas than conventional gas extraction. In addition, as productivity of shale gas wells is generally lower than conventional wells, more wells need to be drilled. One of the main environmental concerns is the risk of contamination of ground and surface waters. The extraction of water for drilling and hydraulic fracturing can also put additional stress on aquifers in areas where water is scarce and already competes with other uses (e.g. industry, agriculture, drinking water). This can also impact local ecosystems, thereby affecting biodiversity. The quality of soil may also be negatively affected by leaks and spillage, if fracturing fluids and wastewater are not adequately handled. Unless captured and mitigated, fugitive methane emissions can occur during shale gas exploration or production, which would have a negative impact on local air quality and the climate. Air emissions can also result from increased transport and from on-site equipment. In addition, shale gas extraction may have impacts on land fragmentation and local road traffic, both of which can have consequences for biodiversity. The systematic application of good practices can help prevent or mitigate negative environmental impacts and risks.⁴⁶²

Public concerns related to hydraulic fracturing have been raised in some Member States, often referring to insufficient levels of precaution, transparency and consultation. These controversies have led to the adoption of temporary moratoria or legal bans on the use of this technology in several Member States⁴⁶³.

In January 2014, the Commission adopted a Recommendation to ensure that proper environmental and climate safeguards are in place for fracking⁴⁶⁴. The Recommendation invites Member States to carry out an SEA before granting licences for exploration or production of hydrocarbons that may require the use of high volume hydraulic fracturing. Such assessment should address risks to human health and environment including impacts on biodiversity.

8.4.3.3.4 Impact of the Nature Directives on energy sector objectives

Some stakeholders, mainly private operators from the energy sector⁴⁶⁵, expressed concerns regarding the impact of the Nature Directives on energy policy goals, particularly

⁴⁶² European Commission 2014, Communication from the Commission to the to the European Parliament, the Council and the Committee of the Regions on the exploration and production of hydrocarbons (sch as shale gas) using high volume hydraulic fracturing in the EU, COM(2014) 023 final

⁴⁶³ European Commission, Impact Assessment Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'Exploration and production hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU, SWD(2014) 21 final 22.1.2014.

⁴⁶⁴ Commission Recommendation of 22 January 2014 on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing (2014/70/EU).

⁴⁶⁵ Irish industry association IBEC, Energy UK, Eurelectric and representatives of the wind industry from Sweden.

the requirements of Article 6 of the Habitats Directive. These stakeholders expressed the opinion that the intentions of the Habitats Directive to take into account economic, social, cultural and regional requirements and to make a contribution to the general objective of sustainable development (as stated in the Preamble and expanded in Article 2(3)) are hindered by the strict approach to the protection of nature and biodiversity taken when implementing the Directive.

In their opinion, national authorities can be over-restrictive in interpreting the concept of adverse effects on Natura 2000 sites, leading to re-examining or denial of permission for key projects supporting security of energy supply objectives. According to Energy UK, this approach is in line with the interpretation of the Directive in guidance issued by the Commission as well as case law. Eurelectric expresses a similar opinion, stating that there has to be a clear balance between Member State promotion of site integrity and FCS (delivering the conservation aims of the Habitats Directive) and the overall aim of sustainable development. These stakeholders believe that the challenges in relation to the application of the Habitats Directive often cause delays in energy investments, which has financial implications and makes it more difficult to achieve renewable energy targets. The UK Department for Energy and Climate Change (DECC) warned that it is important not to focus narrowly on process rather than outcomes, given the complexity of major infrastructure projects and the variety of development consenting regimes across the EU. The focus should be on ensuring that the purposes of the Directives are secured in the ultimate decision.

In sum, examples highlight both positive and negative aspects. Positive examples generally refer to careful and deliberate cooperation between experts and stakeholders from both the energy sector and the environmental or nature protection sector. This was reinforced by the statement of the DECC representative at the Fitness Check conference on 20 November. It is further demonstrated by the existence and experiences of the RGI, dedicated to ensuring that electricity grid expansion takes place in a way that is compatible with nature protection needs.

8.4.3.3.5 Results from the public consultation

Public opinion, as expressed through the online public consultation carried out as part of this evaluation, somewhat mirrors the responses of stakeholders on the issue of whether or not EU energy policies support the objectives of the Nature Directives. Business sector respondents largely said 'yes', while NGOs and individuals (guided mainly by NGO campaigns) responded to the contrary, with government relatively split on the question.

Table 39 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for energy

Individual	No	97%
	Yes	1%
	Could do more	1%
	I don't know	1%
Business	No	17%
	Yes	60%
	Could do more	12%
	I don't know	11%
Government	No	37%
	Yes	14%
	Could do more	30%
	I don't know	19%
NGOs	No	52%
	Yes	12%
	Could do more	28%
	I don't know	8%

8.4.3.3.6 Key findings

- The EU's Energy Union strategy includes five main areas: (1) supply security; (2) a fully integrated internal energy market; (3) energy efficiency; (4) emission reduction; and (5) research and innovation. EU energy policy makes many references to sustainability, linked to climate change goals. These can imply important synergies for nature protection and biodiversity, as governed by the climate-energy legislative package and '20-20-20 targets', the 2030 climate and energy framework and the 2050 roadmap. These goals imply the construction and operation of large amounts of new energy infrastructure, which may adversely affect habitats and species. At the same time, some stakeholders in the energy sector see the Nature Directives, particularly the requirements regarding impacts on Natura 2000 sites, as an obstacle to energy goals.
- The development of grid and pipeline networks for energy transmission and certain technologies for generation of energy from renewable sources are likely to have the greatest impacts. The energy sources most frequently referred to in literature and stakeholder responses are biofuels, wind power, shale gas and hydropower. Potential negative impacts from these technologies include fragmentation, degradation and loss of terrestrial and marine habitats, as well as direct harm and mortality to species from construction activities and pollution. Of particular concern is the contact of migrating birds and bats with power lines and wind farms.
- There are several legal and policy provisions in place to prevent and mitigate the impacts of the energy sector on the environment. EU environmental legislation, including the EIA and SEA Directives and the Habitats Directive requirements on AA apply. Sustainability criteria are provided for biofuels production in the Renewable Energy and Fuel Quality Directives, which prohibit the use of high biodiversity value land for production, however, these may not be sufficient. The lack of similar provisions for biomass used in non-transport applications is seen by stakeholders as a major gap. The Commission issued guidance on wind energy developments and Natura 2000, as well as a Recommendation on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing.
- The Trans-European Networks for energy (TEN-E) Regulation prioritises selected PCIs in the electricity, gas, oil and carbon dioxide transport sectors. These network infrastructure projects benefit from 'streamlined' permitting procedures in the Member States, including a requirement to streamline the applicable environmental assessment procedures (e.g. SEA, EIA, AA, etc.), which could be a cause for concern. Furthermore, PCIs may be considered to be of overriding public interest from an energy policy perspective with reference to the Habitats Directive Article 6(4), assuming the necessary conditions have been met. The Commission has issued a Guidance document for Member States to follow when taking measures to streamline environmental assessments for energy infrastructure PCIs. This document is based on good practice in carrying out effective environmental assessments in this sector. At present there is limited experience with permitting and implementing PCIs in the EU.
- Both literature and stakeholder responses contain examples of cases where energy infrastructure projects have threatened habitats and species. At the same time, there are substantial examples of best practice and cooperation between the energy sector and environmental NGOs, with a firm belief by some stakeholders that EU energy policy and nature conservation goals are not incompatible. The RGI declaration, which was signed by 24 environmental NGOs and the biggest TSOs in Europe in 2011, declares that there does not have to be conflict between energy and biodiversity goals, with both parties pledging to work together.

8.4.3.4 Fisheries

8.4.3.4.1 Introduction and sources of information

This section assesses whether or not the provisions of the EU Nature Directives are sufficiently considered and integrated in the EU Common Fisheries Policy (CFP). The analysis examines the extent to which the objectives of the nature legislation interact with those of the CFP, and the way in which this interaction takes place through the implementation of the Directives' specific objectives.

The main sources of information for this analysis are documents from the literature review and responses to the evidence gathering questionnaire, including case studies provided by stakeholders in their answers. The question on the coherence between the Nature Directives and the CFP received 24 responses from authorities, NGOs and the private sector at both national and EU-level through their relevant associations. The literature reviewed drew on EU policy documents related to the CFP, as the coherence of these policies is reflected in legislation and strategic policy documents. The analysis, therefore, includes an assessment of the ways in which specific articles of the relevant legislation support or contradict each other. As the CFP involves spending programmes, the ways in which these spending programmes are implemented are also examined. (This issue is covered in greater detail in question C.7).

8.4.3.4.2 Analysis of the question

Interactions

The interaction between nature conservation and fisheries is complex. While fisheries depends on the sustainability of marine resources, it has, itself, the potential to be harmful, due to the effects on biodiversity linked to overfishing or destructive fishing practices (e.g. bottom trawling affecting marine habitat types such as sandbanks, sandflats or reefs).

While the Nature Directives impose strict obligations on Member States for the protection of marine habitats and species both inside and outside Natura 2000 sites, the adoption of restrictions on harmful fishing activities was not always possible under the previous CFP (2007-2013). Difficulties arose in relation to a lack of clear objectives of the CFP, uncertainty about the competence of Member States to adopt conservation measures while the EU holds exclusive competence in the field of fisheries, the unwillingness of some Member States to ensure that fishing fleets comply with certain limitations in marine Natura 2000 areas, and the lack of strict regulations in the use of certain fishing tools (Born et al, 2015 Chapter 21).

The reformed CFP has brought changes to the legal and policy framework, which aim to deal with those challenges and promote a more coherent policy with nature conservation objectives. Eight of the 24 stakeholders referring to the fisheries policy noted that the changes in the new CFP are promising, although more time is needed to see positive results⁴⁶⁶. At the same time, 97% of the respondents to the online public consultation believed that the fisheries and maritime policy could contribute more to the objectives of the Birds and Habitats Directives.

The analysis of the coherence between the Nature Directives and the CFP focuses on their specific objectives within the framework of a broad assessment of the strategic objectives.

⁴⁶⁶ This opinion was expressed by EEB, Birdlife Europe, WWF, German, Swedish and Croatian NGOs, Danish Agri-Fish Agency and the Croatian Ministry of Agriculture.

Coherence of the CFP with the Nature Directives': strategic objectives

The Nature Directives' strategic objectives require Member States to adopt measures designed to maintain or restore to Favourable Conservation status (FCS), habitats and species of Community interest. This obligation is applicable to the marine environment.

The current legal framework of the EU fisheries policy can be considered coherent with the Nature Directives as the conservation of marine resources is specifically stated as a strategic objective in the 2013 CFP Regulation. Specific guidelines and funding instruments on fisheries and nature protection are also in place. The majority of the evidence gathering questionnaires answering this question state that the CFP has evolved in the direction of integrating nature and biodiversity considerations.

The awareness of the alarming decline of fish stocks and the impact on the fisheries industry drove decision makers to set objectives under the CFP, and in particular under 2002 Basic Regulation, to ensure the sustainability of fisheries resources. Article 1 of this 2002 Regulation⁴⁶⁷ called for coherent measures concerning, *inter alia*, 'conservation, management and exploitation of living aquatic resources' and 'limitation of the environmental impact of fishing' and Article 2 described the CFP's main aim to 'ensure the exploitation of living aquatic resources that provides sustainable economic, environmental and social conditions'.

The EU and its Member States have repeatedly committed themselves to protecting Europe's marine biodiversity, and to apply the Habitats and Birds Directives throughout Europe's marine waters (Owen, 2004 [1877]). The Integrated Maritime Policy established in 2007 aimed at better protection of the marine environment by facilitating the cooperation of all maritime players across sectors and borders⁴⁶⁸, while the Marine Strategy Framework Directive adopted in 2008 established a comprehensive framework for EU action in the marine environment.

Evidence from literature, including the Commission's 2009 Guide on the CFP (European Commission, 2009 [1878] and (Born et al, 2015Chapter 21) shows that the CFP environmental objectives were not delivered, and that, even though the Regulation referred to the implementation of the precautionary approach, the EU fisheries policy continued to adopt 'short-term decision-making and short-sighted behaviour', disregarding environmental concerns in favour of economic interests. This opinion is shared by numerous stakeholders including the WWF, the German Ministry of Environment and BirdLife Europe.

The reformed CFP aims to improve the coherence between these EU policies. According to the new CFP Regulation adopted in December 2013⁴⁶⁹, the goal of CFP is to contribute to the protection of the marine environment, to the sustainable management of all commercially exploited species, and, in particular, to the achievement of good environmental status in the marine environment by 2020 (as referred to in recital 11 (European Commission, 2012h)), in accordance with Article 1(1) of the MSFD.

Regulation 2371/2013 establishes a CFP objective to ensure that fishing and aquaculture activities are environmentally sustainable in the long-term, and are managed in a manner consistent with achieving economic, social and employment benefits, and contributing to the availability of food supplies. It calls for an ecosystem-based approach to fisheries management, one which will ensure that the negative impact of fishing activities on the marine ecosystem is minimised. Such an approach would also work to ensure that aquaculture and fisheries activities avoid the degradation of the marine environment.

⁴⁶⁷ Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy

⁴⁶⁸ The Integrated Maritime Policy (IMP) is a holistic approach to all sea-related EU policies. Legal basis: Regulation (EC) No 1255/2011 of 30 November 2011 establishing a Programme to support the further development of an Integrated Maritime Policy, replaced by Regulation 508/2014 of 15 May 2014 on the European Maritime and Fisheries Fund

⁴⁶⁹ Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

Specific objectives of the Regulation include the gradual elimination of discards, as well as avoiding and reducing unwanted catches to the greatest extent possible. It also requires that the CFP applies the precautionary approach and that, in order to reach the objective of progressively restoring and maintaining populations of fish stocks, the maximum sustainable yield exploitation rate shall be achieved by 2015 where possible and on a progressive, incremental basis by 2020 at the latest for all stocks.

The new CFP legal framework more successfully integrates nature and biodiversity considerations. However, the impact of these legislative changes that improve the coherence with the Nature Directives is yet to be seen.

Coherence of CFP with the Nature Directives: specific objectives

Establishment of the Natura 2000 Network: site designation

The establishment of the Natura 2000 network in the marine environment makes a key contribution to the more comprehensive process of creation of Marine Protected Areas (MPAs) at international, regional and national level. The use of spatial management tools such as MPAs for conserving marine biodiversity originated in the World Park Congress of 1982 in Bali (Paulomäki et al, 2014). Since then, many international agreements have reinforced the need for establishing MPAs. In 2003, for example, the 5th World Parks Congress called on the international community to create a global system of MPA networks. The Convention on Biological Diversity, under the ambitious Aichi Biodiversity Targets, called for spatial protection measures covering at least 10% of the world's coastal and marine areas by 2020.

The interactions or potential conflicts between the Nature Directives and the CFP are constrained by the narrow coverage of marine habitats and species by the Nature Directives. The establishment of the marine Natura 2000 network is limited to certain types of habitats and species, and excludes most of the species that are commercially exploited (Born et al, 2015p 378). The two Directives focus on a sub-set of threatened and vulnerable marine species and habitats in the EU's marine environment. The Habitats Directive lists nine marine habitat types and 16 species for which marine site designation is required, while the Birds Directive lists about 60 bird species whose conservation requires marine site protection. These lists do not include several marine features, particularly those from benthic communities, such as eelgrass beds and soft bottom communities, even though these need to be protected in order to secure healthy ecosystems and their functions (Paulomäki et al, 2014).

Fisheries do not affect the designation process of Natura 2000 sites as, under case law, socio-economic interests do not have a role in Natura 2000 site designation, which is based solely on scientific information and stakeholder involvement⁴⁷⁰. The European Court of Justice (CJEU) has stated repeatedly that the provision of taking into account economic, social and cultural requirements and regional and local characteristics, is relevant only in the context of the management of Natura 2000 sites. In the *Stadt papenburg* ruling, for example, the CJEU stated that any decision regarding the inclusion of one or more sites in the list of SCIs can only be based on environmental protection grounds⁴⁷¹.

The identification and delimitation of SPAs and SCIs can be more challenging for marine species and habitats than for terrestrial ones. The establishment of the Natura 2000 network in the marine environment lags behind the designation of terrestrial sites due to legal uncertainties and lack of knowledge. Stakeholders and the literature suggest that the wide dispersal of some species, along with a lack of data and information regarding their distribution and dynamics (Dotinga and Trouwborst, 2009) are complicating factors in the designation process. In addition, the CJEU jurisprudence⁴⁷² clarifying that the Birds

⁴⁷⁰ Information obtained from public authorities during country visit in France.

⁴⁷¹ Case C-226/08 *Stadt Papenburg v Bundesrepublik Deutschland*, 2010, ECR I-131.

⁴⁷² Case C-6/04 – *Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland*. Failure of a Member State to fulfil obligations – Directive 92/43/EEC – Conservation of natural habitats

and Habitats Directives - and hence the obligation for Natura 2000 establishment - apply not only in territorial waters but in all marine areas where Member States exercise sovereign rights, meant that the process for site nominations was accelerated. In order to facilitate this process, the Commission published various guidelines to facilitate the selection and management of marine Natura 2000 sites (MEPA, 2004) and MPAs more generally (OSPAR Commission, 2003), (World Commission on Protected Areas, 1999 [1879]), as well as guidelines for fisheries measures in Natura 2000 sites (European Commission, 2007c). References were also made to relevant requirements under the Regional Sea Conventions.

In recent years, inshore and offshore sites have been added to the Natura 2000 network, covering extensive marine areas falling within the jurisdiction of Member States. As at the end of 2014, the Natura 2000 network includes over 3,000 MPAs, covering more than 300,000 km², and representing more than 5% of the total EU marine area. This is, however, significantly short of the global target of 10% set by the Convention on Biological Diversity⁴⁷³. Furthermore, significant discrepancies exist among the various regional seas, with a significant gap between inshore areas – which are relatively better covered – and the offshore areas (i.e. beyond territorial waters) (EEA, 2015 [1880]).

The MSFD (2008/56/EC) is the first EU-wide instrument aimed specifically at protecting and preserving the marine environment as a whole, and provides another link to the Natura 2000 network. This Directive seeks to achieve or maintain good environmental status in the Community's marine environment. To this end, it promotes an ecosystem-based approach to the management of human activities, while enabling the sustainable use of marine goods and services. This approach is different to that taken by the Nature Directives, and raises the possibility that the MSFD can overcome the weakness of the Nature Directives by requiring Member States to establish spatial protection measures covering more types of marine habitats and species, and contributing to coherent and representative networks of marine protected areas (Article 13). Therefore, Member States can complement their Natura 2000 network with additional 'MSFD-specific measures', either through the designation of new MPAs for specific conservation purpose, or through the adoption of new management measures to reduce specific threats.

The Maritime Spatial Planning Directive (MSPD, 2014/89/EU) has been set out to ensure efficient and sustainable management of activities at sea. It requires Member States to set up maritime spatial plans which must include an ecosystem-based approach (Article 5). The implementation of this Directive is still at an early stage.

The coherence issues arising between the CFP and the Nature Directives in relation to the designation of marine protected areas and in particular under the Natura 2000 network, have been resolved through amendments in legislation, clarification of some legal uncertainties by the CJEU and the relevant Commission Guidance documents. The process for site designation has accelerated, although it is not yet fully complete. Complicating factors remain in the designation process due to the lack of data and information about the distribution and dynamics of some species (Dotinga and Trouwborst, 2009).

Protection and management of Natura 2000 marine sites

The fisheries sector is no longer considered separately from the broader maritime environment and from other policies dealing with marine activities. Fisheries are heavily dependent on access to maritime space and to healthy marine ecosystems. The area where the Nature Directives and the CFP have considerable potential for interaction relates to the protection and management of Natura 2000 sites. Under Article 6(1) of the Habitats Directive, Member States are required to establish necessary conservation measures for the habitats and species listed in Annex I and II of the Habitats Directive. While this arti-

– Wild fauna and flora. Judgment of the Court (Second Chamber) of 20 October 2005. The opinion of the Court argues: 'While the Habitats Directive admittedly contains no express rule concerning its territorial scope, it is consonant with its objectives to apply it beyond coastal waters.'

⁴⁷³ http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000news/nat37_en.pdf, accessed on 8.12.2015.

cle does not apply to SPAs, similar requirements are contained in Article 4(1) and (2) of the Birds Directive. In terms of timing, these provisions are linked to Article 4(4) of the Habitats Directive requiring the designation of SCIs as SACs, and the establishment of conservation priorities within six years of the adoption of the list of SCIs. Article 6(2) of the Habitats Directive requires Member States to take appropriate steps to avoid, in the SACs, the deterioration of natural habitats and the habitats of species, as well as disturbance of the species for which the areas have been designated, insofar as such disturbance would significantly affect the objectives of the Directive.

Evidence from literature and from some national authorities referred to the legal inconsistencies under the previous CFP that acted as a barrier to Member States' competence to adopt conservation measures restricting certain fishing practices in compliance with the obligations under the Nature Directives. Article 3 of the TFEU recognises the exclusive competence of the EU in the conservation of marine biological resources under the CFP, while Article 4 of the TFEU states that the competence in fisheries (excluding the conservation of marine biological resources) is shared between the EU and the Member States. The exclusive competence of the EU for the adoption of measures in the field of CFP, confirmed by the CJEU⁴⁷⁴, limited the possibility for Member States to adopt conservation measures that would involve fisheries management, even in cases where Member States would be liable for not complying with the obligations under the Nature Directives.

This uncertainty regarding Member States competence to comply with their obligation in the marine environment under the Habitats and Birds Directives and the competence to act under the CFP, have been tackled in the new CFP. Article 6 of Regulation 1380/2015 requires the EU to adopt conservation measures for the conservation and sustainable exploitation of marine biological resources. They include those measures necessary to comply with obligations under EU environmental legislation adopted (Article 11 of Regulation 1380/2013). This Article represents a significant improvement as it lays down specific provisions for establishing fisheries measures for the conservation of Natura 2000 sites and other MPAs. According to these provisions, Member States are authorised to adopt the conservation measures necessary to fulfil the obligations of the Nature Directives where such measures do not affect the fisheries' interest of other Member States. DG Environment is designated to manage the process of compromise in cases of conflicts of interest between Member States. Client Earth (2014 [1881]) points out that there is still scope for confusion, in particular between measures 'affecting vessels of other Member States' in Article 11(1), and measures affecting fisheries 'subject to a direct management interest' of other Member States in Article 11(2). Guidance from the Commission would help to avoid unintended gaps or loopholes.

These provisions clarify the process for the adoption of measures related to the implementation of Article 6 of the Habitats Directive and Article 4 of the Birds Directive, requiring the adoption of protection measures in Natura 2000 areas that aim to avert the deterioration of protected habitats and the disturbance of protected species.

It is worth noting that those conservation measures should be adopted in order to support the overall objective of achieving FCS and might, therefore, also cover areas that are not part of the Natura 2000 network, especially in cases where marine Natura 2000 sites are suffering from external pressures such as dredging or fisheries.

While the process of establishing **conservation measures**, including the preparation of **management plans** for marine areas benefits from the lessons learned from the terrestrial Natura 2000 areas, the implementation is challenging because of the lack of scientific data, lack of a consistent approach to this issue across the Member States, and conflict of interest between the nature protection sector and the fisheries sector. This has been reflected both in literature (Fock, 2011) and in the evidence gathering questionnaires⁴⁷⁵, and it highlights the need for more harmonisation in the implementation of

⁴⁷⁴ Joined cases C-3, 4, & 6/76 *Cornelis Kramer and Others*, 1976; Case C-804/79 *Commission v United Kingdom*, 1981.

⁴⁷⁵ Five stakeholders responding to the evidence gathering questionnaire have pointed to problems with drawing up management plans for fisheries, namely: WWF, BirdLife, Polish, German and Croatian NGOs.

management plans. In areas beyond territorial waters, this involves international cooperation.

Two examples below⁴⁷⁶ show that while the adoption of the Habitats Directive contributed to significant positive changes in managing marine biodiversity, further work needs to be done to ensure full coherence.

Box 97 Significant positive changes in managing marine biodiversity

Sustainable marine practices in Wales

In Wales dredging for King scallops has been carried out in Cardigan Bay for many years, until recently at a relatively low level with minimal impact on the bay's biodiversity. Parts of Cardigan Bay have been designated as an SAC, alongside the nearby Pembroke Marine SAC. In 2006, when up to 60 scallop dredgers were reported to be operating in the Bay at one time, including within the boundaries of the Cardigan Bay SAC, and further south in Pembroke Marine SAC. The increased scallop fishing pressure threatened the biodiversity of the bay by potentially causing impacts on the population of bottlenose dolphin from the deterioration of habitat and prey depletion.

Pressure from within Welsh inshore fishing fleets, environmental NGOs and politicians resulted in the Wales Scallop Order (2010)⁴⁷⁷ that closed all inshore waters to scallop dredgers, whilst allowing boats access to part of one site (Cardigan Bay). The Order shows the importance of the Habitats Directive in promoting sustainable fishing practices and avoiding damaging practices, while also protecting the interests of biodiversity and the majority of local inshore Welsh fishermen (who use sustainable pot fishing).

ASCOBANS⁴⁷⁸ capture and monitoring

There has been limited compliance with the Habitats Directive requirements to monitor the incidental capture and killing of Annex IV species (Article 12) in fisheries, or to implement effective conservation measures to prevent bycatch. While monitoring requirements are not specified, given that the stated aim is to 'ensure that incidental capture and killing does not have a significant negative impact on the species concerned', monitoring schemes should at least enable authorities to determine whether or not significant negative impacts are occurring.

In 2014 the ASCOBANS steering group for the conservation plan for the harbour porpoise in the North Sea concluded that:

'except in a few sectors, the level of bycatch monitoring is very low and well below 1%....monitoring conducted by Member States, if any, is at present insufficient for getting a proper evaluation of the extent of bycatch of harbour porpoises in the North Sea at large...Implementation of conservation measures requires formulating explicit conservation and management objectives, which have not been agreed upon at present. There is overall limited compliance to the Habitats Directive requirements amongst Member States with regards to monitoring and assessment of the impact of bycatch on harbour porpoise populations, and consequently implementation of conservation measures as required.'⁴⁷⁹

This lack of monitoring likely extends to other Annex IV species incidentally bycaught in fisheries and other geographical areas.

Some of the issues through the evidence gathering questionnaire relate to the stakeholders' participation in the drafting of conservation measures or management plans.

Commission Guidance documents on Article 6(1) promotes the development of management plans through a participatory process involving all relevant stakeholders. However, the implementation of this recommendation forms part of Member States' discretionary power on implementation of the Directives' objectives. As a result, while NGOs in several Member States considered their involvement in the adoption of conservation measures to be sufficient, it remains a challenge in others. Croatian NGOs, for example, state their lack of involvement in preparation of the strategic plans for the fisheries sector (e.g. the

⁴⁷⁶ These examples have been provided by the UK NGOs (Joint Links).

⁴⁷⁷ <http://www.legislation.gov.uk/wsi/2010/269/contents/made> , accessed on 8.12.15

⁴⁷⁸ Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas.

⁴⁷⁹ http://www.ascobans.org/sites/default/files/document/ASCOBANS_NSG4_Report.pdf , accessed on 8.12.15.

Operational Programme for Fisheries) and Spanish NGOS complained about the systematic lack of appropriate information / consultation for the development of the management plans for SACs.

Representatives of the fisheries sector in these countries also believe that there is a lack of meaningful participation in the adoption of management plans for marine sites, although the situation has improved lately⁴⁸⁰. By contrast, representatives of the sector in France acknowledged that they have been able to participate fully in the drafting of relevant management plans, due to the scheme developed by the French authorities for the implementation of the Habitats Directive. This system is based on four main principles for the transposition and the implementation of the Habitats Directive adopted by the French Government. It requires public participation of all actors at all stages of a site life-cycle, including for the adoption of the document setting the conservation objectives (DOCOB) for each Natura 2000 site⁴⁸¹ which is drafted by an operator together with the members of the COPIL, Steering Committee involving all relevant stakeholders⁴⁸² in each site. These documents led to the adoption of 'Natura 2000 Contracts' for each site. This system ensures the respect of the overarching principle of sustainable development (rather than pure nature conservation) where socio-economic considerations are taken into account. The participation of stakeholders in the implementation of the Directives can be said to vary, depending on national choices and decisions on implementation of the Directives.

The Dogger Bank case provides an example of a negotiation process between the German, Dutch, British and Danish authorities and the involvement of stakeholders, which led to establishment of a management plan for this site. The plan seeks to protect the sandbank habitat from damaging impact of fishing activities (see Herbert and (ed.), 2012).

Several research projects co-funded by the EU assist the process of marine sites' designation and management, providing the necessary scientific analyses and establishing a platform for reconciliation of interests of various stakeholders. These include INDEMARES (Spain)⁴⁸³ and FIMPAS (the Netherlands). A similar project, EMPAS⁴⁸⁴, was funded by the German government.

Safeguards to avoid damaging fishing practices (including Appropriate Assessments)

Some fishing techniques may have a negative impact on the main objectives of the Nature Directives. Several regulations covering technical measures have been adopted in recent years to regulate issues such as minimum landing sizes, specifications for design and use of gears, measures to limit by-catches, and other measures limiting destructive fishing practices⁴⁸⁵. During the previous CFP some Member States adopted measures restricting environmentally damaging fishing practices within their 12 nautical mile zone (territorial waters) under Article 9 of the 2002 Basic CFP Regulation.

Those measures could complement the provisions of the Habitats Directive by setting out a set of procedural and substantive safeguards under its Articles 6(3) and 6(4) in order to avoid damage from plans and projects likely to have a significant effect on Natura 2000 sites. Under Article 6(3) of the Habitats Directive, the plans and projects likely to affect the Natura 2000 sites have to be subject to Appropriate Assessment. This affects all activities including fisheries and aquaculture. Such assessments, if properly carried out and taken into account by the competent authorities, ensure better coherence of pro-

⁴⁸⁰ Mission to Spain, 5 May 2015. Cofradia nacional de pescadores and the document 'Circular 71/09 Red Natura 2000 dated on 9 June 2009, shared as a follow up of the meeting by the President of the fishermen in Spain.

⁴⁸¹ French Ministry of Sustainable Development website: <http://www.developpement-durable.gouv.fr/Les-documents-d-objectifs.html> accessed on 8.12.15.

⁴⁸² French Ministry of Sustainable Development website: <http://www.developpement-durable.gouv.fr/Le-comite-de-pilotage.html> accessed on 8.12.15.

⁴⁸³ <http://www.indemares.es/en/project/description> accessed on 8.12.15.

⁴⁸⁴ <https://www.bfn.de/18588.html> accessed on 8.12.15.

⁴⁸⁵ http://ec.europa.eu/fisheries/cfp/fishing_rules/technical_measures/index_en.htm accessed on 8.12.15.

jects which might affect biodiversity in the Natura 2000 sites, with the objectives of the Nature Directives.

Box 98 Example of a package of measures restricting damaging fishing practices in the Netherlands.

- Restricting damaging fishing practices in the Netherlands
- On two separate occasions, the Netherlands has presented to the Commission a package of measures restricting beam trawling (also applicable to foreign vessels), within marine Natura 2000 sites located within Dutch territorial waters. The first proposal concerned the Voordelta, a marine Natura 2000 site designated as an SPA under the Birds Directive in 2000 and as an SAC under the Habitats Directive in 2008. The proposed measures served as compensation for the construction of harbour facilities 'Maasvlakte2' in the Voordelta area. The measures restricted access for beam trawlers with an engine capacity greater than 191 KW and created five rest zones for birds and seals where fishing and most other activities are prohibited. According to the Commission, such measures are in line with the requirements of the 2002 CFP Basic Regulations and are not discriminatory as they apply equally to all vessels operating within the area.
- Encouraged by the success of the harbour Voordelta case, the Netherlands envisaged a more comprehensive regulation for beam-trawling activities in all of its marine Natura 2000 sites located within its territorial waters under Article 6(3) of the Habitats Directive. Negotiations involving the competent authorities, the environmental NGOs and the fisheries sector led to the adoption, in 2011, of the so-called VIBEG (*Visserij in Beschermde Gebieden*, Fisheries in Protected Areas agreement). This agreement provides for a zoning of the Natura 2000 sites, involving a phase-out of heavy beam trawling in some parts and restrictions in other parts of the areas covered. All fishing vessels that are allowed to fish in the area must obtain a permit under the Dutch Nature Conservation Act. The agreement aims to reconcile economic and conservation interests in the fisheries sector.
- Sources: (Born et al, 2015), Agreements for the regulation and development of fisheries and nature conservation in the North Sea Coastal Zone and Vlakte van de Raan Natura 2000 sites from 2011⁴⁸⁶:

The CJEU has clarified certain aspects of these provisions which are applicable to fisheries activities likely to affect Natura 2000 areas, thereby ensuring coherence in the implementation of both policies. In case C-241/08 *Commission v France*, the CJEU established that systematically exempting certain activities such as fisheries and aquaculture from the protection regime for Natura 2000 sites, would seriously jeopardise the Habitats Directive objectives. It requires Member States to carry out Appropriate Assessment of impacts on Natura 2000 sites from all type of activities, including fishing and aquaculture, as they constitute activities that could cause disturbance or have such an effect⁴⁸⁷.

The Court has clearly stated in the case *Marais Poitevin* C-96/98 *Commission v France* that the lack of coherence of EU policies such as the existence of EU subsidies financing projects or activities damaging nature objectives, does not authorise Member States to breach its obligation to combat deterioration of a SPA. Following this interpretation, the WWF, together with other NGOs, are bringing legal action against Germany's environment ministry for failing to prevent 10 harmful fishing practices in protected areas of the Baltic and North Seas⁴⁸⁸.

In the *Waddenzee* case C-127/02, 2004 the Court clarified that activities such as mechanical cockle fishing that have been carried out for many years but are subject to licence for a limited period, should be subject to Article 6(3), and each permit should entail a new assessment both of the possibility of carrying out that activity and the impact

⁴⁸⁶ <http://www.nsrac.org/wp-content/uploads/2012/03/VIBEG-Agreement.pdf> accessed on 8.12.2015.

⁴⁸⁷ C-241/08 *Commission v France* of 4 March 2010

⁴⁸⁸ Information received from the WWF in the evidence gathering questionnaire.

on the site. The requirements of Article 6(3) of the Habitats Directive are therefore applicable to any fishing practices subject to permitting schemes, unless the activity is subject to the exception for ongoing activities that have been granted a permit before the Natura 2000 site was designated. In that case, following (Born et al, 2015p 385), the requirements of Article 6(2) of the Habitats Directive would be applicable, implying that the same level of protection must be ensured⁴⁸⁹.

The CJEU also clarified that the precautionary principle is applicable in the framework of Article 6(3) of the Habitats Directive, stating in the Waddenzee case that only where no reasonable scientific doubts remain in relation to the absence of an impact on the Natura 2000 site, can the activity go ahead. According to (Born et al, 2015), the same reasoning is also applicable within the framework of Article 6(2) and Member States cannot, therefore, use the lack of scientific certainty as an argument to postpone the adoption of preventative measures to avoid a deterioration of natural habitats.

Where such a level of certainty cannot be achieved, the project falls within the requirements of Article 6(4) of the Habitats Directive and, therefore, those activities damaging a Natura 2000 site can only be carried out when there are no alternative solutions, and if they correspond to imperative reasons of overriding public interest and are subject to compensatory measures.

Concerns regarding the implementation of these rules in relation to the licensing procedures in aquaculture have been raised by several stakeholders representing this sector (evidence submitted by the Federation of European Aquaculture Producers). Representatives of the sector in a few Member States⁴⁹⁰ allege that it is almost impossible to get a permit for aquaculture activities in accordance with Article 6(3) of the Habitats Directive, due to the precautionary principle. According to the representatives of the aquaculture sector from the Czech Republic, losses registered by aquaculture business sector due to cormorant, heron, beaver and otter activities have not been adequately compensated⁴⁹¹.

On the other hand, Irish NGOs point out that the new system for aquaculture licensing introduced in Ireland does not sufficiently prevent adverse effects of aquaculture, such as the problem of invasive species (Stout et al, 2012). These stakeholders state that even under the new Appropriate Assessment rules, a precautionary response required by the CJEU⁴⁹² is not being adopted and aquaculture activities are being permitted even where there is potential for significant effects.

The European Court of Auditors special report on 'The effectiveness of EFF support for aquaculture' recognises that complicated licensing procedures (European Court of Auditors, 2014c) are a factor impacting on the development of sustainable aquaculture. However, several stakeholders from national authorities such as Cyprus Department of Fisheries, or the Croatian Ministry of Agriculture, consider that the provisions of the Habitats Directive are sufficiently taken into account in aquaculture development. Some countries decide that aquaculture is not practiced in the MPAs, while others stress that environmental considerations are among the priorities for the development of aquaculture, particularly within the areas of protected nature. Guidance documents on Aquaculture and Natura 2000 issued by the Commission in 2012 (European Commission, 2012e) provides greater clarity and explains the potential synergies and conflicts between the aquaculture and the objectives of the Nature Directives. Focus should be placed on ensuring that the Guidance document is known and implemented by the competent authorities at local level⁴⁹³, e.g. through training of permitting authorities.

As described, in the framework established by the new CFP Regulation 1380/2013, Member States can act against harmful fishing practices that could adversely affect the

⁴⁸⁹ Case C-404/09 *European Commission v Spain*, 2011.

⁴⁹⁰ Denmark, the UK and Czech Republic.

⁴⁹¹ Information related to the situation in these three Member States has been received from the Federation of European Aquaculture Producers.

⁴⁹² See the judgement of the Court (Grand Chamber) of 7 September 2004, case C-127/02 *Waddenvereniging and Vogelsbeschermingvereniging*, Directive 92/43/EEC – Conservation of natural habitats and wild flora and fauna – Concept of 'plan' or 'project' – Assessment of the implications of certain plans or projects for the protected site.

⁴⁹³ Opinion of DG Mare, meeting on 15 July 2015.

achievement of the conservation objectives in Natura 2000 sites. This is expected to bring positive changes and better protection of the marine environment.

Financial support

The European Maritime and Fisheries Fund (EMFF)⁴⁹⁴ is the financial instrument supporting the implementation of the CFP. The new EMFF Regulation⁴⁹⁵ contains a series of measures that can be considered as beneficial for biodiversity. These include:

- Article 34: Permanent cessation of fishing activities (see also negative impacts below);
- Article 36: Support to systems of allocation of fishing opportunities;
- Article 37: Support for the design and implementation of conservation measures;
- Article 38: Limiting the impact of fishing on the marine environment, and adapting fishing to the protection of species;
- Article 39: Innovation linked to the conservation of marine biological resources;
- Article 40: Protection and restoration of marine biodiversity and ecosystems, and compensation regimes in the framework of sustainable fishing activities;
- Article 44: Inland fishing and inland aquatic fauna and flora;
- Article 53: Conversion of aquaculture to eco-management and audit schemes and organic aquaculture;
- Article 54: Aquaculture providing environmental services;
- Article 79b: Promotion of the protection of the marine environment, and the sustainable use of marine and coastal resources.

Other less directly relevant measures may also be designed to provide positive results for biodiversity and ecosystem services.

According to the annual implementation report of the EFF for 2013⁴⁹⁶, the Fund's commitments in the fishery and aquaculture sector for the period from 1 January 2007 to 31 May 2014 amounted to EUR 3.41 billion. The five most used measures were: support for fish processing, permanent cessation, aquaculture, fishing ports, and development of fisheries areas.

In addition to the interventions with (potentially) positive impacts on biodiversity, the measures supported by the EMFF (and its predecessor, the EFF) may also exert negative impacts on marine biodiversity. For example, measures under the previous CFP, such as modernisation of fishing vessels, support for young fishers wishing to enter the industry, modernisation of fish processing and port facilities, as well as aquaculture facilities and marketing improvements, although not intended to harm biodiversity, unintentionally maintained fishing effort at unsustainable levels, which did not comply with sustainable fisheries objectives⁴⁹⁷⁴⁹⁸ (IEEP et al, 2012). One of the problems identified was that the investments which increase fishing ability were not clearly defined. In practice, some eli-

⁴⁹⁴ In the 2007-2013 financing term the fund was the European Fisheries Fund, while in the 2014-2020 financing term it was changed to the European Maritime Fisheries Fund.

⁴⁹⁵ Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council.

⁴⁹⁶ European Commission, 2014, Report from the Commission, Seventh annual report on the implementation of the European Fisheries Fund (2013), COM(2014) 738 final, 16.12.2014

⁴⁹⁷ European Commission 2009, Green paper on the reform of the Common Fisheries Policy, COM(2009)163 final, 22.4.2009

⁴⁹⁸ European Commission, 2012, Report from the Commission to the European Parliament and the Council on Member States' efforts during 2010 to achieve a sustainable balance between fishing capacity and fishing opportunities, COM(2015) 563 final, 11.11.2015

gible investments in a vessel could increase its ability to catch fish. Similarly, vessel de-commissioning schemes may be beneficial for reducing overcapacity in terms of numbers of vessels, but this measure has promoted the increase in the capacity of the remaining vessels by providing operators with the funds to invest in technical capacity (European Court of Auditors, 2011 [1882]). Regarding aquaculture, the European Court of Auditors (European Court of Auditors, 2014c) found that the EFF did not, in practice, provide significant support for environmental sustainability. The bulk of funding in this area was directed at measures to maintain production, with little use made of selection criteria regarding environmental risks.

These problems related to the EFF support have been raised by several stakeholders in respect of the previous financial context. Now, however, the EMFF provides substantial improvements in terms of preventing fishing overcapacity (ClientEarth, 2015 [1883]). Other environmental safeguards - including targeting support for aquaculture with a high level of environmental protection - are also strengthened. It is as yet too soon for evidence that the changes introduced in the new CFP and EMFF have led to substantial improvements in this area.

8.4.3.4.3 Results from the online public consultation

The relevant question to assess public opinion about the coherence between the Nature Directives and the CFP was under Part I of the questionnaire which received 552,472 responses. As stated in the report presenting the results of the online public consultation, a significant number of replies were stimulated by targeted campaigns that had been prepared by different interest groups. At least 12 such campaigns were identified. The responses in Part I of the questionnaire reflect substantial support for the largest campaign: the Nature Alert campaign, organised by a consortium of environmental NGOs. However, the analysis offered in the report examines responses by the different types of stakeholder (individual, business, NGO, etc.) and by different fields of interest (nature, hunting, forestry, etc.) allowing an examination of how different interest groups varied in their opinions.

Overall, the vast majority of respondents (97%) believed that the CFP could be more coherent with, and supportive of, the Nature Directives' objectives. Very few respondents considered that the CFP is not coherent with the Nature Directives. This is in line with the results of the analysis based on the literature and the evidence gathering questionnaires which highlights the improvements from the CFP before its last revision and concludes that the new CFP legal framework seems to integrate better nature and biodiversity considerations. However, it is worth pointing that about half of the respondents from the private or business sector consider the CFP to be fully supportive of the Nature Directives. While the question did not allow distinguishing between different CFP periods, this sector might refer to the new CFP acknowledging its potential for improved coherence.

Table 40 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for the Fisheries and maritime sector

Individual	No	1%
	Yes	1%
	Could do more	97%
	I don't know	1%
Business	No	8%
	Yes	52%
	Could do more	13%
	I don't know	27%
Government	No	12%
	Yes	17%
	Could do more	35%
	I don't know	36%
NGOs	No	11%
	Yes	15%
	Could do more	58%

	I don't know	16%

8.4.3.4.4 Key findings

- The Nature Directives' protection system in the marine environment requires the management of potentially harmful activities (e.g. overfishing and destructive fishing practices such as bottom trawling in sensitive areas), which affect important habitats like sandbanks or reefs.
- The current legal framework of the EU fisheries policy can be considered coherent with the Nature Directives as the conservation of marine resources is specifically stated as a strategic objective in Article 2 of the 2013 CFP Regulation, and implemented through the new Article 11 and other legal provisions of the 2013 CFP Regulation. Specific guidelines and funding instruments on fisheries and nature protection are also in place.
- The division of competences regarding protection of marine biodiversity in the context of the CFP was, until recently, unclear with regard to Member States' powers (and procedures) to adopt conservation measures that might affect the fishing interests of other Member States. Prior to 2013, the exclusive competence of the EU in the field of fisheries conservation was an effective obstacle for the adoption of restrictions to harmful fishing activities. Article 11 of the 2013 CFP Regulation empowers Member States to adopt fisheries measures with conservation objectives, in order to integrate the requirements of the Nature Directives. It also clarifies the procedure and recognises the specific role of the Commission to coordinate the process where measures affect the interests of more than one Member State.
- Several stakeholders (8 out of 24) responding to the evidence gathering questionnaire with regard to fisheries, noted that the recent reform of the CFP has brought promising changes to the policy framework, although they acknowledge that more time is needed to confirm results.
- While the development of the Natura 2000 network in the marine environment has been slow, the designation process for marine protected areas is now seen as the major contribution of MPAs in the EU. This reinforces the process of setting up MPAs under the MSFD, as well as under other international agreements. According to a 2015 EEA report, and based on 2012 data, the Natura 2000 network constitutes over 4% of Europe's seas, compared to 5.9% of overall MPA coverage. Natura 2000 coverage is now greater than 5%.
- The implementation of more sustainable fisheries management is essential to support the Nature Directives' objective of ensuring biodiversity and dealing with overfishing as a result of species depletion and destructive fishing practices. While the process of establishing conservation measures for marine Natura 2000 areas benefits from the lessons learned from the terrestrial Natura 2000 sites, implementation remains challenging, due to a lack of scientific data or harmonised approach across the Member States, as well as conflicts of interest between nature protection objectives and the fisheries sector. This has been reflected both in literature and in the evidence gathered questionnaires, highlighting the need for better harmonisation of conservation measures, including the preparation of management plans, which, in areas beyond territorial waters, involves international cooperation.
- Concerns have been expressed in relation to the licensing procedures linked to Appropriate Assessments of activities affecting Natura 2000 sites which reflect national implementation issues. For example, stakeholders from the private sector in several Member States argued that it is almost impossible to get a permit for aquaculture activities, due to the interpretation of the requirements of Article 6(3) of the Habitats Directive and the application of the precautionary principle at a local level. Contrary views were expressed by other stakeholders about the licensing of

activities at the local level, causing damage to Natura 2000 sites and the impacts of aquaculture in Natura 2000 sites.

- Expenditure under the EFF has had mixed success. Positive impacts included examples of limiting destructive fishing techniques and promoting eco-management in aquaculture, however, some negative impacts were also reported, such as those directed at fleet renewal, which increased fishing capacity and its impact on biodiversity.

8.4.3.5 Forestry

8.4.3.5.1 Introduction and sources of information

This section covers coherence with the EU Forest Strategy and the associated Multi-annual Implementation Plan. As indicated in the 2015 State of Nature Report (EEA, 2015a), and as discussed under question R.1 (section 7.1), forestry practices exert a pressure on EU protected habitats and species. The EU Forest Policy aims to set a policy framework that coordinates and ensures coherence of forest-related policies at the EU level and allows synergies with other sectors that influence forest management. However, as the EU does not have competency in forest matters, it does not set any binding obligations or targets for Member States. Coherence with forestry support under the CAP has already been discussed in this question.

The analysis relies primarily on an examination of the policy texts and stakeholder responses to the evidence gathering questionnaire. Of the 26 respondents who commented on forestry policy issues, most of the comments referred to national forest policy, with only five referring to the EU Forest Strategy. Respondents did not supply any additional evidence relevant to the EU policy level beyond that contained in the policy documents.

8.4.3.5.2 Objectives, interactions and conclusions

The EU Forest Strategy (European Commission, 2013b) sets the 2020 forest objective to 'ensure and demonstrate that all forests in the EU are managed according to sustainable forest management principles and that the EU's contribution to promoting sustainable forest management and reducing deforestation at global level is strengthened'. This integrates the balancing of forest functions between meeting demands, providing a basis for a competitive and viable forest-based value chain, and delivering ecosystem services. The strategy defines strategic orientations for eight priority areas. Natura 2000 is mentioned under the priority 'protecting forests and enhancing ecosystem services', and calls on Member States to 'achieve a significant and measurable improvement in the conservation status of forest species and habitats by fully implementing EU nature legislation and ensuring that national forest plans contribute to the adequate management of the Natura 2000 network by 2020'. The Multi-annual Implementation Plan defines the main channels for achieving this as the Natura 2000 Biogeographical Process, RDP and river basin management planning, and the development of green infrastructure (European Commission, 2015h).

The Strategy also recognises that forest-based biomass is expected to gain in market interest, and the Plan includes actions to explore possibilities to increase the growth and sustainable utilisation of forests and the use of forest biomass. According to the Strategy, the Commission and Member States will 'explore and promote the use of wood as a sustainable, renewable, climate and environment-friendly raw material more fully without damaging the forests and their ecosystem services'.

The Forest Strategy can be considered to be, in principle, fully compatible with the achievement of the objectives of the Nature Directives. Each of the five respondents who referenced the EU Forest Strategy stated that it sets a clear supportive framework for the objectives of the Nature Directives. The Commission is committed to monitor Member States' progress with respect to the uptake of forest management plans or equivalent

instruments, and their integration of biodiversity considerations, including Natura 2000 conservation objectives. The actual outcomes of sustainable forest management for Natura 2000 and EU protected forest habitats and species will depend to a large extent on implementation in Member States and by the range of forest owners and managers. No further information was available to answer this question.

8.4.3.6 Non-energy extractive industries

8.4.3.6.1 Introduction and sources of information

The non-energy extractive industries (NEEI) provide many of the basic raw materials for manufacturing and construction industries. Mining and quarrying activities have the potential to impact habitats and species if improperly managed. At the same time, many potential mining and quarrying sites are located within, or close to, Natura 2000 sites, requiring careful and effective coordination with the implementation of the Nature Directives. The information base for this sector is mainly policy documents, the EU Guidance document on non-energy mineral extraction and Natura 2000, examples provided by industry, and the four relevant responses to the evidence gathering questionnaire, all from industry representatives (Cembureau, IMA Europe, UEPG and Euromines).

8.4.3.6.2 Objectives and interactions

The main goal of EU policy in relation to NEEI is to secure reliable and undistorted access to raw materials, which is an important factor for the EU's competitiveness. The three main groups of raw materials extracted by NEEI are 1) construction materials, such as sand, gravel and various types of crushed rocks (e.g. chalk, limestone, sandstone), natural rock materials (e.g. marble and granite), plus a range of clays, gypsum and shale; 2) industrial minerals (e.g. bentonite, calcium carbonates, kaolin, salt, potash and sulphur); and 3) metallic minerals (a wide range of ores which yield metals or metallic substances such as bauxite, chromium, copper, gold, silver, tin, tungsten etc.). While the EU is self-sufficient in construction materials, it remains a net importer of most industrial minerals and is highly dependent on imports of metallic minerals.

In November 2008, the Commission adopted a Raw Materials Initiative⁴⁹⁹ based on three pillars:

- Ensuring access to raw materials from international markets at undistorted conditions (coordination of trade and policy dialogue with third partner countries at EU level; not relevant for coherence with the Nature Directives).
- Setting the right framework conditions within the EU to foster sustainable supply of raw materials from European sources (making the administrative conditions for mining and quarrying access more coherent across Europe, also streamlining the permitting process).
- Boosting resource efficiency and promoting recycling.

The Initiative, which was renewed in 2011, points out that the implementation of the Natura 2000 legislation is of particular relevance for the extractive industry. The document states that during public consultations industry raised concerns about the sometimes competing objectives of the Natura 2000 network and the development of extractive activities within the EU. In order to address these concerns, the Commission and Member States committed themselves to developing guidelines for industry and authorities in order to clarify how extraction activities in or near Natura 2000 sites can be reconciled with biodiversity protection. An extensive Guidance document was issued by the

⁴⁹⁹ European Commission 2008. The raw materials initiative – meeting our critical needs for growth and jobs in Europe. Communication from the Commission to the European Parliament and the Council, SEC(2008) 2741, 4.11.2008.

Commission in 2011⁵⁰⁰, in order to clarify the provisions of Article 6 of the Habitats Directive in relation to NEEI activities.

8.4.3.6.3 Impacts on implementation of the Nature Directives

The extraction of minerals has an impact on the land upon which it takes place. Most mines and quarries require the removal of the surface soil and need space for storage mounds, as well as for associated infrastructure, including access roads. Such activities can, if inappropriately designed and operated, cause significant disturbance to wildlife and lead to the loss, fragmentation or deterioration of natural habitats. Indirect effects for habitats and species may be due to the alteration of existing hydrological or hydrogeological regimes, change in water quality or soil contamination as well as noise and vibrations.

However, there are a growing number of examples where an extraction site has, over the course of its entire life cycle, delivered an overall net benefit for biodiversity due to rehabilitation activities. This is especially relevant when the extraction area is located in an impoverished environment. In such cases, the extraction industry can help to create new habitats for wildlife, for instance new wetland areas or new cliffs that provide good nesting opportunities for birds. Open quarries may provide suitable habitats for various insects and reptiles while disused mine shafts may be colonised by bats. Studies carried out in France and Germany on extraction areas have shown that some protected species that have become rare in these countries find refuge in the new habitats offered by former extraction sites⁵⁰¹.

The Commission's Guidance document explains that the Nature Directives do not, *a priori*, exclude extractive activities from Natura 2000 sites, and it presents a step-by-step approach to applying Article 6 of the Habitats Directive. A separate chapter is devoted to the assessment of the impacts of extractive activities in marine areas. The document explains how the needs of extractive industry can be met while avoiding adverse effects on wildlife and nature at Natura 2000 sites. It also stresses the importance of strategic planning, AA of new developments and the need for adequate mitigation measures, including the obligation for rehabilitation plans. These plans ensure that at the end of the life of the extractive activities, the mining or quarrying site is returned to nature in the best possible biodiversity and natural conditions, compatible with a Natura 2000 zone. The guidelines contain many examples of best practice, and show how some extraction projects can ultimately be beneficial to biodiversity by providing high quality ecological niches. More examples of excavation sites which have been restored and now provide valuable habitats for biodiversity can be found on the UEPG website⁵⁰².

The Commission Guidance document is well-regarded by the stakeholders from the NEEI sector, although they stated the guidelines are not always followed by authorities at Member State level. Clear rules related to mineral policies in many Member States - including spatial planning rules and environmental assessment - are missing, which was indicated already in a 2004 study commissioned by the European Commission (University of Leoben, 2004 [1861]). Each of the four industry representatives who addressed NEEI in the evidence gathering questionnaire referred to the overly restrictive application of the provisions of the Nature Directives by permitting authorities. According to them, despite the Commission Guidance document, companies are often faced with a blanket ban at local level due to a misinterpretation of the Directives and/or lack of knowledge. Provisions related to priority species can, in some Member States, be a serious obstacle to the realisation of any mining or quarrying projects. There seems to be considerable uncertainty about the legal provisions of the Nature Directives, particularly Article 6, which leads to overly frequent lawsuits. According to representatives of the Swedish mining

⁵⁰⁰ European Commission 2011, Guidance document Non-energy mineral extraction and Natura 2000, European Union 2011.

⁵⁰¹ European Commission 2011, *ibid*.

⁵⁰² <http://www.uepg.eu/key-uepg-topics/case-studies/biodiversity>, accessed on 4.12.2015.

sector, it is generally difficult to obtain mining permits in Sweden in situations where Natura 2000 sites have been designated in areas of mining potential. Finally, the industry also points out that a lack of sufficient scientific knowledge about species and extent of potential impacts on them, results in excessively long permitting procedures, as investors are required to carry out the necessary research themselves.

These opinions indicate that there is a need among Member State authorities for more widespread use of the Commission's guidance for the NEEI sector. While investors often see Natura 2000 sites as no-go areas for business development, this does not have to be the case provided that the provisions of Article 6 of the Habitats Directive are followed and that the measures recommended in the Commission guidance are applied.

8.4.3.6.4 Key findings

- The NEEI provide many of the basic raw materials for manufacturing and construction industries. Access to these materials is very important for the competitiveness of these significant EU economic sectors. The extraction of minerals through mines and quarries has the potential, if inappropriately designed and operated, to cause damage to wildlife and habitats, including through indirect effects such as water and soil contamination.
- The 2008 EU Raw Materials Initiative, renewed in 2011, aims to secure reliable and undistorted access to raw materials in support of industrial competitiveness. The initiative makes reference to improving the coherence of administrative conditions to ensure mining and quarrying access across Europe, including streamlining permitting procedures. The Raw Materials Initiative also aims to boost resource efficiency and promote recycling.
- In response to the Raw Materials Initiative and calls from industry stakeholders, in 2011 the European Commission issued a Guidance document clarifying how extraction activities in or near Natura 2000 sites can be reconciled with biodiversity protection. The document explains how the needs of extractive industry can be met, while avoiding adverse effects on wildlife and nature at Natura 2000 sites, and stresses the importance of strategic planning, AA of new developments and the need for adequate mitigation measures.
- Nevertheless, in the evidence gathering questionnaires, four industry stakeholders referred to the overly restrictive application of the provisions of the Nature Directives by permitting authorities, which has led to a de facto ban on developments in the Natura 2000 protected areas. As there is no automatic exclusion of extractive and quarrying activities in and around Natura 2000 sites, stakeholders have called for better implementation of Nature Legislation at national, regional and local level, including dissemination and awareness of the Commission's guidance. This, they believe, would lead to a more balanced, proportional and sustainable approach to permitting of potential new mining and quarrying developments.

8.4.3.7 Research

8.4.3.7.1 Introduction and sources of information

Research is of critical importance for the objectives of the Nature Directives. Biodiversity and nature protection are rapidly evolving areas and sound scientific research is essential to keep up with new developments and ensure optimal management and conservation practices.

The information base for this section has been limited as only two stakeholders specifically addressed coherence of the EU policy on the research sector with the Nature Directives in their responses to questions C.4 and C.5. Relevant research policy documents and a

few studies on this issue have also been included in the analysis. (See question Y.8 for a discussion of the impact of the knowledge base on the implementation of the Directives.)

8.4.3.7.2 Objectives and interactions

Both of the Nature Directives contain provisions referring to the need for research, encouraging Member States and the Commission to enable the necessary research and scientific work with regard to nature objectives. Article 18 of the Habitats Directive states that Member States and the Commission should encourage the necessary research and scientific work with regard to the objectives of the Habitats Directive set out in Article 2, and the obligation of Article 11 referring to surveillance of the conservation status. Article 10 of the Birds Directive states that Member States shall encourage research and any work required as a basis for the protection of all species of birds referred to in its Article 1, with special attention to the species listed in Annex V.

EU research policy is in line with the objectives of the Europe 2020 strategy focusing on smart, sustainable and inclusive growth. Horizon 2020 (The Framework Programme for Research and Innovation) has been the flagship initiative of the EU research policy since 2014. The Programme focuses on a set of so-called societal challenges. Although biodiversity is not directly targeted among the challenges, two areas encompass both biodiversity and nature conservation, namely Societal Challenge 5: 'Climate action, environment, resource efficiency and raw materials', and Societal Challenge 2: 'Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy'.

Sustainable development is established as an overarching objective of Horizon 2020, with dedicated funding of 60% of the total Horizon 2020 budget, including 35% for climate-related expenditures. These objectives create positive synergies for nature protection. In addition, the 2016-2017 Working Programme stresses the role of nature-based solutions for territorial resilience. Such solutions are supposed to simultaneously improve economic, social and environmental resilience of rural and natural areas through, among other things, preservation and restoration of biodiversity⁵⁰³. These objectives show high-level coherence of the main EU research policy programme with the objectives of the Nature Directives. However, lack of a direct provision for the Nature Directives through Horizon 2020 may be seen as a drawback⁵⁰⁴.

Both Horizon 2020 and FP7 (the predecessor of Horizon 2020) have so far included dedicated calls targeting biodiversity. Many of the projects relate to 'aquatic biodiversity' in support of the WFD, 'climate adaptation' and 'ecosystem services'. An assessment of the Natura 2000 co-financing arrangements of the EU financing instrument prepared in 2011 (Kettunen et al, 2011), pointed out that under the FP7, biodiversity research could receive funding under Theme 6 'Environment', covering sustainable management of resources and environmental technologies. The study could not establish how much financing was devoted to biodiversity research, and Natura 2000, in particular; however, given the relatively higher profile of other issues receiving funding through this channel, the authors assumed the share to be rather small.

Other EU financing opportunities in addition to the research framework programmes have been available for supporting biodiversity research. Among these are LIFE+ which includes support for research, and the European Innovation Partnerships (EIPs), which aim to speed up innovations that contribute to solving societal challenges. Two of the EIPs have direct relevance for biodiversity: EIP on Water⁵⁰⁵ and EIP on Agricultural Productivity and Sustainability⁵⁰⁶. Box 99 below gives an example of a project implemented within the latter initiative.

⁵⁰³ European Commission 2015. Horizon 2020 Work Programme 2016-2017. 12. Climate action, environment, resource efficiency and raw materials, European Commission Decision C (2015)6776 of 13 October 2015.

⁵⁰⁴ As specifically pointed out by the Irish NGOs in the evidence gathering questionnaire.

⁵⁰⁵ <http://ec.europa.eu/environment/water/innovationpartnership/>, accessed on 20.11.15.

⁵⁰⁶ <http://ec.europa.eu/eip/agriculture/en/content/EIPAGRIabout>, accessed on 20.11.15.

Box 99 EIP-AGRI focus group on organic farming

The EIP-AGRI Focus Group on organic farming brought together 20 experts with different backgrounds and experiences (scientists, farmers, advisers) to make recommendations on transferable innovative solutions for optimising production levels of organic systems and enhancing the performance of low-yielding organic farms.

The Group has issued a report identifying examples of good practices and innovative approaches to organic farming. One of the examples comes from Finland, where by-products from the pulp and paper industry are used in organic farming to manage carbon and nutrients in the soil. Adding slowly decomposable wood fibres to the soil has proven to help restore exhausted soils more easily and quickly, and to add water and nutrient-holding capacity in order to improve microbiological activity.

The report by the EIP-AGRI Focus Group on Organic Farming presents many more examples from various Member States which can be applied on a wider scale across Europe.

Source: Press-article of EIO-Agri, http://ec.europa.eu/eip/agriculture/sites/agri-eip/files/press-article-focus_group_on_organic_farming_-_en_0.pdf

The Biodiversity Information System for Europe (BISE)⁵⁰⁷ contains a list of EU research projects about biodiversity and ecosystems.

The Polish NGOs stress the positive impact of the Nature Directives' requirements regarding research on the overall quality of the biodiversity protection. The conservation programmes including adequate research are considered to be an effective means to fulfil the obligations of the Nature Directives. The Irish NGOs point out the lack of direct provision for Natura 2000 through Horizon 2020, which they consider a significant gap.

Despite the available financial support for research on biodiversity, several sources, including stakeholders, point to gaps in knowledge, in particular marine biodiversity when compared to terrestrial habitats. For example, EEA (2014 [265]) indicated that the status of about 70% of marine species is unknown.

Popescu et al. (Popescu et al, 2014) concluded that the research conducted on Natura 2000 lacks a holistic vision that would integrate social and ecological systems, and recommends that future research should address trade-offs between economic targets, social desires and biodiversity conservation.

8.4.3.7.3 Results from the public consultation

In line with the findings from literature and stakeholders, most of the respondents to the online public consultation were of the opinion that EU research policy could do more to support the objectives of the Nature Directives.

Table 41 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for Research and innovation

Individual	No	<0.5%
	Yes	<0.5%
	Could do more	98%
	I don't know	1%
Business	No	17%
	Yes	10%
	Could do more	60%
	I don't know	13%
Government	No	9%
	Yes	17%
	Could do more	48%

⁵⁰⁷ <http://biodiversity.europa.eu/research>, accessed on 20.11.15.

NGOs	I don't know	26%
	No	7%
	Yes	9%
	Could do more	70%
	I don't know	14%

8.4.3.7.4 Key findings

EU research policy does not directly address the objectives of the Nature Directives. Nevertheless, funding opportunities exist under two Societal Challenges of the Horizon 2020 relating to environment and sustainability. Sustainable development is established as an overarching objective of Horizon 2020, with dedicated funding of 60% of the total Horizon 2020 budget, including 35% for climate-related expenditures. In addition, the 2016-2017 Working Programme stresses the role of nature-based solutions for territorial resilience. Such solutions should simultaneously improve economic, social and environmental resilience of rural and natural areas through, among other things, preservation and restoration of biodiversity. These objectives show high-level coherence of the main EU research policy programme with the objectives of the Nature Directives. Furthermore, other EU financing opportunities exist, such as LIFE+ and innovation partnerships, which can be used to support biodiversity research.

8.4.3.8 Transport

8.4.3.8.1 Introduction and sources of information

Transport is a cornerstone of the EU integration process and is firmly linked to the creation and completion of the internal market – as such it is a key common policy area of the European Union. As a policy area based mainly on infrastructure development, it has the potential to come into conflict with the objectives and implementation of the Nature Directives. While evidence shows considerable negative examples in practice, stakeholders also refer to improvements over time in the integration of nature and biodiversity concerns into strategic level planning and implementation in the transport sector.

This section draws on a combination of policy documents, literature and responses to both the evidence gathering questionnaire and the online public consultation. Responses directly addressing the transport sector were relatively limited, with nine stakeholders responding to C.4 and eight to C.5, representing a mix of public environmental authorities and NGOs.

8.4.3.8.2 Objectives and interactions

The 2011 White Paper⁵⁰⁸ is the principal strategic document for the transport policy area in the EU. It establishes a vision that integrates efficient mobility and accessibility objectives with resource-efficiency and sustainability goals. The main goals of transport policy, according to this document, include creating a Single European Transport Area with increased mobility, creating favourable conditions for growth and jobs while at the same time improving sustainability and minimising negative environmental impacts. The White Paper sets an objective of reaching 60% reduction of GHG emissions from Transport by 2050 (compared with 1990). An impact assessment accompanying the White Paper⁵⁰⁹ refers to the Sustainable Development Strategy, according to which sustainable transport is 'to ensure that our transport systems meet society's economic, social and environmental needs whilst minimising their undesirable impacts on the economy, society and

⁵⁰⁸ European Commission, 2011. White Paper: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system COM(2011) 144 final, 28.3.2011.

⁵⁰⁹ European Commission, 2011. Impact Assessment. Accompanying document to the White Paper: Roadmap to a Single European Transport Area – towards a competitive and resource efficient transport system, Commission Staff Working Document, SEC(2011) 358 final, 28.3.2011.

the environment'. The related operational objective is to achieve sustainable levels of transport energy use and reduce GHG emissions from transport. Neither the White Paper nor its impact assessment contain direct references to the Nature Directives or the Natura 2000 network, but the focus on resource efficiency, sustainability and climate change mitigation creates potential synergies with nature objectives.

One of the objectives of the EU transport policy is creation of the Sustainable Single European Transport Area, through the Trans-European Network for Transport (TEN-T), which aims inter alia at decreasing GHG emissions, reducing external costs and maintaining environmental protection standards. The TEN-T Guidelines Regulation⁵¹⁰ governs the implementation of this policy across the EU, including the identification of investments eligible for support from the CEF, which will provide over EUR 26bn to support the preparation and implementation of priority transport investments in the EU through 2020. Further EU funding for the sector is available from Cohesion Policy and the EIB.

There is potential for conflict at the highest levels, between transport and nature objectives. Implementation of the TEN-T policy will imply the construction and upgrading of significant amounts of road, rail, waterborne, port and other transport infrastructure that will frequently pose risks to habitats and species. The impact assessments for both the White Paper and the TEN-T Regulation refer to trade-offs between environmental objectives and socio-economic goals linked to transport infrastructure, and stress the pressure exerted on biodiversity and ecosystems. The impact assessment accompanying the TEN-T Regulation⁵¹¹ contains a section on land use and biodiversity impacts, and says that the greatest impact on environmental resources (other than climate) will be caused by an increase in land use for infrastructure, generating increased pressure on biodiversity and ecosystem services due to direct damage to habitats linked to construction works, habitat fragmentation and degradation and species disturbance. The negative impacts from transport projects might result from physical reduction of natural habitats, landscape fragmentation, migration barriers, collision of vehicles with animals, emissions of noise and air pollutants, changes to the water regime and other indirect effects. A similar assessment is presented in the impact assessment on the CEF Regulation⁵¹².

The policy framework can facilitate implementation of the investments in such a way that they minimise, to the extent possible, the negative impacts of transport infrastructure on the environment. The preamble of the TEN-T Regulation⁵¹³ states that environmental assessment in compliance with the Habitats, Water Framework, EIA and SEA Directives should be carried out by Member States and project promoters in order to mitigate or compensate for negative impacts on the environment. These are recognised in the Regulation as 'landscape fragmentation, soil sealing and air and water pollution as well as noise, and to protect biodiversity effectively'. Furthermore, the EU legislation requires the elaboration of SEAs for all plans and programmes which are likely to have significant environmental effects⁵¹⁴. Transport is mentioned in the SEA Directive as one of the areas where SEA is required. Member States shall take the results of this environmental assessment into account in the preparation of the plans and programmes concerned. At individual project level, Member States are obliged to comply with EIA procedures and AA procedures for the Natura 2000 sites.

Article 8 of the CEF Regulation⁵¹⁵ states that the eligible costs include the expenditures related to environmental studies on the protection of the environment and on compliance

⁵¹⁰ Regulation (EU) No 1315/2013 of the European Parliament and of the Council, of 11 December 2013, on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU.

⁵¹¹ European Commission, 2011. Impact Assessment accompanying the document Proposal for a Regulation of the European Parliament and of the Council on Union Guidelines for the development of the Trans-European Transport Network. COM(2011) 650 final, 19.10.2001.

⁵¹² Commission staff working document accompanying the Regulation establishing the Connecting Europe Facility, Impact Assessment, COM(2011) 655 final, 19.10. 2011.

⁵¹³ Regulation (EU) No 1315/2013 of the European Parliament and of the Council, of 11 December 2013, on Union guidelines for the development of the Trans-European Transport Network and repealing Decision No 661/2010/EU.

⁵¹⁴ Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment.

⁵¹⁵ Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 estab-

with the relevant Union law. This means that the costs of environmental safeguards can be at least partly covered from EU funding, improving the quality of these assessments and contributing to decreased negative impacts on biodiversity. Major projects in the area of transport (with total eligible costs exceeding EUR 75m) can receive support in preparation of the assessments within the framework of the JASPERS initiative. Another soft policy measure which can help transport developers to apply appropriate environmental safeguards, are the Commission guidelines on Natura 2000 and development port development and dredging⁵¹⁶ and inland waterways⁵¹⁷.

8.4.3.8.3 Impacts on implementation of the Nature Directives

EU transport policy aims, objectives and implementing measures (e.g. the TEN-T) pose a threat to nature and biodiversity, although environmental legislation requirements enable a coherent policy framework. Requirements to comply with EU environmental legislation - and specifically the EIA and Habitats Directives - are referenced in the relevant transport sector legislation and policy documents. Despite this, much of the evidence obtained from literature and stakeholders for this evaluation has pointed to negative examples, mainly cases where EIA and/or AA as required by the Habitats Directive, were not carried out effectively. In some cases, however, a trend towards improvement has been noted over time as transport sector policy-makers, planners and developers have learned how to better work in harmony with nature and biodiversity.

Evidence related to cases where transport infrastructure projects, including those financed by EU funds, threaten biodiversity and nature can be found in literature (Birdlife International et al, 2003), (EEA, 2009 [1885]) and in stakeholder responses to the evidence gathering questionnaire. The specific examples below illustrate some of the problems that occur in practice when environmental procedures are improperly implemented with regard to impacts of transport projects on nature and biodiversity.

Box 100 Problems associated with improper implementation of environmental procedures

Jerez-Los Barrios Motorway, Spain

The plans for the Jerez — Los Barrios Motorway included almost 40km of a road running directly through Los Alcornocales Natural Park, the most important cork oak forest of the Iberian Peninsula and a Natura 2000 site. Environmentalists opposed the motorway, calling instead for the rehabilitation of a rail line and the improvement of the existing roads. After lengthy discussions, the Commission approved the project for Cohesion Policy funding, following an agreement on extensive infrastructure correction and habitat restoration measures. Despite these measures, environmental organisations state that the highway has covered about 500 ha with tarmac and that more than 10,000 trees have been cut down. The highway constitutes a physical barrier – the fauna crossways are not effective, since they are in different locations from the corridors previously used by the animals.

Source: EEA (2009 [1885])

Egnatia motorway, Greece

The Egnatia motorway crosses through the habitat of the Brown Bear (*Ursus arctos*) in Greece. When the project's EIA was presented, it neither considered alternative alignments nor included mitigation measures that would prevent impacts on the Brown Bear habitat. A LIFE project (LIFE93NAT/GR/001080) had been implemented at the time to study the impacts of the highway, demonstrating the conflicting priorities and inconsistent use of EU funds. NGOs appealed to the

lishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010 Text with EEA relevance.

⁵¹⁶ European Commission, *The implementation of the Birds and Habitats Directives in estuaries and coastal zones with particular attention to port development and dredging*, Guidance document http://ec.europa.eu/transport/modes/maritime/doc/guidance_doc.pdf

⁵¹⁷ European Commission 2012, *Guidance document on inland waterway transport and Natura 2000* http://ec.europa.eu/environment/nature/natura2000/management/docs/IWT_BHD_Guidelines.pdf

Council of State, which found deficiencies in the EIA. A new EIA had to be undertaken, delaying implementation of the project in the particular segment of the motorway. While the new EIA did not alter the overall alignment, rerouting of a 37km crucial segment of the highway and several additional mitigation measures, particularly bear fencing on approximately 150 km of highway, were required. The Egnatia case offered important lessons on the need to properly and appropriately assess impacts of EU transport funded projects when protected habitats and/or species may be affected. Indeed, mitigation measures to reduce habitat fragmentation caused by the construction of E65 highway and high speed railway were also implemented in Central Greece.

Source: Questionnaire submitted by Greece NGOs

Gabrovo bypass, Bulgaria

This planned highway development would allow a high-speed bypass of the town of Gabrovo, improving the Bulgarian link between Romania and Greece. Environmental NGOs have pointed out that the planned bypass cuts right through the Bulgarka Nature Park, protected under both the Birds and Habitats Directives. The bypass would consist of a high speed road as well as a tunnel under Shipka Mountain. Local activists and NGOs were quick to call attention to the fact that the tunnel only begins as the road exits the Natura 2000 area, thereby resulting in the park being effectively cut in two. In addition, the road passes through some of the best, wildest and non-fragmented habitat for Brown Bears in the whole park. The same NGOs have insisted that the AA consider two alternatives, consisting of either a longer tunnel which would reduce fragmentation and avoid surface construction in the park, or an alternative route through an existing mountain pass. Their petitions to Bulgarian courts were rejected on the basis that they did not provide sufficient factual proof that the development would hinder conservation objectives in the Natura 2000 site in question. The fact that the Gabrovo bypass was identified as an investment project of national significance led the courts to allow construction to carry on despite these objections by the NGOs⁵¹⁸.

Source: WWF, 2013, 'The construction of two major roads in Bulgaria and Romania ignores vital habitats', <http://wwf.panda.org/?208865/The-construction-of-two-major-roads-in-Bulgaria-and-Romania-ignores-vital-habitats>, accessed on 4 December 2015

Rospuda highway, Poland

The Rospuda Valley in North-Eastern Poland has a unique character. It contains a peat bog preserved in a model condition, virtually unchanged anthropogenically. The planned bypass of Augustów as part of the so-called Via Baltica (one of the segments of the TEN-T network) was supposed to cut through two areas of Natura 2000 established in this area: SPA 'Augustów Primeval Forest' and SAC 'Augustów Refugium'. The issue of the Augustów bypass was disputed since 1997, when the first design of its construction through the Rospuda Valley was made. NGOs actively protested against the route cutting through this area. In 2007, the Commission referred the design of the bypass to the CJEU, arguing that the decision concerning the route had breached Union law. As a result, in April 2007, the Voivodeship Administrative Court cancelled the decision of the Minister of Environment establishing the environmental conditions for approval of the implementation of the investment, which led to the repeal of the construction permit. In 2008, in order to solve the dispute, a Round Table was organised, including representatives of the government, self-government, civil engineers, scientists, ecologists and representatives of the residents of Augustów. The participants analysed the environmental impact of the three variants passing by the naturally valuable areas through the Rospuda Valley, conducting EIA for each variant. The route of the bypass through the village Raczki was found the least detrimental for the environment. Selection of this route was announced by the Polish government in March 2010, following which the complaint to the CJEU was withdrawn.

Source: Evidence gathering questionnaire submitted by Polish NGOs

The literature and stakeholder responses provided a number of possible reasons for the lack of effective implementation of relevant environmental legislation with regard to the transport sector. In some Member States the lack of SEA at the strategic planning level for the transport sector is seen as a key driver of conflicts. This was specifically cited in both France and Spain⁵¹⁹. Spanish NGOs pointed out that in response to their complaints

⁵¹⁸ Ruling on a matter in the case No 6941 / year 2012 by the Fifth Section of the Supreme Administrative Court of Bulgaria.

⁵¹⁹ Expressed during the study visit to France and in the evidence gathering questionnaire from the Spanish NGOs.

that that strategic plan for transport did not consider impacts on Natura 2000 sites, authorities argued that impacts should be considered for each specific project rather than at the strategic level, despite the fact that most of the programmes include a map with the main transport corridors or infrastructure projects where the interaction with the Natura 2000 network can easily be tracked. As a result, they cited the recent example of the highway between the cities of Toledo and Ciudad Real. The highway was planned to cross a Natura 2000 site (Montes de Toledo) despite the fact that an alternative route not affecting the protected area had also been proposed. The project has finally been cancelled following the sentence of the High Court of Castilla-La Mancha⁵²⁰.

EEA (2009 [1885]) refers to problems of fragmentation in the planning and implementation of individual transport projects. EIAs are carried out separately for small segments of highway and, in some cases, a low-impact segment receives development consent, while a subsequent segment that impacts a protected area.

The EU level NGO WWF also referred to the strategic level in transport planning in its response to the evidence gathering questionnaire. It noted that the nine TEN-T Corridor Studies produced in 2014 pay little attention to reducing conflicts with the Nature Directives. For example, the Rhine-Danube Core Network Corridor Study Final Report of December 2014 highlighted biodiversity issues only under inland waterway transport but not within the sections on road, rail and airport infrastructure. WWF also expressed concern about some of the priority projects listed in the TEN-T Guidelines and the CEF Regulations, which will require close monitoring to ensure implementation in harmony with the Nature Directives. They noted conflicts within the Danube-Bucharest Canal projects, in particular, based on shortcomings in the feasibility study and AA.

At the same time, the WWF also stated that following completion of many transport projects which were destructive for nature, changes and safeguards have been introduced and it can be argued that environmental considerations are now well-reflected in the context of the legal basis offered by the TEN-T Regulation. Similarly, Croatian NGOs referred to helpful tools for transport planning and development that have been provided as part of implementation of the Nature Directives. These include a manual of good management practices for waterways, prepared with the help of the International Commission for the Danube River (ICPDR) and the Inland Waterways Agency, in order to improve cross-sectoral cooperation established through the Danube Forum. The Romanian Transportation Master Plan 2015-2030 provides another good example of this positive development towards better policy integration and commitments to support the objectives of the Nature Directives while pursuing sustainable development⁵²¹. Mitigating the negative effects of the Lugoj-Deva highway provides a good example of a specific investment in Romania. To protect the biodiversity capital of the region and avoid future claims for reparation of the Natura 2000 network, mitigation measures were agreed after a long process of negotiations with the planners of the motorway.

Results from the public consultation

The potential for conflicts between EU transport policies and the objectives of the Nature Directives was recognised by many respondents to the online public consultation questionnaire – it received the highest proportion of ‘no’ answers of any of the sectors covered in this question, slightly ahead of energy. Even 53% of the respondents from the business sector provided a negative answer in the case of transport policy.

⁵²⁰ http://www.wwf.es/noticias/sala_de_prensa/?33620/Anulada-la-Autova-Toledo-Ciudad-Real-por-su-grave-afeccion-a-la-naturaleza-de-Montes-de-Toledo, accessed on 7.12.2015.

⁵²¹ See : ‘Romania Amends 2015-2030 Transport Plan to Protect Animals’, 25 Feb. 2015. <http://ens-newswire.com/2015/02/25/romania-amends-2015-2030-transport-plan-to-protect-animals>, accessed on 7.12.2015

Table 42 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for Cohesion Policy

Individual	No	98%
	Yes	<0.5%
	Could do more	1%
	I don't know	1%
Business	No	53%
	Yes	19%
	Could do more	16%
	I don't know	12%
Government	No	42%
	Yes	5%
	Could do more	35%
	I don't know	18%
NGOs	No	58%
	Yes	4%
	Could do more	27%
	I don't know	11%

8.4.3.8.4 Key findings

- EU transport sector goals are set out in the 2011 White paper and focus on increasing mobility, removing major barriers in key areas, and creating conditions for economic growth and jobs, as well as the integration of resource-efficiency and sustainability goals. The latter are primarily focused on reducing dependence on foreign oil and cutting carbon emissions in transport by 60% by 2050. The TEN-T policy supports this through the designation of priority corridors for transport links and EUR 26bn is provided in support from the CEF for the preparation and construction of key infrastructure up to 2020.
- There is potential for conflict at the highest levels between transport and nature objectives. Implementation of the TEN-T policy implies the construction and upgrading of significant amounts of road, rail, waterborne, port and other transport infrastructure that will frequently pose risks to protected habitats and species.
- The impact assessments for both the White paper and the TEN-T Regulation refer to trade-offs between environmental objectives and socio-economic goals linked to transport infrastructure, and stress the pressure exerted on biodiversity and ecosystems. The TEN-T impact assessment further refers to significant threats to biodiversity and Natura 2000 areas resulting from 'physical reduction of natural habitats, landscape fragmentation, migration barriers, collision of vehicles with animals, emissions of noise and air pollutants, changes to the water regime and others'. A similar assessment is presented in the impact assessment on the CEF Regulation.
- There are provisions in place to ensure better compatibility of transport goals with environment and nature protection objectives during implementation. The preamble to the TEN-T Regulation states that Member States and project promoters, in order to mitigate or compensate for negative impacts on the environment, should carry out environmental assessment in compliance with the Habitats, Water Framework, EIA and SEA Directives. These are recognised in the Regulation as 'landscape fragmentation, soil sealing and air and water pollution as well as noise, and to protect biodiversity effectively'.
- Both literature and stakeholders provide mixed responses to the coherence between transport and nature policies in practice. For example, environmental NGOs point out that the long history of conflict between transport projects and nature has led to improvements in the way in which environmental considerations are now reflected in TEN-T policy. Transport planners increasingly see the importance of identifying impacts and agreeing mitigation measures in order to prevent legal and public

challenges. The integration of nature concerns into strategic and spatial planning for the transport sector - brought about in part by requirements of the Nature Directives - has been seen to have a positive impact.

- Conflicts still exist, however. Several NGOs point to examples of transport infrastructure projects implemented with the use of EU funds, which threatened biodiversity and nature. AA required under the Habitats Directive is not always carried out at the strategic planning stage, as it may be considered to apply only at project level. Some stakeholders refer to shortcomings in the AA carried out for some major transport projects, resulting in the selection of transport routes which are less attractive with respect to habitats and species.

8.5 C.6 - To what extent do they support the EU internal market and the creation of a level playing field for economic operators?

8.5.1 Interpretation and approach

This question gathers and assesses evidence of the implications of the EU Nature Directives for economic operators, examining whether or not they affect the implementation of the internal market and therefore help to ensure a level-playing field across the EU (e.g. by introducing common standards and requirements for activities carried out in or around Natura 2000 areas, or that otherwise depend on natural resources protected under the Directives). Key factors to consider include predictability and legal certainty for economic operators, regulatory burden and cross-border cohesion.

The development of a common market was one of the founding principles of the EU, and has remained a cornerstone of policy development even as the scope of decision-making has expanded. At the early stages of the EC/EU, although there was no formal authorisation within the Treaty of Rome for the EC/EU to act on environmental issues, there was nevertheless a recognition that differing environmental standards should not restrict competition (Klemmensen et al, 2007). While the reach of environmental legislation has extended, this principle remains. Despite this, the objectives of environmental policy and that of the internal market have sometimes been viewed conflicting or even contradictory⁵²². On the one hand, environmental standards are sometimes perceived as a barrier to economic growth, while on the other hand, open markets have been seen as a threat to the quality of the environment. However, the Single European Act also introduced a specific basis for environmental legislation, and laid down the principle that European environmental legislation should not prevent individual Member States from 'maintaining or introducing more stringent protective measures'.

The key factor when it comes to ensuring coherence between nature conservation goals and internal market objectives, is the need to ensure that conservation actions are both **necessary and proportionate** and that they are implemented in ways which **avoid competitive distortions between Member States**. Differences in the implementation of the nature conservation provisions between EU Member States may generate market distortions for economic operators, as well as potentially introducing diverse requirements that hinder cross-border competition.

Breaking the Directives into their key objectives establishes three main components: 1) requirements concerning the designation of Sites of Community importance (Natura 2000 sites); 2) requirements concerning the management of sites, including the assessment of plans and projects and financing; and 3) requirements for the trade in, and protection of, particular species. Affected economic actors are those involved in activities in or near the Natura 2000 sites, or those using natural resources protected under EU nature conservation legislation.

It is important at this stage to clarify those aspects not dealt with by this question. Firstly, the question of whether or not the EU would have been better off without the Nature Directives more generally, in comparison to the alternative patchwork of national legislation and standards, is more a question of effectiveness and EU added value. Likewise, consideration of the distributional impacts of the legislation – whether the legislation has a greater impact on the poorest in society for example – is outside the scope of

⁵²² See, for example, European Commission, 2010, Single Market and Environment. Communication from the Commission to the European Parliament and the Council. COM(99) 263 final, 08.06.1999.

the question. Additionally, the implications for EU competitiveness globally as a result of the Directives does not form part of this analysis. Finally, the focus of this question is on the impact of the Directives on the functioning of the internal market in terms of cross-border discrimination or the facilitation of cross-border activity, rather than the efficiency of markets more generally.

Against this backdrop and focusing on the consideration of internal market efficiency, two sub-questions can be defined in relation to the main question:

- Are the Directives' rules necessary and proportionate and, as such, do they support or deter cross-border competition?
- Do the Directives' requirements discriminate against, or unfairly impact upon, particular operators in Member States or do they provide the basis for a level playing field?

For the first question, a key aspect is the size of the administrative burden imposed by the Directives, the principal concern of which is the impact of that burden and whether or not there is evidence that the functioning of the internal market has been distorted as a result. (See question Y.7 for a more detailed discussion on administrative burden.)

The second question looks at the general requirements to see if economic operators are impacted differently in different Member States. Although obvious, it is important to emphasise that the Directives will necessarily impact economic activity in certain Member States and sectors more than others, based on geographical and market characteristics. A Member State with a large number of protected species or habitats usually will have correspondingly more management requirements or more restrictions on land-use management than a Member State with less protected species or habitats. Likewise, a Member State with a sizeable hunting sector may face a larger impact from restrictions on activities. A key component of this discussion is the level of implementation in Member States and whether or not the flexibility allowed has an impact on the level playing field intended by the legislation.

8.5.2 Main sources of evidence

There were three main sources of information for this question:

- Stakeholder responses to the evidence gathering questionnaire. Of the 82 responses received that addressed this question, 64 came from Member State authorities, 17 from EU level organisations and one from a Commission DG.
- Literature reviewed, which included Commission Guidance documents on Natura 2000 implementation, NGO reports on Natura 2000, EU commissioned studies on Natura 2000, industry guides, academic studies and a Member State consultation on the Habitats Directive. There were no specific studies focused on the internal market and the Nature Directives.
- Stakeholder responses gathered through meetings held during missions to France and the UK.

8.5.3 Analysis of the question according to available evidence

Administrative burden and the internal market

As discussed fully under the question on administrative burden (Y.7), the size of the burden in relation to the Directives is considered significant by some of the stakeholders concerned. A number of respondents – principally those representing economic opera-

tors, but also civil society – stated concerns about the time and complexity of the processes that must be followed under the Nature Directives. However, stakeholders were divided as to whether or not the administrative burdens generated were excessive, given the scope of the objectives and benefits of the Directives. Although administrative burden could, in theory, affect the ability of economic actors to enter a market given additional start-up costs, there is no evidence from the available literature to support the view that market structure has been affected by such burdens in practice.

In theory, the regulatory burdens could have a greater impact on SMEs than larger firms, as they are generally seen to have a reduced capacity to understand and process requirements, face disproportionately higher compliance costs per employee and the potential impacts on business flexibility affects one of their key strengths (OECD, 1997). Given that farmland makes up 40% of Natura 2000 terrestrial area, and that the majority of this is on more marginal farming areas (Olmeda et al, 2014), it is possible that smaller or economically weaker farming enterprises would be more than proportionally impacted by regulatory burden. Indeed, the higher administrative burden facing managers of Natura 2000 sites is cited as one of the potential causes of conflict (Bouwma et al, 2010). Similarly, UK stakeholders reached this same conclusion during an ad hoc meeting within the framework of this project. The higher impact of the Directives' implementation on SMEs was discussed specifically in the context of the impact on other categories of business, such as housing/residential development, fisheries, energy/wind industry. There was an acknowledgement, however, that some solutions to this higher impact on SMEs had been found to a certain extent⁵²³. The implication of a potentially larger impact on SMEs from administrative burden potentially impacts the functioning of the internal market if the average business size of affected actors is substantially different across Member States, or if the burden is such that it discourages cross-border competition at an SME level. However, no evidence was found to support this as a particular issue for the Nature Directives.

Differences across Member States

Although little has been written regarding discrepancies in implementation processes at Member State level, a report by the WWF (2006b) on the implementation of Natura sites suggested that some Member States delayed and limited Natura 2000 site designation. Newer Member States were seen to have adjusted provisional SCI sites (pSCIs) as a result of political pressure, rather than on the basis of a scientific rationale. Examples included the number of sites in Cyprus identified by the LIFE project being reduced from 28% to 14% of the territory, and the halving of Polish land area identified as pSCIs from 18% to 9% (WWF, 2005). However, the report by Ecosystems (2013) found that delays in site designation were generally the result of poor understanding of requirements and a lack of sufficient skills to apply procedures, rather than an end in themselves.

The consultation responses from the public consultation were split on the question of whether or not the Directives had led to a levelling of the playing field in this domain for economic operators more generally across the EU. A large number of respondents, particularly NGOs but also Member State representatives, felt that the equal standards for conservation applied as a result of the Directives were vital for the functioning of the internal market. The introduction of a minimum level of protection for the environment meant that a potential 'race to the bottom' in environmental protection had been avoided. This was particularly highlighted as a potential issue in newer Member States. This point was emphasised during the Conference presenting the emerging findings from the Nature Directives evaluation⁵²⁴. Some of the same respondents, as well as others from the tourism and construction industry also felt that the Directives had provided some level of assurance and predictability to business, supporting trans-boundary activity and encouraging investment. One respondent highlighted the role the Habitats Directive had had in unifying Austrian regulations on the environment, which had previously been complex and based on different federal legislation, enabling the business environ-

⁵²³ Meeting on 1-2 June 2015 in London.

⁵²⁴ Held on 23 October 2015 in Brussels.

ment within a single Member State. These responses are supported by the findings from a Defra UK consultation on a review of the balance of competences in relation to environmental policy at the national and EU level (HM Government, 2014a).

Overall, the criticisms of the Directives in relation to the internal market related to the variety of implementation approaches in the Member States. Indeed, some actors, most notably economic operators, propose further harmonisation of certain provisions of the Directive⁵²⁵. One consultation respondent from industry stated that the processes for protecting species in different sectors vary, while another from a Member State authority stated that different Member States' have different technical rules in place ('threshold for significance'), which can have an impact on the development of cross-border projects. One comment refers to the greater 'adjustment' challenge – in relative terms – facing new Member States compared with 'old' Member States who may have had high standards in place at the time they transposed the Directives and hence had less to do. Some respondents, from industry and also from a Commission DG, felt that while some Member States had been pragmatic in allowing economic activities in Natura 2000 sites, others had used Natura 2000 site designation to place blanket restrictions on development, in particular in relation to the extractive industries and forestry, and that biodiversity consideration were prioritised over other valid considerations. There is little specific evidence from the literature to support or undermine these claims across the EU – other than individual cases – but the UK Habitats review (2012) found little evidence of planning applications for development in the UK being rejected on the grounds of the legislation, despite industry concerns. Some members of an expert stakeholder focus group highlighted the different requirements on the forestry and agriculture sector, noting, in particular, the differences in financial support from the EU available to the different sectors⁵²⁶, but it is unclear if this issue is more prevalent in certain Member States than others. This financing issue is further discussed under section 8.6.

Going beyond the requirements set out in the Directives is explicitly permitted under certain conditions by Article 193 of the TFEU, which declares that the protective measures adopted pursuant to Article 192 (environment policy) as the legal basis, 'shall not prevent any Member State from maintaining or introducing more stringent protective measures. Such measures must be compatible with the Treaties and notified to the Commission'. Further, Article 14 of the Birds Directive⁵²⁷ also explicitly states that Member States have the power to go beyond the EU environmental legislation. While the Treaties establish a solid basis for Member States to exercise their discretionary power to go beyond EU environmental legislation (Client Earth, 2015), they require that the national measures are compatible with the Treaties, in particular the internal market rules. Nonetheless, the Commission raises questions regarding the desirability of so-called 'gold-plating' in its Communication on 'Better regulation for better results – An EU agenda' as part of its Better Regulation Package⁵²⁸. Their concerns arise from the fact that while more stringent protection measures have the potential to enhance the benefits from the implementation of the Directives and facilitate the achievement of their objectives, they can also add unnecessary costs for businesses and public authorities. The issue of gold-plating was not explicitly referred to by stakeholder responses to the evidence gathering questionnaire. However, this issue was addressed by a 2010 academic paper, which addressed alleged gold-plating of UK rules to implement the Habitats Directive in the area of new port developments (Morris, 2011). The paper assessed whether or not the UK went beyond what was necessary to implement the Directive, compared to other jurisdictions with important ports, such as France and Germany. The paper concluded that there is evidence that the UK was faster than other 'competitor' Member States at transposing the Directive, but does not state that the UK went further than these countries. Likewise, the author notes that a delay in transposing the Directive may not be due to any attempt by a government to gain a competitive advantage through delays, and that late transposition can take

⁵²⁵ Meeting on the 19-20 May 2015 in Paris.

⁵²⁶ Meeting on the 19-20 May 2015 in Paris.

⁵²⁷ Article 14 states: Member States may introduce stricter protective measures than those provided for under this Directive.

⁵²⁸ http://ec.europa.eu/smart-regulation/better_regulation/key_docs_en.htm

place for different reasons, including complaints from stakeholders. There is little other evidence available regarding the issue of gold-plating and the Nature Directives.

In summary, while many respondents appear to agree that the Nature Directives rules are helpful in establishing a level playing field for all operators in the EU, there is a difference of opinion as to whether or not they satisfactorily reach this objective, given the margin of discretion for Member States on their implementation, and the resulting potential for different approaches in each Member State.

8.5.4 Key findings

- In general, the research and consultation activities did not reveal any strong evidence to suggest that the Nature Directives have caused disruptions or distortions to the functioning of the EU internal market. Some stakeholders have cited examples of cases where the Directives have had unequal impacts on different sectors of economic activity, or have suggested that the regulatory burden limits economic competitiveness, but the incidence of such responses is relatively low. Conversely, many stakeholders felt that the introduction of a common standard for designation and management of protected areas and approaches to conservation of key habitats and species, has created an enabling environment for business through the creation of a more level playing field between Member States.
- Some stakeholders raised concerns about the implications for SMEs of the administrative burden related to the Directives, but only limited details were provided to support this concern. SMEs are generally assumed to be more affected by administrative burden due to their overall capacities, therefore it could be expected that the implications of the Directives would impact them more severely, at least where significant obligations arise. An example of this would be on more marginal farming land, on which 40% of Natura 2000 sites are situated. More dedicated research would be required to substantiate this finding and determine if the overall administrative burden from the Directives leads to any significant internal market distortions, e.g. by discouraging SMEs from operating across borders.
- The evidence gathering questionnaires showed that many stakeholders, particularly those from civil society, but also from Member State authorities, found the introduction of a common approach through the Nature Directives vital for the functioning of the internal market more generally, removing the potential for a 'race to the bottom' in environmental protection standards, and giving businesses a level of certainty that would otherwise not have been available. For these stakeholders, the Directives facilitated the internal market by providing a level playing field.
- However, some industry representatives felt that the requirements placed on certain sectors, such as mining and forestry, were more onerous than for others, such as agriculture, and that the financial support afforded to different sectors was unequal. More research would be needed to assess if this is indeed an issue, and whether or not there are internal market issues associated with varying requirements imposed on the same sector across Member States. Some respondents from industry bodies representing the extractive industry, forestry, and agriculture, as well as from Member State authorities, held the view that different implementation approaches for the same requirements across Member States have undermined the value of the Directives in providing a level playing field.

8.6 C.7 - To what extent has the legal obligation of EU co-financing for Natura 2000 under Article 8 of the Habitats Directive been successfully integrated into the use of the main sectoral funds?

8.6.1 Interpretation and approach

This builds on the assessment in section 6.2, examining in further detail Member States' compliance with their EU co-funding obligations. It assesses the success of the legal obligation, set out in Article 8 of the Habitats Directive, whereby Member States are eligible for co-funding from the EU budget to finance measures considered necessary to meet the obligations under the Directive.

Most EU co-funding for the Natura 2000 network has been made available by integrating biodiversity goals into existing EU funds or instruments (the so-called integrated approach)⁵²⁹ (Kettunen et al, 2014a). These instruments include the European Agricultural Fund for Rural Development (EAFRD), European (Maritime and) Fisheries Fund (EFF/EMFF), Structural and Cohesion funds (ERDF, ESF and CF) and the Framework Programme for research and innovation (Horizon 2020). In addition, the European financial instrument for the environment (LIFE) provides funding dedicated to the implementation of EU environmental policy objectives, including the Nature Directives. The evidence for the level of integration of conservation objectives into the different EU sectoral funds was also examined. In addition, the question also looks at the effectiveness of the PAFs⁵³⁰ set up for the new funding period of 2014-2020, and examines their success in identifying funding requirements and securing matching resources.

The assessment examines the extent to which conservation objectives of the Directives feature in the regulatory frameworks for different EU funds, as well as evidence of the integration of these conservation objectives into the national and regional programmes implementing the EU funds. (See section 6.2 for an assessment of the take-up of EU co-funding).

8.6.2 Main sources of evidence

The evidence available consisted of:

- A number of EU level assessments of the level of integration of conservation objectives into EU funds, based on the analysis of official – and best available – data from all Member States. These include, for example, the assessment of the uptake of EU funding for biodiversity during the 2007-2013 period and assessment of the opportunities to use EU funds for biodiversity in 2014-2020.
- European Court of Auditor reports on integration of biodiversity into key funds (e.g. ERDF).

⁵²⁹ COM(2004)431 and SEC(2011)1573.

⁵³⁰ Article 8 of the Habitats Directive foresees that the Commission shall adopt a PAF of measures involving co-financing. The purpose of PAFs is to establish a national or regional strategy for protection and management of Natura 2000 within the context of the relevant EU financial instruments.

- EU funding regulations / instruments (e.g. CAP, Cohesion Policy funds, European Maritime and Fisheries Fund, LIFE).
- EU & Member State Partnership Agreements for the 2014-2020 Multiannual Financial Framework.
- Member States' PAFs and fund-specific programmes (Operational Programmes (OPs) and RDPs).
- Stakeholders' responses to the evidence gathering questionnaire and online public consultation. In addition to C.7 responses, information was also provided under questions S.3 and Y.2, the former concerning the main factors that have contributed to or hindered progress towards achieving the Directives' objectives, and the latter exploring availability and access to funding as a constraint or support to the Directives.
- Individual examples - identified by stakeholders and/or supported by documented case studies - of the identified funding constraints and their effects on implementation and achievement of objectives of the Directives.

8.6.3 Analysis of the question according to available evidence

EU studies

A dedicated Communication from the Commission in 2004 outlined how the financial needs of Natura 2000 could be integrated into the different EU sectoral funds during the period of 2007 – 2013 and the measures that could be financed by the different funds⁵³¹. The purpose was to ensure that the management of Natura 2000 sites would be part of the wider land management policies of the EU, while at the same time avoiding duplication and overlap of different funding instruments. While focused on Natura 2000, in practice the integration approach applies to the wider EU biodiversity goals, including those of the Nature Directives.

The integration approach to co-funding has been retained for the 2014-2020 period,⁵³² with the coordination between different EU instruments further improved by the establishment of a set of common rules and principles for ERDF, ESF and the Cohesion Fund, EAFRD and EMFF, including 12 common thematic objectives linked to the Europe 2020 Strategy⁵³³. Thematic objective 6 is explicitly linked to environmental protection, addressing the support to be provided for 'preserving and protecting the environment and promoting resource efficiency (including through investment in Natura 2000)'.

The handbooks for financing Natura 2000 during the periods of 2007-2013 and 2014-2020 provide a thorough assessment of the integration of biodiversity objectives into the EU sectoral funds (European Commission, 2007d; Kettunen et al, 2014a; Kettunen et al, 2014b). They clearly show that the legal obligation of providing opportunities for financial support to biodiversity conservation as part of the EU sectoral funds has been explicitly taken up across various funds (see Table 43 below). Individual sectoral funds include an explicit reference to financing Natura 2000 and biodiversity as a possible area of funding. The only exception to the rule is ESF, which provides support to broader social and economic cohesion, although it may have possible indirect links to Natura 2000 management. A range of documents (e.g. case studies, guidance on good practice) exist, demonstrating that integration of Natura 2000 and/or biodiversity into different sectoral funds is also possible across Member States in practice (ENEA-MA, 2013; IEEP and Milieu, 2013; Kettunen et al, 2012; Kettunen et al, 2014b).

⁵³¹ COM(2004)431.

⁵³² SEC(2011)1573.

⁵³³ These rules are laid down in the Common Provisions Regulation (CPR) and set out by the 'Common Strategic Framework' (CSF) (Regulation (EU) No 1303/2013).

The EU co-funding to support research and innovation (7th Framework Programme in 2007-2013 and Horizon 2020 in 2014-2020) is based on a specific programme that sets out objectives and rules for the implementation of the fund. This general programme is implemented through biennial Work Programmes established for dedicated themes. The concrete project opportunities, including possible elements focusing on and/or relevant to managing the Natura 2000 network, are defined by theme-specific calls from the Commission and must, in order to be eligible, constitute research on management activities on Natura 2000 sites. A wide range of Natura 2000 measures have been, and continue to be, funded, mainly related to the development and testing of new management approaches and/or evaluation of the past Natura 2000 management regime (see Box 101 below).

Box 101 Examples of EU research framework projects supporting implementation of the Natura 2000 network and/or wider objectives of the EU Nature Directives

The EUMON⁵³⁴ project focused on assessing and improving monitoring methods and systems of surveillance for species and habitats of Community interest. This included reviewing available methods and approaches to monitor abundance and trends in species and habitats of Community interest, as well as designing methods that would allow for evaluation and improvement of the contribution of Natura 2000 and other conservation activities to the achievement of biodiversity targets.

The SCALES project⁵³⁵ focused on exploring how the knowledge of different scales relevant to biodiversity conservation could be better integrated into conservation strategies and management actions. Connecting protected areas, including Natura 2000 sites, with wider landscape management played an integral role in the project.

The MACIS project⁵³⁶ explored the minimisation of, and adaptation to, climate change impacts on biodiversity. The requirements of protected area management, including Natura 2000 sites, were one of the focal areas of the project.

The OPERAS and OpenNESS projects⁵³⁷ are focused on supporting the uptake of ecosystem service knowledge in practice. They are built on extensive cooperation, using practical examples and case studies, several of which come from Natura 2000 sites.

The decisions on allocating EU funds between different possible priorities rests with the Member States (see section 6.2 for further discussion). No EU level assessment has systematically assessed the integration of biodiversity and Natura 2000 into OPs and RDPs across the EU, e.g. making comparisons between Member States and/or between funds. However, existing information – from both studies (e.g. (European Court of Auditors, 2011; European Court of Auditors, 2014a; Kettunen et al, 2011) and the evidence gathering questionnaires - indicate that there has been inadequate integration of biodiversity conservation priorities in most of the national and/or regional OPs and RDPs, particularly when it comes to providing a dedicated earmarked budget for biodiversity measures within the funds (see question Y.2). For example, the analysis of 46 ERDF OPs in 10 Member States for the period 2007-2013 showed that while biodiversity was included as an objective in 86% of the assessed OPs, only 63% of them had a clear budget for biodiversity measures expressed by the specific code (INTERREG IVC SURF Nature project, 2011). Similarly, the assessment by the CJEU concluded that during the 2007-2013 funding period, 12 Member States (45%) allocated less than 0.2% of their cohesion resources to measures directly dedicated to biodiversity (European Court of Auditors, 2014a).

Table 43 Integration of biodiversity and Natura 2000 into EU sectoral funding priorities during the 2014-2020 funding period (Kettunen et al, 2014a)

EU funding instrument	Examples of key opportunities for financing biodiversity conservation

⁵³⁴ <http://eumon.ckff.si>

⁵³⁵ <http://www.scales-project.net/>

⁵³⁶ <http://macis-project.net/index.html>

⁵³⁷ <http://www.operas-project.eu> and <http://www.openness-project.eu/>

EU funding instrument	Examples of key opportunities for financing biodiversity conservation
EAFRD	Article 17(1)(d): Non-productive investments linked to the achievement of agri- environment-climate objectives, including biodiversity conservation status of species and habitats, as well as enhancing the public amenity value of a <u>Natura 2000 area or other high nature value systems</u> to be defined in the programme. Article 20(1)(a): Drawing up and updating development plans including protection and management plans relating to <u>Natura 2000 sites and other areas of HNV</u>. Article 28: Support granted annually per hectare under multi-year contracts to farmers, or groups of farmers, for agricultural practices that make a positive contribution to the environment and climate, including in <u>Natura 2000</u>.
EMFF	Article 40(1)(d): Preparation, including studies, drawing-up, monitoring and updating of protection and management plans for fishery-related activities relating to <u>Natura 2000 sites</u> and spatial protected areas under the MSFD and relating to other special habitats. Article 40(1)(e): Management, restoration and monitoring of <u>Natura 2000 sites</u>. Article 40(1)(h): Schemes for compensation for damage to catches caused by <u>mammals and birds protected by the Habitats and Birds Directives</u>. Article 44(6)(a): Management, restoration and monitoring of <u>Natura 2000 sites</u> which are affected by fishing activities [...]. Article 54(1)(a): Aquaculture methods compatible with specific environmental needs and subject to specific management requirements resulting from the designation of <u>Natura 2000 areas</u>.
ERDF	Article 5(6)(d): Protecting and restoring biodiversity and soil and promoting ecosystem services, including through <u>Natura 2000</u> , and green infrastructure.
Cohesion fund	Article 4(c)(iii): Protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including through <u>Natura 2000</u> and green infrastructure.

National studies

No national studies have been identified that systematically analyse the level of integration of biodiversity into different EU funds at national level by assessing the opportunities provided by biodiversity and Natura 2000 across different OPs. However, the existing case evidence across individual funds (see Table 19 and section 6.2) indicates that – despite a number of positive examples – the overall uptake of biodiversity-related opportunities in the context of national and regional programmes (OPs and RDPs) is not achieving its potential. The case evidence also shows that, even after a successful integration at the level of OPs and RDPs, uptake of funds can be hindered by factors such as high administrative burden or ineffective scheme design (See Table 19).

Only some Member States have made attempts to quantify the overall gap in financing for biodiversity which is partly caused by the limited success in integrating biodiversity into EU sectoral funds. In Germany, the funding gap for financing biodiversity conservation can be estimated as EUR 1.96bn per year (Hampicke, 2013; Rühls and Wüstemann, 2015). In Spain, the difference between the estimated current investment in the Natura 2000 network and the desired level of spending indicates a funding gap of around EUR 0.6bn annually (Moreno et al, 2013) (see section 6.2 for more detailed information). Given the key role of EU co-financing for biodiversity in the EU (see section 6.2), the gap

in overall financing indirectly indicates that the integration of biodiversity into different EU funds has much room for improvement.

The coordination between different funds has been identified as one of the challenges for the successful integration of biodiversity into EU funds at national level. During the 2007-2013 funding period none of the Member States or regions had adopted a coordinated programmatic approach to Natura 2000 financing, defining priorities, allocations through different funds, role divisions and monitoring (Kettunen et al, 2011). This caused lack of clarity about the actual financing needs and how these should be met. The authorities responsible for Natura 2000 management and biodiversity conservation were, in many cases, not those making the decisions on allocation and spending under different sectoral funds, and, frequently, they were not a partner in planning and implementation decisions. It was concluded that the lack of coherence, and absence of a certain level of obligatory coordination, placed Natura 2000 financing in a position of very considerable dependence on political goodwill in different sectors, making it vulnerable to both intended and unintended under-allocation.

Responses to the evidence gathering questionnaire and national missions

71 responses to this question were received in the evidence gathering questionnaires. The majority of these responses (61) provided opinions on the current level of sectoral integration, often supported by qualitative evidence or examples (47). Some respondents (21) also provided quantitative evidence. In general, the stakeholder responses indicated that while the EU level framework provided a range of opportunities for financing the Nature Directives, the overall level of funding was considered inadequate, with considerable challenges in taking up the available opportunities when implementing the funds at national and regional level.

In terms of different sectoral funds, the responses highlighted the important role of EAFRD as a key sectoral fund supporting the implementation of the Nature Directives in most Member States. However, examples exist of both successful and unsuccessful integration of biodiversity into the funding priorities at national level (see Table 44 below). In addition to EAFRD, ERDF has played an important role in contributing to the overall funding available, especially in many of the Central and Eastern European Member States (see Table 44 below). There is a limited take-up of funds under the ESF, EFF (2007-2013) and EMFF (2014-2020). However, both stakeholders and documented case examples (IEEP et al, 2016; Kettunen et al, 2014b) provide a number of examples of successful individual projects addressing biodiversity concerns under these two funds, indicating that better integration is possible when supported by priority setting at a national level. The results of EU level assessments (see above) and examples of individual case examples support these overall conclusions (IEEP and Milieu, 2013; Kettunen et al, 2012; Kettunen et al, 2014b).

There are some indications that, for the 2014-2020 funding period, financing biodiversity under different EU funds might be limited by overall funding cuts (see Box 25 under section 6.2) or other requirements, such as need to concentrate ERDF on key thematic objectives other than biodiversity⁵³⁸.

The coordination between different funds has been identified as a core challenge in successfully implementing the EU integrated co-funding approach (see national studies above). While it is too early to assess the overall performance of PAFs, some Member States stated that, when well prepared and given political impetus, PAFs can make a positive contribution towards securing the integration of biodiversity funding at a national level, in addition to wider Natura 2000 funding needs (e.g. Estonia, Belgium (Flanders) and Bulgaria). However, the responses also indicated that the development of PAFs

⁵³⁸ Support from the ERDF will be concentrated on certain key thematic objectives (Research and Innovation, ICT, SMEs and promoting a low carbon economy). The allocations to these priorities vary between different EU regions, ranging from 80% to 50% of the total ERDF resources to be allocated to the above priorities. (Council Regulation (EU) No 1299/2013).

missed some opportunities in some Member States. For example, some PAFs were considered to be either too ambitious (therefore unrealistic) or inadequate in terms of their commitment or level of detail. Furthermore, in some cases PAFs were criticised for the lack of stakeholder consultation during their development. For example, Finland, Spain and Italy all pointed to such missed opportunities in the development of PAFs. In some cases, PAFs were developed too late to have an impact on the planning and allocation of different sectoral funds.

The key constraints identified for integrating Natura 2000 into the EU co-financing framework, in particular in the national and regional context, are described in question Y.2.

Table 44 Examples of good and failed practices in integration, identified by evidence gathering questionnaires and national missions

Country	EU fund	Description of good practice
EU level	All funds	The European Network of Environmental Authorities-Managing Authorities (ENEA-MA) is a voluntary initiative of DG Environment and Member State environmental authorities, expanded to include programme Managing Authorities, aiming to improve the integration of environment and sustainable development within the Cohesion Policy programmes and projects. It provides a platform for exchanging ideas and sharing best practice between Member States. In March 2013, the Network issued a position paper on the integration of biodiversity and Natura 2000 in Partnership Agreements and Operational Programmes 2014-2020. The paper contains a comprehensive list of funding opportunities to support biodiversity and related interventions, including the five European Structural and Investment Funds, Horizon 2020 and LIFE. (ENEA-MA, 2013)
Austria	EAFRD	During the EU funding period 2007-2013, Austria implemented the EAFRD measure M323a (Conservation and improvement of rural heritage in the field of nature protection). 1,026 projects were implemented through this measure, with a total funding of EUR 75m. Of the projects funded, 54% concerned a Natura 2000 area, 29% concerned habitats and species covered by Annex I of the Directive 79/409/EEC, and 11% concerned habitats covered by the Annexes I and II of the Directive 92/43/EEC. Each of the projects funded through M323a has indirectly contributed to the conservation of habitats and species. 26% of the projects were designed as a contribution to the development of specific biotopes and habitats, and required the purchase of land. These constitute a base for the conservation or upgrading of ecologically valuable habitats, or the resettlement of rare or endangered species or species of Community interest. Implementations in the EAFRD for forests, however, have been weak by comparison. (Pinterits et al, 2014).
Bulgaria	ERDF	During the EU funding period 2007–2013, the funding available under Axis 3 (Biodiversity) of the Environment Operational Programme (EOP) was over EUR 103m ⁵³⁹ . According to the national NGOs, this level of funding for biodiversity was rather unprecedented and it was sufficient to address specific objectives under the Directive (e.g. ensure protection and management of SCIs and SACs). The funds also enabled the implementation of large-scale projects for the mapping and assessment of the conservation status of the Habitats Directive habitat types and species. These results were then used by the Ministry of Environment in order to provide data for the six-year monitoring under the Habitats Directive (Article 17).
Czech Republic	ERDF	During the EU funding period 2007-2013, ERDF contribution to the implementation of the Nature Directives amounted to about EUR 29m under the Operational Programme Environment (OPE) (Priority Axis 6: Improvement of state of nature and landscape: area of intervention 6.1: implementation and management of Natura 2000 sites). This area of intervention especially focused on supporting Natura 2000 sites. The measures supported have included, for example, monitoring of sites and the status of the populations of plant and animal species. According to the state's nature authority, access to funds was facilitated by the high co-funding rate (for Area of Intervention 6.1 to 95% of eligible costs). On the other hand, the high administrative burden (e.g. labour-intensive preparation of proposals and project administration) has been identified as a challenge in using the fund.
Hungary	EAFRD	The EAFRD Rural Development Programme for 2014-2020 provides two separate measures for compensation: Natura 2000 grassland sites and Natura 2000 forests. The beneficiaries are farmers and state organisations engaged in farming activities and private forest-holders. According to the state's nature authority, these two compensation payments directly affect the implementation of Natura 2000 objectives, encouraging beneficiaries to comply with the regulations, while being paid for the loss of potential profit. Both the nature authorities and NGOs consider the administrative burden for these payments to be limited, and this encourages the uptake of these measures. This is particularly the case with forestry.
Poland	ERDF / CF	During the 2007-2013 funding period, EUR 90m was dedicated especially to nature conservation under Axis V of the Operational

⁵³⁹ http://ope.moew.government.bg/files/useruploads/files/ope_text_eng-2.pdf

Country	EU fund	Description of good practice
		Programme Infrastructure and Environment. According to an available assessment, these funds were been well managed, properly integrating nature conservation objectives. The goal of this Axis was to reduce the degradation of the natural environment, halt biodiversity loss and raise public ecological awareness. Priority was given to the Natura 2000 areas. The projects co-financed from this Axis were coordinated by the 'Centre for the Coordination of Environmental Projects'. The application procedure was transparent, with clear biodiversity-related criteria, preference lists and extensive use of independent experts. Some examples of funded projects include: the rehabilitation and protection of the Baltic mammals in Poland, focusing on grey seals and porpoises (approximately EUR 1.5m budget), continuation of raised bog conservation in Pomerania (approximately EUR 300,000), halting artificial peatbog drainage, and dry grasslands conservation in Malopolska region (EUR 750,000) ⁵⁴⁰ .
The UK / North Wales	EFF	Project FishMapMôn was a collaborative pilot project between Natural Resources Wales (NRW), recreational fishers and commercial fishers in North Wales executed in 2012-2013. The aim of the project was to develop a fisheries management guidance tool for the Anglesey marine area, which would contribute to delivering an ecosystem based approach to realising the Welsh Sustainable Fisheries Strategy. European Fisheries Fund (EFF) and government funds were used to finance activities such as staffing costs, publicity and training and stakeholder engagement. (Kettunen et al, 2014b)
Country	EU fund	Description of missed opportunities for integration
Spain	EAFRD	According to the national NGOs, the regions have no standard system for monitoring the dedication of funds to Natura 2000 (beyond the compulsory breakdown for certain measures) or for evaluating their contribution to the conservation of the Natura 2000 network. Some measures considered to contribute to Natura 2000 have no clear benefit for the conservation of Natura 2000 sites. For example, the agri-environment measure from the 2007-2013 period for 'integrated production' of olives was counted by the responsible ministry as a contribution to Natura 2000 funding. In reality, this action had no biodiversity objectives nor any objectives related to the conservation of species or habitats. This measure was focused on minimising the use of chemical fertilisers and pesticides, but, in many cases, involved very few changes in the normal management of farms, so its benefits for Natura 2000 were unclear. Similarly, the positive contribution of the aid to less favoured areas (LFA) for the maintenance of agriculture favourable for conservation, is considered to have been overestimated, as no management requirements were included and the amounts offered were so small that they may not be sufficient to avoid abandonment. The above failures are attributed to the lack of a standard system for monitoring biodiversity related funding to the conservation of the Natura 2000 network.
Ireland	EAFRD	Rising land prices in Ireland make voluntary approaches such as agri-environment schemes less likely to succeed, as they are competing with more profitable land uses. According to the NGOs, farmers with land in Hen Harrier SPAs in Ireland claim that their designated land is worth (for sale) only EU 1,000 per acre, while adjoining undesignated land is worth at least EUR 4,000 per acre (for sale) for forestry ⁵⁴¹ . This creates a financial incentive to afforest land. The afforestation programme has been temporarily halted in the SPA areas designated for Hen Harrier until the Hen Harrier action plan has been finalised.
Latvia	EAFRD	Latvia has one biodiversity related agri-environmental measure ('Preservation of biodiversity in grasslands'). According to NGOs, during 2007-2013 only 15% of the RDP funding for the agri-environmental measures was directed to biodiversity. During the 2014-2020 period, this level of support will be reduced: from approximately EUR 123 per ha (2007-2013) to EUR 55 per ha (2015) with approximately 35,000 ha of HNV grasslands being affected. The NGOs consider this not to be insufficiently attractive for farmers.
Poland	EAFRD	The 2007-2013 RDP offered three agri-environment packages for biodiversity. Packages 4 and 5 offered a set of subschemes for

⁵⁴⁰ <http://www.ceeweb.org/work-areas/working-groups/natura-2000/resources/cases/>

⁵⁴¹ <http://www.irishexaminer.com/viewpoints/analysis/farmers-urge-fair-deal-on-hen-harrier-land-311387.html>

Country	EU fund	Description of good practice
		management of endangered bird species and natural/semi-natural habitats within and outside Natura 2000 sites. Package 3 offered a simplified scheme for extensive grassland management. Many farmers in Poland gave up on these agri-environment packages, as they required an expert assessment and were associated with a long wait for funding, instead choosing the simplified package which was much easier to implement ⁵⁴² . The simplified package supported mowing management which was not appropriate for some EU protected habitats and species; for example the first cut date fell within the nesting period of some wet grassland breeding birds. The uptake of the targeted package inside Natura 2000 was 10% of the target by 2014, while uptake outside Natura 2000 reached 74% of the target.
Poland	ERDF	The success in Axis V of the country-wide Infrastructure and Environment Programme (described above in this table), was shadowed by the lack of support to biodiversity under the other OPs. Theoretically, each of the sixteen OPs included biodiversity funding opportunities. In practice, however, these funds were often spent on activities which were only remotely connected with nature protection. For example, in Lower Silesia, under Priority IV 'Environment and Ecological Safety', the approved projects focused on rebuilding educative routes for tourists or centres for environmental education, with very indirect benefits to habitats and species conservation. In the Lubuskie region, the projects financed under Priority III 'Conservation and management of environmental resources' included expansion and modernisation of sewage treatment plants and sewage systems, rebuilding fire brigade stations and buying fire brigade trucks, insulation of buildings, building a solar and wind energy plant ⁵⁴³ .
Slovenia	ERDF	According to the national nature authority, the analysis of the 2007-2013 achievement of agri-environmental measures shows that by 2012 the objectives of the conservation of Natura 2000 were achieved in only 11% of sites where measures could have been applied ⁵⁴⁴ . Reasons included, for example, lack of promotion of the schemes and limited knowledge to allow uptake. In the last period of 2007-2013, a rise in the inclusion in agri-environmental measures specific for Natura 2000 was observed, however, total payment for measures was still lower than 10% of all possible sources for agri-environmental measures in the Natura 2000 sites, and lower than 1% of all financial sources used for agri-environmental measures annually.
Czech Republic	EFF	According to the nature authority, in the OP for Fisheries no measure focusing on Natura 2000 areas was implemented, despite the Ministry of Environment's proposal. One key reason was the low total financial allocations for this programme, resulting in competing priorities.

⁵⁴² A. Krupa, K. Krupa Potencjalne negatywne oddziaływanie pakietu 3. programu rolnośrodkowego na siedliska przyrodnicze będące pod ochroną.

⁵⁴³ <http://www.ceeweb.org/work-areas/working-groups/natura-2000/resources/cases/>

⁵⁴⁴ http://www.natura2000.gov.si/fileadmin/user_upload/LIFE_Upravljanje/A1_A2_Agriculture_Summary.pdf

http://www.natura2000.gov.si/fileadmin/user_upload/LIFE_Upravljanje/A1_A2_Analiza_kmetijstvo.pdf

Results from the online public consultation

The results of the online public consultation indicate that only a minority of the respondents considered the Directives to have made no contribution at all to improving the funding for nature conservation over and above what could have been achieved through national or regional legislation (see responses to Q31 below). However, the majority considered this contribution to be minor rather than major or significant. This response corresponds to the insights gained in question Y.2, reflecting the overall consensus on the lack of financing for implementing the Directives.

Table 45 Results of question 22 of the public consultation questionnaire

<i>Q31: To what extent have the EU Birds and Habitats Directives helped improve the following, over and above what could have been achieved through national or regional legislation??</i>				
	No contribution	Minor contribution	Moderate contribution	Significant Contribution
Funding for nature conservation	8%	49%	14%	25%
Integration of nature conservation into other policies	9%	51%	16%	21%

8.6.4 Key findings

- Assessments of the 2007-2013 and 2014-2020 periods show that there are a range of EU funding opportunities for financing biodiversity and Natura 2000 across different instruments. However, only the LIFE programme provides support to biodiversity and Natura 2000 as a primary objective, while all other EU funding instruments target a variety of EU goals on rural, regional, infrastructural, social and scientific development. With the exception of LIFE and Horizon 2020, decisions on the allocation of funds between different national and regional priorities are primarily taken by Member States.
- The level of successful integration in practice is hindered by national level priority setting (i.e. competing with broader sectoral priorities) and establishing links with broader sector-specific goals of different EU funds. Consequently, the uptake of biodiversity related opportunities in the context of national and regional programmes (OPs and RDPs) does not make a sufficient contribution to the Directives' funding requirements (See question Y.2). The analysis of the 2007-2013 funding period indicated a significant shortfall in the uptake of financing opportunities provided by different funds. The difficulties in sectoral integration at the national and regional level are considered to be one of the key underlying factors in explaining the relative lack of funding for the implementation of the Directives (see question Y.2).
- Stakeholder responses highlighted the important role of EAFRD as a key sectoral fund in supporting the implementation of the Nature Directives in most Member States. However, examples exist where biodiversity was successfully integrated into funding priorities at national level, as well as instances where it was not integrated. ERDF also plays an important role in contributing to the overall funding available, especially in many of the Central and Eastern European Member States. There are indications, however, that funding opportunities under the ERDF have declined at national and regional levels in the 2014-2020 period, due to changes in priorities. There is a limited uptake of funds under the ESF, EFF (2007-2013) and EMFF (2014-2020), although examples exist of successful individual projects addressing biodiversity concerns under these funds, indicating that integration is possible when supported by such priority setting at national level.

- The coordination between different funds has been identified as one of the challenges in successfully implementing the EU integrated co-funding approach. While it is too early to assess the overall performance of PAFs, there are indications that when well prepared and given political impetus they can make a real, positive contribution towards securing the integration of biodiversity funding at a national level, as well as wider Natura 2000 funding needs (see question Y.2). Reports suggest that the development of PAFs missed opportunities in certain Member States, with some PAFs considered too ambitious, or insufficiently ambitious and likely to fail in practice. In some instances, PAF development has been undertaken too late, or with only limited consultation with stakeholders.

8.7 C.8 - Are there overlaps, gaps and/or inconsistencies that significantly hamper the achievements of the objectives?

Interpretation and approach of this question has been integrated in the analysis of most of the other coherence questions, in particular C.1 (see section 0), C.2 (see section 8.2), C.3 (see section 8.3), C.4 and 5 (see section 8.4), C.7 (see section 8.6) and C.10 (see section 0). As described in each of those questions' interpretation and approach, the judgement criteria and indicators used to assess the coherence of the Nature Directives between themselves, with other EU Environmental law and policies, with other EU sectoral policies or funds or with other International Agreements are related to the identification and analysis of any overlaps, gaps or inconsistencies which are relevant enough to affect the achievement of the objectives of the Nature Directives. Most stakeholders did not respond to this question and those who did, referred to previous questions or repeated certain elements of the information already provided.

8.8 C.9 - How do the directives complement the other actions and targets of the biodiversity strategy to reach the EU biodiversity objectives?

8.8.1 Interpretation and approach

This analysis examines evidence of the ways in which the objectives and provisions of the Nature Directives complement those actions and targets of the EU Biodiversity Strategy that do not explicitly refer to the Birds and Habitats Directives (i.e. Targets 2 – 6). The coherence of Target 1 of the EU Biodiversity Strategy with the Nature Directives is assessed by question S.2 (see section 5.2), which discusses the effectiveness of the Directives in achieving the EU biodiversity strategy objectives. While question S.2 (see section 5.2) considers the extent to which the outcomes of implementation of the Directives are contributing to achieving the objectives and targets of the Biodiversity Strategy, this question examines how the Nature Directives complement biodiversity goals, focusing mainly on the stated objectives and intent of the legislation compared to the targets of the strategy.

8.8.2 Main sources of evidence

The text of the legislation constituted the first source of information to assess coherence with the aims, targets and actions of the EU Biodiversity Strategy. This information was complemented by EU reports, such as the mid-term review of the EU Biodiversity Strategy (European Commission, 2015g), the reports under the Mapping and Assessing of Ecosystem Services (MAES) initiative (Maes et al, 2014; Maes et al, 2015), the Strategy for Green Infrastructure (European Commission, 2013c), and other national studies and reports.

The evidence gathering questionnaires provided another important source of information. Of 112 questionnaires, 58 provided a response to question C.9. The majority of responses (41 out of 58) were given in relation to Target 2 of the EU Biodiversity Strategy, with Target 3 addressed by 16 respondents, Target 4 by 19 respondents, Target 5 by 10 respondents, and Target 6 by nine respondents.

About half of the responses were from environmental NGOs from 26 Member States, with five EU level environmental NGOs also responding. The majority of the environmental NGOs expressed the same opinion. The nature protection authorities from 18 Member States provided a response to this question, as did other authorities from four Member States (i.e. i.e. marine-related authorities from Cyprus and Ireland, and the forest authorities from France and Romania). Five responses were received from the private sector, from associations related to forestry, fisheries and cement.

8.8.3 Analysis of the question according to available evidence

Requirements of the EU Biodiversity Strategy

The EU Biodiversity Strategy aims to 'halt the loss of biodiversity and ecosystem services in the EU and help stop global biodiversity loss by 2020'. The strategy includes six Targets and 20 actions. These are:

- Target 1: Full implementation of the Birds and Habitats Directive (see question S.2 for discussion of Target 1).
- Target 2: Maintain and restore ecosystems and their services.
- Target 3: Achieve more sustainable agriculture and forestry.
- Target 4: Make fishing more sustainable and seas healthier.
- Target 5: Combat invasive alien species.
- Target 6: Help stop the loss of global biodiversity.

Coherence of the Nature Directives with the headline target of the EU Biodiversity Strategy

The Directives are an important instrument in achieving the headline target of the Strategy to 'halt the loss of biodiversity and ecosystem services in the EU and help stop global biodiversity loss by 2020'. The full implementation of the Nature Directives, however, would be insufficient to achieve the objectives of the Strategy. Generally, the scope of the Biodiversity Strategy is broader than that of the Nature Directives.

- The Strategy follows a more holistic, ecosystem-based approach, while the Directives are focused on protected species and habitats.
- The Strategy has set a deadline to achieve its objectives (2020), while no timing is set under the Directives to achieve FCS (or similar).
- The Strategy aims to engage with other sectors that have an impact on biodiversity, thereby reducing the pressures resulting in a decline or loss of biodiversity. The sectors that are particularly addressed in the Strategy are agriculture and forestry (under Target 3) and fisheries (under Target 4).
- The Strategy aims to halt the loss of biodiversity in both protected and non-protected areas. It thereby strengthens the provision of the Nature Directives to take action also outside of the protected areas.
- The Strategy also aims to help stop global biodiversity loss, while the Directives focus on the EU.

One exception to scope is the area of hunting activity, which is explicitly addressed by the Nature Directives but not directly covered by the Biodiversity Strategy.

The following sections address the coherence of the Nature Directives with Targets 2 – 6 of the Biodiversity Strategy in more detail, looking chiefly at scope and approaches. For Target 2, the analysis also considers specific actions, given the relative importance of ecosystems and green infrastructure for successful implementation of the Nature Directives.

Coherence of the Nature Directives with Target 2 of the EU Biodiversity Strategy

Target 2 of the EU Biodiversity Strategy states that, by 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems. Target 2 is broken down into three actions, i.e. Actions 5-7 of the Strategy:

- Action 5: Improve the knowledge of ecosystems and their services in the EU.
- Action 6: Set priorities to restore and promote the use of green infrastructure.
- Action 7: Ensure no net loss of biodiversity and ecosystem services.

Action 5 of the Strategy aims to map and assess the state of ecosystems and their services. While the Action 5 knowledge base will include the data collected under the Directives on the status of protected species and habitats, it will go beyond this to map and assess ecosystems and their services as a whole, inside and outside the Natura 2000 network. The Millennium Ecosystem Assessment (Millennium Ecosystem Assessment, 2005) defines ecosystem services as the benefits that people obtain from ecosystems e.g. goods such as timber, food, clean water, and services such as flood protection and recreation. Even though the exact relationship between biodiversity and each individual ecosystem service varies, the in-depth report of Science for Environment Policy (European Commission, 2015 [1917]) argues that the long-term flow of all ecosystem services will require high levels of biodiversity. The latter also conclude that protecting ecosystem services will also protect biodiversity. While the provision of ecosystem services is not limited to Natura 2000 sites, (Kettunen et al, 2009a) and (Bastian, 2013) found that Natura 2000 sites are important suppliers of ecosystem services, within and outside their boundaries.

The assessment of ecosystems and their services, as intended under Target 5, requires a new analytical framework. This has been developed under the MAES initiative (Mapping and Assessment of Ecosystems and their Services) (Maes et al, 2014) and is currently being tested in several EU-wide research projects, such as OpenNESS, OPERAs and ES-MERALDA. A concrete output is the MAES digital atlas of ecosystem types and ecosystem services⁵⁴⁵. An example at regional level is the 'description of the state and trends of ecosystems and their services in Flanders' (Demolder et al, 2015) and the associated atlas of ecosystem services for Flanders⁵⁴⁶.

One challenge in the development of the knowledge base under Target 5 is the use of the data that has been collected on the conservation status under Article 12 of the Birds Directive and under Article 17 of the Habitats Directive. The 2nd MAES report suggests that the status of birds can be used for the mapping and assessment of ecosystems, while the linkages between the species and habitats covered by the Habitats Directive and the 11 ecosystem types recognised under the MAES process are now being developed. The aim of the MAES initiative to have a unified knowledge base on the state of ecosystems may be a tool to coordinate the implementation of the Nature Directives and the EU Biodiversity Strategy.

Action 6, on the setting of priorities to restore and promote the use of green infrastructure, is coherent with the Directives, both in terms of the restoration of habitats and the promotion of green infrastructure. For restoration of habitats, Article 3 of the Birds Directive requires Member States to take measures to preserve, maintain or re-establish the ecological needs of habitats inside and outside of the protected zones. Article 3(3) and Article 10 of the Habitats Directive enable Member States to improve the ecological coherence of the Natura 2000 network by maintaining, and, where appropriate developing, features of the landscape important for species of fauna and flora such as ecological cor-

⁵⁴⁵ <http://biodiversity.europa.eu/maes/maes-digital-atlas>, 16.12.15.

⁵⁴⁶ <https://www.inbo.be/nl/publicatie/flanders-regional-ecosystem-assessment-state-and-trends-ecosystems-and-thei>

ridors or stepping stones. The stakeholders agreed that restoration is covered under the Directives but differed in terms of the priorities for restoration. While the majority of stakeholders refer to the restoration of degraded ecosystems within the Natura 2000 network, the nature authorities of three Member States (Finland, the Netherlands and Malta) give priority to the restoration of species and habitats outside the Natura 2000 network. Restoration both within and outside of the Natura 2000 network is coherent with the Directives.

Green infrastructure is defined and described in the EU Green Infrastructure Strategy (European Commission, 2013c) as 'a strategically planned network of high quality natural and semi-natural areas with other environmental features, which is designed and managed to deliver a wide range of ecosystem services and protect biodiversity in both rural and urban settings.' As described in the EU brochure on Green infrastructure (European Union, 2013 [1914]), Natura 2000 lies at the very core of Europe's Green infrastructure. At the same time, Green infrastructure beyond protected areas will also help to strengthen the connectivity of the Natura 2000 network by making the core areas more resilient, providing buffers against impacts on the sites, and offering practical real-life examples of how healthy protected ecosystems can be used in a way that provides multiple socio-economic benefits to people as well as to nature. Stakeholders shared the latter opinion and agreed that the promotion of Green infrastructure would improve the connectivity between Natura 2000 sites. Examples of Green infrastructure that improves the connectivity of the Natura 2000 network provided by stakeholders are the National Ecological Network (NEN) in the Netherlands, the 'green and blue infrastructure network' in France, and a regional network of green corridors developed in Spain which has been further developed by some regions (i.e. the Plan for the improvement of the ecological connectivity in Andalucía and the Network of ecological corridors of the Basque Country).

Action 7 aims to avoid a net loss of biodiversity and ecosystem services. This means that damage resulting from human activities must be balanced by at least equivalent gains. Action 7 is consistent with the provision under the Directives on compensatory measures for projects of over-riding public interest affecting the integrity of Natura 2000 sites, but goes also beyond this by addressing biodiversity and ecosystem services, both within and outside of the Natura 2000 network.

Coherence of the Nature Directives with Targets 3 and 4 of the EU Biodiversity Strategy

Under Targets 3 and 4, the EU Biodiversity Strategy states that efforts to integrate biodiversity into the development and implementation of other EU policies have so far been insufficient. The Strategy therefore seeks to improve integration in key sectors, specifically through targets and actions to enhance the positive contribution of agriculture and forestry (Target 3) and fisheries (Target 4) sectors to biodiversity conservation and sustainable use.

The Strategy thus aims to engage with these three sectors – and their policy instruments – that have an impact on biodiversity, to reduce the pressures resulting in a decline or loss of biodiversity. Under the Directives, pressures, such as those originating from other sectors, need to be reduced if the pressure inhibits the achievement of an FCS. The Strategy aims for a positive contribution from the agriculture, forest and fisheries sectors within and outside of the Natura 2000 sites. Targets 3 and 4 of the Strategy, although more far-reaching, are coherent with the Directives.

Stakeholders raised the lack of ambition in the actual implementation of the tools provided under EU policies on agriculture, forestry and fisheries (See the sections on agriculture, forestry and fisheries in questions S.2 (see section 5.2) and C.4/C.5 (see sections 8.4.3.1, 8.4.3.4, 8.4.3.5)).

Coherence of the Nature Directives with Target 5 of the EU Biodiversity Strategy

Target 5 of the Strategy to combat Invasive Alien Species (IAS) is consistent with Article 11 (Birds Directive) and Article 22b (Habitats Directive). The stakeholders (four nature authorities and two NGOs) who directly addressed the coherence of Target 5 and the Nature Directives, stressed the importance of the eradication of IAS for achieving an FCS. In addition, the Luxembourg nature authority also highlighted the opposite case, in which it is harder for IAS to spread and proliferate in well-managed Natura 2000 sites.

The efforts to combat IAS by the Directives and the Strategy are further supported by a new Regulation on invasive alien species⁵⁴⁷. The Regulation seeks to address the problem of IAS in a comprehensive manner, so as to protect native biodiversity and ecosystem services, as well as to minimise and mitigate the human health and economic impacts that these species can have.

Coherence of the Nature Directives with Target 6 of the EU Biodiversity Strategy

The Directives do not have a provision to avert global biodiversity loss (Target 6). Some stakeholders (four environmental NGOs and five Member State nature authorities) stated that the Directives have, nevertheless, inspired non-EU countries to protect biodiversity, e.g. by the establishment of the Emerald network and the African-Eurasian Migratory Water Bird Agreement, thereby indirectly complementing the implementation of Target 6 (see question C.10 for more detail).

8.8.4 Key findings

- The Nature Directives are an important instrument in the achievement of the headline target of the EU Biodiversity Strategy to 'halt the loss of biodiversity and ecosystem services in the EU and help stop global biodiversity loss by 2020'. The full implementation of the Nature Directives, however, is insufficient to achieve the objectives of the Strategy. While the Directives focus on a list of protected habitats and species and on the management of the Natura 2000 network, the Strategy has a broader scope, and takes a more comprehensive approach to protect or restore biodiversity and ecosystem services, inside and outside of the Natura 2000 network.
- The Strategy has set a deadline to achieve its objectives (2020), while no timing is set under the Directives to achieve FCS (or similar);
- Target 2 of the EU Biodiversity Strategy, to establish green infrastructure and restore at least 15% of degraded ecosystems, is coherent with the Nature Directives through the provisions to restore habitats and species that do not have FCS (or similar for the Birds Directive). The priorities for restoration differ amongst stakeholders: the majority prioritise the restoration of degraded ecosystems within the Natura 2000 network, while some give priority to the restoration of species and habitats outside the Natura 2000 network. Restoration both within and outside the Natura 2000 network is coherent with the Directives.
- The Strategy's 'no net loss initiative of biodiversity and ecosystem services' is coherent with the provision on compensatory measures for projects of over-riding public interest affecting the integrity of Natura 2000 sites. The no net loss initiative, however, is broader, addressing habitats, species and sites both within and outside the Natura 2000 network.
- The Strategy aims to engage with other sectors that have an impact on biodiversity, thereby reducing the pressures that result in a decline or loss of biodiversity. The

⁵⁴⁷ Regulation (EU) No 1143/2014; entered into force on 1 January 2015.

sectors particularly addressed in the Strategy are agriculture and forestry (under Target 3) and fisheries (under Target 4). The coherence of implementation with the policies of the other sectors depends primarily on the effective use of the tools provided. (see section 5.2).

- Target 5 to combat IAS is coherent with the provision under the Nature Directives to limit the intentional introduction of alien species. Task 5 is also supported by the new Regulation on Invasive Alien Species.
- The Strategy goes beyond the territory of the EU and aims to increase the EU contribution to averting global biodiversity loss (Target 6). While the Directives do not such an expansive provision, they have, nevertheless, inspired non-EU countries to protect biodiversity, e.g. by the establishment of the Emerald network and the African-Eurasian Migratory Water Bird Agreement, thereby indirectly complementing the implementation of Target 6.

8.9 C.10 - How coherent are the directives with international and global commitments on nature and biodiversity?

8.9.1 Interpretation and approach

This question assesses the extent to which the Nature Directives ensure the implementation of obligations arising from international agreements on nature and biodiversity to which the EU and/or Member States have subscribed. The following 17 agreements were identified:

- Bern Convention.
- Convention on Biological Diversity.
- Convention for the Protection of the World Cultural and Natural Heritage .
- Convention on Wetlands of International Importance (Ramsar Convention).
- European Landscape Convention.
- CITES Convention.
- Bonn Convention.
- Bonn Convention's associated agreements: Agreement on the Conservation of African-Eurasian Migratory Waterbirds, Agreement on Conservation of Population of European Bats (EUROBATS), Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS), Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic Area (ACCOBAMS), Agreement on the Conservation of Seals in the Wadden Sea.
- International Convention for the Protection of Birds.
- Regional Sea Conventions (Baltic, North East Atlantic, Mediterranean and Black Sea).

These agreements are either mixed agreements, signed both by EU and Member States (e.g. the Bern Convention) or exclusive agreements, to which only Member States are party (e.g. Ramsar Convention).

This question examines coherence, incoherence and gaps between obligations arising from these international agreements and the Nature Directives. This covers strategic, specific and operational objectives of the Directives, as well as other specific requirements, such as derogations. In relation to gaps, the Directives are not expected to reflect all of the aspects of the relevant international agreements and therefore, this evaluation is limited only to those gaps that should be covered by the Directives, given their objectives and scope. Findings are presented per relevant international agreement, with a summary of key findings at the end.

8.9.2 Main sources of evidence

The following sources of information were used:

- Responses to the evidence gathering questionnaire from 69 stakeholders (mainly nature protection authorities and NGOs), responses to the online public consultation, information obtained from national missions to 10 representative Member States, and meetings with relevant Commission services.
- Legal analysis of specific provisions of international agreements and the Nature Directives, complemented by information from case law and infringement proceedings.
- Related literature and international agreement implementation reports, together with Commission Guidance documents.

The amount of literature available per relevant international agreement varies considerably. While many studies deal with the correlation between the Nature Directives and the Bern Convention and the Convention on Biological Diversity, there are almost none on the correlation between the Directives and the International Convention for the Protection of Birds and the European Landscape Convention.

8.9.3 Analysis of the question according to available evidence

82% of responses to the evidence gathering questionnaire believe the Nature Directives to be coherent with the relevant international agreements. The stakeholders, relevant literature and the EU bodies⁵⁴⁸ regard the Directives as an instrument of implementation of international and global commitments on nature and biodiversity. For example, the data obtained through monitoring under the Nature Directives, almost entirely covers the reporting obligations under various international agreements (Sudfeldt et al, 2012). On the other hand, 49% of the responses to the online public consultation (Part II, question 29) state that the Nature Directives are not aligned with international commitments.

There are two possible explanations for the discrepancy between the results of the evidence gathering questionnaire and the online public consultation. Firstly, the international agreements and the Nature Directives contain different operative provisions. In the Nature Directives, extensive operative provisions are unnecessary, as they are administered through the EU system consisting of both primary EU law and implementing institutions. Secondly, in some cases, the Directives differ in objectives and scope from the relevant international agreements. For example, the Convention on Biological Diversity, Article 1, also addresses biodiversity genetic resources. This issue is not addressed by the Nature Directives, but by a separate EU Regulation⁵⁴⁹ adopted in April 2014.

Even if EU law does not fully transpose the relevant international agreements to which it is a party, the EU is still required to enforce those agreements. However, while Article 17(1) of the TEU requires the Commission to ensure the application of measures enacted pursuant to the EU Treaties (such as conventions (Epstein, 2014), the Commission rarely brings actions to enforce convention provisions that have not been transposed into Union law (Kramer, 2011 [1893])⁵⁵⁰. It is worth noting the lack of enforcement of relevant international agreements' provisions, given that international agreements are a source of EU law that prevails over both EU regulations and directives (Kramer, 2011 [1893]). More specifically, international agreements to which the EU adheres become an 'integral part' of EU law (Born et al, 2015; Epstein, 2014) and are binding on both the EU and the

⁵⁴⁸ E.g. Committee of the Regions, Opinion on the Contribution to the Fitness Check on the EU Birds and Habitats Directives, 115th plenary session, 3-4 December 2015, ENVE-VI/005.

⁵⁴⁹ Regulation (EU) No 511/2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation in the Union.

⁵⁵⁰ Council of Europe Committee on the Environment, Agriculture and Local and Regional Affairs, The need to assess progress in the implementation of the Bern Convention, Doc. 12459 Report to the Parliamentary Assembly, 5 Jan. 2011.

Member States (Article 216(2) of the TFEU), at least where the area covered by the agreement comes into EU competence (Kramer, 2011 [1893]). A possible explanation for the lack of enforcement of the relevant international agreements could be the general nature of international obligations. According to some stakeholders (e.g. European Land-owners Organisation), these international agreements provide an overarching framework to give cooperation between countries legislative effect, but they should not be treated as imposing specific requirements in themselves.

Bern Convention

The Council of Europe's Convention on the Conservation of European Wildlife and Natural Habitats came into force in 1982, with the EU becoming party to it the same year⁵⁵¹. The Convention aims to ensure conservation of wild flora and fauna species and their habitats. Special attention is given to endangered and vulnerable species, including endangered and vulnerable migratory species specified in the Convention's appendices.

The Nature Directives are the means by which the EU fulfils its obligations under the Convention (Jones, 2012). This was recognised by stakeholders in the evidence gathering process and during the national missions to 10 representative Member States (e.g. UK).

Although neither of the Directives explicitly mention the Convention, the Birds Directive was designed to be compatible with the Convention (Evans et al, 2013) and the Habitats Directive was enacted to further implement the Convention (Epstein, 2014). As such, they are fundamentally coherent with the Convention (Council of Europe, 2014). Similarly, the Directives also impacted further development of the Convention. More specifically, the Convention's Emerald Network is directly based on the Directives' Natura 2000 network (Epstein, 2014), and all Natura 2000 sites are automatically part of the Emerald network (Evans et al, 2013).

The Nature Directives are **structured** similarly to the Convention and often use equivalent language⁵⁵². In some respects, the Directives contain stricter or more detailed provisions and measures than the Convention, as well as including additional species.

The Convention and the Habitats Directive have substantially **similar objectives** (European Commission, 2007b), as they aim to conserve wild flora and fauna and their natural habitats, as well as endangered and vulnerable species. To this end, the Directive adopted relevant definitions used by the Convention (Coffey and Richartz, 2003). Unlike the undefined conservation level to be achieved under the Convention, however, the Habitats Directive defines the concept of FCS in some detail (Trouwborst and Fleurke, 2014).

Stakeholders stated that the provisions concerning **habitat and site protection** under the Directives are coherent with those on habitat and site protection and rules of the Emerald Network under the Convention⁵⁵³ (Council of Europe, 2014). All specific tables (e.g. the national system of designated areas, biogeographical regions, etc.) needed for the Emerald Network, draw directly from the Natura 2000 standard data form⁵⁵⁴. In the evi-

⁵⁵¹ Council Decision 82/72/EEC concerning the conclusion of the Convention on the conservation of European wildlife and natural habitats OJ L38, 10.2.82.

⁵⁵² A comparison of the key provisions of the Directives and the Convention (without qualitative assessment) is available in the Council of Europe, Parliamentary Assembly, Report, The need to assess in the implementation of the Bern Convention, Doc. 12459, 5 January 2011, Appendix 1.

⁵⁵³ Resolution No. 5 (1998) concerning the rules for the Network of Areas of Special Conservation Interest (Emerald Network), available from: <https://wcd.coe.int/ViewDoc.jsp?id=1475223&Site=&BackColorInternet=B9BDEE&BackColorIntranet=FFCD4F&BackColorLogged=FFC679>, accessed on 15 September 2015; Resolution No. 8 (2012) of the Standing Committee, adopted on 30 November 2012 on the national designation of adopted Emerald sites and the implementation of management, monitoring and reporting measures, available from: <https://wcd.coe.int/ViewDoc.jsp?id=2010781&Site=&BackColorInternet=B9BDEE&BackColorIntranet=FFCD4F&BackColorLogged=FFC679>, accessed on 15 September 2015.

⁵⁵⁴ The 25 years of the Bern Convention, Council of Europe, Naturopa, No. 101/2004, available from: <http://coe.archivalware.co.uk/awweb/pdfopener?smd=1&md=1&did=594649>, accessed on 9 September 2015.

dence gathering questionnaires, stakeholders also recognised the coherence between the Directives and the Convention in this respect. Although there is no explicit provision on connectivity, some sources (Trouwborst, 2011) consider ensuring adequate connectivity between core protected areas to be mandatory under the Directives and the Convention alike. Doubts were raised in 2011 as to whether or not coherence between the Natura 2000 and Emerald networks has been fully assured, especially for habitat lists and their interpretation⁵⁵⁵. In 2011, the Standing Committee amended Resolution No. 6 (1998) listing the species requiring specific habitat conservation measures⁵⁵⁶. In December 2014, the Convention Standing Committee amended Convention's Resolution No. 4 (1996)⁵⁵⁷ and Resolution 6 to take into account the changes to the list of species and habitats under the Nature Directives following recent enlargements of the EU (Council of Europe, 2014).

No changes were made to the Directives to fully reflect the appendices of the Convention. A 2015 publication by a group of environmental experts (Born et al, 2015), claimed that in failing to require the designation of protected areas in relation to all cetacean species covered by the Bern Convention's provisions on protected areas not contained in Annex II of the Habitats Directive, the EU is in breach of the Bern Convention. While no further evidence was identified to support this claim, the reliability of the study is sufficient to accept that improvements are needed in this area.

The Nature Directives and the Convention contain provisions **on species protection** and the relevant derogations. Picking, collecting, capture, killing, etc. of listed species is prohibited under the Directives and the Convention.

Inconsistencies have been identified between the species protected by the Directives and the Convention. For example, the CJEU highlighted that Annex II of the Convention does not contain all the species covered under Annex IV(a) of the Habitats Directive⁵⁵⁸. In addition, a badger (*meles meles*) is protected under the Convention but not under the Directives (Kramer, 2011 [1893]). Similar conclusions are reached in a 2013 study, which claims that the Convention protects a number of species not protected under the Nature Directives (Evans et al, 2013). Finally, the nature protection authority in Denmark believes that the Nature Directives do not encompass all the species included in the appendices to the Convention. The Convention's greater species coverage has been recognised by the Commission, which points to the larger geographical area covered by the Convention (European Commission, 2007b). The appendices of the Convention and the annexes of the Directives have a somewhat different composition and the provisions related to alien species appear to be stronger in the Convention⁵⁵⁹. Annexes and appendices of the Directives and the Convention are not entirely coherent, therefore, with respect to species. On damage to, or destruction of, breeding or resting sites, the word 'deliberate' is used in Article 6(b) of the Convention but is absent from Article 12(1)(d) of the Habitats Directive (European Commission, 2007b), making the latter more stringent, as it forbids both deliberate and non-intentional acts.

⁵⁵⁵ Aleksei Lotman, Explanatory memorandum to Draft Resolution on the Need to Assess Progress in the Implementation of the Bern Convention, Council of Europe Parl. Assem. Doc. 12459 (Jan. 5, 2011), available from:

http://www.coe.int/t/dg4/cultureheritage/nature/bern/institutions/Documents/2013/HabitatsDirective_BernConvention_October_2013.pdf, accessed on 14 September 2015.

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<https://wcd.coe.int/ViewDoc.jsp?id=1475233&Site=&BackColorInternet=B9BDEF&BackColorIntranet=FFCD4F&BackColorLogged=FFC679>, accessed on 15 September 2015.

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<https://wcd.coe.int/ViewDoc.jsp?id=1475213&Site=&BackColorInternet=B9BDEF&BackColorIntranet=FFCD4F&BackColorLogged=FFC679>, accessed on 15 September 2015.

⁵⁵⁸ Case C-75/01 Commission of the European Communities v. Grand Duchy of Luxembourg, p. 57.

⁵⁵⁹ Aleksei Lotman, Explanatory memorandum to Draft Resolution on the Need to Assess Progress in the Implementation of the Bern Convention, Council of Europe Parl. Assem. Doc. 12459 (Jan. 5, 2011), available from:

http://www.coe.int/t/dg4/cultureheritage/nature/bern/institutions/Documents/2013/HabitatsDirective_BernConvention_October_2013.pdf, accessed on 14 September 2015.

The provisions on derogations are coherent (Epstein, 2014; Trouwborst and Fleurke, 2014). Article 9 of the Convention makes the granting of derogations subject to the same conditions as those specified in Article 16(1) of the Habitats Directive⁵⁶⁰. The majority of the reports on derogations submitted under the Nature Directives are considered to meet the reporting obligations under the Convention⁵⁶¹. However, the nature protection authority in Malta believes that the Nature Directives are incoherent with the Convention concerning derogations, although they state that this does not represent a problem at local level. No evidence of this claim is provided, nor is it supported by the literature. It can, therefore, be taken that provisions on derogations are coherent.

The Commission has not **enforced** the obligation on Member States to protect species listed in the annexes to the Convention that are not listed in the Nature Directives (Epstein, 2014). However, the Commission brought infringement proceedings against Member States in areas covered by the Nature Directives when the non-binding recommendations issued by the Convention bodies failed to bring about compliance with the Convention⁵⁶² (Epstein, 2014). The EU enforcement powers are so effective in comparison to the enforcement powers of the Convention bodies that the latter are no longer reviewing cases of alleged breach of the Convention in matters that are the subject of EU infringement proceedings⁵⁶³. In practice, EU enforcement powers have had a positive impact on the protection of species in Europe. Wolf numbers and densities are significantly higher, and trends significantly more positive, in Member States (e.g. France, Germany, Italy, Sweden) where both the Convention and the Nature Directives apply than they are in non-EU European states (e.g. Switzerland and Norway) where the Convention applies in isolation (Trouwborst and Fleurke, 2014). This was confirmed by Member State NGOs, which noted that while both Norway and Sweden are members of the Bern Convention, EU membership of the latter requires measures to be taken to protect large carnivores in Sweden, which this does not happen in Norway. Interpretation of obligations under the Nature Directives by the CJEU is also relevant for the implementation of the Convention due to mutual influence and use of similar terminology.

Finally, EU **funding** of various research and monitoring programmes has contributed towards improving available knowledge about the conservation status of species protected under the Convention (Epstein, 2014).

Convention on Biological Diversity

The Convention on Biological Diversity (CBD) was adopted in 1992 and entered into force in 1993. The EU is a party to the Convention⁵⁶⁴ since 1994, as well as party to the Cartagena⁵⁶⁵ and Nagoya⁵⁶⁶ Protocols since 2003 and 2014 respectively⁵⁶⁷. The objective of the CBD is to ensure the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including, by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding (Article 1).

⁵⁶⁰ Case C-75/01 Commission of the European Communities v. Grand Duchy of Luxembourg, p. 88.

⁵⁶¹ Bern Convention's Standing Committee's Revised Resolution No. 2 (1993) on the scope of Articles 8 and 9 of the Bern Convention, adopted on 2 December 2011, available from: <https://wcd.coe.int/ViewDoc.jsp?id=1475181&Site=&BackColorInternet=B9BDEE&BackColorIntranet=FFCD4F&BackColorLogged=FFC679>, accessed on 15 September 2015.

⁵⁶² Commission of the European Communities v. Hellenic Republic (the *Caretta caretta* case) and the European Commission v. the French Republic (the European Hamster case)

⁵⁶³ Council of Europe, Report of the 32nd Meeting of the Standing Committee, T-PVS (2012) 22 at 2.

⁵⁶⁴ Council Decision 93/626/EEC concerning the conclusion of the Convention on Biological Diversity.

⁵⁶⁵ Council Decision of 25 June 2002 concerning the conclusion, on behalf of the European Community, of the Cartagena Protocol on Biosafety.

⁵⁶⁶ Council Decision of 14 April 2014 on the conclusion, on behalf of the European Union, of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity.

⁵⁶⁷ <https://www.cbd.int/information/parties.shtml>, accessed on 22 September 2015.

The Nature Directives are key tools giving effect to EU commitments under the Convention (Day, 2015). The stakeholders (e.g. NGOs and Member State nature protection authorities) regard the Nature Directives as instruments to implement obligations under the Convention in the EU and in Member States. However, the requirements of the Convention are not met only by the Nature Directives, they are also reflected in several EU legal and policy instruments on biological diversity (WWF, 2007). **The scope** of the Convention is broader than the scope of the Directives, as clearly stated in its Article 1, which also addresses biodiversity of genetic resources. The issue of biodiversity of genetic resources is covered by a separate EU regulation⁵⁶⁸.

There are various examples of **coherence** between the Directives and the Convention. For example, **EU reports** to the Convention⁵⁶⁹ refer directly to the Nature Directives in matters of compliance with/implementation of various Articles of the Convention, such as Articles 7 (identification and monitoring), 8 (in-situ conservation), 9 (ex-situ conservation) and 14 (impact assessment and minimising adverse impacts). Article 13 of the Convention is, in principle, reflected in Article 22(c) of the Habitats Directive⁵⁷⁰. The Commission regards the Natura 2000 network as fulfilling a clear EU obligation under the Convention⁵⁷¹. The provisions on species protection contained in the Habitats Directive help to achieve the aims of the Convention (European Commission, 2007b).

Member States refer to the Nature Directives as a tool to implement several requirements under the Convention: protected areas designation, habitats and species (including migratory species) conservation, monitoring and research, restoration, application of the ecosystem based approach and principles of adaptive management, sustainable use of biodiversity, response to threats such as invasive alien species, assessment of impacts of plans and projects on biodiversity, development of ecological networks, management and conservation plans in cooperation with local communities and stakeholders, and trans-boundary and international cooperation (e.g. Belgian nature authorities, Greek and Irish reports to the Convention⁵⁷²).

Numerous **decisions** of the Conference of the Parties to the Convention refer to the Directives in a way that suggests coherence between requirements under the Nature Directives and the Convention⁵⁷³. One example is the **Programme of Work on Protected Areas** (PoWPA) which was agreed in 2004 (COP 7 Decision VII/28). The PoWPA encourages parties to the Convention to develop and manage ecologically representative networks of protected areas on land and sea. The Nature Directives and the PoWPA overlap in several areas⁵⁷⁴. With respect to gaps between the Nature Directives and the PoWPA, a 2007 analysis of how the Natura 2000 network meets the requirements of the PoWPA raises a particular issue⁵⁷⁵. Goal 2.2, calling for enhanced and secure involvement of indigenous and local communities and relevant stakeholders, is not addressed under the Nature Directives, which do not provide for a participatory role of local communities during the process of Natura 2000 site selection. However, the Convention does not specifically address this issue, and its implementation is uncertain. While the Nature Directives do not explicitly refer to participation, the Commission Guidance document recommends the involvement of stakeholders in the adoption of conservation measures. As this is be-

⁵⁶⁸ Regulation (EU) No 511/2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation in the Union.

⁵⁶⁹ <https://www.cbd.int/doc/world/eur/eur-nr-02-en.pdf>, accessed on 3 September 2015.

⁵⁷⁰ Case C-75/01 Commission of the European Communities v. Grand Duchy of Luxembourg, p. 94 and 95.

⁵⁷¹ http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000/2002_faq_en.pdf, accessed on 28 September 2015.

⁵⁷² E.g. Third National Report to the Convention on Biological Diversity by Greece. 2008 Available from:

<http://www.cbd.int/doc/world/gr/gr-nr-03-en.pdf>, accessed on 8 September 2015; Fifth National Report to the Convention on Biological Diversity by Ireland, 2014, Available from: <https://www.cbd.int/doc/world/ie/ie-nr-05-en.pdf>, accessed on 8 September 2015.

⁵⁷³ COP 10 Decision X/31, Section A, sub-section 2, item 3, footnote 67 and COP 12 Decision XII/22, Table 7, item 14.

⁵⁷⁴ The overlaps are identified in the following publication: (WWF, 2007).

⁵⁷⁵ The gaps are identified in the following publication: (WWF, 2007).

ing implemented in many Member States, with stakeholders in others requesting it, it is not sufficient to represent a gap between the Directives and the Convention.

The PoWPA was reaffirmed in 2010 in Nagoya, Aichi, Japan. There, the Conference of the Parties to the Convention adopted and updated the Strategic Plan for Biodiversity for the 2011 – 2020 period based on 20 targets (the 'Aichi Biodiversity Targets') (COP 10 Decision X/2). The Plan represents a global framework aimed at halting biodiversity losses and covers a broader scope of issues related to biodiversity loss than the Nature Directives, but which are partly captured in the EU biodiversity strategy. Despite the broader scope of the Plan, different stakeholders (e.g. NGOs, Member State nature protection authorities) agree that the Nature Directives play an important role in reaching a number of the Aichi Targets. More specifically, the Nature Directives are especially important for reaching the following targets: 5, 6, 7, 8, 9, 10, 11, 12, 14, 15 and 20. For Targets 6, 7 and 11, the Nature Directives are used as indicators reviewing effectiveness of the implementation of the Aichi Targets⁵⁷⁶.

Some EU level organisations' responses to the evidence gathering questionnaire pointed to **inconsistencies** between the Directives and the Convention. One of them (COPA COGECA Sweden) states that the Convention calls for decision-making on wildlife management to be as localised/regionalised as possible, while the Directives represent a top-down approach where the Commission can hinder local governance through infringements procedures. Also, according to the opinion of COPA COGECA Sweden and FACE, the Nature Directives do not recognise 'instrumental' values (ecosystem services, sustainable use, and traditional practices of local communities) and consider specific uses (e.g. hunting) as a threat and an exception. However, according to the literature, the protection of the EU's natural capital and maintenance of ecosystem services cannot be dissociated from the full and timely implementation of the Nature Directives (Day, 2015), making these issues insufficient to constitute incoherence.

Finally, some studies consider that while the Convention appears to require more extensive obligations than those under the Nature Directives, the Directives are, in practical terms, stronger and more effective (Jones, 2012).

Convention for the Protection of the World Cultural and Natural Heritage

The Convention entered into force in 1975. While all of its Member States are party to the Convention, the EU itself is not⁵⁷⁷. The **scope** of the Convention is wider than the scope of the Nature Directives, as it incorporates cultural heritage sites which are not included under the scope of the Directives. However, the scope is limited to site protection measures and, in this sense, the Nature Directives' scope is broader.

For a natural heritage site to be included on the World Heritage List, it must be of outstanding universal value, must meet at least one out of 10 selection criteria and must have an adequate protection and management system to ensure its safeguarding⁵⁷⁸. The outstanding universal value does not refer only to scientific and conservation value, but also encompasses aesthetic value. The Convention's scope is, therefore, wider in this respect.

Only two of the selection criteria, namely criteria ix and x, are relevant for the Nature Directives, and both are coherent with the Directives.

The NGOs believe that the Nature Directives implement many important aspects of the Convention. In Greece, for example, the World Heritage natural sites are 97.94% covered by Natura 2000 sites. While there is a slight difference between the World Heritage

⁵⁷⁶ Fifth Report of the European Union to the Convention on Biological Diversity, available from: <https://www.cbd.int/doc/world/eur/eur-nr-05-en.pdf>, accessed on 21 September 2015.

⁵⁷⁷ <http://whc.unesco.org/en/statesparties/?searchStates=&id=&region=1&submit=Search>, accessed on 28 September 2015.

⁵⁷⁸ Operational Guidelines for the Implementation of the World Heritage Convention, WHC, 15/01, 8 July 2015.

natural sites and Natura 2000 sites, this arises from digitisation issues rather than differences in actual site boundaries, according to the Greek NGO. However, no information is available on the coherence between management plans/systems under the Directives and those under the Convention, including whether the same plans/systems are applicable to both Natura 2000 sites and World Heritage natural sites.

Each nominated site under the Convention should have an appropriate management plan or other documented management system whose purpose is to ensure the effective protection of the nominated area for present and future generations⁵⁷⁹. Effective management involves a cycle of actions to protect and conserve the sites, and an integrated approach to planning and management is essential. As such, the measures on management under the Directives are coherent with those under the Convention. In practice, of 139 World Heritage natural sites designated under criteria ix and/or x, alone or in combination with other criteria (Dudley, 2013), very few within Member States are subject to management plans that are available on the Convention's website. The analysis of their content does not provide sufficient information for any conclusion on the coherence between the management plans/systems under the Directives and those under the Convention⁵⁸⁰.

Convention on Wetlands of International Importance (Ramsar Convention)

The Convention on Wetlands of International Importance entered into force in 1975. All of the Member States are party to the Convention, however, the EU itself is not⁵⁸¹.

The **scope** of the Convention is limited to site protection measures, giving the Nature Directives' broader scope in this context. However, the Convention has a broader scope than the Directives in a number of ways: it is aimed at ecosystems as a whole, it addresses all wetlands, takes into consideration the significance of wetlands within a world-wide perspective and which are considered part of a bigger whole (e.g. water catchment areas and flyways); it includes economic and recreational value of wetlands, as well as the consideration of wetlands as protection against floods (Salverda and Chardon, 2006 [1896]). On the other hand, some Member State nature protection authorities believe that the Nature Directives work to implement the provisions of the Ramsar Convention relating to the protection and management of hydrological systems and functions, as well as wise use of natural values and ecosystem services of wetlands. The differences, therefore, exist in terms of the following: the Nature Directive protects only those aspects of wetlands that are relevant for the habitats and species for which the site was designated and it accounts for designated sites only, while the Convention protects all aspects of the site and aims at all wetlands, including sites that are not designated (Salverda and Chardon, 2006 [1896]). These differences, however, do not constitute gaps, as they go beyond the parameters of the Nature Directives.

Each party to the Convention is required to: **designate** suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance; formulate and implement its planning so as to promote the conservation of the wetlands included in the List; and, insofar as possible, to promote the wise use of wetlands in its territory. Each party to the Convention is also required to consider its international responsibilities for conservation, management and wise use of migratory stock of birds ecologically dependent on wetlands, when designating suitable wetlands.

NGOs and the Member State nature protection authorities regard the Nature Directives as a tool to implement the Ramsar Convention. This is especially visible in the impor-

⁵⁷⁹ Operational Guidelines for the Implementation of the World Heritage Convention, WHC, 15/01, 8 July 2015.

⁵⁸⁰ http://whc.unesco.org/pg.cfm?cid=337&l=en&&searchDocuments=&category=management_plans&&index=1, accessed on 14 September 2015.

⁵⁸¹ <http://www.ramsar.org/country-profiles>, accessed on 28 September 2015.

tance that National Reports on the Implementation of the Ramsar Convention give to the Nature Directives⁵⁸², as well as from the available publications⁵⁸³ (Wahl et al, 2013).

Article 4(2) of the Birds Directive makes an indirect reference to the Ramsar Convention when setting out that Member States are required to pay particular attention to the protection of wetlands, particularly to wetlands of international importance. Also, many wetlands types are protected by the Nature Directives (European Commission, 2011e), and are, therefore, proportionally well represented in the Natura 2000 network⁵⁸⁴.

In many Member States, (e.g. the Netherlands⁵⁸⁵, Cyprus⁵⁸⁶, Poland⁵⁸⁷, Denmark and Estonia), all Ramsar sites are fully included in the Natura 2000 network. In fact, the boundaries of Ramsar sites and Natura 2000 sites in the Netherlands have been harmonised in order to unify the reporting obligations and comparability of these sites⁵⁸⁸. In other Member States, there are significant overlaps. For example, in the Czech Republic, while only six out of 14 Ramsar sites are completely part of Natura 2000, not a single one is completely outside of the Natura 2000 network, and only 7% of the territory of Ramsar sites is located outside of the Natura 2000 network. Similarly, in Germany and Greece, 97% of the total area of Ramsar sites is covered by the Natura 2000 network.

Two reasons have been identified for this slight difference between the area covered by Ramsar sites and the Natura 2000 network. In some cases, the difference arises from digitisation issues rather than differences in actual site boundaries, according to one Greek NGO. There are also differences in the methodology used; SPAs under the Birds Directive are selected and designated by the Member States and many countries use criteria based on the Ramsar 1% of flyway population (Evans, 2012). In the UK, Ramsar sites are designated under agreed criteria, which are not entirely the same as the species and habitats listed on the relevant annexes of the Habitats Directives (e.g. the Ramsar designation of Llyn Tegid is partly based on the presence of *Coregonus lavaretus*, a species of fish not listed in Annex II of the Habitats Directive). Stakeholders (e.g. Member State NGOs) do not consider differences in selection methodology to be a conservation issue.

Management plans prepared for Natura 2000 sites are also used for the management of Ramsar sites important for Birds. In Denmark, a nature management plan has been developed for the Danish Ramsar sites as part of the implementation of the Nature Directives⁵⁸⁹. In Slovenia this is the case for certain sites, e.g. Sečoveljske soline and Cerkniško jezero. In Austria, the Nature Directives had a positive impact on the adoption of management plans for Ramsar sites⁵⁹⁰. While the global average for Ramsar sites with management plans is 32.54%, in Austria the rate was 52% in December 2014 (Mauerhofer, 2015 [1308]). Also, the management plans for Ramsar sites that have been in-

⁵⁸² National Report on the Implementation of the Ramsar Convention on Wetlands, submitted to COP10, 2008. At: http://www.ramsar.org/sites/default/files/documents/pdf/cop10/cop10_nr_greece.pdf, accessed on 8 September 2015.

⁵⁸³ http://www.vliz.be/wiki/Ramsar_Convention_for_Wetlands, accessed on 28 September 2015.

⁵⁸⁴ Second National Report of the European Community to the Convention on Biological Diversity, section 4.7.5.

⁵⁸⁵ National Report on the Implementation of the Ramsar Convention on Wetlands, submitted to COP 12, 2015. Available from: http://www.ramsar.org/sites/default/files/documents/2014/national-reports/COP12/cop12_nr_netherlands.pdf, accessed on 8 September 2015.

⁵⁸⁶ Cyprus has only two Ramsar sites. One is a Natura 2000 site and the other is located in the British Army Base where the *acquis* does not apply. The site located in the Army Base is designated as an SPA under the British Bases' mirror law.

⁵⁸⁷ National Report on the Implementation of the Ramsar Convention on Wetlands, submitted to COP11. Available from: http://ochronaprzyrody.qdos.gov.pl/files/artykuly/5447/Ramsar_COP_11_Report_POLAND_EN.pdf, accessed on 9 September 2015.

⁵⁸⁸ National Report on the Implementation of the Ramsar Convention on Wetlands, submitted to COP 12, 2015. Available from: http://www.ramsar.org/sites/default/files/documents/2014/national-reports/COP12/cop12_nr_netherlands.pdf, accessed on 8 September 2015.

⁵⁸⁹ <http://www.norbalwet.org/our-wetlands/denmark/>, accessed on 28 September 2015.

⁵⁹⁰ Conclusion drawn from the article by Mauerhofer (Mauerhofer et al, 2015)

cluded in the Natura 2000 network have stricter management measures than in those sites not included in Natura 2000⁵⁹¹.

Overall, while some studies claim that the Conventions approach is more 'pro-active and stimulating because the wise-use concept stimulates the protection of a wetland because of creation of goodwill by co-users and/or creation of win-win situations' (Salverda and Chardon, 2006 [1896]), in practice the implementation of the Convention benefited from the existence of the Nature Directives. The legal requirements of the Nature Directive are more precise, with enforcement much better organised in the framework of the Directives (Cliquet, 2005 [1898]). For example, while few sites in Austria were designated as Ramsar sites prior to Austria's accession to the EU in 1995, the number of sites grew to 23 (Mauerhofer et al, 2015). This jump coincides with Austria's attempts to meet the requirement to designate Natura 2000 sites (Mauerhofer et al, 2015). Similarly, in the Netherlands, at first the assignment of Ramsar sites started slowly. In 2000 the procedure was quickened due to CJEU condemnation of the Netherlands for failing to designate SPAs on time (Salverda and Chardon, 2006 [1896])⁵⁹².

European Landscape Convention

The European Landscape Convention entered into force in 2004. The EU and some of its Member States, namely Austria, Denmark, Germany, Malta, are not parties to the Convention⁵⁹³. No relevant publication comparing the Nature Directives to the Convention was identified. Other sources of information used, such as stakeholder opinion, analysis of CJEU jurisprudence, etc., did not yield any information on the correlation between the Directives and the Convention.

The objective of the Convention is to promote landscape protection, management and planning, and to organise European cooperation on landscape issues. The Convention acknowledges the importance of protecting landscape for the quality of life of populations and for local cultures, as well as ecosystem protection (Musard [1897]). As such, the Convention has a broader scope than the Habitats Directive which refers only to landscapes which are of major importance for species of wild fauna and flora (Articles 3(3) and 10).

The parties to the Convention are required to establish and implement landscape policies aimed at landscape protection, management and planning. In this respect, the Convention overlaps with the Nature Directives, especially Article 6 of the Habitats Directive.

CITES Convention

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) entered into force in 1975. EU signed up to the Convention in April 2015⁵⁹⁴. However, due to fact that EU Member States became parties to the Convention earlier (e.g. Germany and the UK became parties in 1976) the provisions of the Convention had to be implemented uniformly in all EU Member States. The reason for this is the harmonisation requirements under the European Single Market and the absence of systematic border controls within the EU⁵⁹⁵.

CITES is implemented in the EU through a set of Regulations known as the EU Wildlife Trade Regulations, most notably Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein. The EU Wildlife Trade Regula-

⁵⁹¹ E.g. in Austria (Mauerhofer et al, 2015)

⁵⁹³ <http://conventions.coe.int/Treaty/Commun/ChercheSig.asp?NT=176&CM=8&DF=&CL=ENG>, accessed on 1 October 2015.

⁵⁹⁴ <https://www.cites.org/eng/disc/parties/chronolo.php>, accessed on 30 September 2015.

⁵⁹⁵ http://ec.europa.eu/environment/cites/legislation_en.htm, accessed on 30 September 2015.

tions not only implement the provisions of CITES and the majority of CITES Resolutions, they also go beyond the requirements of the Convention in some respects⁵⁹⁶.

The provisions on species protection contained in the Habitats Directive help to achieve the aims of the Convention (European Commission, 2007b). While the Nature Directives complement the Convention, they also promote its stricter implementation. Species which are subject to a trade prohibition under the Nature Directives are automatically listed in Annex A of the Council Regulation (EC) No 338/97. NGOs believe that the Nature Directives contribute to the implementation of CITES.

CMS (Bonn) Convention

The Convention on the Conservation of Migratory Species of Wild Animals - to which the EU is a party - entered into force in 1983⁵⁹⁷. It aims to conserve terrestrial, aquatic and avian migratory species throughout their range.

The Nature Directives are key tools to give effect to EU commitments under the Bonn Convention (Day, 2015), as the provisions contained in the Habitats Directive help to achieve the aims of the Convention (European Commission, 2007b). NGOs and nature protection authorities see the Nature Directives as tools to implement the Bonn Convention.

The documents adopted by the Conferences of the parties repeatedly make reference to the Nature Directives as an incentive to take action⁵⁹⁸. According to some nature protection authorities (e.g. Belgium), the Nature Directives implement provisions of the Convention concerning migratory species, such as conservation and management of the habitats of these species, taking into account their life cycles and migration routes.

Some nature protection authorities (e.g. Malta) state that the Nature Directives are inconsistent with the Convention on certain provisions and the list of species, but they do not indicate which. According to some NGOs (e.g. Netherlands), Member States introduced legislation to provide protection to a number of areas, species and natural features not covered by the Directives, in part to implement obligations under treaties such as the Bonn Convention. However, given that the scope of the Habitats Directive is limited to species of European importance, and that no additional information was found, this is not taken to constitute a gap between the Nature Directives and the Convention.

The Bonn Convention uses a somewhat different formulation of the FCS than the Habitats Directive (Epstein et al, 2015), however the difference does not cause inconsistencies.

Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)

The AEWA entered into force in 1999 and the EU is a party to it⁵⁹⁹. The AEWA is a complementary framework for the conservation of migratory waterbirds and their habitats across Africa, Europe, the Middle East, Central Asia, Greenland and the Canadian Archipelago.

The Nature Directives are key tools to give effect to EU commitments under the AEWA (Day, 2015). NGOs in Belgium and Germany have stated that the Nature Directives implement the provisions of the AEWA, and the Estonian NGO states that the CMS/AEWA

⁵⁹⁶ For a comparison between EU Wildlife Trade Regulations and the CITES, please see: http://ec.europa.eu/environment/cites/pdf/differences_b_eu_and_cites.pdf, accessed on 30 September 2015.

⁵⁹⁷ Council Decision of 24 June 1982 on the conclusion of the Convention on the conservation of migratory species of wild animals (82/461/EEC).

⁵⁹⁸ Resolution 7.5, Wind Turbines and Migratory Species, adopted at the Seventh Meeting of the Conference of the Parties, Bonn, 2002), available at: http://www.cms.int/sites/default/files/document/RES_7_05_Wind_Turbine_0_0.pdf, accessed on 14 September 2015.

⁵⁹⁹ Council Decision of 18 July 2005 on the conclusions on behalf of the European Community of the Agreement on the Conservation of African-Euroasian Migratory Waterbirds

Critical Site Network distinguishing the most important sites for migrating waterfowl, largely overlaps with SPAs.

The nature protection authorities claim that species occurring naturally in the EU that are listed in the AEWA are fully protected under the annexes to the Nature Directives. Some, however, such as the Danish nature protection authority, claimed that challenges concerning amendments to the annexes of the Nature Directives may hamper EU flexibility in international cooperation. For example, in 2012, the EU was unable to support a proposal on protection of certain bird species because of the limitations imposed by the Birds Directive rather than because of the substance of the matter. This does not mean, however, that the Nature Directives and the AEWA are inconsistent. According to one EU level organisation (FACE), the systematic population review under the AEWA can cause some inconsistencies when populations change status. This is the case when a species from Annex II of the Birds Directive has one of its populations present in the EU up-listed to AEWA Column A, Categories 1, 2 or 3 (without asterisk). The Nature Directives do not have the flexibility to respond to the changes in species as easily as this agreement does.

Other agreements under the Bonn Convention

The EU is not a party to the other agreements under the Bonn Convention, i.e. Agreement on the Conservation of Population of European Bats (EUROBATS), Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS)⁶⁰⁰ Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and contiguous Atlantic Area (ACCOBAMS) and the Agreement on the Conservation of Seals in the Wadden Sea.

The latter was the first regional agreement under the Bonn Convention and it entered into force in 1991⁶⁰¹. Its parties are Denmark, Germany and the Netherlands. The German nature protection authority noted that the Nature Directives largely implement the Agreement and that species listed in this agreement are fully protected under the annexes to the Nature Directives. EUROBATS entered into force in 1994 and, in addition to the EU itself, some Member States (Spain, Austria, Greece) are also not parties to EUROBATS. Some nature protection authorities noted that the Nature Directives largely implement the EUROBATS Agreement. The ASCOBANS Agreement entered into force in 1994, and overlaps with the Habitats Directive in that all species of cetaceans are listed in Annex IV of the latter (Coffey and Shaw, 2001). Various NGOs claim that the Nature Directives are a central component to Member States' progress reports to other international and regional conventions, such as ASCOBANS and ACCOBAMS, which entered into force in 2001.

International Convention for the Protection of Birds

The International Convention for the Protection of Birds entered into force in 1963. Very limited information on the coherence between the Nature Directives and the Convention was identified. Significantly, the CJEU stated in one of its rulings that the Birds Directive embodies stricter requirements in terms of protection than the Convention does⁶⁰².

⁶⁰⁰ <http://www.ascobans.org/en/parties-range-states>, accessed on 1 October 2015.

⁶⁰¹ http://www.cms.int/sites/default/files/document/CMS-StC41-doc_18_a_waddenseaseals.pdf, accessed on 1 October 2015.

⁶⁰² Case C-157/89 Commission v. Italy [1991], p. 23.

Regional Sea Conventions (Baltic, North East Atlantic, Mediterranean and Black Sea)

There are four regional sea conventions:

- Convention for the Protection of the Marine Environment in the North-East Atlantic of 1992 (OSPAR Convention).⁶⁰³
- Convention on the Protection of the Marine Environment in the Baltic Sea Area of 1992 (HELCOM Convention).⁶⁰⁴
- Convention for the Protection of Marine Environment and the Coastal Region of the Mediterranean of 1995⁶⁰⁵ (UNEP-MAP Convention).
- Convention for the Protection of the Black Sea of 1992 (Black Sea Convention).

The EU is a party to the first three Conventions, and the Commission has requested the adoption of amendments to the Black Sea Convention in order to allow the EU to accede to it⁶⁰⁶. The objectives of the regional sea conventions aim to protect maritime areas against the adverse effects of human activities and to conserve marine ecosystems and restore adversely affected marine areas.

Although analysed under the same sub-heading, there are noticeable differences among the Conventions, both in terms of the available literature and the level of development of work and cooperation, with OSPAR and HELCOM scoring better on both counts.

The scope of the Nature Directives and the Conventions do not fully coincide. As some nature protection authorities (e.g. Greece) pointed out, while there are many instances of coherence between the Directives and the Conventions, the latter are applicable to high seas, while the Directives are limited to the areas under jurisdiction and sovereignty of Member States. Other pieces of EU legislation (e.g. MSFD) contain provisions implementing various aspects of the Conventions.

The Commission acknowledged that there are a number of marine habitat types and species of European conservation concern, many of which are identified and listed by OSPAR, HELCOM and UNEP-MAP documents, that are not presently covered by the Nature Directives but which need protection to ensure their FCS (European Commission, 2007c). The Commission stated that 'agreements on marine habitats and species of conservation concern will be relevant inputs to be considered in the first stages of the process of possible future adaptations of the Habitats Directive annexes in terms of the marine environment' (European Commission, 2007c).

Some of the nature protection authorities (e.g. Germany) stated that significant parts of the OSPAR Convention are implemented by the Nature Directives. Also according to the stakeholders, the Convention took the Directives into account, for example, the Natura 2000 network is coherent with networks of MPAs under the OSPAR Convention. Indeed, the parties to the Convention are advised to designate marine Natura 2000 sites as OSPAR MPAs (European Commission, 2007c) and many studies used to select OSPAR MPAs are useful for selection of marine Natura 2000 sites (Ribeiro, 2008 [1307]). All sites in the North Sea that have been nominated by Member States for the OSPAR Network also qualify under the Nature Directives. No sites have been selected, therefore, that only qualify under the broader OSPAR ecological selection criteria (Trouwborst and

⁶⁰³ Council Decision of 7 October 1997 on the conclusion of the Convention for the protection of the marine environment of the north-east Atlantic.

⁶⁰⁴ Council Decision of 21 February 1994 on the conclusion, on behalf of the Community, of the Convention on the Protection of the Marine Environment of the Baltic Sea Area.

⁶⁰⁵ Council Decision of 22 October 1999 on the acceptance of amendments to the Convention for the Protection of the Mediterranean Sea against Pollution and to the Protocol for the Prevention of Pollution by Dumping from Ships and Aircraft.

⁶⁰⁶ http://ec.europa.eu/environment/marine/international-cooperation/regional-sea-conventions/index_en.htm, accessed on 30 September 2015.

Dotinga, 2011). Similarly, in the UK, marine Natura 2000 sites also coincide with OSPAR MPAs⁶⁰⁷. Other alignments can be observed in that the same reports in relation to designated areas are sent to both the Commission and to the OSPAR Commission⁶⁰⁸. Where management plans for Natura 2000 sites exist, these will be sufficient for OSPAR purposes (OSPAR Commission, 2003).

Some gaps exist between the species covered by the Habitats Directive and the OSPAR List of Threatened and/or Declining Species and Habitats⁶⁰⁹. The OSPAR List contains species and habitats that need to be protected according to the OSPAR Commission. More specifically, Annex II of the Habitats Directive does not include Thornback Ray and the Ocean Quahog which are included in the List (Trouwborst and Dotinga, 2011). Nevertheless, in practice, these issues have not caused examples of inconsistencies between the Nature Directives and the OSPAR Convention.

Similarly to OSPAR, some of the nature protection authorities (e.g. Germany and Estonia) state that significant parts of the HELCOM Convention are implemented by the Nature Directives. According to the stakeholders, the Convention took into account the Directives, with HELCOM agreeing that the marine Natura 2000 sites qualify for inclusion into the HELCOM network of MPAs (European Commission, 2007c). Protected sites under the Nature Directives can simultaneously be MPAs under HELCOM. However, only 64% of Natura 2000 sites in the Baltic Sea have also been designated as HELCOM MPAs⁶¹⁰. This difference may be explained by the fact that the Natura 2000 network protects natural habitats and species deemed important at EU level, whereas the HELCOM MPAs network aims to protect marine and coastal habitats and species specific for the Baltic Sea.

Some of the nature protection authorities, as well as other public authorities (e.g. Cyprus), regard the Nature Directives as tools to implement the UNEP-MAP Convention. According to the nature protection authorities, the Natura 2000 network is coherent with MPAs under the Barcelona Convention. In Greece, for example, areas protected under the Barcelona Convention are 98.15 % covered by Natura 2000. According to stakeholders (e.g. Greek NGOs), slight differences between areas covered by Natura 2000 and UNEP-MAP MPAs arise from digitisation issues rather than differences in actual site boundaries as such.

Some nature protection authorities (e.g. Malta) state that the Nature Directives are inconsistent with the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean under the UNEP-MAP Convention with regard to derogations. According to the same authority, in case of inconsistencies, the more stringent of the two approaches is applied.

8.9.4 Key findings

- There is widespread understanding that the Nature Directives are generally coherent with the international agreements. There are numerous instances of coherence, particularly in relation to the overall objectives and species protection measures. Several instances of incoherence/gaps can also be identified, mainly differences in scope related to species and habitat types covered, or measures applied, such as site protection. Finally, judicial enforcement is identified as an instrumental element of the coherence with international agreements.
- EU enforcement powers are stronger than those of the bodies responsible for managing the international agreements. Enforcement of the Nature Directives'

⁶⁰⁷ <http://incc.defra.gov.uk/page-4526>, accessed on 10 September 2015.

⁶⁰⁸ OSPAR Recommendation 2003/3 on a Network of Marine Protected Areas, amended by OSPAR Recommendation 2010/2, available at: <http://rod.eionet.europa.eu/obligations/491>, accessed on 21 September 2015.

⁶⁰⁹ <http://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats>, accessed on 23 September.

⁶¹⁰ <http://helcom.fi/action-areas/marine-protected-areas/HELCOM-MPAs-and-Natura-2000-areas/>, accessed on 9 September 2015.

provisions that also implement those of the agreements, have, therefore, had a positive impact on their implementation. For example, the literature and stakeholders both report wolf numbers and densities as significantly higher, and trends significantly more positive, in EU Member States (e.g. Sweden), where both the Bern Convention and the Nature Directives apply than they are in non-EU European states (e.g. Norway), where only the Convention applies.

- While 82% of responses to the evidence gathering questionnaire stated that the Nature Directives are coherent with international agreements, 49% of respondents to the online public consultation did not regard the Nature Directives to be in line with international commitments. This result may have arisen from the differences between the objectives and scope of the Nature Directives and the relevant international agreements (e.g. the issue of biodiversity of genetic resources contained in the Convention on Biological Diversity is addressed at the EU level by a separate regulation).
- The Birds and Habitats Directives are the key EU legal instruments giving effect to the objectives of the Bern Convention in the EU, and, as such, are generally coherent with the Convention. A very limited number of inconsistencies have been identified, where certain species are protected under the Convention but not covered by the Directives (e.g. Badger). The Directives have influenced the further development of the Convention, in particular the establishment of the Convention's Emerald Network, as a protected area network was not originally foreseen under the Convention. In other instances, the Directives also go beyond the requirements of the Convention; for example, while the Convention forbids the deliberate damage to, or destruction of, breeding or resting sites, Article 12(1)(d) of the Habitats Directive forbids any deterioration and destruction, whether deliberate or not.
- The literature and stakeholders both regard the Nature Directives as an instrument to implement the Convention on Biological Diversity in the EU. Equally, decisions of the CoP to the Convention and the Convention implementation reports, regard the Directives to be coherent with the Convention. The significance of the Nature Directives in delivering key commitments under the Convention (e.g. Aichi Target on protecting at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas by 2020) is recognised by numerous stakeholders.
- The Nature Directives are generally coherent with the Ramsar Convention. The wording of the Directives (i.e. explicit mention is made of wetlands of international importance in the Birds Directive), the literature, and the extent to which the Convention's implementation reports refer to the Nature Directives, all point to such coherence. Most stakeholders regard the Nature Directives as a tool to implement the Ramsar Convention, and, in practice, the implementation of the Convention has benefited from the existence of the Nature Directives. In many Member States, (e.g. the Netherlands, Cyprus, Poland, Denmark and Estonia), all Ramsar sites are fully included in the Natura 2000 network, while in the other Member States, most Ramsar sites are also covered by the network. Management plans prepared for Natura 2000 sites are also used for the management of Ramsar sites.
- The provisions on species protection contained in the Nature Directives help to achieve the aims of the Bonn Convention. Member State nature protection authorities and NGOs acknowledged that the Nature Directives are key tools to give effect to EU commitments under the Bonn Convention, as well as agreements under the Convention (e.g. AEWA). The Bonn Convention uses a different formulation of the FCS and, as with AEWA, changes to its appendices can be introduced more easily at each conference of the parties. This has led to a small number of cases where the listing or protection status of species are different under the Conventions and the Nature Directives.
- The Commission has acknowledged that there are a number of marine habitat types and species of European conservation concern which are listed by OSPAR, HELCOM

and UNEPMAP documents, but not currently covered by the Nature Directives. The Commission has also recognised that these types and species require protection to ensure their FCS. The Commission stated that 'agreements on marine habitats and species of conservation concern will be relevant inputs to be considered in the first stages of the process of possible future adaptations of the Habitats Directive annexes in terms of the marine environment'.

8.10 Conclusions on Coherence

- The Birds Directive and the Habitats Directive are largely coherent, internally and with each other, despite some differences in scope and operational measures. Ultimately, both aim at contributing to ensuring biodiversity in coordination with other instruments. The protection regime for SCIs, SACs and SPAs has been harmonised through Article 7 of the Habitats Directive. Any potential inconsistencies arising from differences in scope, approach and wording have largely been addressed through CJEU rulings and Commission guidance over the years.
- The Nature Directives work in coordination with other EU environmental legislation and policies. Particularly important are the horizontal instruments, namely the EIA, SEA and Environmental Liability Directives, as well as legislation and policy in the key water, marine and climate change areas. The objectives and goals of these instruments are coherent with the Nature Directives, although coordinated implementation in practice is required to achieve the best outcomes. Improvements in coordination and management could also reduce the administrative burden on stakeholders, for example in reporting.
- Regarding other policy areas beyond environment, the picture is more mixed. There are many EU funding opportunities for financing biodiversity and Natura 2000 across different instruments. However, only the LIFE programme provides dedicated support to biodiversity and Natura 2000 as a primary objective, whereas other EU funding instruments are primarily targeted to deliver EU goals on rural, regional, infrastructural, social and scientific development. Evidence is mixed on the extent to which nature and biodiversity are successfully integrated into the funding programmes, as this depends on priority-setting at national and regional levels and capacity of stakeholders to absorb funds.
- The CAP and Nature Directives are potentially complementary, as some of the CAP's incentives and associated environmental conditions (e.g. cross-compliance) can be beneficial for biodiversity, although much depends on Member State implementation choices. For example, direct payments, as well as payments for areas facing natural and other specific constraints can support farming systems associated with certain European protected habitats and species, although eligibility rules have led to unintended biodiversity damage in some areas. Pillar 2 funded measures, and especially agri-environment-climate schemes are the primary means of supporting management practices that are beneficial to biodiversity. Without such support via the CAP the conservation status of agricultural habitats and species would be worse than it currently is. However, the CAP could contribute more to the goals of the Nature Directives, especially if Pillar 2 funding was increased and Member States better tailored and targeted their measures more towards biodiversity priorities..
- Cohesion Policy has both positive and negative impacts on the objectives and implementation of the Directives. It can provide funding to directly support their objectives (e.g. conservation measures) but also for activities that may threaten nature objectives such as transport, energy and other infrastructure. There is room for improvement in the integration of the goals of both Directives into Cohesion Policy to enhance the role of green infrastructure and nature-based solutions.
- The development of network energy infrastructure and energy sources such as biofuels, wind power, shale gas and hydropower can also have negative impacts on habitats and species. There are good examples of ways to prevent/reduce such impacts in Commission guidance documents on wind energy and Natura 2000 and on environmental assessment for energy infrastructure; and through stakeholder initiatives such as the Renewables Grid Initiative, bringing together transmission system operators and NGOs.
- Transport policy can have negative impacts on habitats and species due to the construction of road, rail, waterborne, port and other transport infrastructure. These impacts are recognised in the TEN-T regulation and there are requirements to address

them. Evidence shows progress in the way environmental considerations are integrated in TEN-T policy but occasional conflicts still exist.

- With regard to fisheries, the legal framework is considered coherent with the Directives; however the last reform of the CFP still has to deliver results on the ground. In this respect the completion of the marine part of the Natura 2000 network and its effective management is expected to bring an important improvement. Concerns have been expressed by some stakeholders about the impacts of aquaculture on habitats and species, but also about the burden placed on aquaculture caused by strict interpretation of the requirements under article 6.3 of the Habitats Directive.
- There is limited evidence available regarding the impact of the Directives on the EU internal market. A common approach through the Directives is considered as vital to avoid a 'race to the bottom' in environmental standards while giving business legal certainty. However some business stakeholders highlighted the fact that different implementation approaches across Member States have disadvantaged some economic operators and this has prevented a level playing field.
- On international and global commitments on nature and biodiversity, the Directives are generally considered as coherent. Very few inconsistencies, particularly in relation to species protection under international treaties have been identified and the Directives are key instruments for EU to deliver on these international commitments.

9 Evaluation and analysis of EU added value questions

The Tender Specification defines added value of the EU Nature Directives as ‘the value resulting from EU support for conservation of natural habitats and of wild fauna and flora in the EU, which is additional to the value that would have resulted from activities at regional and national levels.’ This section therefore establishes the extent to which the Nature Directives are providing added value, if any, as well as the need for continued EU action.

In line with Chapter VI, Section 2 of the Better Regulation Guidelines⁶¹¹, the evaluation of EU added value critically compares the actual performance of the Nature Directives with earlier estimates of expected benefits from the legislation. Such retrospective analysis, however, is challenging for this evaluation as the Directives were adopted without an ex ante impact assessment that could inform these assumptions.

Although quantitative evaluation of the EU added value of legislation (European Parliament, 2010 [1873], p7) is considered a difficult task, evaluation literature (Paul et al, 2011 [1874]) suggests that the assessment of a counterfactual is an appropriate alternative (i.e. an examination of the situation had the EU laws not been adopted). However, ‘it is particularly difficult to identify a robust counterfactual situation’⁶¹². As a means of establishing the hypothetical situation in the absence of legislation, the evaluation literature recommends using qualitative ‘comparison’ examples that could most accurately reproduce the counterfactual. However this methodology is mainly proposed for the analysis of funding programmes where the counterfactual can be more accurately drawn on the basis of a baseline properly established in advance. The use of counterfactual for the evaluation of legislation is more challenging, as concrete baselines and expectations of results showing the EU added value are generally not as carefully designed from the start. This is particularly the case for the nature legislation, which was adopted without the kind of formal ex-ante impact assessment required for the adoption of EU legislation today. We have therefore used examples that could either reproduce a potential counterfactual or show the significant changes caused by the Directives in relation to the objectives established and the needs to be addressed (see section 2.3).

This study has selected illustrative examples to reflect transformational changes or trends triggered by the Directives, and which almost certainly would not have happened without them. Those examples illustrate comparisons between the current situation and situations either prior to the adoption of the Directives (temporal comparisons) or in countries where the legislation does not apply (spatial implementation comparisons). The examples are taken from literature, experts and stakeholders responses to the evidence gathering questionnaires and online public consultation.

⁶¹¹ European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.

⁶¹² European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.

9.1 AV.1 - What has been the EU added value of the EU nature legislation?

A.V.2 - What would be the likely situation in case of there having been no EU nature legislation?

9.1.1 Interpretation and approach

This chapter assesses the EU added value of the nature legislation, defined as the additional value resulting from EU legislation compared to what would have been achieved by Member States acting in isolation. Both sides of the question are addressed i.e. what is the added value brought about by the Nature Directives, and what would have been the situation had there been no EU nature legislation. While the mandate for the Fitness Check⁶¹³ sets this out as a single question, it was divided in two in the evidence gathering questionnaire in order to obtain more information from stakeholders.

Criteria are needed to determine if the legislation has delivered genuine added value with a clear European dimension (Medarova-Bergstrom et al, 2012). According to the literature this concept involves legal, policy and economic perspectives, including the arguments behind the principle of subsidiarity and proportionality (as defined in Article 5 of the TEU for measures of shared competence). This provision requires the Union to act only if and insofar as the objectives of the proposed action cannot be sufficiently achieved by the Member States at either central or local level, but can be better achieved at Union level for reasons of scale or effects of the proposed action. The principle of proportionality requires that the content and form of EU action does not exceed that which is necessary to achieve the objectives of the Treaties.

The European Parliament report on the concept of Added Value (European Parliament, 2011), p5) refers to the Commission definition of the 'added value test' which is based on compliance with three conditions:

- 'Policy relevance (the intervention/legislation addresses the Union's key objectives)'. This responds to the question, 'what do we want?'
- 'Subsidiarity (transnational or cross-border actions and economies of scale)'. This responds to the question, 'who should do it?'
- 'Proportionality (assessment of effectiveness and efficiency of delivery)'. This responds to the question, 'how do we want it?' (European Parliament, 2011), p7)

For example, the added value of European energy policy is defined by its contribution to the aims referred to in the TFEU, namely increasing the 'security of energy supply', gradually 'establishing the energy internal market', 'contributing to sustainable development by rational use of energy resources' and the 'development and connection of re-

613

http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/Mandate%20for%20Nature%20Legislation.pdf, accessed on 7.12.15.

newable energy sources', increasing the interconnection of energy networks and harmonising the management of the European electricity grid.

In the context of the EU nature legislation, the European added value is assessed in terms of its impact on the overall, strategic and specific objectives of the Directives in the context of the principles of 'subsidiarity' and 'proportionality' under Article 5 of the TEU. The 'European dimension' of the Birds and Habitats Directives should be examined, considering the additional value over and above what would have resulted from activities at national level, as well as the transformational changes triggered by the Directives which would not otherwise have taken place.

Analysing the added value of the EU Nature Directives requires the use of examples comparing the current situation with conditions at the time of the adoption of the Directives and/or Member States' entry into the EU. As explained in the evidence gathering questionnaire, the analysis aims to determine the extent to which the current situation can be ascribed to the EU nature legislation according to the different objectives/measures set out in the Directives. For example⁶¹⁴, would a network of protected areas such as that achieved by Natura 2000 exist? Would the criteria used to identify protected areas be different? Would funding levels be similar to current levels, in the absence of the EU Nature Directives?

9.1.2 Main sources of evidence

Only a small body of literature has specifically explored the EU added value of the Nature Directives e.g. (Born et al, 2015) and few EU level Studies (Romão, 2015; Sundseth and Roth, 2013). Additional literature reviewed covered relevant aspects on EU added value in general (Medarova-Bergstrom et al, 2012), and on the benefits arising from the Birds and Habitats Directives, or their challenges in implementation (Crofts, 2014). The analysis of the Nature Directives' added value and the identification of comparison examples showing the transformational changes and trends triggered by the Directives - some of which can be identified against the counterfactual - is also based on the information provided from stakeholders in the evidence gathering questionnaires. This has been complemented by the views expressed in the online public consultation.

9.1.3 Analysis of the question according to available evidence

All the available evidence compiled for this Study supports the idea that the Nature Directives introduced specific innovative elements leading to transformational changes that are additional to those that would have resulted without the EU legislation. Based on the Commission 'added value test', our analysis classifies these elements on the basis of the three conditions: policy, subsidiarity, and proportionality.

Added value in light of the policy objectives

The literature reviewed and the responses to the evidence gathering questionnaire recognise not only the elements reflecting the European dimension of the Directives given nature's transnational character but also that the Directives have introduced innovative elements that did not exist before their adoption, and which provide added value beyond that which would have resulted without the EU legislation.

⁶¹⁴ Examples used by the Commission in the evidence gathering questionnaires developed within the framework of this project to define the meaning of this question.

European dimension: joint efforts for the conservation of nature of European importance

The evidence highlights that the **transnational character of nature justifies EU level action** as a more effective way to achieve the conservation objectives of the Union than purely national action.

Nature protection has, like many environmental issues, a transnational nature, and cannot be achieved by Member States acting alone or, indeed, without strong international cooperation. Species and their habitats exist in more than one Member State and their conservation status are interdependent. Purely national governments' actions have a more limited scope and are therefore less effective than EU level action for reasons of scale and effects. The need for a collective and concerted effort has always been a fundamental argument for EU environmental action (Medarova-Bergstrom et al, 2012). Applied to this context, EU action on biodiversity is justified as nature knows no borders, and biodiversity often exists across the territory of several Member States (e.g. migratory birds or wildlife habitats that straddle national borders), which necessitates a coordinated multilateral response for its effective protection. The Birds Directive was initially driven by the need to create a protection system for transboundary species, an aim which was then mirrored by the Habitats Directive⁶¹⁵. If the intervention were limited to national or local level, it would be less effective, with the risk of different standards of protection between Member States (Medarova-Bergstrom et al, 2012).

The role of the Nature Directives in contributing to a more effective protection of biodiversity on the necessary European scale is recognised by most respondents to the evidence gathering questionnaires and to the online public consultation. Multilateral action is essential to conserve shared biological resources and ensure the complementarity of conservation action across different jurisdictions. The Directives ensure a coordinated approach to protecting species and habitats throughout the EU, noting in particular the needs of migratory and widely dispersed species and habitats.

The Nature Directives bring a new approach to biodiversity conservation over the entire EU territory. The Directives go beyond the national 'traditional' instruments which were focused almost exclusively on the strict protection of individual species' (Born et al, 2015p 22-23), by requiring joint efforts for halting biodiversity loss through the protection of sites, in order to ensure the conservation of species and habitats endangered or sensitive at the EU scale (Crofts, 2014). There is now a unique, systematic pan-European approach to the protection of all significant species and habitats which did not previously exist, and which has not been replicated in any other part of the world (Crofts, 2014).

The Directives have, therefore, reinforced Member States' capacity to ensure protection of species and habitats beyond their national context, as they cover features and species that are not necessarily endangered at national level, but which are important from a European perspective.

Box 102 Transboundary nature of threats

The **Danish Centre for Energy and Environment** response states that the Natura 2000 Network represents, internationally, the most important set of nature sites with the highest biodiversity value in Denmark.

The nature authorities of Estonia confirm that it is only due to the Directives that some habitats and species common in Estonia but endangered in other regions in the EU, are subject to protection measures.

The response by DEFRA recognises that the shape of the protections put in place in the UK has undoubtedly been influenced by the Nature Directives. In particular, the response points to the fact that without the Directives, there may have been less incentive to protect national widespread species such as bats and newts. Given that in the last century the great crested newts have

⁶¹⁵ NGOs questionnaires, e.g. national NGOs from BE, CZ, DE, NL and at EU level (EEB and BirdLife Europe).

declined across Europe and are still declining (Pirovano and Zecca, 2014; Watson, 2008) the conservation status in Europe may have been worse without the incentive generated by the Directives. However, the questionnaire response acknowledges that this may have been to the detriment of other vulnerable species in the UK which might have benefited from greater attention.

Sources: Questionnaires from the nature authorities in Denmark, Estonia and the UK.

Nature authorities in several Member States confirm that it is only due to the Nature Directives that some habitats and species that are common nationally but endangered in other EU Member States, are subject to protection measures. 'Given that the threatened habitats and species form part of the European natural heritage and the threats to them are of transboundary nature'⁶¹⁶ action at EU level was deemed necessary by the legislator. The effectiveness of EU level measures has been discussed in Chapter 5. A comparison with the effectiveness of what could have been achieved by national measures in isolation is not possible given the lack of scientific control and accurate data of this issue (DEFRA, the UK).

However, a few stakeholders from the private sector (e.g. infrastructure, agriculture) questioned the efficiency of this transboundary approach, claiming that in cases where this European perspective requires action mainly by one Member State on species or habitats protection, this generates disproportionate requirements on them. While these stakeholders recognise the added value of the EU legislation in creating a pan-European overview of species and habitats and affording them a level of protection, they consider that there is the possibility of disproportionate burdens from the required protection measures in relation to the benefits of a common EU level effort for conservation.

However, the fact that the Directives' approach requires Member States' action according to the EU objective to ensure the protection of habitats and species from an EU perspective, responds to the basic principles of EU law, i.e. the principle of sincere cooperation required for the implementation of EU law (Article 4 of the TEU). Furthermore, the burden experienced at national or site level in certain Member States when adopting the national protection measures required from an EU perspective, depends on certain factors linked to implementation issues on a case-by-case basis (see below and DEFRA, the UK's questionnaire response). The level of the burden could be reduced by clearer definitions of the actions required, taking into account that the implementation of the FCS concept provides a certain degree of flexibility in the actions required at national and site level (Simpson, 2015).

Box 103 Flexibility in the actions required at the national and site level

Protection of the Turtle Doves: The Turtle Dove is protected across Europe and in certain regions of the UK conservation actions are carried out to improve their habitats. Stakeholders (NFU, COPA-COGECA in the UK) state that in other countries the Turtle Dove is shot for sport, undermining the conservation activity in the UK.

Great Crested Newts: Stakeholders (NFU, COPA COGECA UK) point to the fact that substantial action to ensure the protection of the Great Crested Newts has been adopted in the UK. Development projects have faced survey costs, time delays and costs of relocating individual newts, requirements that are considered disproportionate for the UK, where the species is relatively widespread. During the visit to the UK within the framework of this project, similar arguments were raised by the Department for Transport pointing to significant investments in mitigation measures of the impact of infrastructure projects on Great Crested Newts.

The **questionnaire from Defra UK** refers to certain factors influencing the burden that protection measures may impose on some countries such as: the lack of evidence on which to make decisions, or for developers to assess their proposals; the poor understanding of the conservation status of certain species, which can lead to more precautionary decision-making; the fear of prosecution or project delays which can lead to risk-averse reactions from decision makers or developers; and land managers proposing mitigation actions beyond what might be considered

⁶¹⁶ 4th recital of the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

reasonable and necessary given the scale of impacts.

Sources: Questionnaires submitted by COPA-COGECA UK, National Missions, NFU Briefing submitted on 13 July 2015 DEFRA UK.

The joint approach required by the Nature Directives has triggered a mechanism for co-ordinated measures for the management of Natura 2000 sites and has contributed towards **better cooperation** between Member States, which is particularly stressed by small countries (e.g Slovakia). The need for transboundary cooperation for nature protection can be demonstrated in the case of the Dogger Bank SAC in the North Sea.

Box 104 Examples of cooperation between Member States

UK: The Dogger Bank SAC is an example where EU level action has, and will continue to be, essential to achieving biodiversity objectives. Adjacent sections of this area were designated by Germany, the Netherlands and the UK under the Habitats Directive and an intergovernmental steering group has been convened to develop a fisheries management plan for the combined transboundary area.

Source: Dutch NGOs, German representative of fisheries sector, UK NGOs.

Estonia: The Estonian authorities state that without the Directives there would have been less cooperation with neighbouring countries for the exchange of experience on preservation and restoration of habitats or monitoring systems.

Further to the biogeographical regions approach presented below, the Natura 2000 network have often formed the basis for joint implementation of projects between neighbouring regions (LIFE) or neighbouring countries (INTERREG) without which conservation objectives would have been more difficult to reach. For example, the Project LIFE DINALP BEAR⁶¹⁷ where scientists from neighbouring member states (Austria, Croatia, Italy, Slovenia) are looking for a management solution of shared Brown Bear populations (Questionnaire nature authorities Slovenia) .

The EU-wide Natura 2000 network that has been established as a result of the Directives is an important shared resource capable of providing multiple benefits to society and to Europe's economy (Kettunen et al, 2011). Ecosystem services deliver benefits over multiple spatial and temporal scales, many of which are trans-boundary. The complex ecological processes underpinning the delivery of these services do not respect national boundaries. Protecting supra-national 'public goods' would not be possible without EU environmental standards (DEFRA, the UK).

The concept of FCS

The 'notion and definition of "favourable conservation status" (see Box 1 section 2.3.1) is one of the most distinctive and key aspects introduced by the Habitats Directive in European nature conservation policy'(EEA, 2012). In simple terms, FCS is described as "*a situation where a habitat type or species is prospering (in both quality and extent/population) and with good prospects to do so in the future as well*" (European Commission, 2011f). The Habitats Directive introduces this concept as a new standard that leads to a harmonised methodology throughout the EU for measuring biodiversity status and has enabled Member States to adapt their actions and priorities since its entering into force (Romão, 2015).

Most nature authorities consider the introduction and implementation of this concept to be one of the key elements introduced by the Directives; and which would probably not have existed without them in all Member States. It has thus been transformational in

⁶¹⁷ <http://dinalpbear.eu/en/>

setting clear, consistent and scientific goals for nature conservation at a sufficient level of ambition.

Box 105 Common standards set out in nature legislation

Having common standards set out in nature legislation across the EU - such as a common understanding of what FCS means in practice - has improved the development of conservation measures and raised the level of ambition. The application of FCS has improved the way in which monitoring has developed and has been heavily driven by the Directives, (DEFRA, the UK).

The introduction of the concept of FCS has contributed to better steering and to a more scientific approach to conservation. The common solid methodology for evaluating FCS has contributed to a better knowledge base and has improved and added consistency to the difficult task of estimating the status of biodiversity, both in terms of populations and types of nature (Questionnaire nature authorities, Sweden)

The establishment of the Natura 2000 network

The establishment of the European network of protected areas – Natura 2000 - is considered in the literature and by most stakeholders to be the objective of the Nature Directives that most clearly provides EU added value and which did not exist before the Directives' adoption. Its creation is based on an innovative approach (Born et al, 2015), introducing new elements that add value to existing national initiatives on protected areas. It is a network of sites designated on the basis of scientific information and a 'biogeographical regions' approach, designed to contribute to maintaining or achieving FCS of habitats and species at EU level. The Natura 2000 network aims to be a coherent network.

Romao (Born et al, 2015) states that the main aspect of the Natura 2000 Network providing added value is that it is built on a common site selection and designation process across the EU, based on a common methodology, criteria and set of ecological features. This favours greater ecological coherence than if the networks were organised purely within each Member State (EEA, 2012). Sites are selected on scientific grounds based on information provided by nature authorities or any other stakeholder with the relevant data. The 'biogeographical regions' approach defines the list of habitats and species to be protected, as well as the sites to be designated as part of the network, and it is recognised as an innovative approach that is unlikely to have happened without the Nature Directives. It focuses action in relation to relevant regional conditions and priorities rather than a simpler but less effective Pan European approach. Currently, there are nine biogeographical regions in the EU: Alpine, Atlantic, Black Sea, Boreal, Continental, Macaronesian, Mediterranean, Pannonian and Steppic. This approach recognises the differences in biodiversity between Member States and allows site conservation measures to be adapted to the ecological conditions of each region.

No other protected areas system exists, whose site designation process is based on a biogeographical regional approach and a common scientific methodology covering such a significant number of countries (EEA, 2012).

According to the EEA, the Natura 2000 network is the most extensive protected area system worldwide (EEA, 2012). It is broadly recognised that this approach to protected areas designation has led to an unprecedented expansion of the protected area network across Europe. Some literature provides for quantitative data about the impact of the Nature Directives in the extent of the network of protected areas in Europe due to a much greater rate of designation of protected areas than seen previously. For example, the July 2012 Natura 2000 Newsletter credits the Directives as 'the area protected for nature

conservation in the EU has more than tripled⁶¹⁸ since their adoption⁶¹⁹. The Natura 2000 Newsletter from January 2015⁶¹⁹ states that about 20% of the EU terrestrial land and 4% of the total EU marine area is designated for nature protection. While progress in designating marine sites has been slower than on land and still has major gaps, the Natura 2000 network has nevertheless made a substantial contribution to the conservation of marine biodiversity in Europe. Although the current marine protected area is less than the 10% global target under the CBD, the marine sites currently protected in the EU have more than doubled in the last 10 years.

Although it is difficult to establish the counterfactual to determine the link between the current situation regarding the extent and effectiveness of protected areas in the EU and the introduction of the Directives, judgement can be based on the following:

- Romao affirms that one-quarter of the EU terrestrial land is protected and designated for nature conservation and 'on average at the EU level, 30% of those areas designated for nature conservation is only designated under Natura 2000' (Born et al, 2015) and is additional to solely nationally protected land. It can be inferred that those sites only designated under Natura 2000 would not have been protected without the Directives. The representative of the EEA states that 40% of land is designated both at national level and as part of the Natura 2000 network (Born et al, 2015). It can be concluded that 'Natura 2000 has therefore led to a 'significant increase in the area of land targeted for biodiversity and nature protection' (Born et al, 2015p 23).
- An EEA study (EEA, 2015b) examined the recent trends in protected coverage in four countries: Austria, Estonia, France and Hungary and found large increases in protected area coverage as a result of the establishment of the Natura 2000 network in all of them except France. Consequently, the EEA study concluded that "the implementation of the Natura 2000 network has significantly changed the picture of protected areas in the EU Member States, by dramatically increasing the area of sites."
- An IEEP study examined terrestrial protected area approaches in eight Member States (Croatia, Czech Republic, Estonia, Finland, France, Germany, the Netherlands and Spain) and found that there were major increases in protected area coverage as a result of the establishment of their Natura 2000 networks in Croatia, Estonia and Spain (Underwood et al, 2015).
- A significant majority of stakeholders consider that the extent of the protected area expansion both in land and in the marine environment would not have happened without the Directives. An example can be found in the EEA report on protected areas, where the Natura 2000 is compared to the Emerald Network, an ecological network of Areas of Special Conservation Interest (ASCIs) set up by the Contracting Parties to the Bern Convention (the Convention on the Conservation of European Wildlife and Natural Habitats). The Emerald Network is conceptually similar to the Natura 2000 network, but it incorporates a wider group of countries, including most of the members of the Council of Europe. The Emerald Network sites are the same Natura 2000 sites for those Bern Convention Parties that are EU Member States. At present, the countries from Western Europe that implement the Bern Convention and contribute to the establishment of the Emerald Network are: Iceland, Norway and Switzerland. If we take Switzerland as a counterfactual example of what could have happened in EU Member States without the Nature Directives, the 2012 EEA report on protected areas states that Switzerland currently has designated 37 sites covering 642.2 km² and 1.6% of the national territory (EEA, 2012). It is very likely that the trend of designation of protected areas in most EU Member States would have been

⁶¹⁸ http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000news/nat32_en.pdf, accessed on 7.12.2015.

⁶¹⁹ Natura 2000 newsletter, January 2015, at: http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000news/nat37_en.pdf
http://ec.europa.eu/environment/nature/info/pubs/natura2000nl_en.htm, accessed on 7.12.2015.

similar to the situation in Switzerland without the Directives. At present Natura 2000 coverage in EU Member States, ranges from 38% of Slovenia's land area designated and 35% of Bulgaria down to 8% in Denmark and the UK⁶²⁰.

- Stakeholders from several EU countries (e.g. Bulgaria, Croatia, Estonia, France, Hungary and Spain) confirm that the EU nature legislation has resulted in a larger area of protected sites in their countries than otherwise would have occurred. Some examples of these increases provided by stakeholders are compiled in the Box 106 below, compared to the situation prior to the Directives.

Box 106 Examples of increases in surface of protected area

Bulgaria: Before joining the EU, the surface of the protected areas designated in Bulgaria covered 5% of the country's territory. The scientific site selection process for the establishment of the Natura 2000 network started in 2002 resulting in a National Ecological Network system covering 34.4% of the national territory. This integrated most of the existing national protected areas.

Germany: Before the Directives came into force Germany's strictly protected areas (requiring strict conservation measures with no economic activities carried out within them) comprised 2.5% of the land surface, a figure now standing at about 4.3%. The area of Natura 2000 sites, most of them not strictly protected, includes 15.4% of the total land surface and 45% in the marine environment. This expansion would not have happened without the Directives.

Estonia: Before the accession of EU, 10% of Estonian land territory was covered by protected areas. Today 18% of Estonian territory is covered by protected areas due to the establishment of the Natura 2000 network. Before accession 82,500 ha of marine area were protected in Estonia, while today 678 000 ha of marine area belongs to the Natura 2000 network.

Romania: Romania's protected areas network existed before the accession and currently covers about 20% of the national territory. About 14% of the protected national territory is due to the designation of SCIs under the Nature Directives (Ioja et al, 2010).

Spain: The increased number and size of protected areas in Spain is recognised by the nature authorities in the evidence gathering questionnaire. The area protected in Spain increased from over 4% before the adoption of the Directives to 28% of the total territory of Spain. The authorities affirm that this increase is a direct consequence of the obligation to establish the Natura 2000 network, with evidence provided by the Environmental Profile of Spain published by the Ministry of Environment⁶²¹.

Considering whether other initiatives could have triggered a similar catalyst effect for the sufficient development of protected areas, we looked at the Convention on Biological Diversity (CBD). Since its enter into force in 1993, the number of protected areas worldwide has almost doubled, and the surface area of all land and seas with protected status has increased by about 60% (Gidda, 2010) (EEA, 2012). However, given the Convention's character of 'soft law', it is difficult to reach a definitive conclusion on that potential causal link. According to several stakeholders (e.g. Croatian NGOs, and Hungarian nature authorities), without the Natura 2000 network, the scale of these results would not have been reached in any of those countries.

The impact of the Natura 2000 network has been discussed in section 5 of this report. It has helped to protect the species and habitats for which sites were designated, and so doing has helped to conserve a wider supply of ecosystem services (Baldock et al, 2013). The effective role of protected areas in ensuring biodiversity conservation is highlighted by Crofts (Crofts, 2014), who states that the analysis of land cover change over the last 20 years shows that the impacts of threats to habitats and species - such as agricultural

⁶²⁰ Terrestrial network status end 2014 in Natura 2000 barometer.

⁶²¹ http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/publicaciones/pae2012englowlowresolution23-4-2014_tcm7-328424.pdf accessed on 7.12.15.

intensification, land abandonment or urban expansion - are clearly less acute in protected areas. Crofts also refers to studies indicating that common bird species and bats are more abundant in Natura 2000 than outside the network and those sites also benefit species that are not targeted by the Directives. Furthermore, one relevant study (Donald et al, 2007) shows that there is a causal link between the Directives (regarding the proportion of land designated as SPA) and species status within the EU-15. The trend identified considers that for every additional 1% of land area designated, the population trend of a species increases by 4% across all species for non-Annex I species and by 7% for Annex I species.

Natura 2000: a coherent network for the whole EU territory.

One of the main objectives set out in the Habitats Directive is to build an 'ecologically coherent' network i.e. one that includes sufficient sites both in number and area, distributed over a wide geographic area, and representing the full range of variation of the habitat types and species mentioned in the Habitats Directive (EEA, 2012). An ecologically coherent network should contribute to achieving FCS of those habitat types and species. An important additional feature of ecological coherence is 'connectivity' between the sites of the network (EEA, 2012). The Habitats Directive, Articles 3(3) and 10 provides Member States with the discretionary power to improve the coherence of the Natura 2000 network through the management of landscape features of major importance for wild fauna and flora. Such features can act as stepping stones or ecological corridors for migration, dispersal and genetic exchange of wild species.

As described under question S.1, the concept of a coherent network has not been fully applied so far and, therefore, has not achieved all of the potential added value of the Directives on this issue. Specialised literature states that the Directives have failed to ensure that Member States fully implement wider countryside and connectivity measures (Crofts, 2014). The EEA has looked into transboundary connectivity concluding (EEA, 2012) that connectivity - both spatial and functional - across national borders is relatively good, but the overall coherence of the network could be further improved. The reasons for the lack of implementation of this objective are discussed in the Efficiency Chapter to this report.

Examples of initiatives aiming at establishing coherence networks are described in the Box 107 below. Stakeholders providing these examples recognised that the development of these networks had been instigated by the implementation of the Nature Directives.

Box 107 Best practice – coherence of the network

- In 2010 France set up the 'green and blue network' (Trame Verte et Bleu) to enhance connectivity between the protected areas established by the Nature Directives. This tool is mentioned in several pieces of legislation (Loi 2009), environmental code, building code, local government code, rural code, forestry code, and also included in other national initiatives (e.g. the development of the "Regional ecological coherence schemes). This network of corridors also aims to provide ecosystem services, such as raw materials, pollination, water purification and flood prevention.
- The Netherlands has established the National Ecological Network (NEN) in 1990, which aims to create a comprehensive network consisting of Natura 2000 sites and other protected areas with ecological corridors. The NEN is well-developed in the Dutch rivers and has resulted in an increase in rare plant and animal species, but farmland and meadow breeding bird species are still in strong decline.⁶²²
- In Spain the approach to selection and designation of the Natura 2000 sites was to define broad sites that would include core conservation zones, together with areas for connectivity between them. Additional areas to ensure connectivity between the Natura 2000 sites are being developed. In this way, the region of Andalusia has developed their own Director Plan for the improvement of Ecological Connectivity in Andalusia, with the objective to ensure the territorial coherence of the Natura 2000 network and the conservation of Andalusian biodiversity in the long-term. Similarly, the Basque Country has developed the Network of

⁶²² <http://rijninbeeld.nl/?p=607>, accessed on 7.12.15.

ecological corridors of Euskadi. A regional network of ecological corridors between Natura 2000 sites with forest and agroforestry systems was established in 2005 and these are used as reference information in environmental assessments of plans and projects.

Species protection

The system of species protection established by the Nature Directives provides added value even though national systems of species protection already existed before the Directives were adopted ((Born et al, 2015) and several stakeholders⁶²³). The main added value elements are:

Improvement of national hunting legislation and control of illegal hunting practices

Specialised literature (Born et al, 2015; Schoukens, Species protection in the EU) and stakeholders (NGOs questionnaires, e.g. BirdLife Europe and Nature authorities, e.g. Cyprus, Malta, Spain, the Netherlands, Sweden, Poland) state that the system of species protection established by the Directives has led to the strengthening of national legislation, particularly with respect to hunting and the control of illegal hunting practices. This has been appropriate in relation to species protection objectives. The hunting seasons for migratory birds are now consistent throughout the EU territory, which would not have happened without the Directives. Over the years the implementation of the standards of protection in Malta has resulted in the phasing out of various practices such as a three-month spring hunting season, the trapping of finches in 2008, and the trapping of Turtle Dove and Common Quail in 2010. Though some of these practices are nowadays permitted via derogations, the implementation of the Birds' Directive in this case has allowed for more scrutiny of these practices⁶²⁴.

In support of this, the evidence points to differences in implementation of effective species protection rules by EU and non-EU Member States. For example, a study comparing the situation in countries along the Adriatic Flyway⁶²⁵ concludes that the implementation and control of legal standards for the protection of birds are stronger and more effective in EU Member States than in countries that are non-EU Members. In those countries, hunting laws are weaker and there is inconsistent implementation and control of the existing laws. By contrast, the hunting association in Sweden believes that the existing population statistics show that the EU nature legislation has caused a negative trend for large carnivores, and that the species which have increased were already increasing before their EU membership in 1995 (Swedish Association for Hunting and Wildlife Management).

Conservation results

The species protection system brought about by the Directives provides conservation results that would not have been achieved without them.

Stakeholders (NGOs⁶²⁶) refer to evidence (Donald et al, 2007) that the conservation status of species protected by the Directives is better than that of those species not protected by the Directives.

Box 108 Conservation status of species protected by the Directives

Indeed, (Donald et al, 2007) provide specific data that can be used as a counterfactual, as it looked at trends in the populations of Annex I and non-Annex I bird species comparing data from two time

⁶²³ For example, stakeholders in FL, FR, NL, SK, UK.

⁶²⁴ NGOs Mt

⁶²⁵

<http://www.euronatur.org/Press-Releases.412+M5815d32f5dd.0.html?&cHash=37e22b95f9e19216f9f99d052ce2a2ab>, accessed on 7.12.15.

⁶²⁶ National NGOs in the UK, DE and EU level: FoE Europe.

periods (1970 – 1990 and 1990 – 2000) both within and outside the EU. It concludes that:

In the EU-15, Annex I species had a lower population trend than non-Annex I species during the period 1970–1990. However, this pattern was reversed in 1990–2000, when Annex I species had significantly a higher population trend than non-Annex I species. Further, while between 1990 – 2000 species listed on Annex I fared better on average than non-Annex I species within the EU-15, that pattern was not followed outside the EU-15. It can be concluded that the Nature Directives led to a reversal of the decline within the EU-15.

Outside the EU-15, trends of Annex I species improved significantly compared to those of non-Annex I species during the period 1990–2000, however the trend of Annex I species was not more positive than non-Annex I species trends in 1990–2000. The difference in trend between Annex I and non-Annex I species was significantly greater in the EU-15 than in non-EU-15 countries in 1990–2000, while it did not differ in 1970–1990, probably due to the influence of the Directives.

Stakeholders in the UK refer to the 2015 State of Nature Report to state that while biodiversity loss in the UK remains high, with 60% of species confirmed to be in decline, this rate has slowed since the implementation of the Directives.

Species recovery triggered by the Directives

The Review of the implementation of species action plans of threatened birds in the European Union (2004–2010) developed by BirdLife International for the Commission suggests that well-resourced and coordinated implementation efforts can deliver positive species recovery results (as demonstrated by most of the species subject of LIFE funding).

The Review of the implementation of 17 EU Species Action Plans in 2010 covered species which have clearly improved their population trend from declining or stable to increasing (e.g. the Fea's Petrel, Zino's Petrel Madeira, Eastern Imperial Eagle *Aquila Heliacal*, Madeira Laurel Pigeon, Columba Trocaz, Azores Bullfinch, Pyrrhula Murina, and Eleonora's Falcon Falco), . The decline of four species has been halted, while five other remained stable or had levelled off.

The counterfactual: The study finds that there is a marked difference in the levels of implementation within and outside the EU (Barov and Derhé, 2011).

In addition, several stakeholders refer to examples of species recovery:

- Despite pessimistic forecasts, Europe's large carnivores are returning to traditional areas of expansion. (Chapron et al, 2014) report that sustainable populations of Brown Bear, Eurasian Lynx, Grey Wolf, and Wolverine persist in one-third of mainland Europe. In addition, many individuals and populations are increasing outside of the protected areas set aside for wildlife conservation. Coexistence alongside humans has become possible, the authors argue, because of improved public opinion and protective legislation⁶²⁷.
- Site designation can help to conserve species not listed on the Annexes, as demonstrated for birds in Latvia (Opermanis et al, 2008), and for gypsophilous plants in Spain (Martínez-Hernández et al, 2011).
- The extinction of the small seabird Zino's Petrel from Madeira (*Pterodroma madeira*) was prevented by specific action during 1994–2004, including the designation of 'breeding sites' as SPAs under the Birds Directive.
- NGOs in the UK highlight that, following legal protection established by the Directives and a series of reintroduction projects partly financed by EU Funds, certain species such as the Red Kites have been brought back to the wider UK countryside, with almost 2,000 pairs (nearly 10% of the global population) spread across all four countries of the UK.

⁶²⁷ NGOs, IUCN, FoE, WWF

Concerns about strict standards have led to innovative pragmatic solutions

The Directives' strict species protection standards have raised concerns from private sector stakeholders regarding the way in which decisions on how socio-economic considerations are taken into account and the extent of their involvement in decision-making on site management. Those concerns have led to the development in some Member States of innovative, flexible systems (such as the concept of 'temporary nature') which increase private landowners' participation in restoration outside of Natura 2000 sites.

Literature points to the consequences of recent case law on the strict rules on species protection, which have resulted in project developers or landowners actively undertaking actions to prevent protected species from settling in private land (Schoukens, 2015). In response to these challenges, a policy has been introduced in the Netherlands and in the Flemish region of Belgium, to develop nature on temporarily vacant industrial lands. The solution found in the Dutch 2007 Policy Document is based on the derogations issued under Article 16(1)(a) of the Habitats Directive and Article 9(1)(a) of the Birds Directive 'in the interest of protecting wild flora and fauna and conserving natural habitats'. While this initiative should not be considered a replacement of the existing regulatory framework for mitigation measures outside Natura 2000 areas, it is an innovative and pragmatic approach which is promoting a collaborative approach to nature conservation by the private landowners (Schoukens, 2015), p60). This option has been validated by the national courts (Ruling of 27 May 2011 by the District Court of Amsterdam) and by the Commission (letter from the Commission of 21 February 2014) as a useful instrument, compatible with the objectives of EU nature conservation law as long as the existing areas are sufficiently protected and managed (Schoukens, 2015), p53).

Increased knowledge

The EU nature legislation has led to increased knowledge on biodiversity through the obligation to implement the Nature Directives and the consequent need to have information and data on habitats and species in each of the Member States. Before the adoption of the EU legislation the information held by Member States was not always systematic or comparable.

The increase in the scientific knowledge on habitats and species has been highlighted by several stakeholders⁶²⁸ who recognise that this is mainly due to the scientific information needed for the Natura 2000 site selection process. According to most nature authorities, the Nature Directives have contributed to the development of knowledge specifically in respect of the distribution of habitats and species, sensitivity to disturbance of species, monitoring of habitat types and, to a lesser extent, to knowledge of species and their requirements (e.g. the Netherlands nature authority). Other stakeholders consider that the Directives have triggered the collection and application of useful knowledge on ecosystem services and the economic value of nature (Nature authorities, e.g. Sweden, NGOs in the UK).

Stakeholders and literature provide evidence that the implementation of the Nature Directives triggered the development of inventories of habitats and species and site mapping, in some cases of entire countries as in the Czech Republic or Spain (Rivas-Martinez and Peans 2003)(Evans, 2012; Hartel et al, 2009). Many countries had to launch nationwide surveys, biological inventories and mapping⁶²⁹ of habitats and species in order to identify the sites to be included in the network, and their subsequent monitoring. This has led to a much better knowledge of their current status.

⁶²⁸ NGOs and nature authorities

⁶²⁹ <http://www.kp.org.pl/n2k/pdf/19.pdf>, accessed on 7.12.15..

Box 109 Examples of increased knowledge

The **Spanish** scientific and technical system classifying habitats and evaluating their status⁶³⁰ was only developed under the requirement of the Directive. It is considered of particular value due to the amount of information it contains from NGOs (IUCN).

In **Germany** the mapping of habitats and species for the designation of Natura 2000 sites led to the discovery of White-clawed Crayfish in the Dreisam valley (*Austropotamobius pallipes*) which is a species of the Annex II and V of the Habitats Directive (FoEE).

The **Estonian** authorities recognise that little data existed about some of the Habitats Directive species (e.g. Coleoptera, bats) before accession and the application of the Nature Directives. Populations and ecology studies of large carnivores has significantly increased during and after accession. Without the Directives, knowledge on certain species and habitats would not have been developed, and there would have been less cooperation with neighbouring countries (exchange of experience on preservation and restoration of habitats, monitoring).

Some Member states like Estonia, Poland, Spain, and Bulgaria used EU funding to support the development of inventories. The use of this public funding has triggered a higher degree of availability of the data than prior to the Directives.

Knowledge has increased as a result of the **improved monitoring procedures** triggered by the provisions of the Directives. Examples provided by some stakeholders describe the added value of the Nature Directives where they have acted as drivers for improving monitoring of species. For example, the Directives have improved the monitoring of cetacean bycatch and the coherence between nature legislation and fisheries policy.

Box 110 Examples of monitoring measures

Denmark: The nature monitoring and surveillance system, NOVANA, was introduced in Denmark to meet the requirements of the Nature Directives and has been implemented and streamlined to comply with their provisions during the past 10 years, <http://naturstyrelsen.dk/vandmiljoe/overvaagning-af-vand-og-natur/novana-program/as>

Estonia: Estonian monitoring programmes to control the status of habitats and species have evolved significantly. The current monitoring system has been in place in Estonia since 1994, and from then on its importance has increased as a direct result of the requirements of Article 11 of the Habitats Directive.

The UK: The UK cetacean bycatch monitoring scheme was developed and funded by its Government in order to fulfil the commitments under both the Habitats Directive and Council Regulation 812/2004. Without the Directive, this programme is unlikely to have been developed. The programme continues to inform assessment of the impact of fisheries on protected species, as well as support trials and development of mitigation plans and measures.

One of the key reasons for slow progress in marine site designation to-date has been the **lack of knowledge and information**, for example on the distribution of EU protected marine habitats and species at a level of detail required to enable the identification of sites, appropriate management and assessment of impacts. Several Member States have made significant efforts to carry out marine surveys in order to assist with the identification and selection of suitable sites, a number of which have been co-financed through the EU LIFE fund (e.g. INDEMARES). Nevertheless, conducting offshore marine surveys continues to be a considerable and costly challenge⁶³¹.

Knowledge has also been increased through some EU level initiatives. The European Commission has developed the public 'Natura 2000 viewer' which makes it possible to

⁶³⁰ http://www.magrama.gob.es/es/biodiversidad/temas/espacios-protegidos/red-natura-2000/rn_tip_hab_esp_bases_eco_acceso_fichas.aspx, accessed on 7.12.15.

⁶³¹ Natura 2000 Newsletter, issue 37, January 2015. http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat37_en.pdf, accessed on 7.12.15.

explore Natura 2000 sites in every part of the EU. Built on Geographical Information System (GIS) technology, the public viewer is an interactive and user-friendly tool that allows the use of different types of backgrounds (street maps, satellite imagery, biogeographical regions, Corine Land Cover, etc.). This tool provides access to the location of all sites and their related information on species and habitats of interest. The tool is intended to help raise awareness of Natura 2000's rich assets amongst the general public, as well as provide a useful instrument for developers, land use planners, land-owners, government authorities, NGOs, researchers and educators, among others. The Commission has also developed the Web Map Services (WMS) which is a standard protocol for serving online geo-referenced map images. The Web Feature Services (WFS) is a standard protocol allowing online requests for geographical features, which can subsequently be used for spatial analysis or mapping⁶³².

9.1.4 Added Value in terms of the principles of 'subsidiarity'

Shared competence and subsidiarity principle

The Nature Directives form part of the EU policy on Environment which is of shared competence between the EU and its Member States (Article 4 of the TFEU). The subsidiarity principle is applicable to the Directives, therefore the EU shall act only if and insofar as the proposed action cannot be sufficiently achieved by Member States in isolation, and added value can be provided if the action is carried out at EU level for reasons of scale or effects to be achieved. Subsidiarity is a principle which governs the choice of who should act, in situations with potentially more than one appropriate actor (HM Government, 2014b).

The Commission has introduced procedures to assess compliance with the principles of subsidiarity and proportionality in the decision-making process to check if EU-level action is legitimate and necessary⁶³³. These procedures are applicable to all shared competence policies since the 1993 Maastricht Treaty. While the Nature Directives were adopted before that date, subsidiarity as a principle already existed implicitly in EU environment policy through the Single European Act adopted in 1986. Its Article 130r(4) required the EU to '... take action relating to the environment to the extent to which its objectives ... can be attained better at a Community level than at the level of the individual Member States'⁶³⁴. From the outset, the Directives' adoption has been based on the requirement that they provide added value.

The 2014 Review of the Balance of Competences between the UK and the EU: Subsidiarity and Proportionality (HM Government, 2014b) refers to the evidence that some issues, such as cross-border environmental problems or the Single Market, justified EU level action, with examples given of measures considered to be proportionate.' The 'Review of the Balance of Competences between the United Kingdom and the European Union: Environment and Climate Change', did not identify any substantive objections to the competence of the EU on nature conservation.

⁶³²

http://ec.europa.eu/environment/nature/natura2000/access_data/index_en.htm
<http://www.eea.europa.eu/themes/biodiversity/interactive/natura-2000-european-protected-areas>;
http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000/viewer_leaflet.pdf, accessed on 7.12.15.

⁶³³ European Commission 2014, Annual Report 2013 on subsidiarity and proportionality, Report from the Commission, COM(2014) 506 final, 5.8.2015.

⁶³⁴ European Commission 2014, Annual Report 2013 on subsidiarity and proportionality, Report from the Commission, COM(2014) 506 final, 5.8.2015.

Transformational change in the legal framework: stronger and more holistic legal system

The Nature Directives have generated major transformational changes in the EU legal frameworks for nature conservation, establishing a stronger and more holistic legal system than most of the existing national systems and covering both site and species protection together in a coherent way. The majority of respondents to the UK Government's Review of the Balance of Competences: Environment Report stated that 'EU competence has increased environmental standards in the UK and across the EU and that this has led to improved performance in addressing several environmental issues.'

A unique aspect of the Natura 2000 network is the comprehensive set of provisions introduced by the Habitats Directive establishing a **strong protection system** based on conservation measures and assessments of impacts for projects likely to have a significant effect on the sites (EEA, 2012). This EEA report states that 'implementation of the Natura 2000 network has significantly changed the picture of protected areas in the EU Member States, by dramatically increasing the area of the sites. Natura 2000 has also forced countries to strengthen their management and protection systems for biodiversity conservation'. This report concludes that 'pre-existing nationally designated areas that focused on biodiversity conservation have been broadly used in support of a Natura 2000 designation. However ... the Natura 2000 network is not restricted to nature reserves, and is based on a much broader principle of conservation and sustainable use'.

In some Member States (e.g. Cyprus, Poland) the adoption of specific nature legislation (complementing the general environmental code) was triggered by the Nature Directives, while in others, changes in existing laws were required to comply with the harmonised protection standards for site or species protection, thereby increasing the legal certainty for the achievement of nature conservation objectives.

While most Member States had a pre-existing network of protected areas, it is recognised⁶³⁵ that the system under Article 6 of the Habitats Directive is clearer, more precise and ensures higher protection than the existing national systems.

Box 111 Examples of improved protection due to the Directives

Cyprus: The first Nature Law in Cyprus, other than the legislation regulating state forests, was implemented in 2003 to transpose and ensure implementation of the Nature Directives (Questionnaire Cyprus nature authorities).

Germany: While Germany's nature conservation laws at federal and länder level were mainly created before 1992, the Directives' introduced changes (biogeographic approach, cross-border species and habitats protection) and a higher standard of site protection. It took almost 20 years for transposition of the Directives in national legislation to be regarded as complete, showing that the German authorities would not have introduced such an innovative and modern concept of nature conservation without the incentive of the legally binding directives (Questionnaire German NGOs).

Poland: The 2001 Environmental Protection law, the so-called Environmental Code, set out general principles of environmental protection, including the polluter pays principle, and the precautionary principle, as well as providing for a policy on environmental permitting. However, this law was only complemented by the Nature Conservation Act adopted in 2004 as a result of Poland's accession to the EU. This information is provided by several stakeholders, including the Polish nature authorities and the Polish NGOs questionnaires, as well as by literature including: OECD Environmental Performance Reviews, Poland 2015⁶³⁶.

Polish nature authorities consider that the EU nature legislation has yielded changes to the existing legislation, in particular the innovative approaches such as the Appropriate Assessment procedures of all activities and development projects affecting the Natura 2000 sites, or the requirement to

⁶³⁵ Discussed in the national missions to France, the Netherlands, Poland, Spain and the UK.

⁶³⁶

https://books.google.be/books?id=hSOECAAQBAJ&pg=PA61&pg=PA61&dq=Nature+legislation+in+Poland+prior+to+EU+accession&source=bl&ots=Fhbpmsy37&sig=s4TMbDSwwKY2U_ZA5pggnBapC2Q&hl=fr&sa=X&ved=0CFEQ6AEwCWoVChMI_sHfTn3jyAIVAU4UCh0x5AAv#v=onepage&q=Nature%20legislation%20in%20Poland%20prior%20to%20EU%20accession&f=false

adopt management plans. Those measures were not considered possible at national level without the EU law.

UK: The UK national protected areas (Sites of Special Scientific Interest (SSSIs) in England, Scotland and Wales and Areas of Special Scientific Interest (ASSIs) in Northern Ireland) were introduced in national legislation in 1949, but had limited effects on many sites until 1981, as they provided limited protection from development and damage caused by changes in agricultural and forestry management. As a consequence, 10–15% of SSSIs were damaged each year. A quarter of England's nationally designated sites were damaged from 1987 to 1993. Changes to the Wildlife and Countryside Act 1981, driven by the requirements of the Birds Directive, have led to a marked improvement in SSSI protection. By the early 1990s, the area of SSSI being lost per year had fallen to below 0.005% and the area subject to short-term damage to around 2–3% per year. Since 2007, only 139 ha, or 0.01%, of the total SSSI network has been lost as a result of development or land-use change.⁶³⁷

Literature and most stakeholders recognise that the standards of protection for Natura 2000 sites are stronger than those existing in national systems of **site protection** and this has been appropriate in the light of pressures on both habitats and species. The Nature Directives have raised the level of protection granted to habitats and species in protected areas. The comprehensive set of provisions concerning conservation measures and assessment of impacts of projects likely to have significant effects on the sites, is introduced through **Article 6** of the Habitats Directive. The Commission has promoted the implementation of these provisions' by issuing extensive guidance, from legal interpretation to practical guidance on specific sectors like wind, energy, port developments, etc. Literature confirms that the 'Habitats and Birds Directives have added a layer of protection for nature in the UK above and beyond that provided in previous national legislation' (Baldock et al, 2013). In addition, as stated in Chapter number of State of Play of this Study, the CJEU has produced several rulings that further clarify the legal interpretation of these provisions (EEA, 2012).

The specialised literature considers this comprehensive set of rules to be **an innovative approach** (Born et al, 2015) which did not previously exist in national legal systems and, given the associated implementation problems, most likely would not exist now, without the Nature Directives. These standards play an important role in preventing environmental damage. They constitute a stronger and more holistic legal system than that existing in most Member States prior to the adoption of the Directives. This system ensures harmonised protection standards for site protection which promote a consistent approach to socio-economic considerations within the respect of biodiversity objectives. These harmonised rules ensure a level playing field for business that can only be prevented by the lack of proper enforcement leading to differences in Member States' implementation.

The examples provided by stakeholders show that the establishment of the protection system would not have happened without the Directives, thereby confirming the Directives' added value.

Box 112 Examples of stronger protection systems due to the Directives

Cyprus: SPAs currently cover about 27% of the government controlled area of Cyprus. All of these sites now have a protection status which they did not have before (apart from the state forest areas which account for 52.8% of the SPA). The Nature Directives have played a central role for the protection of habitats in Cyprus outside of forested areas that are important for birds species like Garigue and Maqui, habitats linked to agriculture activities.

The **nature authorities from the Netherlands** state that the objectives of the National Ecological Network (NEN) are more broadly formulated than those of the Nature Directive. The

⁶³⁷ The nature and wellbeing act. A green paper from the wildlife trusts and the RSPB. http://issuu.com/wildlifetrusts/docs/nature_and_wellbeing_act_final?e=4558523/9971297#search

objectives of the NEN are not only formulated regarding biodiversity conservation, but also regarding such aspects as ecosystem services and recreation. In this respect, the Nature Directives' protection regime goes much further and is stricter than the general regime for the NEN, giving more protection to species and habitats.

The **Spanish nature authorities** questionnaire response states that the absence of the Nature Directives would have led to lower protection standards. This statement is repeated in most questionnaires from nature authorities and NGOs answering these questions.

UK: The standard of protection from potentially damaging development projects that is applied to UK national protected areas (SSSIs and ASSIs) remains lower than that afforded to Natura 2000 sites under the Birds and Habitats Directives. This has been illustrated by a number of cases where potentially damaging developments of certain activities on (non-Natura 2000) SSSIs have been permitted under circumstances which would not have complied with Natura 2000 requirements. Several such examples are: housing development at Lodge Hill SSSI in Kent⁶³⁸ and Rampisham Down in Dorset⁶³⁹, and Canvey Wick in Essex, where a road was built through the SSSI and it is claimed that the proposed compensation has not been enforced (UK NGOs)

The case of Strangford Lough SPA in Northern Ireland shows that the Habitats Directive has been a legislative driver enabling considerable progress in achieving the protection needed for the unique and valuable Horse Mussel reefs for which the SPA was designed. Such protection would not have been provided under national jurisdiction (Baldock et al, 2013).

The Directives also fostered a practical response to managing urban expansion in the Thames Basin Heaths SPA, in the form of a sub-regional strategic assessment. In principle, all applications for residential development close to the SPA would need to be screened to establish whether an Appropriate Assessment was required, due to the adverse impact on the populations of ground and near-ground nesting bird species for which the site had been classified. As this assessment was required under the Birds Directive it is unlikely that this would have occurred had the site held only an SSSI under national legislation. Specific standards were defined, determining when to proceed without the need to undertake an Appropriate Assessment. The standards applied were deemed to ensure that such developments would not be likely to have a significant effect on the integrity of the SPA. These measures resulted in consistency among the local authorities involved and provided reasonable certainty that housing developments either individually or in combination would not adversely affect the Thames Basin Heaths (Baldock et al, 2013).

A level playing field based on harmonised rules

The 2013 IEEP Report on the influence of EU policies on the environment (Baldock et al, 2013) refers to the setting of environmental standards equally applicable to operators in all EU Member States. This legislation is an important element in seeking to ensure that one Member State does not gain competitive advantage over others through the adoption of lower environmental standards, and that populations of migratory species are not adversely affected throughout their range by a Member State allowing damaging development.

Some stakeholders have strongly stated that an alternative approach of different nature protection rules across the EU Member States could compromise the achievement of a single market, and that different regimes for business and planning would lead to increased legal, administrative and compliance costs. The lack of EU Nature Directives could lead to Member States using deregulation to gain a competitive advantage, thus negatively impacting the level playing field for businesses. Businesses support EU level intervention because of the advantages that this brings for the single market and environmental protection.

⁶³⁸ RSPB, Lodge Hill, Chattenden Woods, Kent, available at: <http://www.rspb.org.uk/whatwedo/campaigningfornature/casework/details.aspx?id=tcm:9-317476>

⁶³⁹ The Wildlife Trusts, Save Rampisham Down, available at: <http://action.wildlifetrusts.org/ea-action/action?ea.client.id=1823&ea.campaign.id=35104>

Box 113 Examples of the stakeholders in favour of common standards

ESPO has cooperated with DG Environment in the development of the Guidelines for the interpretation and implementation of the Directives in estuaries and inland waters, which is considered a constructive exercise towards reducing uncertainty.

The Renewables grid initiative: The members of this initiative state that having a common and stable nature legislation framework is critical for their business: the development of the internal energy market and the need to integrate renewables requires building appropriate grids, which, like many other major infrastructures, can have adverse effects on wildlife and nature. Stakeholders from this sector⁶⁴⁰ state that without EU nature legislation there would be a patchwork of regimes to comply with, creating more uncertainty in the applicable legal framework and bringing additional risk to investors. It would be more difficult to agree project timelines, due to the uncertain situation of the planning and permitting process. Constant changes in legislation would create uncertainties in the short term and lead to additional delays in projects. Continuity in the legal framework is viewed as valuable in itself when considering the urgent need to develop the electricity grid. Literature⁶⁴¹ provides evidence of the challenges associated with the lack of clear legislation.

The non-energy **extractive industries sector** considers an integrated EU approach resulting in harmonized policies, including clear procedures, clear timing and obligations, to be critical to ensuring a level playing field, especially for companies with operations in various EU countries. Harmonised and timely implementation is also crucial to success (Questionnaire IMA) but is not always achieved. The responses from representatives of this sector highlight that lack of harmonisation in the implementation hampers a level-playing field. They point to situations where pragmatism and public consultation do not prevent economic activities while, in other countries, rigidity and lack of dialogue have led to Natura 2000 areas being no-go areas, putting existing activities at risk and preventing new economic developments (UEPG).

The 2013 IEEP report (Baldock et al, 2013) also refers to the role of the CJEU in harmonising the interpretation of the Directives and improving the understanding of the Directives' requirements and implications for Member States.

Improved cooperation at global level

The added value of the Nature Directives **in strengthening international commitments** at a global level on habitats and species protection, in particular for migratory species, is recognised by stakeholders and literature. The importance of the Nature Directives' conservation policy is fundamental for biodiversity conservation worldwide because it **exemplifies** an almost 30-year transnational policy-making process at a continental scale (Bromley, 1997) (Dimitrakopoulos et al, 2004).

Actions taken by Member States to fulfil their obligations under the Nature Directives contribute both to **ensuring compliance and to strengthening the commitments** made by Member States under International Agreements. The soft nature of the International Agreements is reinforced by the higher standards of protection and enforcement of EU legislation. In practice, EU enforcement powers had a positive impact on site and species protection in Europe.

Box 114 Examples of improved cooperation

Greece: In its 2002 report to the Ramsar Convention, Greece highlights the significance of the inclusion of all of its Ramsar Wetlands of International Importance in the Natura 2000 network. This ensures that Appropriate Assessments of activities affecting those sites will be undertaken, and that greater public participation will be encouraged, including via the implementation of LIFE-

⁶⁴⁰ Members of the Renewables Grid Initiative: Tennert (Transmission system operator in Germany and the Netherlands), 50Hertz (Transmission system operator, Germany), Elia (Transmission system operator, Belgium), Swissgrid (Transmission system operator, Switzerland) Terna (Transmission system operator, Italy) Statnett (Transmission system operator, Norway) and several NGOs, WWF, Birdlife Europe, RSPB, Legambiente, CAN Europe, FOE Scotland.

⁶⁴¹ <http://www.oekom.de/nc/buecher/gesamtprogramm/buch/umweltschutz-in-der-ddr.html>

Nature projects. It also ensures that traditional management practices will be promoted via the agri-environment measures.

The CBD: The implementation of the Aichi target 11 of the CBD to protect at least 17% terrestrial and 10% marine area is mainly implemented through the Nature Directives. Since the Convention on Biological Diversity (CBD) came into force in contracting countries in 1993, the number of protected areas worldwide has almost doubled, and the surface area of all land and seas with protected status has increased by about 60% (Gidda, 2010) (EEA, 2012). According to several stakeholders (e.g. Croatian NGOs, and Hungarian nature protection authorities), without the Natura 2000 network, neither of these goals would be fulfilled in any of those countries. The EU and its individual Member States are all signatories to the CBD and are therefore committed to meet their obligations under the Aichi Target. The Nature Directives constitute an important means of doing so.

The Bern Convention- Site protection: The Directives have also impacted the development of the Bern Convention. Although neither of the Directives are explicitly mentioned by the Bern Convention, the Birds Directive was designed mirroring the Convention in many respects (Evans et al, 2013) and the Habitats Directive was enacted to further implement the Convention (Epstein, 2014). More specifically, the Convention's Emerald Network is directly based on the Directives' Natura 2000 network (Epstein, 2014), and all Natura 2000 sites are automatically part of the Emerald Network (Evans et al, 2013).

The Bern Convention- Species protection: Wolf numbers and densities are significantly higher, and trends significantly more positive, in Member States where both the Bern Convention and the Nature Directives apply (e.g. France, Germany, Italy, Sweden), than they are in non-EU European states where only the Convention applies⁶⁴² (e.g. Switzerland and Norway). This is also confirmed by NGOs (e.g. mission to Sweden, NGO) which note that while both Norway and Sweden are members of the Bern Convention, measures are taken to protect large carnivores in Sweden, whereas this does not happen in Norway.

Bern Convention - EU Enforcement: The Commission in effect has enforced the Bern Convention by initiating infringement proceedings against Member States when breaches of non-binding recommendations issued by the Bern Convention bodies caused a failure to comply with the Nature Directives (Epstein, 2014)⁶⁴³. The EU enforcement powers are sufficiently effective that the Convention bodies are no longer reviewing cases of alleged breach of the Convention in matters that are the subject of EU infringement proceedings⁶⁴⁴.

Member States' obligations under the Nature Directives are often the basis of a **common EU negotiating position** within international fora, which not only provides a coherent approach by all Member States', but also enables them to act with a single voice in international negotiations, strengthening the EU leadership in setting conservation standards globally⁶⁴⁵ with beneficial outcomes.

Box 115 EU common negotiating position

The International Whaling Commission: The Habitats Directive has formed the foundation of the agreed EU common position at the International Whaling Commission regarding the proposals for amendments to the Convention⁶⁴⁶. The Council Decision⁶⁴⁷ recognises that a global approach reinforces the effectiveness of measures regarding migratory species. All cetacean species are considered to be of EU interest and are listed in Annex IV of the Habitats Directive, requiring

⁶⁴² European Regional Approaches to the Transboundary Conservation of Biodiversity: The Bern Convention and the EU Birds and Habitats Directives, Floor Fleurke and Arie Trouwborst, published in Kotze L. & Marauhn T. (eds.), Transboundary Governance of Biodiversity, Martinus Nijhoff Publishers 2014, pp. 128-162, available from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2554449, accessed on 15 September 2015.

⁶⁴³ Commission of the European Communities v. Hellenic Republic (the *Caretta caretta* case) and the European Commission v. the French Republic (the *European hamster* case).

⁶⁴⁴ Council of Europe, Report of the 32nd meeting of the Standing Committee, T-PVS (2012) 22 at 2.

⁶⁴⁵ Nature authorities Slovenia, NGOs Poland and UK

⁶⁴⁶ Council Decision establishing the position to be adopted on behalf of the European Union at the next five meetings of the International Whaling Commission including the related inter-sessional meetings with regard to proposals for amendments to the International Convention on the Regulation of Whaling and its Schedule /* COM/2011/0495 final - 2011/0221 (NLE), adopted by the Council on 19 December 2011.

⁶⁴⁷ Recital 4 of the Council Decision indicated above.

Member States to maintain these species in, or restore them to, FCS. Without EU legislation, therefore, and a coherent worldwide approach, the effectiveness of any conservation measures would be undermined.

Stakeholders (i.e. UK NGOs) highlight that the Birds and Habitats Directives have made a significant contribution towards **biodiversity conservation outside the EU**. One of the examples from the stakeholders' questionnaires (UK NGOs) relates to the protection provided by EU legislation to species across the whole of their migratory route, going beyond the protection that these species could receive at national level. This case study relates to the Solent Waders and Brent Goose SPA.

Box 116 Examples of contribution towards global biodiversity conservation

UK: The designated SPAs of the Solent Coast are a network of statutory protected areas around the Solent, hosting most of the Brent Goose intertidal feeding grounds. In winter the dark-bellied Brent Geese fly from their Siberian Arctic breeding grounds along the coasts of southern and eastern England and from northern Germany to northern France. The Solent supports up to 13% of the world population of this species, and 30% of the UK population. There would be no advantage in protecting this species at a UK level as they are a migratory species using different parts of Europe during the year. European legislation allows the protection of this species across the whole of their migratory route.

Source : UK NGOs

Finally, the Nature Directives have impacted on accessing countries that are already implementing the Birds and Habitats Directive. The Directives have served as a positive model for countries seeking accession to the EU because they have triggered positive conservation measures in similar countries. For example, the Croatian path is regarded as model for other accessing countries in the western Balkans, demonstrating that the Birds and Habitats Directive is of outstanding importance in improving the level of nature conservation for EU accession countries.

Box 117 Impact on accessing countries

Croatia: Due to cultural, linguistic and natural similarities in the western Balkans, the Croatian implementation of the Nature Directives led by the 'Birds and Habitats Directives implementation roadmap' and accompanied by the development of administrative structures and capacities, is influencing the implementation of the Nature Directives during the accession process of other western Balkan countries.

Source: Association BIOM

Increased public awareness and stakeholder participation and cooperation

One of the main examples of added value of the Nature Directives is their impact in raising public awareness on the importance of nature conservation and on the development of stakeholders' participation and partnerships for cooperation. Particular examples that show the transformational change triggered by the Directives are:

Box 118 Examples of increased public awareness initiatives

France: The difficulties in the designation of Natura 2000 sites in France led to a freeze in the implementation of the Natura 2000 Network and particularly the SAC selection process in 1996. A renewed process for their implementation⁶⁴⁸ was then established based on the principle of public participation, framed within an awareness raising and information scheme for the establishment of the Natura 2000 network. Furthermore, this participatory process was also developed for the adoption of the conservation objectives of the site (DOCOB) and the management plan for all proposed sites. The Directives have also triggered the development of an implementation scheme in France based on the management role of a local coordinator for each Natura 2000 site. This coordinator or facilitator at local level is responsible for ensuring the involvement of all relevant

⁶⁴⁸ National description of the implementation process related to site designation and management approaches (Articles, 6(1) and 6(2) of the Habitats Directive), L'Atelier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc, accessed on 3 November 2015.

stakeholders in the decision-making on the conservation measures and the management required for each site. The local facilitator has the role of raising awareness of the meaning of Natura 2000 and meeting with local stakeholders to facilitate agreements, propose contracts and encourage best practice behaviours⁶⁴⁹. It is recognised that this system has led to an increase in the acceptance of the Nature Directives⁶⁵⁰. This process has also influenced other related policies, such as the Trame Verte et Bleu (green and blue infrastructure) covering landscape features outside Natura 2000.

Poland: The nature authorities highlighted the added value of the Nature Directives in triggering a change in attitude towards nature protection which would not otherwise have happened. One of the most relevant examples refers to the Rospuda case in 2006, where the involvement of citizens in the decision-making process was instrumental for the protection of one of the last remaining pristine forests in the EU. The Rospuda River Valley (Upper Rospuda Valley) was threatened by planned construction of the Augustów bypass expressway, which was to cut across the protected wilderness area and Natura 2000 site in the valley. In 2007, the EC started the infringement procedure at the CJEU. As a result, the Voivodeship Administrative Court cancelled the decision of the Minister of Environment approving the investment. In the following years, the location of the investment was discussed and a detailed analysis of several variants of the investment was carried out. Thorough EIA was conducted for each of the road options. The final selection of the route through Raczek (having the least impact on the environment) was announced by the Government in March 2010. As a result, the complaint to the CJEU was withdrawn⁶⁵¹. The authorities consider the Directives to be the direct cause of increased public environmental awareness of the need to conserve biodiversity. Furthermore, the importance of stakeholder participation in the decision-making process for the management of the Natura 2000 sites is believed to be due to the role of the Nature Directives.

Slovenia: Despite a broad coverage of designated land in relation to the national territory (37.5%)⁶⁵², the level of opposition to management requirements arising from the the Nature Directives is low due to a high degree of awareness amongst the population. According to the 2015 EU survey⁶⁵³, Slovenia is one of the three Member States where the majority of the population (58%) has heard about Natura 2000 and about 30% claims to know what the network is. The awareness among Slovenians can be accredited to the awareness raising activities carried out by the public authorities when setting up the Natura 2000 network in Slovenia^{654,655}.

The level of awareness of the Nature Directives is linked to the **level of stakeholder participation**. While stakeholders in several Member States recognise that the Nature Directives have triggered a higher involvement of stakeholders in the Natura 2000 site designation, definition of site conservation measures and site management than otherwise would have occurred, for other Member States, however, it remains a problem. Private sector stakeholders generally consider that the level of involvement is insufficient and generates conflict as a result of failure to meet their needs. However, the Nature Directives provide a new platform on which stakeholders can request further involvement.

The Directives' strict species protection standards have raised concerns regarding decisions on the socio-economic activities that can be carried out when affecting species and

⁶⁴⁹ L414-1-III and R414-3 of the French Environmental Code.

⁶⁵⁰ National description of the implementation process related to site designation and management approaches (Articles, 6(1) and 6(2) of the Habitats Directive), L'Atelier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc, accessed on November 2015.

⁶⁵¹ More information on this case can be found in the following link: http://www.natura2000.efort.pl/pliki/2012/rospuda_case.pdf

⁶⁵² Natura 2000 Newsletter, number 38, June 2015, available at: http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000news/nat38_en.pdf, accessed on 5 November 2015.

⁶⁵³ Special Eurobarometer 436 "Attitudes of Europeans towards biodiversity", European Union, 2015.

⁶⁵⁴ Hlad, B., Communicating the Concept of Natura 2000 in Slovenia, available at: http://www.natura2000.si/uploads/tx_library/BrankaHladValsain.pdf, accessed on 5 November 2015.

⁶⁵⁵ Communication support to the Implementation of Natura 2000, ID number 2006/S 55-057662, available at: http://www.natura2000.si/uploads/tx_library/Komunikacijska_podpora_Natura.pdf, accessed on 5 November 2015.

the involvement of private sector stakeholders in decision-making processes. These concerns have led to the development of innovative, flexible and pragmatic systems (e.g. the notion of temporary nature) which are increasing private landowners' participation in restoration outside Natura 2000 sites (Dimitrakopoulos et al, 2004).

Cooperation between governmental and non-governmental institutions, as well as scientific institutions, has been strengthened, leading to new governance structures, partnerships and agreements that have had a positive impact on the implementation of the Nature Directives⁶⁵⁶ (for more information, see question S.4).

Added Value in light of the principle of 'proportionality'

Proportionality requires that action be no more than is needed to achieve the intended objective. This means examining the need for action, and the costs and benefits that can be expected. The EU added value of the Nature Directives in relation to the principle of proportionality is linked to how the objectives are achieved, in particular the development of better, cost-effective and sustainable tools. According to the criteria identified in the study for maximising European added value of EU budget (Medarova-Bergstrom et al, 2012), this principle requires the use of instruments (including financial instruments) to enable the achievement of the greatest possible benefit for nature conservation through cost-effective means. This implies that they offer good value for money, but not necessarily at the lowest possible cost. Cost-effectiveness is important, in order to ensure that actions are sound and can deliver good outcomes for the biodiversity conservation objective. The proportionality principle also applies to good governance procedures, actions to promote transparency, public participation and partnership.

Funding linked to the Nature Directives

The added value of the Nature Directives with respect to funding can be shown in two ways: first of all, the financing component in Article 8 of the Habitats Directive has translated into different EU financing mechanisms which have allowed for increased use of EU funds for biodiversity and nature conservation in pursuit of EU objectives. The main EU funds made explicitly available to support the objectives of the Nature Directives include not only the LIFE programme focusing on conservation, management and restoration activities or projects, but also the increased availability of the cohesion funds, regional and rural development funds, CAP funding and FFP. Without the Nature Directives, certain initiatives would not have received financial assistance for research, awareness raising, or funding for management of important sites, but, because they are protected under the Natura 2000 Network or because they are landscape features which ensure the coherence of the Natura 2000 Network, are eligible for EU funding.

Funding provided as a result of the Nature Directives provides added value by acting as a catalyst for the funding of nature conservation at national level. These additional national funds that have been generated by the implementation of the Nature Directives cover similar issues to those described above. The Directives guide this funding to the most important objectives at a European scale.

Box 119 Examples of the increased use of EU Funds

- **Cyprus:** In Cyprus, the LIFE programme has been the main instrument used for financing Natura 2000. It was, and still is, the most accessible instrument, with multiple funding

⁶⁵⁶ http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/index_en.htm, accessed on 4 November 2015.

<http://www.renewables-grid.eu/>, accessed on 4 November 2015.

http://ec.europa.eu/environment/nature/conservation/species/carnivores/coexistence_platform.htm, accessed on 4 November 2015.

<http://www.birdlife.org/worldwide/cemex-birdlife-international-global-conservation-partnership-programme-2007-2017> and <http://www.birdlife.org/europe-and-central-asia/partnership-heidelbergcement>, accessed on 4 November 2015.

<http://www.ecoports.com/>, accessed on 4 November 2015.

opportunities that have financed scientific and management actions to enhance the Natura 2000 Network. These funds have enabled partnerships and enhanced the awareness of nature conservation and the acceptance and profile of the Natura 2000 Network. Apart from LIFE, no other funding mechanism has been substantially used for nature protection and site management. From 2012 onwards, no national funding has been used for nature conservation due to the economic crisis. This has led to complete reliance on EU funding for nature protection, mainly through the LIFE programme.

- **Netherlands:** In the Netherlands, from 2016, a new programme for agri-environmental measures will be applied. This will focus on the establishment and management of habitats of species protected under the Birds and Habitats Directives.

Examples of the Nature Directives acting as catalysers of additional funding

- **Denmark:** In Denmark, efforts to ensure biodiversity conservation within Natura 2000 sites double the efforts outside Natura 2000 areas. The so called "Agreement on green growth" from 2009⁶⁵⁷ demonstrates this difference. However, it is not possible to determine whether the same level of funding would have been used for nature conservation if the Natura 2000 network had not existed.
- **UK:** In the UK, the requirements of the Birds and Habitats Directives have acted as a catalyst and driver for funding projects delivering multiple benefits (far in excess of their costs) which would never otherwise have been undertaken. Funding associated with the EU nature legislation has been fundamental in the creation, restoration and management of habitats and the recovery of many species in the UK. Without the Directives, UK biodiversity would be much poorer. Key examples include the Alkborough managed realignment project on the Humber Estuary and the Wallasea Island habitat creation project, both driven by the need to avoid deterioration and to compensate for losses of intertidal habitat to flood defence developments within SPAs and SACs. (UK NGOs).

(See also section 6.2 and 8.7 on the use of funding.)

Sustainable development and integrated management approaches

According to the literature (Born et al, 2015)⁶⁵⁸, the Habitats Directive concept of Natura 2000 sites goes beyond the traditional definition of a 'protected area' since the sustainable use of resources and the achievement of the nature conservation goals are fully interconnected.

The Habitats Directive introduces a flexible approach to site management, aiming to promote sustainable development. According to the Commission Guidance document, management plans should be developed with the participation of stakeholders, while economic activities or factors should be taken into account in the management of Natura 2000 sites. Furthermore, decisions for authorising activities, development projects or plans likely to affect Natura 2000 sites should take into account socio-economic considerations where these support or do not undermine the conservation objectives of the site.

Additionally, stakeholders from several Member States (e.g. Belgium, the Netherlands, Poland, Spain, the UK) emphasise that the Nature Directives have **helped businesses to integrate biodiversity** in their planning in a coherent way. Some stakeholders have provided examples of integrated management which have been promoted by the implementation of the Nature Directives.

Box 120 Examples of integration of biodiversity in business planning

Denmark: Site conservation and eco-tourism. The conservation of natural dune ecosystems along the Danish coasts, including the dynamic Wadden Sea sites hosting the Wildfowl Seal and Harbour

⁶⁵⁷ Regeringen, Grøn Vækst, April 2009, available at:

http://fvm.dk/fileadmin/user_upload/FVM.dk/Dokumenter/ServiceMenu/Publikationer/Groen_vaekst.pdf

⁶⁵⁸ C. Romao, The added value of the Habitats Directive.

porpoise populations are fundamental for developing Danish tourism.

Ireland: The Northern Ireland Prioritised Action Framework (PAF) requires implementing as integrated projects those relevant to agriculture, fisheries conservation and environmental awareness.

UK: The case of the Thames Basin Heaths SPA provides another example or counterfactual for the safeguards and protection measures required under the Nature Directives. In this case a sub-regional strategic assessment was required under the Birds Directive which improved the management of urban growth. The stakeholder considers that it is unlikely that this assessment would have been carried out under a site with just a SSSI designation. The presence of the SPA led to 11 planning authorities working together to create a strategic solution which resulted in continued protection of a significant habitat whilst creating a framework for building developers to work within, allowing development of the area without significant impact on protected features.

Source: NGOs in the UK

The review of the implementation of Species Action Plans for threatened birds in the EU concluded that biodiversity recovery requires tackling large scale land-use pressures, such as agricultural intensification, commercial fisheries and urbanisation, all of which continue to cause habitat loss and degradation (as demonstrated by the little bustard and Balearic shearwater plans (Barov and Derhé, 2011)). Other examples highlight the added value of the Directives in that progress towards achieving the objectives set out in the Directives is weaker for habitats and species dependent on human activities or policies, in particular agriculture. This is the case in Wallonia, in Belgium, where the loss of grassland of high biodiversity value has been considerably accelerated due to incentives for intensive agriculture.

In countries with a very rapidly transforming rural space and intense competition for land-use allocation, the problem is related to the establishment of a process of allocation and regulation of land-use. The Natura 2000 network is viewed as a starting point for negotiations with stakeholders. If properly implemented, the importance of the Natura 2000 network would then largely surpass the original goals for the conservation of species and habitats of European interest (Dimitrakopoulos et al, 2004).

Results from the online public consultation

The report on the results of the online public consultation carried out within the remit of this project to support the Commission Fitness Check of the Nature Directives provides a variety of perspectives which, although seeming contradictory, in fact reflect the breadth of stakeholders' views and interests in the implementation of the Nature Directives.

The online public consultation generated an unprecedented level of interest, with participants responding from all 28 EU countries and beyond. In total, 552,472 responses were submitted. 97% of respondents answered only Part I of the questionnaire (535,657 responses), while 3% went on also to complete Part II (16,815 responses). At least 12 campaigns from different interest groups were organised to guide respondents through the questionnaire.

The significant majority (93%) of respondents to the online public consultation (Part I) considered the Nature Directives to provide significant added value. However, the large majority of businesses (70% of 2,371 business responses) believed that the Nature Directives had no added value. Respondents from business expressing this opinion included 82% of the 1,552 responses from the agriculture and forestry sector, 76% of the 99 responses from the fisheries and hunting sector, and 71% of the 327 responses from industry (construction, extractive industry, transport).

When asked about the added value of the Directives specifically to the economy, 93% of respondents positively. However, the majority of respondents from business (79%) thought the Directives brought no added value to the economy. Respondents' views were

even more positive about the Directives' additional social benefits with 95% of all respondents believing that they brought either some or significant additional social benefits. The majority of respondents from business (56%) also believed they had some added social value, even if a further third of businesses and of other organisations or associations stated that they brought no added social value.

Part II of the questionnaire asked for an opinion on the overall state of species and habitats if the EU Nature Directives did not exist. The opinions of the 16,815 respondents who answered this question were divided between those who believed the state of species and habitats in the EU would be much or somewhat worse without the Nature Directives (44%) and those who thought that it would be the same (48%). The views varied significantly between types of respondents. 84% of research institutes, 78% of government or public authorities and NGOs, and 65% of other organisations thought the situation would be somewhat or much worse. The majority of businesses (74%), however, believed that the state of species and habitats would be the same.

9.1.4.1 Key findings

Added value in light of the policy objectives

- The evidence highlights that the transnational character of nature and the steps required to conserve it justify EU level action as a more effective way to achieve the conservation objective of the Nature Directives. The Birds Directive was initially driven by the need to set a protection system for transboundary species, an aim then mirrored by the Habitats Directive. Most stakeholders recognise the clear added value of the Directives in ensuring biodiversity conservation through protection of the areas of Community importance.
- The Directives have provided added value by requiring joint efforts by Member States towards those habitats and species that are important at the EU level. The Directives have reinforced Member States' capacity to ensure protection of species and habitats beyond their national context, as they cover features and species that are not necessarily endangered at national level but which are important from the European perspective within a bioregional framework providing a further scientific foundation instead of purely national action. In cases where this requires specific action by one Member State, a few stakeholders claimed that this generates disproportionate requirements. However, there is no substantial evidence provided to support this claim. Certain implementation factors at national or site level trigger the potential burden on operators. The Directives provided a common basis for transboundary cooperation on nature issues including in marine areas, for example in the Dogger Bank, an important marine site in the North Sea.
- The concept of FCS introduced by the Directives is a new way of measuring biodiversity status, and its application across all Member States provides an added value which would not otherwise have been equally applied in all Member States.
- The Habitats Directive has created an innovative process for the establishment of the Natura 2000 network. This coherent network in the whole EU territory is based on scientific information and evidence, and takes a 'biogeographical regions' approach. It is broadly recognised by both stakeholders and the literature that the Directives have led to a substantial increase in the extent of land and marine protected areas, far beyond what might have been covered in the absence of the Directives. Quantitative data shows that 30% of designated land at EU level is additional to that designated at national level in Member States. However, more remains to be done in order to achieve the full potential added value of the Directives' provisions on coherence of the network.

- Literature and most stakeholders recognise that the standards of protection for Natura 2000 sites are generally higher than those that existed in most national systems of site protection prior to the adoption of the Directives. The provisions of Article 6(3) and 6(4) of the Habitats Directive (concerning assessment of impacts) are also recognised as innovative.
- Specialised literature shows that the systems of species protection have led to the control of illegal hunting practices. This would not have happened without the Directives, as the evidence points to difficulties in national implementation. For example, a study comparing the situation in countries along the Adriatic Flyway concludes that the implementation and control of legal standards for the protection of birds are stronger and more effective in Member States than in countries that are non-EU Members. In those countries, hunting laws are weaker and there is inconsistent implementation and control of the existing laws. Furthermore, scientific studies confirm differences in trends of Annex I bird species within and outside the EU, and state that declines across Annex I species have been successfully reversed after EU accession, demonstrating that, without the Directive, such declines in Annex I species would have continued.

Added Value in terms of the principle of 'subsidiarity'

- The Directives have generated major transformational change in the legal framework of Member States, triggering the adoption of more robust legislation in some Member States than prior to Directives entering into force.
- The Directives have led to increased knowledge. Before their adoption, information collected by Member States was neither systematic nor comparable. A number of Member States (including Estonia, Ireland, Poland and Spain) used EU funding to support the development of inventories.
- The Directives have had very significant added value in relation to stakeholder participation and public awareness. One counterfactual example comes from France, where the decision to develop a system of protected site management based on the principle of public participation framed within a public awareness national scheme, was directly linked to the Natura 2000 establishment. Different stakeholders in France recognised that without the Directives, the existing level of public participation and awareness on nature would not exist. However, evidence shows that the Directives' potential impact or added value might be undermined by national decisions to withhold investment from awareness raising and stakeholders' participation initiatives.
- Evidence from published literature concludes that the Directives established a level playing field based on harmonised rules to ensure that one Member State cannot gain competitive advantage over others through the adoption of lower standards. Some stakeholders stated their strong belief that different nature protection rules across Member States could compromise the achievement of a single market, and that different regimes for business and planning would lead to increased legal, administrative and compliance costs.
- Stakeholders and literature broadly recognise the added value of the Nature Directives in ensuring compliance and strengthening international (global) commitments regarding habitats and species protection, in particular regarding migratory species, but also on protected areas. The soft nature of the International Agreements is reinforced by the higher standards of protection and enforcement within EU legislation.

Added Value in light of the principle of 'proportionality'

- For funding, the added value of the Nature Directives can be shown in two ways: firstly, the financing component in Article 8 of the Habitats Directive has translated into different EU financing mechanisms, with an increased use of EU funds for biodiversity and nature conservation (such as the LIFE programme cohesion funds, regional and rural development funds, CAP funding and FFP). Without the Directives, it is unlikely that EU funds would have been provided to this extent to support investments for nature or have a sufficient focus on priorities at a European level. The Directives also act as catalysts for national nature funding, including co-financing for use of EU funds.
- An analysis of the legal provisions - supported by specialised literature - shows that the Habitats Directive concept of Natura 2000 sites goes beyond the traditional definition of a 'protected area'. This introduces a flexible approach to site management, where socio-economic factors can be considered in order to promote sustainable development and the participation of stakeholders. The implementation of this objective and approach is not exempt from the challenges described in question R.3, although there are several good examples highlighted by four different Member States, which show that the Nature Directives have helped businesses to integrate biodiversity in their planning.

9.2 AV. 3 - Do the issues addressed by the Directives continue to require action at EU level?

9.2.1 Interpretation and approach

When answering this question the main consideration was to demonstrate, with evidence, whether or not EU action is still required to tackle the key problems faced by habitats and species in Europe which are addressed by the Directives.

9.2.2 Main sources of evidence

Information and evidence was drawn from the results of the online public consultation and the responses to the evidence gathering questionnaire with the supported evidence. However, the responses received were mostly general and only a limited number of examples and evidence were provided. EU documents and specialised literature on the Nature Directives provided some additional information for supporting arguments. However, a small body of literature has specifically explored the EU added value of the Nature Directives e.g. (Born et al, 2015) and few EU Studies (Romão, 2015; Sundseth and Roth, 2013). Additional literature reviewed covered relevant aspects on EU added value in general.

9.2.3 Analysis of the question according to available evidence

Most responses to the evidence gathering questionnaire (66 of 79 received) consider action at EU level to continue to be necessary, with only four stating that no action at EU level is required, and one stating the need for deregulation. The rest provided information but did not give a firm answer.

An overwhelming majority (98%) of the 552,442 respondents to the online public consultation believed that there is still a need for EU legislation. This was reflected in the replies by most types of respondents, individuals (98%), academic or research institutes (89%), governments or public authorities (78%), NGOs (82%), and other organisations or associations (76%) representing all interest groups.

However, respondents from businesses had a different view, with the majority (63%) stating that there is no longer a need for EU legislation to protect species and habitats. Among businesses, a large majority of respondents from agriculture and forestry, as well as from fisheries and hunting (84 and 72% respectively) thought that there is no further need for EU legislation. On the other hand, a large majority of respondents from the industry⁶⁵⁹ sector (87%), as well as 92% of business involved in nature and the environment, thought that there is still a need for EU legislation.

Some of the same arguments are used by both sides, to justify both the need for EU legislation, and the 'no need for EU action' in this field.

⁶⁵⁹ Construction, infrastructure development and extractive industries.

EU action (still) required

EU action to halt biodiversity loss

The Habitats Directives states: 'Whereas, in the European territory of the Member States, natural habitats are continuing to deteriorate and an increasing number of wild species are seriously threatened'. Given that that this considerable problem remains, European action is very much needed.

Growing concern over biodiversity loss has prompted the EU to sign up to ever more ambitious biodiversity conservation targets⁶⁶⁰. On May 3 2011, the Commission adopted a new strategy to halt the loss of biodiversity in the EU by 2020, highlighting a dual mandate. The first defines the vision for 2050: *'By 2050, European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided'*⁶⁶¹.

The second defines the headline target for 2020: *'Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss'*:

The EU Environmental Action Programme adopted in 2013 stated: *'In 2050, we live well, within the planet's ecological limits...and biodiversity is protected, valued and restored in ways that enhance our society's resilience'*⁶⁶².

The Commission considers the Nature Directives to be the cornerstone of the EU's biodiversity policy to achieve the EU's long term goal for 2050 (European Commission, 2011g). These programmes show that the needs remain. As we have yet to halt the loss of biodiversity, continued actions at EU level are still required.

There is scientific evidence that EU level intervention through the Nature Directives has been effective at decreasing the rate of loss of biodiversity (Donald et al, 2007). Despite the evidence to suggest examples of success of the Nature Directives (see question S.1 and AV.1/2), the Pan-European Common Birds Indicator⁶⁶³ (<http://www.ebcc.info/pecbm.html>) shows that biodiversity loss continues (e.g. NGOs in Belgium, Spain, Luxembourg, Malta and Portugal).

Stakeholders (e.g. NGOs from Germany, Luxembourg and Malta, nature authorities in Spain and public authorities in the Netherlands) considered it not only necessary but urgent to take joint action, given the continued decline of biodiversity in the EU. They acknowledged that most threatened habitats and species react only slowly to conservation actions taken under the Directives. While birds specifically protected by the Birds Directive since 1979 are already starting to recover (Donald et al, 2007), progress of many species and habitats under the Habitats Directive (adopted in 1992) is less assured - especially as some of the actions required by the Directives in Natura 2000 such as the adoption of management plans, are still not implemented in the majority of Member States. Stakeholders refer to the latest results from the Article 17 report of the Habitats Directive, stating that Europe's habitats and wildlife are still under pressure from the key problems (see question R.1) acting as the drivers of biodiversity loss.

⁶⁶⁰ Convention on Biological Diversity, 'Aichi Biodiversity Targets', available at <https://www.cbd.int/sp/targets/>.

⁶⁶¹ European Commission, DG Environment, 'EU Biodiversity Strategy to 2020', available at http://ec.europa.eu/environment/pubs/pdf/factsheets/biodiversity_2020/2020%20Biodiversity%20Factsheet_EN.pdf.

⁶⁶² European Commission, 'Living well, within the limits of our planet: 7th EAP – The New general Union Environment Action Programme to 2020', available at: <http://ec.europa.eu/environment/pubs/pdf/factsheets/7eap/en.pdf>.

⁶⁶³ EBCC, Pan-European Common Bird Monitoring Scheme (PECBMS), available at: <http://www.ebcc.info/pecbm.html>.

According to the 2015 State of Nature Report (EEA, 2015a), almost one-quarter (23%) of the species protected under the Habitats Directive has an FCS at EU level. But, at the same time, over half (60%) have an unfavourable assessment. However, the overall status of species and habitats in the EU has not changed significantly from the period 2007-2012, with many habitats and species showing an unfavourable status, and a significant proportion deteriorating still further.

As long as the strategic goals of the EU are not attained and the objectives of the Nature Directives are not fully met, the same needs that justified the adoption of the Directives, justify their continuation. A continued EU-wide approach is likely to be more effective in addressing this challenge than isolated actions undertaken by individual Member States.

Box 121 Examples of positive conservation result

Sweden: The Long-tailed Duck (*Clangula hyemalis*) is one example of a species where a large part of the world-population stays in the Baltic during winter. Since the population is shared by the countries around the Baltic, cooperation on conservation measures is necessary and is aided by the Directives.

UK: The protection provided by EU legislation to species across the whole of their migratory route goes beyond the protection that would be possible for these species at national level. For example, the designated SPAs of the Solent Coast supports up to 13% of the world population of Brent Goose, and 30% of the UK population; national protection measures in isolation might be considered neither necessary nor effective, given that this migratory species is in different parts of Europe throughout the year.

Czech Republic: Many species and habitats need protection at European level. Migratory species have benefited from joint implementation action under the EU Directives, for example, migratory studies for large carnivores – Lynx, Wolf, Brown Bear in Beskydy, Lynx in Southwest Bohemia, Šumava). *Source: NGO Zelený Kruh*

Most stakeholders (86%) responding to this question recognised the EU added value of the Nature Directives in ensuring biodiversity, and considered EU level action to be essential to conserve shared biological resources and ensure joint conservation action across the Union. They pointed to the need for international action to tackle those key problems affecting EU habitats and species and state that trans-boundary conservation issues can only be tackled by a single EU legislation and, at a lower level, protected areas that stretch across borders need to have a single management and legislation approach to be effective (e.g. NGOs, nature authorities in Malta, public authorities in the Netherlands and Luxembourg). NGOs from Belgium, Spain, France, Italy and the Netherlands stated that the need to reverse biodiversity loss requires not only that EU action should continue, but that the EU should do more. In this context they emphasised, in particular, the need for the EU to ensure Member States' implementation and the need to close enforcement gaps (see the section on enforcement below). While stakeholders (NGO in Ireland) recognise that other transnational conservation efforts exist – e.g. international conservation instruments (Ramsar, Bern, CBD, etc) – these are not supported by the same kinds of tools which come from EU integration (e.g. enforcement mechanisms), and their impact is lower (see Question C.10).

Nature protection has, like many environmental issues, a transnational nature, and cannot be achieved by Member States acting alone or without stronger international cooperation. National governments' actions have a more limited scope and are therefore less effective than EU level action for reasons of scale and effects. The need for a collective and concerted effort has always been a fundamental argument for EU environmental action (Medarova-Bergstrom et al, 2012)⁶⁶⁴. Applied to this context, EU action on biodiversity is justified as nature knows no borders, and biodiversity often exists across the terri-

⁶⁶⁴ Medarova-Bergstrom, K., Volkery, A. and Baldock, D. (2012) *Criteria for maximising the European added value of EU budget: the case of climate change*, IEEP, Brussels.

tory of several Member States (e.g. migratory species including birds, marine species or large carnivores, as well as wildlife habitats that straddle national borders), necessitating a coordinated multilateral response for its protection. This coordinated response can only be based on common standards to ensure effective cross border action and a level playing field. The Birds Directive was initially driven by the need to create a protection system for trans-boundary species, an aim subsequently mirrored by the Habitats Directive⁶⁶⁵. If the intervention is limited to national or local level, it would be less effective, with the risk of different standards of protection between Member States.

The Nature Directives form part of the EU policy on Environment which is a shared competence between the EU and its Member States (Article 4 of the TFEU). The subsidiarity principle is applicable to the Nature Directives, therefore the EU shall act only if and insofar as the proposed action cannot be sufficiently achieved by Member States in isolation, and added value can be provided if the action is carried out at EU level for reasons of scale or effects to be achieved. The subsidiarity principle already existed implicitly in the EU environment policy since it was recognised as a policy of Community competence by the Single European Act adopted in 1986⁶⁶⁶. From the outset, the Directives' adoption has been based on the requirement that they provide added value.

The UK Government's 'Balance of Competences Review Environment Report' stated that: 'The majority of respondents believed that EU competence has increased environmental standards in the UK and across the EU and that this has led to improved performance in addressing several environmental issues. The evidence showed that a large number of organisations representing all sectors considered that it is in the UK's national interest for the EU to have a degree of competence in the broad areas of environment and climate change because of the advantages that this brings for the Single Market and environmental protection.'

Stakeholders (e.g. NGOs Greek, IE) consider the Directives to be a key instrument supporting the EU's global leadership in the efforts to halt biodiversity loss, setting up processes that either guide or implement the growing number of multilateral environmental agreements.

The monitoring of the conservation status of habitats and species of Community interest, as well as the coordination of knowledge and conservation effort at the EU level, cannot be done by an inconsistent national approach (see question AV.1/2 on the added value of the EU approach).

A 2014 survey of Europeans' attitudes towards the environment shows that the great majority of Europeans (77%) believe that EU environmental legislation is necessary for protecting the environment in their country. The majority (60%) of Europeans think that environmental decisions should be taken jointly between national governments and the EU, while about one-third (36%) believe that only national governments should take such decisions⁶⁶⁷. Another survey of EU public opinion carried out in 2015 on the attitudes of European citizens towards biodiversity,⁶⁶⁸ asked them to select the two most important measures that the EU should take to protect biodiversity in particular. The high degree of support for expanding the areas where nature is protected (89%) and for strengthening existing nature and biodiversity conservation rules (88%) show the relevance of nature legislation for European citizens.

⁶⁶⁵ NGOs from Belgium, Czech Republic, Germany, and the Netherlands and at EU level (EEB and BirdLife Europe).

⁶⁶⁶ Commission, Annual Report 2013 on subsidiarity and proportionality, 5.8.2015 COM(2014) 506 final.

⁶⁶⁷ European Commission, 'Report on Attitudes of European citizens towards environment', September 2014, available at: http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf.

⁶⁶⁸ <http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091>

EU Enforcement

According to the specialised literature reviewing this issue at EU level (v. national study) (Schoukens, 2015 [681])⁶⁶⁹ (Born et al, 2015) and stakeholders, the implementation of the Directives has been marked by a 'glaring lack of proper enforcement of the EU Nature Directives in many Member States throughout the past decades'. This has led to some voices asking for 'stricter enforcement of the EU Nature Directive on the ground' which would 'lead to better recovery chances for some of the EU's most threatened species'.

On the other hand, in some countries, the relatively high number of law suits initiated by environmental NGOs to enforce the Birds and Habitats Directives, have led to an exacerbated use of the precautionary principle by local permitting authorities. Decision makers at local level are reluctant to grant permits to activities that could be considered to cause irreparable damage to biodiversity, fearing NGOs would challenge such decisions in the EU Courts. Some public authorities and authors state that this has had negative biodiversity consequences such as 'management practices aimed at pre-emptively destroying habitat to prevent protected species from occupying it in at a later stage' (Schoukens, 2015 [681]).

While many authors conclude that EU nature conservation law is applied too dogmatically by judges to allow for a good balance between economic development and nature conservation, others point to the poor compliance with procedural and substantive requirements as one of the major reasons for the limited success of EU nature conservation law so far.

Literature and stakeholders recognise that enforcement of the requirements of the Birds and Habitats Directives by the Commission and the CJEU has been instrumental in ensuring transposition and implementation of the Nature Directives. Stakeholders from authorities, NGOs and business associations recognise that without pressure from the EU on the implementation of the Nature Directives, unsustainable management practices would most likely have prevailed (e.g. COPA Latvia, nature authorities in Germany and Spain, and NGOs at both national (Austria, Bulgaria) and EU level (FOEE) and damaging projects would have been allowed, threatening habitats and species in spite of national protection.

Box 122 Example of impact of EU enforcement on better transposition

Germany: The Birds Directive and the imminent entry into force of the Habitats Directive were particularly important for the territory of the former German Democratic Republic at the time of accession. Here, during a time of political, social and legal upheaval, the Directives helped to ensure that there were regulations in place early on to counteract potential mistakes, such as non-sustainable investment decisions.

Decisions at national level can be subject to short-term interest or pressures, which can be more effectively counteracted by enforcement action at EU level due to the more impartial assessment of the cases, as well as easier access to the Commission and the CJEU by NGOs.

The following examples demonstrate the difficulties related to political short-term interest and unsustainable management practices that would result without pressure from EU on the implementation of the Nature Directives.

Box 123 Examples of effective EU enforcement action

Bulgaria: The practice shows that without pressure from the Commission many nature conservation measures in Bulgaria would not have been taken. The most recent example was the enforcement action by DG Environment in January 2014 requesting the Bulgarian government not to adopt the Spatial Plan of Tsarevo Municipality affecting the Strandzha SCI and SPA.

⁶⁶⁹ H. Schoukens, *Habitat Restoration on Private Lands in the United States and the EU: Moving from Contestation to Collaboration*, Utrecht Law Review, 2015.

Source: Bulgarian Tourism Chamber (BTCh)

Czech Republic: The protection of the habitats and species in the upper Vltava river in Sumava National Park, was only possible when the Commission initiated an infringement procedure in 2007 (case 2007/4447). The case was opened in response to a complaint from a national NGO after several national complaints were unsuccessful in stopping excessive canoeing on the river.

Germany: The absence of enforcement in Baden-Württemberg to ensure the protection of grassland habitats protected under Article 32 of the nature conservation act of Baden-Württemberg, required intervention by the Commission. Without ongoing enforcement at the EU level, the level of protection, it is believed, would have continued to deteriorate.

The limestone quarry 'Urberg' in Southwest Germany would have been destroyed under national legislation, since the so-called Eingriffsregelung (German Nature Conservation Act, §§ 13 and 15) does not have a mechanism to prohibit destruction outside of protected areas. While it provides for avoiding unnecessary destruction, in practice the steps of the mitigation hierarchy (compensation, compensation payment) are systematically applied and there are no known cases where this national legislation has succeeded in stopping a project detrimental to biodiversity. However, the application of Article 6(4) by the national court of Freiburg led to the denial of the expansion of a development project which would affect the integrity of the Natura 2000 site, causing the destruction of the beech forest which hosted several protected species (including three bat species), as the argument of overriding public interest brought forward by the owner was not considered sufficient.

Greece: Infringement processes, including referrals to the CJEU and rulings against Greece, have contributed to Greece's nature conservation policy. Such processes offer a systematic and structured approach to conservation which positively influence and change potentially harmful practices and counter internal political pressures. They also allow for civil society to have access to justice at national and EU level. While all 'major' nesting sites of the Loggerhead Sea Turtle (*Caretta caretta*) have been designated as Natura 2000 sites in Greece (including the Laganas Bay on Zakynthos), uncontrolled tourist development along the coast has dramatically reduced the beaches available for loggerhead nesting. The CJEU ruled against Greece (30-1-2002, ECJ C-103/00) for not having established and implemented an effective system of strict protection for the Loggerhead Sea Turtle *Caretta caretta* on Zakynthos so as to avoid any disturbance of the species during its breeding period and any activity which might bring about deterioration or destruction of its breeding sites (required under Article 12(1)(b) and (d) of the Habitats Directive 92/43/EEC). The experience of Zakynthos in the 1990s demonstrates that had it not been for the Habitats Directive promoting a sustainable and integrated solution, Laganas Bay would have continued its uncontrolled development trend, degrading the important nesting sites. This case is a representative example for tourism impacts in Greece and in other EU Member States that exist still today.

Source: NGOs in Greece

Poland: A landmark case in Poland is the Raspuda case concerning a bypass designed to cut through two areas of Natura 2000, established by Poland and submitted to the Commission: SPA 'Augustów Primeval Forest' and SAC 'Augustów Refugium'. No alternative route was prepared for the road. In 2007, the Commission referred the design of the bypass to the CJEU. Different potential routes of the road (passing by the Raspuda peat bog) were considered. In addition, EIA was conducted for all the variants. The selection of the route of the bypass through Raczki (which had the least environmental impact) was announced by the government in March 2010, at which time the complaint to the CJEU was withdrawn.

Source: NGOs in Poland.

Spain: Implementation of the Directives in Spain has been slower than anticipated. The deadline for legal transposition of the Birds Directive was January 1986 but it was not met; transposition finally took place, with some gaps, in March 1989. The Commission initiated infringement proceedings against Spain for insufficient SPA designation, both in numbers and in surface area which led to legal action before the CJEU for non-compliance with the Birds Directive (Case C-235/04). The court's ruling, issued in 28 June 2007, declared that Spain had not complied with its obligations under Article 4 as it had not classified sufficient SPAs to guarantee the protection of all bird species listed in Annex 1, and the migratory species. As a result, Spain's current network of terrestrial SPAs was established with a delay of about 20 years, (and the marine

SPAs were designated in 2014, almost 30 years after the due date).

The deadline for legal transposition of the Habitats Directive was June 1994, but no Member State, Spain included, met this deadline for proposing a set of sites (1998). In fact, Spain is still identifying and designating marine sites as SACs/SCIs. Although a large part of the SAC network has been declared, Spain has still not approved the corresponding management plans. The Commission has opened a new infraction procedure (2015/2003), with a letter of formal notice dated 26 February 2015 (addressed as well to other Member States not complying with Article 4(4) of the Habitats Directive. Previously, Spain had already been found guilty by the Court for not designating SACs in the Macaronesian biogeographic region (sentence dated 22 September 2011).

These examples show that, in general, progress the application of the Directives in Spain happens when the Commission demands compliance with their obligations.

Source: evidence gathering questionnaire from NGOs and nature authorities in Spain.

UK: The Strangford Lough is the most highly designated and protected site in Northern Ireland. However management of certain aspects of wildlife and ecosystems within the Lough, particularly Horse Mussel (*Modiolus modiolus*) reefs, were the subject of concern for conservationists, who demanded Government action since the late 1980's. However, only once the Commission intervened, initiating an investigation in 2003, followed by a temporary ban on mobile fishing gear, together with a restoration plan aimed at bringing the Horse Mussel communities back to FCS, with GBP 1m in funding over three years to undertake the restoration work. A second complaint was brought by NGOs due to the lack of compliance with the management plan developed and the agreed timeline. The complaint resulted in a new restoration plan with more robust management, monitoring and enforcement measures. Again, this example shows that Member States implement the Directives when the Commission demands compliance with their obligations. This demonstrates the need for greater capacity in the Commission take enforcement action (even if it this would require carrying out inspections).

Source: UK NGOs

These examples show that without EU action, progress on national conservation measures for the establishment of the Natura 2000 network and compliance with the AA of development projects affecting Natura 2000 sites would have been low. They were provided, in the main, by NGOs who, as presented in the State of Play (section 3.3.1 of the Study), have a predominant role in the monitoring and enforcement of the Nature Directives. This put them in the position to provide specific examples and evidence for their responses, with all Member State NGOs taking the effort to furnish examples and supporting evidence. The examples in the table above have been selected as representative cases of a situation present in most Member States, confirmed by the fact that 85% of the 2,374 reported infringements of nature legislation were based on complaints and, thus, only 15% were initiated by the Commission. Those numbers do not include the number of complaints that are submitted by NGOs and that do not lead to infringement cases.

NGOs stated that the numerous infringement cases show that valuable habitats and species would have been destroyed or badly affected if the Nature Directives did not provide the necessary legal basis for them to complain to the Commission or file complaints with the CJEU. The enforcement action on implementation ensures harmonised implementation and supports the establishment of a level playing field (e.g. authorities in the Netherlands, NGOs: FOEE).

According to stakeholders (e.g. NGOs in Bulgaria, Spain, Greece, Ireland, Slovenia and the UK) the EU enforcement action is still required, as the effectiveness of the infringement procedure in improving implementation and reducing damages to habitats and species in the EU is greater than that of national action. This is due to several reasons, inter alia, the impartial role that the Commission plays in the assessments, or to the NGOs accessibility to EU bodies to promote the start of the EU procedure - which sometimes overcome national structures acting as barriers to enforcement at national level. Stakeholders refer to the need for EU enforcement action to close those national enforcement gaps (e.g. the EU procedure for cases of infringements of the Directives is quicker and clearer). It is also recognised in literature that the legal requirements of the Nature Di-

rective are more precise and strict, and their enforcement is much better organised at EU level (Cliquet, 2005).

The EU enforcement mechanisms are also considered (NGOs in Ireland) to be more effective than those existing under other international conservation instruments (e.g. Ramsar and Bern Conventions, CBD) – which are not supported by the tools of close integration that exist in the EU (e.g. the Commission role in bringing infringement cases to the CJEU, or the legally binding nature of the CJEU rulings).

In addition, stakeholders stated that future EU enforcement action is still needed, in particular to improve implementation of the Nature Directives' obligations, such as the adoption of management plans for all Natura 2000 sites, the designation of marine sites, or particular provisions reflecting systematic breaches of EU law, such as cases related to spring hunting and trapping derogations, or to non-sustainable activities or investments that would damage unrecoverable biodiversity as a consequence of the breach of EU law (e.g. NGOs in France, Spain, Malta and the UK).

However, the literature states that there is a 'clear decline in the Commission's initiative' to enforce inadequate application of EU environmental law in general, and nature legislation in particular (Krämer, 2015). Stakeholders from NGOs and nature authorities (e.g. Spain and Slovakia) highlighted the need for the Commission's services on enforcement to take a more proactive role and promote a more fluid dialogue with national and local authorities and NGOs, in order to resolve problems at an earlier stage and reduce the number of breaches of EU law. Some claim that the Commission needs to realise its capacity to 'independently inspect how obligations of Nature Directives are fulfilled in individual member states so that it would not be dependent only on information provided by Member States or different stakeholders'.

EU action and guidance on the integration of socio-economic policies and measures

Recent Article 17 Habitats Directive reports point to the need for **EU action to align measures within sectorial policies** with sustainable development and biodiversity goals. Key pressures and threats impacting on habitats and species, such as agriculture, human-induced modifications of natural conditions or use of living resources (fishing, harvesting aquatic resources and aquaculture), can be reduced by ensuring implementation of integrated EU sectorial measures (e.g. under CAP, CFP). For example, public authorities (e.g. public authorities in the Netherlands⁶⁷⁰) the poor conservation status of sites and species in the Netherlands has been influenced by EU policies in the field of agriculture, economic development and infrastructure. Nature authorities (e.g. Belgium) also state the need for EU action to ensure better coordination of environmental and agricultural policies at European level. It is acknowledged that while the Nature Directives and other EU sectorial policies such as the CAP, CFP, Energy Policy or Cohesion Policy can potentially be complementary, many inconsistencies and incompatibilities still remain and a better integration of sectorial policies at European level is necessary. According to NGOs (e.g. Ireland) the message from the recent 2015 State of Nature Report is that the EU should be doing more to ensure better integration of nature considerations into other existing policies, to address measures from sectorial policies which undermine biodiversity conservation targets and to develop more ambitious new complementary policies.

Other increasing threats to biodiversity, such as climate change or the introduction of new invasive alien species, also justify continued EU action (see question R.1 for further discussion). The Nature Directives provide a common framework targeting specific biodiversity objectives and designed to promote the development of integrated measures linked to relevant sectorial policies. They provide the framework for integration of various policies affecting biodiversity protection objectives (e.g. spatial planning or sustainable farming or fisheries practices).

⁶⁷⁰ Ministry of Economic Affairs.

One of the main reactions from business, private sector or non-nature public authorities related to the lack of integration of economic considerations when implementing the Nature Directives (i.e. farmers in Sweden and Finland, and the Swedish hunters association). There is a need to provide opportunities for consideration of regional specificities when implementing the Directives, depending on the socio-economic development and the state of biodiversity (i.e. the Netherlands – Algemene Vereniging Inlands Hout). Similarly, nature authorities (e.g. Malta, the UK, Ulster Wildlife) and NGOs (e.g. Ireland, Slovakia, Greece, WWF, EEB) state that there is a need for further integration of policies and measures in order to ensure that the objectives of the Nature Directives are fully considered in other policies and measures.

The need for EU guidance

Stakeholders highlighted that the implementation of Article 2 of the Birds Directive and Article 2 of the Habitats Directive requiring that socio-economic considerations are taken into account needs further clarification, as well as other provisions that are too vague to be implemented. All type of stakeholders spoke of the need for EU guidance including national nature authorities (e.g. Czech Republic, Estonia, Spain, France) NGOs (e.g. Austria, Czech Republic, Finland, Slovakia, the UK) and private sector (ESPO, non-energy Extractive industry). They also consider that the lack of EU action at this level would cause legal uncertainty, administrative burdens, resistance and conflicts.

Those stakeholders also refer to the need for guidance regarding on issues related to management practices to ensure the conservation status of habitats and species in Natura 2000 sites. They state that methodological guidance is still needed on issues associated with Natura 2000 sites management, in order to clarify the Directives' requirements on the ground for certain activities, so that they are developed in line with the sites' conservation objectives. This includes a better methodological framework for AAs. Some stakeholders (UK – Ulster Wildlife) highlighted the existence of inconsistencies and misunderstandings in implementing Article 6 of the Habitats Directive in the UK generally, as well as within Northern Ireland. This appears to revolve around interpretation of the terms 'significant' and 'integrity' under Article 6(3). Implementation in practice of Article 6(4) conditions regarding alternative solutions, reasonable scientific doubt over projects' impacts on the site integrity and to the precautionary principle have also been raised (Energy UK and Euroelectric). In addition to the Commission Guidance documents and extensive legal judgements on their interpretation, further guidance on the application of those articles in practice seems necessary.

Methodological guidance in this field is needed to ensure that a harmonised approach and level playing field is effectively applied in practice, avoiding individual national interpretations unduly imposed on industries, or the risk that deregulation in some Member States would lead to increased competitive advantage, thereby destroying the level playing field for businesses (NGO in Finland).

The Commission adopted Guidance documents on the management of Natura 2000 and the interpretation of Article 6 of the Habitats Directive from the early stages of implementation. In addition, several sectoral Guidance documents have been approved at EU level covering the implementation of Natura 2000 in the marine environment/fisheries and aquaculture, or relating to interactions with forests, farming, non-energy mineral extraction, water transport, ports, wind energy and climate change⁶⁷¹. They have been generally adopted through consultation with the main stakeholders. However, they have not been fully translated and are not systematically applied at national and local level (private sector: e.g. CEMBUREAU, Euromines, DG GROW). Their non-legally binding nature is considered a barrier for their full implementation, making EU action in this field necessary.

⁶⁷¹ http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

Box 124 Example of sectoral guidance

In 2007 ESPO published its Code of Practice on the Birds and Habitats Directives, setting guidelines and recommendations for port development projects.

(http://www.espo.be/images/stories/Publications/codes_of_practice/ESPOCodeofPracticeontheBirdsandHabitatDirectives2006.pdf)

ESPO has been cooperating closely with DG Environment and other stakeholders in the development of guidelines for the interpretation and application of the Directives in estuaries and inland waters. This has proven to be a very constructive exercise in reducing legal uncertainty. Nowadays, ports have developed clever management tools to cope with challenges in an efficient and collaborative way, and there are many examples of successful port development projects that achieved both the economic and environmental objectives. This is also recognised by environmental NGOs. Despite the good practice examples, port development projects overall have suffered significantly from increased costs, complex approval procedures and resulting delays that are not always justified by environmental benefits. Challenges remain in working with the current Nature Directives, and members of ESPO have expressed the need for further guidance (Conference held 20 November 2015).

EU action to further promote cooperation, coordination and sharing of best practices

As described, action at EU level is considered to be a matter of ecological urgency. Wildlife does not abide by national borders and therefore its protection requires trans-boundary cooperation. A continued EU-wide approach is likely to be more effective in addressing this challenge than isolated actions undertaken by individual Member States. Cross-border action and common standards are essential to protect migratory species (e.g. to ensure that appropriate measures are in place to protect transit routes). While European cooperation has been intensified or, in many cases, initiated, further EU action to promote cooperation approaches is needed.

Box 125 Example of trans-boundary cooperation

Germany: Examples of trans-boundary cooperation include the international LIFE projects, where joint actions have been conducted with seven of Germany's eight EU neighbouring states and with at least a further five EU Member States (UK, Sweden, Finland, Latvia, Estonia). The 'few biogeographical process' facilitates even further-reaching cooperation within biogeographical regions. For example, Germany organisation of an international workshop on the integrated management plans for the North Sea estuaries for the Atlantic region.

Source: Member State authority or agency Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit

While the impact of the Directives in promoting higher coordination at national level has been recognised (see question AV.1/2) more EU action is needed to promote a higher rate of coordinated implementation through the EU, sharing experiences on activities that are common to all Member States and particularly exchanges of best practices (i.e. Austria, Belgium, Czech Republic, Germany, Malta, the Netherlands, Romania, Slovakia, Sweden and the UK).

Some of the main elements stakeholders stated as requiring coordination at the EU level are:

- Financing.
- Better integration of biodiversity protection in EU funds.

- Coordination to promote capacity building and training of national law enforcement bodies.
- Raising awareness on Natura 2000 at local and national level.
- 'Pooling of conservation resources (such as monitoring data) and sharing of data across EU Member States, including pressures, with a view to identify common/trans-boundary issues which may require concerted management efforts.

EU action not required

The four private stakeholder responses stated that there is no need for EU legislation on nature, or for further action in this field at EU level. They believed that habitats and species protection measures applied at a local level, are more effectively regulated at a national level. No evidence, however, is provided to support this opinion and, as it seems to contradict the arguments from literature and stakeholders in point 1 of this section, it is not further considered.

Other issues raised by these groups are the negative effect of EU legislation on growth, jobs and competitiveness. Again, no data on the negative impact on growth and competitiveness were provided to support these assertions. An example provided refers to the strict approach in the implementation of the Directives to the permitting of aquaculture activities, which results in freezing the industry structure. If permits were granted, it was claimed, they would have the potential to promote a more green and ecological production (FEAP).

While the efficiency questions do not ask specifically about growth and competitiveness, they provide relevant information on these issues as any regulation that imposes significant additional costs in an industry that trades internationally could potentially affect competitiveness, and any restrictions on plans and projects could be seen as having negative effects on growth. These issues are dealt with in question Y1 (in relation to opportunity costs), Y4 (disproportionate costs) and Y7 (administrative burdens) (see section 7). The overall conclusions are that the Directives do (inevitably) impose some costs and restrictions on business but that these are small in relation to overall costs and that a very small proportion of plans and projects face restrictions. Furthermore, some businesses welcome the Directives as providing a level playing field at EU level and a certain regulatory framework within which to operate. Therefore, as a whole, the evidence on efficiency does not suggest that the Directives restrict growth and competitiveness.

In addition, several stakeholders have provided examples and evidence on the impact of the Nature Directives in promoting innovative solutions that generate jobs linked to tourism, sustainable farming and forestry practices.

Box 126 Examples on the impact of the Directives in promoting jobs and growth

Poland: An example provided by NGOs in Poland refers to the Baycz Valley Region in Lower Silesian District, a Natura 2000 site which is an essential part of migratory routes for birds. Here, a strategy for integrating nature with growth has been developed, including the establishment of a brand for natural value-based products and services from the region. Currently, approximately 70 companies use this brand. A Local Action Group (LAG) manages the brand, supports its promotion, and acts as the Fisheries Local Action Group (FLAG) for the Fish Operational programme, increasing the generation of funds contributing to regional economic growth linked to the Natura 2000 area.

France: EU environmental legislation has helped to create and boost the 'green economy' through the creation of new roles and sectors, including new environmental professionals, and new businesses. The Directives allow the promotion of biodiversity-friendly practices both within and outside Natura 2000 sites. These practices help to maintain, create and enhance economic activities in rural areas. They also help to develop businesses related to environmental engineering, tourism, animation and expertise (engineering, NSPA) and promote actors working together e.g. in the Nord-Pas-de Calais, grazing management on limestone hillsides of SPA / SAC creates partnerships

between local breeders of sheep (Boulogne breed of sheep) and projects to help social integration.

Spain:

According to Spanish NGOs, the requirements for Brown Bear conservation in Spain have generated employment, among other socio-economic effects:

- The regional authorities maintain between 5-15 staff dedicated solely to the conservation of the species in the Cantabrian Mountains. Some NGOs have also created jobs, e.g. the Brown Bear Foundation maintains between 15-30 workers each year between bear patrols, technical staff, environmental educators, and forest workers linked to the conservation of the species.
- The LIFE project funding in the associated Natura 2000 sites has provided more than EUR 9m of investment to date in 14 projects dedicated to the conservation of the Cantabrian population of the species.
- The tourism associated specifically with the environmental quality and the sighting of the species has provided five years of important economic support and employment in the associated mountain areas where the economy is often fragile. While there is as yet no economic estimate available, many small local tourism businesses, accommodation, restaurants link their activity to the presence and positive image of the Brown Bear.

During 2013-2014, a market testing exercise was carried out by SEO/BirdLife with products specifically labelled as 'Natura 2000 Product', with the aim of determining the influence of this brand on sales. The tests were carried out in the cities of Zaragoza and Barcelona, in shops specialising in organic products and conventional supermarkets. The results showed that the majority of participants in customer surveys were prepared to pay more for the same product if it had the 'Natura 2000 Product' label; The majority were also more likely to buy the labelled product, and actual sales of the same product were significantly higher with the label than without it. The Commission and Spanish Agriculture, Food and Environment Ministry are studying the possibility of extending these successful trial results to the full market, and there is similar interest in other EU countries, e.g. France.

UK: The Green Alliance's report 'Green Economy: A UK Success Story' from December 2012 (http://issuu.com/greenallianceuk/docs/green_economy_a_uk_success_story/2) indicates that the UK's low carbon and green economy has already created almost as many jobs as the financial services sector, and twice as many as the automotive sector. The CBI states that in 2010-11, over one-third of economic growth in the UK is likely to have come from green business. In 2010-11 the UK exported low carbon and environmental goods and services to 52 countries, with a value of GBP 11.8bn.

The stakeholders holding a negative opinion on the need for EU legislation, believe that the Nature Directives do not provide for an appropriate framework for socio-economic concerns to be sufficiently considered in the implementation of the Directives. The main concerns are summarised as follows:

'In a shifting legal landscape of high uncertainty, a landscape to which both domestic and European courts have contributed, the impact assessments intended by the Directives to provoke informed discussion of how developments might affect high quality habitats, and how undesirable impacts could be avoided or mitigated, have increased in number and cost and have become, therefore, objects of political criticism, even rhetorical derision. What's the point of incurring the high costs of doing well with these complex and uncertain impact assessment and project evaluation procedures if that success cannot be shown to equate with doing better for wildlife conservation?' (Wandesforde-Smith and Watts, 2014).

However, evidence from the UK (The 2012 Government Review of the Habitats and Wild Birds Directives) indicates that the problems associated with the implementation of the Nature Directives in the UK are 'few in number, and the policy is moving in the right direction to reduce those further. It is only in a relatively small number of cases that problems have arisen, leading to unwelcome delays and additional costs for developers' (Baldock et al, 2013).

The lack of integration of economic considerations when implementing the Nature Directives is the main concern for stakeholders. For example, a forest association (Eustafor) states that the EU should intervene only in cases of a framework or strategic are-

as/issues whose solution cannot be found at national level. While it is recognised that conservation of rare species and their habitats remain a priority and are threatened by increased population, increased urbanisation and climate change, the policy sphere to ensure nature conservation, it is believed, is the responsibility of the Member States. While this argument does not respect the subsidiarity principle - and it is therefore not considered - it is also stated that the Directives need to be enforced with substantial financial measures for landowners to deliver the crucial conservation objectives and associated ecosystem services. Other organisations (i.e. CEPF) have stated their preference for a far-reaching deregulation and creation of market-based incentives, accompanied by a societal reward for the ecosystem services of forestry. In this sense, EU action is required to clarify and promote the availability of financial resources to support sustainable forestry efforts.

9.2.4 Key findings

- 64 responses to this question in the evidence gathering questionnaire were received from stakeholders from national authorities, the private sector and NGOs. Of these, 55 considered action at EU level to continue to be necessary. Only three responses stated that no action is required at EU level. Of the remaining responses, the information provided did not address the question.
- Scientific evidence shows that EU level intervention through the Birds and Habitats Directives has been effective at arresting the rate of loss of biodiversity; however, indicators such as the Pan-European Common Birds Indicator show that biodiversity loss is still continuing. **EU action for the preservation and restoration of Europe's biodiversity remains necessary and even urgent given the continued decline of biodiversity in the EU.**
- Wildlife does not abide by national borders and its protection, therefore, **requires trans-boundary cooperation**. A continued **EU-wide approach** is likely to be more effective in addressing this challenge than actions undertaken by individual Member States. This is particularly relevant for migratory birds and other mobile species (i.e. in the marine environment). The protection provided by EU legislation to **species across the whole of their migratory route**, goes beyond the protection that would be possible for these species at national level. For example, the designated SPAs of the Solent Coast supports up to 13% of the world population of Brent Goose, and 30% of the UK population; national protection measures in isolation might be considered neither necessary nor effective, given that this migratory species is in different parts of Europe throughout the year.
- **Enforcement** of the requirements of the Birds and Habitats Directives **by the CJEU has been instrumental** in ensuring the transposition and implementation of the Nature Directives, particularly in cases where national measures were not taken to address the conservation objective, or where further action was needed to close enforcement gaps. Without EU pressure regarding full implementation of the Nature Directives, stakeholders stated that it is highly unlikely that unsustainable management practices would stop. In fact, a more proactive role for the Commission's services was considered necessary by some stakeholders from nature authorities and NGOs.
- Recent Article 17 Habitats Directive reports point to the need for **EU action to align measures within sectoral policies** with sustainable development and biodiversity goals. Key pressures and threats impacting on habitats and species such as agriculture, human-induced modifications of natural conditions or use of living resources (fishing, harvesting aquatic resources and aquaculture) can be reduced by ensuring implementation of integrated EU sectoral measures (e.g. under CAP, CFP). As described in question R.1, increasing threats to biodiversity, such as climate change or the introduction of new invasive alien species, also justify continued EU

action. The Nature Directives provide a common framework for achieving biodiversity objectives, designed to promote the development of integrated measures linked to relevant sectoral policies.

- **Stakeholders highlight the need to effectively integrate** environmental, social and economic challenges at EU level. Some stakeholders from new Member States hold the view that additional **EU action is required to clarify some provisions** of the Directives that remain too vague to implement or which need interpretation (e.g. taking into account socio-economic and regional considerations in the implementation of the Directives). Lack of EU action at this level would cause legal uncertainty, administrative burdens, resistance and conflicts. The need for additional methodological guidance and improved dialogue at EU level was also highlighted.
- According to several stakeholders, **EU action is also still needed to improve implementation** of the Nature Directives in Member States, for example to guide and promote better methodological frameworks for AA, effective site management and monitoring of FCS, international information and data exchange, and quicker and clearer procedures in cases of infringements of the Directives.
- A lack of EU action could lead to situations where some Member States would use deregulation to gain competitive advantage, thus negatively impacting the **level playing field** for businesses. EU level intervention is supported by business because of the advantages that this brings for the Single Market and environmental protection.
- EU level action is also justified to promote **coordination, sharing of experiences** or common activities that are considered elements of high value. Coordination at the EU level is important also with respect to **financing and cross-sector coordination**.
- Public concern across the EU about the environment remains high, as does public support for EU level action to tackle environmental problems.
- The few responses to the evidence gathering questionnaire from the private sector stakeholders which consider there to be **no further need for action at EU level**, are based on the assumption that habitats and species protection measures are more effective at a national level. No evidence, however, is provided to support this opinion. Other issues raised by this group were the negative effect of EU actions on growth, jobs and competitiveness, as well as insufficient consideration of socio-economic concerns in the implementation of the Directives. They also point to the absence of flexible mechanisms to facilitate changes in the annexes of the Directives and adapt them to progress.

9.3 Conclusions concerning EU added value in respect to the Nature Directives

- The literature reviewed and the responses to the evidence gathering questionnaire all recognise that the Directives have introduced innovative elements that provide added value to what could have resulted without the EU legislation. The transnational character of nature justifies EU level action as a more effective way to achieve the conservation objective of the Directives, particularly through joint action on site protection for habitats and species of EU importance.
- The establishment of Natura 2000 as a coherent network, based on scientific information, with the concept of favourable conservation status and of 'biogeographical regions' has been innovative and has led to a substantial increase in the extent and coherence of land and marine protected areas. A flexible approach whereby socio-economic factors are considered within site management provided biodiversity objectives are respected has also been introduced.
- The species protection standards set up under the Directive have led to the control of illegal hunting practices and to the reversing of declines across a range of Annex I bird species, which would have been more difficult or impossible to achieve by Member States acting separately. The standards of protection are generally higher than those previously existing in national systems, and the harmonised requirement of such standards across the EU Member States has established a more level playing field for business in line with the single market.
- Through EU-level cooperation and guidance, the Directives have led to greater availability of knowledge and data, increased public awareness and stakeholder participation and increased use of public funding for biodiversity.
- EU action for the preservation and restoration of Europe's biodiversity remains necessary and even urgent given the continued decline of biodiversity in the EU. Evidence points to the need for EU action to address potentially counter-productive impacts of sectoral EU-level policies (e.g. CAP, CFP) linked to the key challenges faced by habitats and species in the EU. Evidence and stakeholders point that without EU enforcement and pressure the implementation of the Nature Directives would have been weaker and more action is still needed.

10 Conclusions

The preceding chapters of this report have assessed the Nature Directives in terms of the five primary evaluation criteria, namely effectiveness, efficiency, relevance, coherence and EU-added value. The key conclusions that can be drawn from each have been summarised at the end of each chapter.

Ultimately, the evidence points to the Nature Directives as fit for purpose – they remain fundamentally valid, appropriate and in line with EU aims and targets on biodiversity, as well as wider environmental, social and economic objectives. Equally, however, implementation of the Directives is complex and challenging and has had a varied degree of success across the EU. Good and poor practices have been identified, and while much has been achieved overall, it is clear that there is more to be done, with significant opportunities remaining to consolidate learnings and improve practice.

This section provides a cross-cutting summary of the conclusions in relation to the key objectives and provisions of the legislation, identifying those that have worked well and those which have posed a problem. It addresses the key question of whether or not the Directives are fit for purpose, presenting key points from the evidence and analysis. Finally, it identifies some of the factors that have impacted implementation of the Directives, and which represent priority areas for improvement in the future.

10.1 What has worked well and what hasn't worked well?

Overall aim, objectives and approach

There is a general consensus that the principles, aims and overall approach of both Directives remain valid and appropriate while implementation can be improved.

The Directives contribute in important ways to the key biodiversity and nature protection goals of the EU, including the EU's biodiversity target and associated Biodiversity Strategy and 7th Environmental Action Programme, as well meeting obligations in relation to the Bern Convention, the Convention on Migratory Species, the Ramsar Convention and the CBD.

The Directives' obligation to take into account economic, social, and cultural requirements facilitates their contribution to sustainable development and the Europe 2020 Strategy, which aims to create the conditions for smart, sustainable and inclusive growth. The Directives also contribute to a wider range of environmental, social and economic policy objectives, through the enhancement of ecosystem services and Green infrastructure, for example, or the creation and maintenance of recreational areas essential for health and well-being.

The introduction of the concept of maintaining and restoring habitats and species at FCS through the Habitats Directive has been fundamental to monitoring progress towards nature conservation and biodiversity goals. Although a definition of FCS is provided in the Habitats Directive, Member States remain responsible for its interpretation and the setting of national / regional standards against which the achievement of FCS is judged. Evidence indicates, however, that this has not yet been done in many Member States. This has constrained the development of site conservation objectives and management plans, along with the assessment of potential impacts of proposed projects and plans on Natura 2000 sites and strictly protected species in the wider environment.

The Member States' recent reports on the implementation of the Directives, and numerous scientific monitoring and research studies, clearly show that there are numerous pressures and threats affecting EU protected species and habitats, both within and out-

side Natura 2000 sites. These stem from a wide range of sources and drivers, the most common of which is changes in land use, particularly in relation to agriculture. Despite this wide range of pressures, the legal analysis conducted for this study concluded that the provisions of the Directives, if well implemented, form a framework capable of addressing all of the key problems that habitats and species face (including the increasing impact of climate change).

This is largely due to the fact that the Directives' approach is not problem-specific, but requires Member States to take measures to achieve FCS of the habitats and species covered and to avoid impacts that would have an adverse effect on this, irrespective of the cause.

The Nature Directives include a range of provisions with specific objectives, including the establishment, protection and management of the Natura 2000 network, the protection of landscape features of importance for the coherence of the Natura 2000 network, the protection of species, and a number of supporting measures (e.g. funding, research and public awareness raising). Together these form a coherent framework capable of effectively addressing all key problems facing habitats and species they must be fully integrated into relevant policies in other sectors, including economic activities (e.g. agriculture, fisheries, transport), as well as funding policies (e.g. CAP, Cohesion Policy), which should ensure EU level support for implementation. Strong pressure to achieve some sectoral policy goals can put protected habitats and species at risk, but practice shows that early and proactive approaches to understanding and assessing risks can result in more harmonious implementation.

The legal framework established through the Nature Directives fits neatly within the broader framework of other EU environmental legislation and policies. These include those in the water, marine, air and climate change areas, as well as the horizontal instruments (EIA, SEA, ELD) that complement implementation of the Nature Directives. Although there are inconsistencies across these instruments in terms of scope, and timing and reporting, considerable efforts are underway to improve the coherence of this environmental framework, such as improved coordination between the EIA and AA procedures required as part of the revised EIA Directive.

Evidence demonstrates that the benefits of the Directives greatly outweigh their costs, and that implementation therefore represents an efficient use of resources. There is also considerable evidence to suggest that the Directives contribute to job creation, the promotion of tourism and development of rural areas.

However, there are examples where implementation has been inefficient, especially at national and regional level, giving rise to disproportionate costs and unnecessary administrative burdens. Over time, increased experience leads to the development of cost-effective approaches to implementation, and there are many cases where these have overcome initial problems and reduced costs over time. Nevertheless, considerable challenges remain with respect to cost-effective implementation. These challenges include funding, administrative capacity and the evidence base, all of which remain significant barriers in many areas.

While many businesses complain that the Directives impose costs and administrative burdens, these are small compared to overall costs and revenues, and the benefits of the Directives. Some businesses – as well as a wide range of stakeholders – are concerned that a failure to implement the Directives would have significant costs, including the creation of legal uncertainties and market distortions, in addition to the threats to biodiversity, ecosystem services and sustainable rural development.

Evidence shows that the Directives have introduced innovative elements and led to transformational changes in Member States, which could not otherwise have happened. The transnational character of nature justifies EU level action as the most effective way to achieve the conservation objective of the Directives, particularly through joint action on site protection for habitats and species in the EU. The establishment of harmonised standards of protection has increased the effectiveness of existing national legal systems,

reducing damages to habitats and species from projects and activities inside and outside the Natura 2000 network.

The Directives have generated a cultural change, promoting greater public awareness of the value of nature. Nearly all Europeans see biodiversity loss as a serious problem globally and in their own country, with a notable majority favouring the establishment of protected areas and supporting strengthening existing nature and biodiversity conservation rules. Despite the importance they attach to nature, evidence shows that Europeans are generally not well-informed about biodiversity, the Nature Directives, or the Natura 2000 network. Further to the Directives' requirement to promote education and general information on the need to protect species and habitats, Member States committed to develop awareness-raising initiatives in order to reduce negative reactions against the Directives' implementation and promote better understanding of the Directives by economic operators and stakeholders. This has had a varied degree of development across Member States.

The Directives have established a governance framework for nature protection that encourages participatory structures, new partnerships and better cooperation between the government and the private sector, as well as between Member States, including sharing data and best practice. Some countries are more advanced than others, and much remains to be done, particularly with regard to the dialogue on harmonisation of sectoral policies and economic interests.

The protection and management of sites within the Natura 2000 network

The Natura 2000 network focuses on securing particularly important areas for selected species and habitats of EU conservation importance, including threatened and characteristic species and habitats listed in the annexes of the Directives and migratory species of birds. SPAs and SCIs must be selected on the basis of scientific criteria, which, for SCIs, are set out in the Habitats Directive and take a biogeographical approach. This centralised and consistent approach to the establishment of the network has facilitated the objective identification of sites and has been fundamental in contributing towards its coherence. However, the approach is demanding and ambitious, requiring extensive up-to-date spatial data on the location of species and habitats, and considerable negotiations between Member States and the Commission. These factors, in addition to legal uncertainties (some already addressed by the CJEU), have contributed to the slow development of the network, and are still constraining the identification of some sites, particularly in the marine environment. Notwithstanding these difficulties, Natura 2000 is the largest regional protected area network in the world, covering some 18% of EU land (exceeding the CBD requirements).

The top-down, science-led approach has not been without its problems, as some Member States did not sufficiently inform and consult with landowners and other stakeholders on the implications of Natura 2000 site designations. This led to numerous objections to many of the proposed SCIs, delaying the establishment of SACs, and, in turn, the development of management plans and agreements. Over time, this has led to a tendency to engage with stakeholders early in the process, which, despite taking time and resources, results in better outcomes for nature conservation and stakeholders in those Member States where this is done.

While the Nature Directives aim to protect the habitats and species for which the Natura 2000 sites were designated, unlike other protected areas, the sites are not treated as strict nature reserves. Instead, the site protection provisions (Article 6) within the Habitats Directive (which also apply to SPAs) take a more flexible approach that allows sustainable development where it is compatible with the conservation objectives of the sites in question.

Another important component of the Nature Directives is that they require more than the protection of sites from development. Member States are required to adopt conservation measures including management plans and appropriate statutory, administrative or contractual measures for the SACs (Article 6(1)) to maintain or restore the relevant habitats and species to FCS. This is especially important in the EU, where many habitats and species are dependent on appropriate forms of ecosystem management, such as the continuation of traditional low-intensity farming systems and practices. Failure to develop the required conservation measures in more than one-third of Member States jeopardises the implementation of the Directives, with infringement procedures now being initiated by the Commission.

Member States have discretion in deciding on the most appropriate ways of ensuring site management, with most choosing to develop some form of management plan. Numerous cases show that these plans are valuable when they are carefully prepared and tailored for each individual site, adopted through a participatory process with all concerned stakeholders, and include the possibility for economic activities to be carried out while respecting or supporting the site's conservation objectives. However, problems have occurred where generic plans have been developed centrally by national and regional authorities or consultants without adequate stakeholder involvement. Problems also arise where nature conservation management plans are not sufficiently integrated with, or considered by, other sectoral plans, such as forestry plans, even though they are sometimes developed by the same authority.

Given that the Directives take a precautionary approach and give primacy to biodiversity objectives in decisions on the acceptability of proposed projects and plans, some stakeholders have referred to cases where this has resulted in unnecessary constraints on development. At the same time, there is also considerable evidence to suggest that sustainable development is possible within the framework of the Directives, and that they do not threaten the objectives of sectoral policies. For example, developments with adverse effects may also go ahead if there are imperative reasons of over-riding public interest, and no alternatives.

Initially there was some legal uncertainty about the requirements of Articles 6(3) and 6(4) which led to numerous infringement cases, but case law, along with the development of Commission and national guidance, and improved data and experience have addressed many of problems that arose. Evidence now indicates that AA procedures are generally working well, especially where Member States have invested in developing their knowledge base, staff resources and training. However, AAs and sustainable development could be further improved by increased information gathering and sharing of biodiversity data, the setting of FCS standards and site conservation objectives, and better integration with spatial planning, SEA and EIA, to identify potential conflicts early in the development planning process.

There are some cases where proposed developments have not undergone AAs, resulting in damage to Natura 2000 sites. Improved screening of plans and projects, therefore, is necessary, in addition to more comprehensive and effective enforcement of site protection provisions by Member State authorities and, if necessary, the Commission.

There is some evidence that the provisions of Article 6(4) are less rigorously implemented. Some legal studies have suggested that the interpretation of imperative reasons of overriding public interest is too broad and that guidance is needed to clarify and harmonise the approach taken in practice, particularly with regard to conditions regarding alternative solutions, reasonable scientific doubt about projects' impacts on the integrity of Natura 2000 sites, the precautionary principle, and requirements for compensation measures. More effective enforcement at the Member State and EU level also appears to be necessary.

A more fundamental and long-term problem with the establishment of the required conservation measures for sites has been a widespread lack of adequate funding. As most terrestrial sites require some form of management (and often restoration) by the land-

owner, or restrictions on use/management, this has undoubtedly constrained practical actions and led to uncompensated costs for landowners. This has also exacerbated conflicts over the designation of the sites and restrictions on activities. In contrast, in areas where funding has been provided, e.g. through well designed and tailored agri-environment schemes under the CAP, this has helped to maintain and restore habitats and species (and their associated ecosystem services) and at the same time provide support for rural communities.

It is estimated that annual funding of EUR 5.8bn is required to implement the network fully across the EU. While this is a relatively small sum compared to the size of the main EU funds and overall national budgets, a significant shortfall in current financing is a major barrier to the full implementation of the network. Article 8 of the Habitats Directive sets out the framework for assessing financing needs for the implementation of site conservation measures required under Article 6(1), including co-financing from the EU budget. For such co-financing to be available, however, nature and biodiversity objectives have to be fully integrated into strategic planning and programming under a range of EU sectoral funds (e.g. the Structural and Cohesion funds, the EAFRD and the EMFF). Evidence indicates that this integration has been inadequate in most Member States, despite the existence of many good individual examples of EU co-financed projects that support Natura 2000 site management.

Other costs relating to Natura 2000 include the opportunity costs of constraints on development, as well as the administrative burdens related to the assessment of plans and projects with potential impacts on the network. However, evidence suggests that only a small minority of developments are affected, and that even for these, administrative costs have a marginal effect on project budgets. Data from several member states indicate that fewer than 2% of development projects have faced restrictions or required revision as a result of concerns about their impacts on Natura 2000. Overall, the costs of Natura 2000 are significantly outweighed by their benefits, which are estimated at EUR 200-300bn per year.

There is little evidence that Member States have taken substantial additional steps to improve the ecological coherence of the Natura 2000 network by maintaining and, where appropriate, developing landscape features, as encouraged by Articles 3 and 10 of the Habitats Directive. This is probably, in part, because the implementation of these connectivity measures is at the discretion of Member States. However, because many habitats and species are not in FCS it could be expected that at least some will require improvements in habitat connectivity to alleviate fragmentation pressures, and that Member States should, therefore, be taking some steps to implement these measures. Although some countries and regions have developed ecological networks, several of these precede the requirements under the Habitats Directive and have aims broader than those related to the coherence of the Natura 2000 network. Some flexible or pragmatic initiatives have also been developed in partnership with private sector stakeholders to support the network objectives.

The protection of species

In addition to site-focused measures, the Nature Directives require the establishment of systems for protecting species. As for sites, the regulations do not require strict protection of all species; they do not, for example, prohibit the hunting of most species, including within Natura 2000 sites. Instead, they aim to ensure that activities such as hunting do not jeopardise conservation efforts, and that they comply with the principles of wise use and ecologically balanced control of the species concerned. Although there have been legal problems and numerous infringements, the species protection provisions and hunting measures are now generally appropriately transposed and implemented in all Member States, supported by a set of landmark CJEU rulings clarifying interpretation of the provisions. There has also been a sustainable hunting initiative, where the European Commis-

sion, nature authorities, nature conservation NGOS and some hunting organisations have collaborated on guidance on sustainable hunting.

There is strong evidence of a considerable decline in illegal hunting, as well as reductions in the range of species that are hunted, and in hunting periods, particularly during the spring migration period (when populations are most susceptible to hunting impacts). However, some illegal hunting and persecution (e.g. of birds of prey and large carnivores) persists and more comprehensive enforcement and stronger penalties appear to be necessary in some countries / regions. In addition, there continue to be some concerns on the application of the derogation procedures to certain species in some Member States, with some infringement procedures currently underway as a result. Knowledge of the impact of illegal and legal hunting on some birds populations is also uncertain, with much concern expressed that significant proportion of bird species that can be hunted (i.e. listed on Annex II of the Birds Directive) have declining breeding populations (according to short and long-term trends).

Under the Habitats Directive, Member States are required to establish a system of strict protection for animal species (Article 12) and plants (Article 13) listed in Annex IV. While detailed information on the implementation of these measures is not widely available, it appears that the interpretation of the provisions varies considerably among Member States in practice. In general, the measures appear to be working well in most Member States, however, problems are reported in some countries, primarily in relation to animal species that are relatively common in at least some parts of their range (such as the Great Crested Newt). Furthermore, some Annex IV species (such as some amphibians and reptiles) are attracted to disturbed habitats (such as gravel workings) or subject to the impact of growing population of other species, resulting in conflicts with industry. Protecting these species in these situations can create disproportionately high costs and administrative burdens. Experience shows, however, that early planning and the implementation of sustainable management practices in agriculture and forestry can, in fact, avoid conflict and excessive costs.

Problems with Annex IV species often occur where little information is available on their location, as this hinders impact assessments and permitting, and prevents developers from early identification of potential conflicts. Problems may also be exacerbated where the lack of knowledge about the distribution and status of a species and an absence of defined FCS standards, leads to overly risk-averse decision-making. In such situations a no-net-loss-of-individuals policy may be followed, rather than ensuring the FCS of the population in question. However, there are growing numbers of best practice examples that avoid such situations and produce better and more efficient conservation outcomes.

Clearly, an adequate knowledge base and regular surveillance / monitoring is required to implement nature conservation activities effectively and efficiently. The Nature Directives therefore include specific provisions that require research and monitoring to be undertaken. These obligations and practical requirements have stimulated a substantial increase in research and monitoring activities in most Member States, from the initial knowledge required for designation of sites, to the later stages of monitoring habitats and species' conservation status. Some inventories of habitats and species in Member States have been financed with EU funds. Despite this, however, significant gaps in knowledge remain, which have led to delays in designation, implementation problems and increased costs and burdens. Key knowledge deficiencies include the identification of marine SPAs and SCIs, potential impacts of certain human activities on some species, and the location of European protected species and habitats outside Natura 2000 sites.

The FCS concept and production of detailed guidance by the ETC-BD on reporting under the Habitats Directive has worked well in terms of creating a consistent yet practical monitoring and reporting system followed by all Member States. The implementation of the reporting provisions under the Birds Directive was not based on a harmonised system and did not result in standardised information on the status of birds. However, this inconsistency has been largely rectified and reporting timetables aligned, enabling simultaneous assessment of progress, as documented in the 2015 State of Nature Report. Im-

proved and more extensive surveys by Member States have also improved the reliability of the assessments and considerably reduced the number of habitats and species with an uncertain status. Potential for improvement remains, particularly in terms of increasing coverage and the adoption of more consistent status assessment methods.

10.2 Are the Directives fit for purpose?

This evaluation concludes that the Nature Directives are fit for purpose. The majority of the evidence gathered across the five evaluation criteria shows that the legislation itself is appropriately designed and that, over time, implementation has improved, bringing important outcomes and impacts, as described below.

- **The Directives are effective where they are fully and properly implemented**, and they are now making satisfactory progress towards their aims, particularly in the establishment of the Natura 2000 network (although more needs to be done in the marine environment). The Directives are especially effective in providing protection of sites within the network from developments and other damaging activities.
- **There are good reasons to expect more widespread improvements in conservation status when the Directives' measures are fully implemented.**

Although there has been limited progress towards improving the status of most European protected species and habitats, this needs to be considered in the context of the ongoing decline in natural/semi-natural habitats and wider biodiversity before the Directives came into force, the current stage of implementation of the legislation and the time needed for ecosystems and species populations to respond to conservation measures. Recent assessments suggest that many declines have been arrested during the lifetime of the Directives.

- **The Nature Directives are a cornerstone of EU biodiversity policy**, as they make substantial contributions to the EU's biodiversity target and the implementation of the EU's Biodiversity Strategy. Natura 2000 sites, for example, are the backbone of EU Green infrastructure, an important strategic target for biodiversity.
- **There has been a substantial increase in the territory of land and marine protected areas in the EU**, thanks to the establishment of Natura 2000 as a coherent network based on scientific information, the concept of FCS and a 'biogeographical regions' approach.
- **Implementation of the Directives represents an efficient use of resources**, with the benefits of implementation exceeding their costs. While there are examples of disproportionate costs and unnecessary burdens, these can be reduced through more efficient implementation. Although there is little evidence to suggest that the Directives themselves create inefficient outcomes, examples suggest that efficiency could be improved by more cost-effective implementation, especially at national and regional level.
- **The Directives form a coherent legal framework and create important synergies with other EU policies**, forming a key part of an environmental legislative framework, capable of ensuring that the impacts of economic and other activities are carried out in accordance with sustainable development principles and biodiversity goals. They also provide a framework for ensuring consideration of the impacts of development on protected habitats and species. This, in turn, encourages dialogue and cooperation between environmental, economic and other stakeholders, improving the likelihood of harmonious achievement of potentially contradictory objectives and priorities. At the same time, however, better integration of nature considerations into other EU policies is still required in some instances.
- **The Directives contribute towards ensuring a level playing field** for nature protection standards across the EU, and provide economic operators with legal

certainty. They also are vital in avoiding a 'race to the bottom' in environmental standards across the EU.

- **There is no evidence that any significant problems derive from the objectives of the Directives or their associated legislative provisions.** Their interpretation by the CJEU and the Commission Guidance documents has safeguarded the coherence of the legislative framework. Although there are some reasons for **updating the annexes** (e.g. to improve the coverage of some threatened taxa and to take account of changes in the status of some species) it seems highly likely that this would be currently counter-productive, as it would retard implementation measures and lead to additional costs and burdens for national authorities, businesses and other stakeholders.
- **The Directives are relevant to EU citizens:** While the online public consultation revealed many contrasting views, over 500,000 Europeans stated that the Directives are important for conserving nature. Furthermore, the Directives have contributed to increasing awareness of the value of nature conservation among the general public, as well as stakeholders.
- **The Directives' legal system is stronger than most national legal systems** as their provisions are more precise and strict, establishing harmonised protection standards and a consistent and flexible approach to socio-economic considerations within and outside Natura 2000 sites. The species protection standards set up under the Directives have led to the control of illegal hunting practices and to the reversing of declines across a range of bird species, which would have been more difficult, if not impossible, to achieve by Member States acting independently.
- **The Directives have generated a fundamental change, with deeper stakeholder involvement** in site management and development of conservation measures. While more systematic involvement is still needed in certain Member States and, in particular in relation to business and industry sectors, certain innovative and flexible initiatives have been developed that are effective in promoting more substantial involvement of private sector stakeholders in nature conservation practices outside Natura 2000.
- **The Directives' obligations and requirements have stimulated research and monitoring** activities, generating a substantial increase in knowledge on habitats and species in most Member States. This was driven by the need to designate the Natura 2000 network and to ensure the FCS of habitats and species in the EU. Some inventories of Member States have been financed with EU funds. Despite this, knowledge gaps persist, leading to delays in designation, implementation problems and contributing to higher costs and burdens.
- **A major factor in the Directives being fit for purpose is the crucial role of enforcement** of the requirements of the Birds and Habitats Directives by the Commission and the CJEU. EU enforcement has been instrumental in ensuring transposition and implementation of the Nature Directives, and stakeholders recognise that without pressure from the EU on the implementation of the Nature Directives, unsustainable management practices would most likely have prevailed.

Generally, the evidence shows that conflicts are most frequently due to practical implementation problems. Guidance documents issued by the Commission, Member States and others have improved practice and ensured greater consistency in implementation in some cases. However, more remains to be done to clarify issues and improve practices on the ground, in order to promote more robust and efficient implementation of the Directives across the EU.

10.3 Implementation issues – priority areas for improvement

While it is not within the scope of this study to provide recommendations, one of the objectives of the evaluation was to assess opportunities for improvement, and identify those practices that illustrate the benefits to be gained from better implementation of the legislation. These have been highlighted throughout the study in the responses to the evaluation questions, and a cross-cutting summary of priority areas for future improvement is provided below.

- The **availability of public funding** for implementation of the Directives, including for administrative management and site conservation measures.
- The adoption of **management plans**, setting of **national and regional FCS standards and effective approaches for the management of Natura 2000 sites** in Member States / regions for EU protected habitats and species.
- Closing the remaining **gaps in knowledge**, including the identification of marine SPAs and SCIs, the potential impacts of certain human activities on some species and the location of European protected species and habitats outside Natura 2000 sites.
- Increasing the **coordination and sharing of data, monitoring practices and results** among stakeholders and Member States including experiences of implementation and sharing best practice.
- The **coordination of decision-making processes and assessment procedures** (e.g. SEA, EIA, AA and spatial planning) to harness efficiencies in data collection, analysis, public and stakeholder participation, and to allow for earlier and more effective identification of potential conflicts with planned developments.
- Better **integration of the objectives and requirements of the Nature Directives within key sectoral policies**, particularly with regard to competing incentives, such as payments that encourage practices that conflict with the management of habitats and species.
- The need for continued, and in some cases stronger, **enforcement** action at the EU and Member State levels to correct improper application of the Directives and deter future breaches.
- The **need for more guidance and capacity** to understand, interpret and learn from good practice on all aspects of implementation of the Directives, and insufficient dissemination of existing guidance (e.g. through translation, tailoring from EU to national contexts, etc.).
- Improving **public awareness and understanding of the Directives** and their benefits and implications, despite the importance attached by citizens to nature.
- Increasing capacity-building at national and local levels, through communication of the existing guidance and through trainings.

Better engagement and involvement of all types of stakeholders in the implementation of the Directives, particularly in the development of management plans for Natura 2000 sites and the coordination of development activities, which would strengthen the plans and reduce implementation conflicts.

Annexes

Annex 1: Questions and judgement criteria linked to section 4.1

Questions and judgement criteria as approved by the Commission and reflected in the section introduction and approach of each question.

Question	Judgement Criteria
S.1 - What progress have Member States made over time towards achieving the objectives set out in the Directives and related policy documents? Is this progress in line with initial expectations? When will the main objectives be fully attained?	Maintenance of bird populations in accordance with Art 2. Increasing maintenance of bird species populations in accordance with Art 2 (i.e. habitats and species of Community interest are in FCS) Progress is being made against strategic and specific objectives Expected date of achievement of objectives is in line with expectations (to be deduced) Expected date of achievement of objectives is in line with expectations (to be deduced)
S.2 - What is the contribution of the Directives towards ensuring biodiversity? In particular to what extent are they contributing to achieving the EU Biodiversity Strategy Objectives and Targets?	What is the contribution of the Directives towards biodiversity overall? (i.e. achievement of the EU's 2020 target and 2050 vision)? What is the contribution of the Directives towards Target 2: on maintaining and restoring ecosystem services What is the contribution of the Directives towards Target 3: increasing the contribution of agriculture and forestry to biodiversity? What is the contribution of the Directives towards Target 4: ensuring the sustainable use of fish resources? What is the contribution of the Directives towards Target 5: combating invasive species?
S.3 - Which main factors (e.g. implementation by MS, action by stakeholders) have contributed to or stood in the way?	The main EU level factors that have contributed to or stood in the way The main Member State level factors that have contributed to or stood in the way
S.4 - Have the directives led to any other significant changes both positive and negative?	The environmental, social or economic effect was unintended or not foreseen The effect led to positive impact enhancing the objectives of the Directive The effect led to negative impacts for the achievement of the objectives of the Directive The impacts were significant in terms of the achievement of the overall objectives.
Y.1 - What are their costs and benefits (monetary and non-monetary)?	Type, nature, extent, significance and value of costs and benefits Type and number of stakeholders affected positively and negatively
Y.2 - Are availability and access to funding a constraint or support?	Evidence of funding needs to achieve objectives Evidence of potentially available funding

Question	Judgement Criteria
	Evidence of potentially available funding that is taken up Evidence of funding availability affecting implementation and achievement of objectives Evidence of funding availability affecting the efficiency of implementation
Y3 - If there are significant cost differences between MS, what is causing them?	Levels of costs (investment costs, management costs, administrative costs, opportunity costs) in different Member States Different unit costs (e.g. costs per hectare, cost per development proposal) Factors affecting cost differences (e.g. levels of implementation, number of cases, labour costs, time inputs, time delays etc)
Y.4 - Can any costs be identified (especially re compliance) that are out of proportion with the benefits achieved?	Estimates of value of costs greatly exceed estimates of value of benefits, for certain actions or places Examples can be identified where the Directives require action with significant cost but little or no apparent benefit Examples can be identified where the Directives give rise to very high costs but only moderate benefits Examples may relate to particular requirements of the Directives, particular cases or specific sites. The question may require some degree of judgement/ stakeholder as to whether costs are reasonable and in keeping with benefits.
Y.5 - Can good practices, particularly in terms of cost-effective implementation, be identified?	Examination of alternative methods of implementation, and comparison of costs/ levels of effort required Examples of objectives being met at low cost Examples of successful initiatives introduced to reduce costs Examples of transferable practices for cost-effective implementation
Y.6 - What are likely to be the costs of non-implementation of legislation	Predicted impacts of non-implementation on habitats and species of Community interest, wider biodiversity and ecosystem services Predicted impacts of non-implementation on the benefits of the Directives on ecosystem services Nature and value of potential costs and benefits from these impacts
Y.7 - Taking account of the objectives and benefits of the directives, is there evidence that they have caused unnecessary administrative burden?	Type, nature, extent and incidence of administrative burdens Comparison of burdens with benefits achieved Assessment of whether burdens are necessary to meet objectives Examples of avoidable or reducible burdens
Y.8 - Is the knowledge base sufficient and available to allow for efficient implementation?	Knowledge requirements for effective and efficient delivery Adequacy of knowledge relative to requirements
R.1 - Are the key problems facing species and habitats addressed by	Problems faced by habitats and species are of significant incidence and/or magnitude.

Question	Judgement Criteria
the EU nature legislation?	The Directives cover/address the key problems identified.
R.2 - Have the Directives been adapted to technical and scientific progress?	Clear consensus on the implications of technical and scientific progress. Directives are updated to reflect that technical and scientific progress.
R3. How relevant are the Directives to achieving sustainable development?	Clear consensus on the objectives for sustainable development? Evidence of sustainable development benefits from achievement of the Directives' objectives Evidence of measures allowing sustainable development
R.4 - How relevant is EU nature legislation to EU citizens and what is their level of support for it?	EU citizens know of the Natura 2000 network. EU citizens have some knowledge of / take action to enforce the main features of the Habitats and Birds Directives (e.g. designation of protected areas, requirement for an impact assessment of relevant projects). EU citizens are in favour of establishing protected areas. EU citizens are in favour of infrastructure projects not being authorised because they have a negative impact on protected areas or species. EU citizens are in favour of finding alternatives to projects whose implementation would have a negative impact on protected areas or species. EU citizens agree that projects which have a negative impact on protected areas or species should nevertheless be authorised on economic grounds.
R.5 - What are citizens' expectations for the role of the EU in nature protection?	Level of EU citizens' satisfaction with EU action on nature protection. Level of EU citizens' support for the EU not acting on nature protection. Level of EU citizens' support for the EU only acting in support of Member State actions. Level of EU citizens' support for the EU taking a leading role in nature protection legislation. Preference of EU citizens for regulation vs. market approaches to nature protection in the EU.
C.1 - Are the objectives set up by the Directives coherent with each other?	The objectives are clear The degree of coherence of the objectives with each other.
C.2 - Are the Directives satisfactorily integrated and coherent with other EU environmental law eg EIA, SEA?	There is an undisputable agreement that EU environmental law/policy should be integrated and coherent The integration and coherence of EU environmental law/policy with EU nature Directives The nature Directives are integrated and coherent with EU environmental law/policy
C.3 - Is the scope for policy integration with other policy objectives (e.g. water, floods, marine, and climate change) fully	Scope of integration: from nature directives to other policy or vice versa. Level of exploitation; hence in which phase of the policy

Question	Judgement Criteria
exploited?	management cycle has been integrated; i.e. • Formulation of policy objectives, either in policy strategies or legal acts • Policy implementation • Reporting • Monitoring & Evaluation
C.4 - Do the nature Directives complement or interact with other EU sectoral policies affecting land and water use at EU and Member State level (e.g. agriculture, regional and cohesion, energy, transport, research, etc.)?	The extent to which sectoral policies take into account EU nature objectives or other aspects of environment or sustainability in their own objectives Sectoral policies have provisions allowing for consideration of nature/biodiversity impact (both stemming from legal requirements of the nature Directives and also their own policy objectives)
C.5 - How do these policies affect positively or negatively the implementation of the EU nature legislation?	Sectoral policies are implemented in practice in a way that is compatible with the objectives of the Nature Directives The extent to which the requirements of the Nature Directives impact the implementation of the sectoral policies, if applicable
C.6- Do they support the EU internal market and the creation of a level playing field for economic operators?	The support of EU nature legislation for the EU internal market, with a specific focus on sectors most affected such as energy, mining, quarrying and transport The support of EU nature legislation for the creation of a level playing field for economic operators. The efficiency of the process required to arrive at the least harmful route for such infrastructure
C.7 - Has the legal obligation of EU co-financing for Natura 2000 under Article 8 of the Habitats Directive been successfully integrated into the use of the main sectoral funds?	The integration of the legal obligation of EU co-financing into the use of the main sectoral funds The extent to which required funds are secured through PAFs
C.9 - How do the directives complement the other actions and targets of the biodiversity strategy to reach the EU biodiversity objectives?	The complementarity of actions and targets between the nature protection Directives and the biodiversity strategy to reach EU biodiversity objectives
C.10: How coherent are the directives with international and global commitments on nature and biodiversity?	Instances of coherence, incoherence and gaps between obligations arising from the relevant international agreements and the Directives. Implementation of the relevant international agreements through the application of the Directives.
AV.1, AV.2 - What has been the EU added value and what would be the likely situation in case of there having been no EU nature legislation?	The contribution of the EU nature legislation to the situation as it exists now compared to the situation that would have existed without EU nature legislation
AV. 3 - Do the issues addressed by the Directives continue to require action at EU level?	The action at EU level is required for the issues addressed by the Directives

Annex 2: Technical information

Studies of the coverage of species in the Natura 2000 network

Coverage of threatened species

Gap analysis studies of the coverage of species that are threatened in the EU (i.e. those listed in IUCN assessments) in the Natura 2000 network

- A recent gap analysis of the Natura 2000 network plus national protected areas identified 5.6% of EU threatened terrestrial **mammals**, 0.9% of threatened **birds**, 11.9% of threatened **reptiles** and 17.6% of threatened **amphibians** as partial gap species⁶⁷² (Maiorano et al, 2015). One critically endangered species in Austria, *Microtus bavaricus*, had no coverage. *Microtus bavaricus* was considered extinct at the time the Habitats Directive was drafted, and the residual population in Austria was discovered only recently.
- An earlier study, which overlaid the Natura 2000 site network with distribution maps of selected European threatened vertebrate species from the 2007 IUCN red list, found that distributions of a large proportion of the threatened species of **mammals**, **birds** and **reptiles** were highly covered (above 90%) by the Natura 2000 network, but 36 threatened species were only 10% covered, including four **fish** species listed on the annexes (*Coregonus* species, *Barbus euboicus*, *Eudontomyzon hellenicus*, *Acipenser naccarii*), and two **amphibians** (*Speleomantes flavus*, *Rana latastei*) (Trochet and Schmeller, 2013). It is, however, likely that some of this assessment is now outdated as a result of additional Natura 2000 site designations, for example 190 sites have been subsequently designated for *Rana latastei* in Italy and Croatia and 54 sites for *Acipenser naccarii* in Italy⁶⁷³.
- Natura 2000 sites in Slovenia cover the distribution of all but one **threatened butterfly** species, and cover the majority of areas with high butterfly diversity, with the small protected areas being of particular importance (Verovnik et al, 2011).
- **Endangered arthropods and molluscs** are poorly covered by Natura 2000 in Spain (Hernández-Manrique et al, 2012). Coverage is highest on the Canary Islands.
- A study found that the protected area network (including Natura 2000) in Andalucía, Spain, is highly effective for **threatened vascular plants** (Mendoza-Fernández et al, 2010). The protected area network (including Natura 2000) in Great Britain (UK minus northern Ireland) covers occurrences of the vast majority of **threatened vascular plant species** (on the UK plant Red List), but 11% were missing from the network, notably, threatened arable weeds and species that occur at one or a few sites (Jackson et al, 2009). In Ireland an estimated 22% to 40% of tetrads (2km × 2km cells) with **plant species of conservation concern** do not overlap with designated areas (Natura 2000 and national designations) (Walsh et al, 2015).
- Plant micro-reserves (small areas of 5-20 ha) within Natura 2000 sites are effective for conserving populations of **rare and threatened plant species** in Spain (Valencia and Minorca), Slovenia (Karst Edge), Greece (Crete), and Cyprus (Kadis

⁶⁷² According to species representation targets set at between 10 (very widespread) and 100% (narrow endemics) of the area occupied, depending on species range, size and proportion of range in EU.

⁶⁷³ EUNIS database <http://eunis.eea.europa.eu/species.jsp>

et al, 2013). This contrasts with a previous study that found poor effectiveness of Natura 2000 sites on Crete for plant biodiversity (Dimitrakopoulos et al, 2004).

- **Threatened lichens** typical of old growth forest in moist climate are well represented in the Spanish Natura 2000 network (Martínez et al, 2006) but 4 out of 18 lichens typical of dry habitats in a Mediterranean climate are poorly represented (Rubio-Salcedo et al, 2013).

Coverage of all species

Birds

- A study using data on 166 **common breeding bird species** from 13 Member States found that more than half of the common bird species are positively impacted by the Natura 2000 network with higher populations inside than outside the network, and among these, a large number are specialist species, particularly woodland specialists (Pellissier et al, 2014).
- A study using breeding bird survey data on the Natura 2000 network in France concluded that the sites showed greater abundance of a majority of **common bird species** (Pellissier et al, 2013).
- In Italy, the national protected area network (including Natura 2000) fails to guarantee an acceptable level of protection for **farmland bird species**, while **birds breeding in open-habitat in mountains** have quite a good protection rate (Campedelli et al, 2010).

Other vertebrates

- An ongoing study⁶⁷⁴ concludes that 55 of the EU's **mammal** species (32.5%) are partial gap species (species included in the Natura 2000 network but whose coverage do not reach the adopted threshold), while the remaining 113 mammal species (66.9%) were adequately covered (according to a threshold equal to 17.92% Natura 2000 coverage in the EU-28). **Reptiles** and **amphibians** have a mean coverage of $28.7 \pm 14.1\%$ ($25.7 \pm 12.0\%$ for amphibians and $30.6 \pm 14.9\%$ for reptiles).
- A recent EU-wide study of the representativeness of the Natura 2000 network plus national protected areas for **amphibians** and **reptiles**, concluded that these areas often perform poorly in representing amphibians and reptiles, but that the Natura 2000 network usually covered significantly more species than a random selection of areas. However, well-covered species were mostly widespread taxa, while narrow-range species remained under-represented (Abellán and Sánchez-Fernández, 2015).
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Invertebrates

- An ongoing study⁶⁷⁵ finds that 401 **butterfly species distributions** are adequately covered, and there are no total gap species, while for 10 species, their coverage in the Natura 2000 network does not reach the threshold (using a threshold equal to 17.92% Natura 2000 coverage in the EU-28). A comparison of data on 103 **butterfly populations** with the Natura 2000 network in six countries/regions showed that a larger number of species populations respond positively than negatively to the coverage of Natura 2000 in the landscape, but the

⁶⁷⁴ Stephan Hennekens et al, to be published.

⁶⁷⁵ Stephan Hennekens et al, to be published.

data are insufficient to demonstrate any detectable differences between the temporal trends inside and outside Natura 2000 (Pellissier et al, 2014).

- There is a high degree of concordance between distributional hotspots of 120 endemic **water beetles** and Natura 2000 sites in the Iberian Peninsula and the Balearic Islands, although the distribution of four species falls completely outside the network (Sánchez-Fernández et al, 2008). The study also revealed that it fails to protect beetle species typical of saline water bodies (saline streams and salt pans), despite their high conservation interest and narrow global distribution (Sánchez-Fernández et al, 2008).
- Only 7% of 150 **saproxylic beetles** in Italy have a significant portion of their geographic extent covered, with 13 species - including two threatened species - not protected at all by Natura 2000 (D'Amen et al, 2013). There was no evidence that Natura 2000 sites improved species representation compared to nationally designated areas.

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