
Safeguarding biological diversity

EU policy and international
agreements



IN-DEPTH ANALYSIS

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This publication aims to provide an overview of the state of biodiversity and biodiversity protection policy at global and EU level. It addresses the causes of biodiversity decline and the rationale for protecting biodiversity. It describes the EU legal and policy framework for biodiversity protection, as well as its financing mechanisms, and highlights the achievements, failures and upcoming developments of current policy. The document also outlines the position of the European Parliament, which has long been supportive of EU biodiversity policy, and provides an introduction to the complex interactions of biodiversity strategies with other EU policies.

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The cover photo shows an Iberian lynx, a critically endangered European species.

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EXECUTIVE SUMMARY

Biodiversity – the diversity of life on earth at all levels – is declining, mainly as a result of human-induced pressures such as over-exploitation of natural resources, loss of viable habitats, pollution, climate change or invasive alien species.

Globally, the decline of habitats and species continues, albeit at a slower pace than in the past. Human knowledge about the status of species has grown tremendously in recent decades, although remains limited. And, unless efforts are significantly increased, most international biodiversity protection targets for 2020 are unlikely to be met. There are many different international agreements relating to biodiversity, the most important of which is the Convention on Biological Diversity, to which the EU is a party.

In the EU, biodiversity is under pressure as in the wider world. The conservation status of 77% of habitat types and 60% of species of European conservation interest is unfavourable, with some differences between biogeographic regions. European habitats are mainly threatened by fragmentation, degradation and destruction as a result of land-use change, climate change and use of the seas. European species are mainly at risk due to over-exploitation of natural resources and pollution.

EU biodiversity policy is based on the Birds and Habitats Directives, which served as the basis for the development of the Natura 2000 network of protected sites, now covering 1 million square kilometres of land (18% of EU land area), and 250 000 square kilometres of marine sites. The policy is driven by the biodiversity strategy, setting ambitious aims for 2020 (halting the loss of biodiversity) and 2050 (protecting and valuing biodiversity and ecosystem services), with the addition of a strategy on green infrastructure. The policy framework is complemented by several legislative acts, focusing on invasive alien species, pesticides, environmental liability, impact assessment, trade, and rules relating to bioprospecting, among others. The European Parliament has consistently supported EU biodiversity protection policy.

The European Commission estimates that the Natura 2000 network delivers benefits worth between €200 and €300 billion per year, set against annual management costs estimated at €5.8 billion. The LIFE programme co-finances some measures related to biodiversity, especially as regards the Natura 2000 network. Funding aimed at protecting biodiversity is also available under the agricultural, regional, fisheries and research policies.

Thanks to the current biodiversity policy, the protection of certain species and habitats has seen some progress, and pressures on biodiversity have consequently been somewhat reduced. However, implementation of the legal framework has been a long and complex process, with many infringement cases brought before the Court of Justice. Additionally, protected sites are often not appropriately managed.

Under the Treaty on the Functioning of the European Union, environmental protection is an integral part of all EU policies. Biodiversity protection is interlinked with major EU policies such as agriculture and forest policies; fisheries, marine and water policies; regional policy; and climate change policy.

Current developments in EU biodiversity policy include a process of 'biodiversity proofing' of the EU budget, improved monitoring, definition of priorities for the restoration of degraded ecosystems, 'biodiversity offsetting' of unavoidable residual impacts, and a 'fitness check' of EU nature legislation.

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Glossary

Biodiversity: the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Biodiversity proofing: in EU policy, making sure existing policy tools are used to avoid or minimise harmful impacts on biodiversity of EU spending and to maximise biodiversity benefits. It applies to all spending streams under the EU budget, across the whole budgetary cycle and at all levels of governance.

Biodiversity offsetting: actions designed to compensate for unavoidable residual impacts on biodiversity arising from project development, after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsetting 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.

Biogeographic regions: regions displaying similarities in climate, altitude and geology, associated with specific habitats and species. The EU can be divided into nine land (Alpine, Atlantic, Black Sea, Boreal, Continental, Macaronesian, Mediterranean, Pannonian, Steppic) and four marine (Atlantic, Baltic, Macaronesian, Mediterranean) biogeographic regions.

Bioprospecting: the discovery and commercialisation of products based on biological resources and associated traditional knowledge. This is regulated at international level by the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits from their Utilisation.

Conservation status: status of species or habitats indicating the likelihood of their extinction or destruction. Favourable conservation status is defined in the Habitats Directive. The IUCN Red List of Threatened Species classifies species according to their conservation status.

Ecosystem: a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Ecosystem services: the direct and indirect contributions of ecosystems to human wellbeing. They can be categorised in four main types: provisioning services (e.g. food, water, fuel, medicines); regulating services (e.g. local climate, soil erosion, wastewater treatment, pollination, flood control); habitat services (e.g. for species and genetic diversity); and cultural services (e.g. recreation, tourism).

Green infrastructure: strategically planned natural and semi-natural areas with environmental features designed and managed to deliver a wide range of ecosystem services. These can be situated both in terrestrial and marine areas. On land, green infrastructure is present in both rural and urban settings.

Habitat: the place or type of site where an organism or population occurs naturally.

High nature value farming and forestry systems: farming and forestry systems characterised by their low intensity, the presence of semi-natural vegetation and a high diversity of land cover which can host significant levels of biodiversity.

Invasive alien species: species outside their natural range whose introduction or spread threaten biodiversity and related ecosystem services.

Species: the basic unit of biological classification, a group of organisms with common characteristics and (usually) capable of mating with one another to produce fertile offspring.

1. Background

Biological diversity, commonly called biodiversity, is the variety of life on earth at all levels. The legally accepted definition of biodiversity, set out in the Convention on Biological Diversity, describes three levels of diversity: genetic, species and ecosystems diversity. **Genetic diversity** (i.e. among individual specimens from the same species) is the driver behind evolutionary processes. **Species diversity**, the visible result of this evolution, is the most commonly understood expression of biodiversity, and comprises macro- and micro-organisms. Estimates of the number of species on earth range from 5 million to many millions, although fewer than 2 million species have actually been scientifically described and the conservation status of only a fraction has been assessed. **Ecosystems diversity** reflects differences in the way species coexist and interact. Ecosystems can refer to any functioning unit at any scale, e.g. a grain of soil, a pond, a forest, a habitat type (such as grassland or tundra), or the earth itself.

Worldwide, biodiversity is declining at two levels: globally and between biogeographic regions. At local level, although diversity (measured in numerical terms) is increasing in many locations due to the introduction of invasive alien species, rare species are disappearing and invasive species are spreading. The species richness of a specific location must be assessed on the basis of a distinction between native and non-native species.

Biodiversity loss can be triggered by natural or human-made factors, both direct and indirect. Direct factors affecting biodiversity include conversion and fragmentation of natural habitats, over-exploitation of fish stocks and other resources, introduction of invasive alien species, air, land and water pollution, and climate change. Indirect factors are those that influence direct factors, for example economic and population growth resulting in an increased demand for food, fibre, water and energy, or agricultural subsidies promoting intensive agricultural production. Some indirect factors can also contribute to reduce biodiversity loss, such as advances in science and technology, or socio-political changes such as the empowerment of rural populations, especially women, in developing countries.

There are various rationales for protecting biodiversity. At a basic level, biodiversity should be conserved for its 'intrinsic value',¹ i.e. because it is a feature of the natural world people enjoy and find useful. Another argument refers to the precautionary principle: as we still know relatively little about many endangered species and their role in ecosystems, we should preserve biodiversity as a way to minimise risks. Other arguments highlight the link between biodiversity and ecosystem services, which are of great economic importance, for instance as providers of clean air and water or as carbon storage areas.

2. Biodiversity protection at global level

Habitats of all types (including grasslands, forests, wetlands and river systems) are undergoing degradation and fragmentation, although loss of forest habitats in some regions (e.g. the Brazilian Amazon) has been significantly slowed. In 2014, 15.4% of the world's terrestrial and 8.4% of its marine environment was protected for nature conservation. Data provided by BirdLife, an environmental NGO, and its 'Important Bird and Biodiversity Areas' monitoring network for selected sites in Africa, suggest that the

¹ The Convention on Biological Diversity and the EU Biodiversity Strategy refer to the 'intrinsic value' of biodiversity.

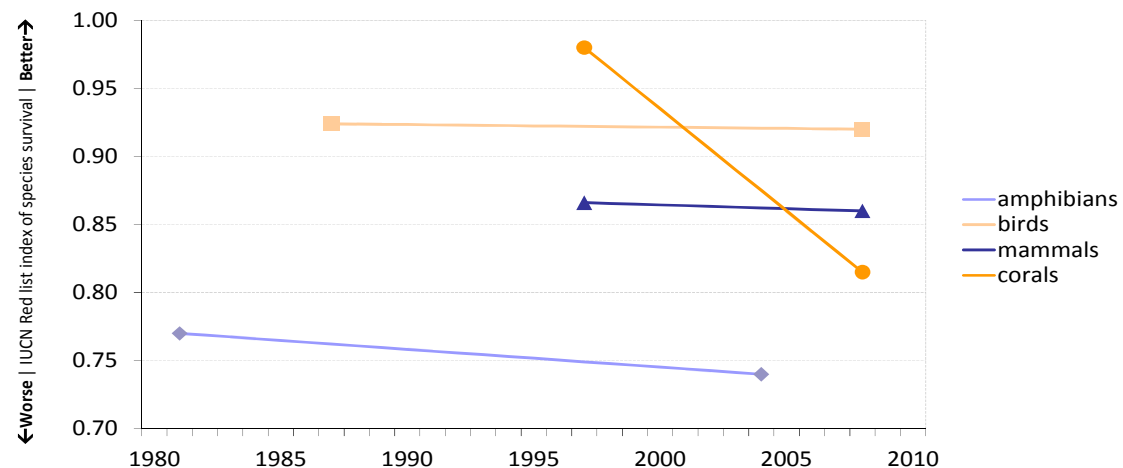
state of monitored sites is stable, in spite of increased pressures, possibly thanks to growing conservation measures.

IUCN Red List of Threatened Species

The International Union for Conservation of Nature (IUCN), a global environmental organisation, regularly publishes its Red List of Threatened Species² assessing the conservation status of plant and animal species in nine categories. These categories are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD) and Not Evaluated (NE). A species is considered threatened if its status is CR, EN or VU.

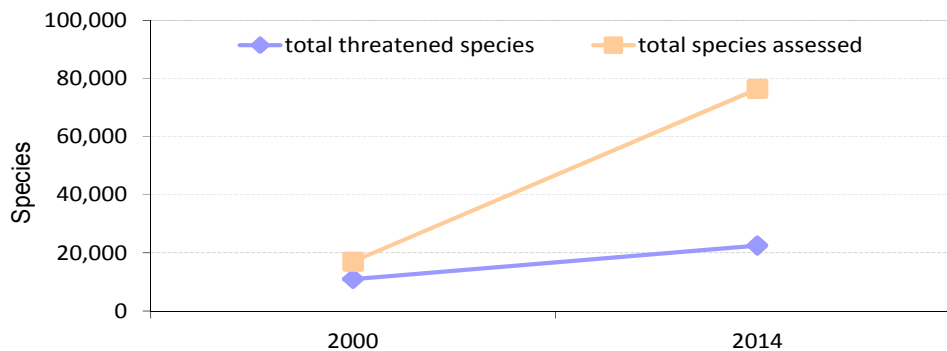
The state of species at global level has generally been declining over the last decades. The IUCN Red List Index of Species Survival (currently available only for amphibians, birds, corals and mammals) shows a contrasting picture: while birds and mammals appear to be relatively stable, the survival chances of amphibian and coral species are in decline.³ The number of threatened species has doubled between 2000 and 2014. However, in the same period, the number of species assessed increased more than fourfold. This indicates that the knowledge gap related to the conservation status of species is narrowing, even though the status of only 4% of the known non-marine and 3% of the known marine species has been assessed.

Figure 1 – IUCN Red List Index of Species Survival (1980-2010)



Data source: [IUCN](http://www.iucnredlist.org).

Figure 2 – IUCN Red List evolution in number of species assessed and threatened (2000-14)



Data source: [IUCN](http://www.iucnredlist.org).

² Accessible online at <http://www.iucnredlist.org>.

³ A Red List Index value of 1.0 means no species in the group is threatened, while a value of 0 means all species have become extinct. A constant value over time indicates that the overall extinction risk for the group is constant.

At international level, the main legal instrument for biodiversity protection is the **Convention on Biological Diversity (CBD)**.⁴ Its three main objectives are the conservation of biological diversity; the sustainable use of the components of biological diversity; and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. This convention was negotiated under the auspices of the United Nations Environment Programme (UNEP) in Nairobi in 1992, and came into force on 29 December 1993. The CBD now has 195 Parties:⁵ 194 countries plus the European Union, which has been a Party since the beginning.

The CBD is complemented by two major protocols. The Cartagena Protocol on Biosafety, which was adopted in 2000 and entered into force in 2003, seeks to protect biodiversity from the potential risks posed by living modified organisms resulting from modern biotechnology. It refers to the precautionary principle and establishes an 'advance informed agreement' procedure to make sure countries can make informed decisions before agreeing to import such organisms. The Nagoya Protocol, which was adopted in 2010 and entered into force in 2014, aims to create greater legal certainty and transparency for both providers and users of genetic resources, by regulating 'bioprospecting' and by making sure benefits are shared fairly among them. In practice, agreements concerning access to genetic resources are expected to be signed between biodiversity-rich (and often developing) countries, and companies using the genetic resources, typically from more advanced countries.

In 2010, the Parties to the CBD adopted the Aichi Biodiversity Targets: 20 ambitious targets for biodiversity protection by 2020, organised in five strategic goals, as part of a strategic biodiversity plan for the 2011–20 period.⁶

At global level, biodiversity policy is linked with a broader development agenda. In 2002, the Parties to the CBD adopted a target to 'achieve by 2010 a significant reduction of the current rate of biodiversity loss ... as a contribution to poverty alleviation and to the benefit of all life on Earth'. The target was subsequently incorporated into the Millennium Development Goals. In practice, although some bottom-up approaches to conservation can associate both goals, biodiversity conservation and local people's livelihoods may also be at odds.

The EU and its Member States are also bound by other global agreements related to conservation and biodiversity: the Ramsar Convention on Wetlands (1971), the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, 1979), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1975). In addition, they are also bound by the Aarhus Convention (1998) which provides for public access to environmental information, public participation in decision-making and access to justice, and by a series of regional agreements.⁷

⁴ The Convention on Biological Diversity and its protocols are available at <http://www.cbd.int>.

⁵ The only countries not Party to the CBD are Andorra, the Holy See and the United States of America. The USA signed the CBD, but did not ratify it amid [concerns over its implementation](#), especially with regard to trade. The Palestinian Authority is a Party since April 2015.

⁶ For more details see <http://www.cbd.int/sp/targets>.

⁷ [Convention on the Conservation of European Wildlife and Natural Habitats](#) (Bern Convention, 1979), [Convention for the Protection of the Mediterranean Sea against Pollution](#) (Barcelona Convention, 1976), [Alpine Convention](#) (Salzburg Convention, 1991), [Convention on the Protection of the Black Sea against Pollution](#) (Bucharest Convention, 1992), [Convention on the Protection of the Marine Environment of the Baltic Sea Area](#) (Helsinki Convention, 1992), [Convention for the Protection of the](#)

Marine areas beyond national jurisdiction

About 64% of the world's oceans are high seas beyond national jurisdiction, which are not protected by the Convention on Biological Diversity in the same way as land and marine areas under national jurisdiction. Under the United Nations Convention on the Law of the Sea (UNCLOS), which governs the high seas, all states enjoy conditional freedoms in the high seas (including as regards navigation, fishing and marine scientific research). Although UNCLOS does not specifically refer to biodiversity, it contains provisions on the protection of the marine environment (mainly on pollution) that can be used to protect biodiversity.

The Aichi Targets call for at least 10% of coastal and marine areas to be conserved through effective protection measures. However, under the current legal framework, there are no global mechanisms for the establishment of multipurpose marine protected areas beyond national jurisdictions, although regional seas organisations have attempted to establish protected areas for specific sectors (e.g. fishing or deep-sea mining).

In 2011, the EU, the G77 group of developing countries, China and Mexico agreed the outline of a negotiating package in the form of an implementing agreement under UNCLOS that would address biodiversity protection (roughly as covered by the CBD) in the high seas. However, a number of key players (USA, Canada, Russia, Japan, Iceland, and Norway) oppose such an agreement. The UN General Assembly is expected to decide in 2015 whether to launch negotiations on the conclusion of an agreement, the potential content of which is still unclear at this stage.

Although there has been significant progress in biodiversity protection in recent years, most Aichi Targets are unlikely to be met by 2020, according to the Global Biodiversity Outlook Report published in 2014.⁸ Some 9% of target components are met or on track to be met (for instance, reaching at least 17% of protected land area globally). A majority of target components (60%) display some progress, although at an insufficient pace, and require significantly increased efforts to be met. A further 18% of target components show no progress so far (for instance eliminating incentives harmful to biodiversity, avoiding overfishing, preventing the extinction of known threatened species, safeguarding ecosystems that provide essential services), while 9% have actually moved away from the target (for instance reducing habitat degradation and fragmentation, bringing pollution from fertilisers to levels not detrimental to ecosystem function, improving the conservation status of species most in decline). The report suggests that addressing trends in food systems is essential as drivers linked to agriculture account for 70% of the projected loss of terrestrial biodiversity.

Funds available for biodiversity protection are increasing globally. In 2014, the Parties to the CBD pledged the mobilisation of domestic financial resources for biodiversity.⁹ They also reaffirmed their commitment to double international biodiversity-related financial flows to developing countries between 2010 and 2015. The EU and its Member States are contributing towards this goal: biodiversity protection-related funds from the EU to developing countries amounted to €300 million per year in 2013, compared with €190 million per year in 2006-10.

[Marine Environment of the North-East Atlantic](#) (OSPAR Convention, 1992), [Carpathian Convention](#) (2003). The Habitats Directive transposes the Bern Convention to EU legislation.

⁸ [Global Biodiversity Outlook 4](#), Secretariat of the Convention on Biological Diversity, 2014.

⁹ The Parties to the CBD did not commit to concrete amounts, but agreed to strive for all countries to include biodiversity in their national priorities and to make 'appropriate domestic financial provisions.'

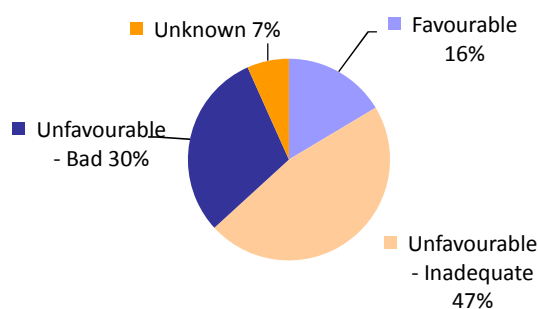
3. State of biodiversity in the EU

In the EU, the main terrestrial habitat types are forest and woodland (covering 41.2% of the Union's territory), cropland (24.7%), and grassland (19.5%), while wetland is the smallest (1.4%).

In comparison with other continents, Europe has a relatively low number of animal species, but a large number of these species are endemic (i.e. not present elsewhere in the world). The EU is home to 220 species of mammals (of which 41 are marine mammals), 500 species of fish, 453 species of breeding birds, 141 species of reptiles, 84 species of amphibians and 90 000 species of insects, including 10 000 species of butterflies and moths, 30 000 species of beetles, and 20 000 species of plants and trees.¹⁰

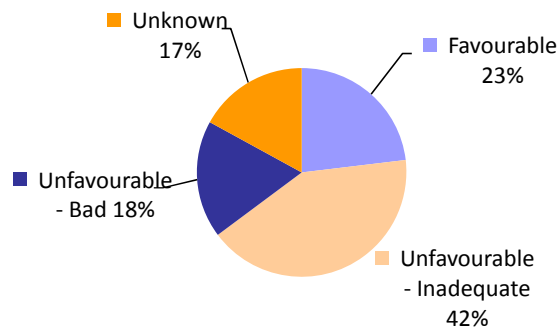
According to data from the European Environment Agency, 77% of habitat types and 60% of species protected under EU law have an unfavourable conservation status (see figures 3 and 4).

Figure 3 – Conservation status of habitats in EU (2012)



Data source: [European Environment Agency](#), 2015.

Figure 4 – Conservation status of species in EU (2012)



Data source: [European Environment Agency](#), 2015.

Although species extinction in the EU is not occurring as rapidly as in other regions and continents, the percentage of species threatened with extinction is still a matter of concern. The EU 2010 Biodiversity Baseline¹¹ estimates that 25% of marine mammals and 15% of terrestrial mammals, 22% of amphibians, 21% of reptiles, 16% of dragonflies, 12% of birds and 7% of butterflies are threatened with extinction at EU level. Among threatened mammal species in the EU are the Iberian lynx (*Lynx pardinus*), the world's most threatened felid; the Arctic fox (*Alopex lagopus*), driven close to extinction by hunting and trapping for its valuable fur and still endangered despite 75 years of protection; the Mediterranean subpopulation of common dolphin (*Delphinus delphis*), which has declined by more than 50% over the past 30 to 45 years; and the European mink (*Mustela lutreola*), found only in Europe and one of the region's most threatened species.

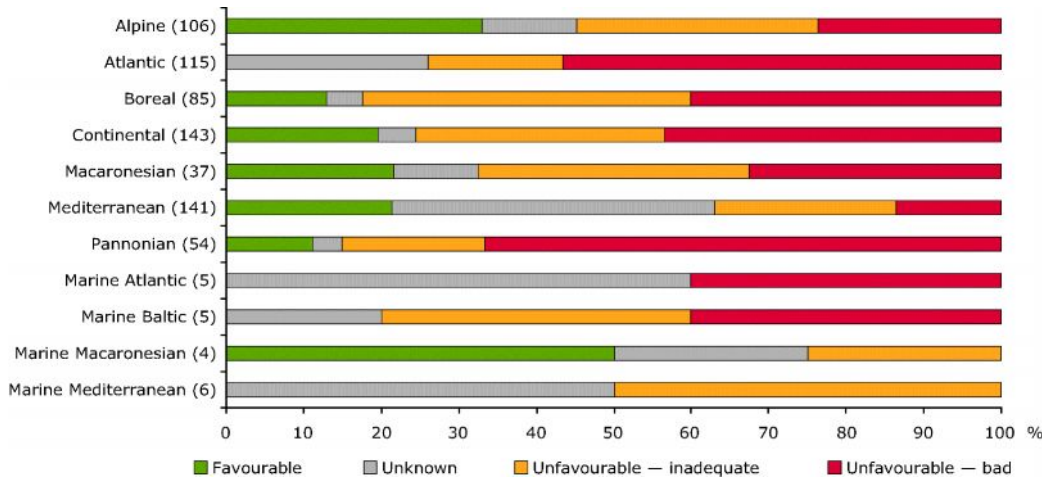
The state of biodiversity differs amongst biogeographic regions (i.e. regions displaying similarities in climate, altitude and geology, associated with specific habitats and species), as shown in figures 6 and 7. The proportion of habitats assessed as

¹⁰ EU Member States' Overseas Countries and Territories and outermost regions are not included in this description. These territories host more than twice the number of species present in continental Europe.

¹¹ [EU 2010 Biodiversity Baseline](#) / European Environment Agency, 2010.

'unfavourable' is over 70% in most terrestrial biogeographic regions. In the Atlantic and Pannonian regions, more than 50% of the habitats are assessed as 'unfavourable – bad'; this percentage slightly exceeds the percentage in the other biogeographic regions.

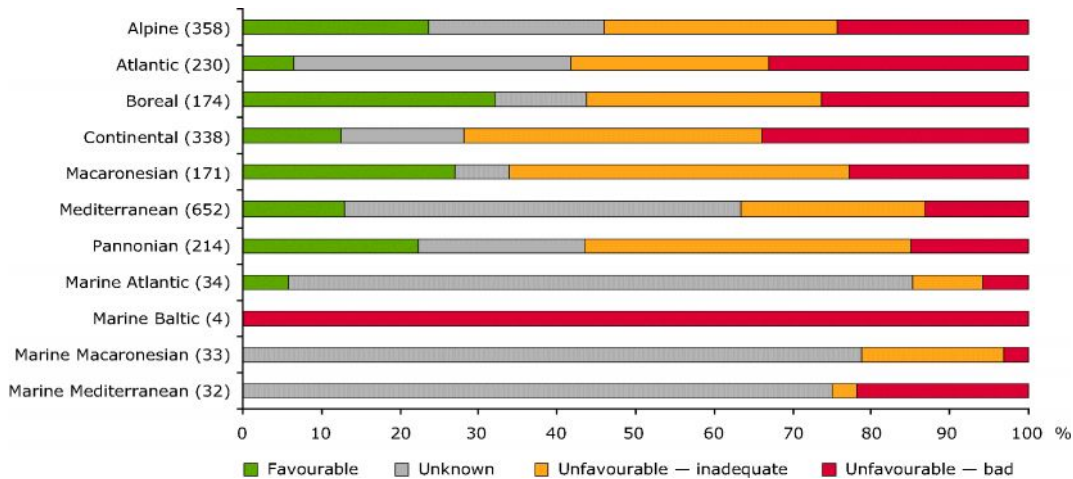
Figure 5 – Conservation status of habitats by biogeographic region (2010)



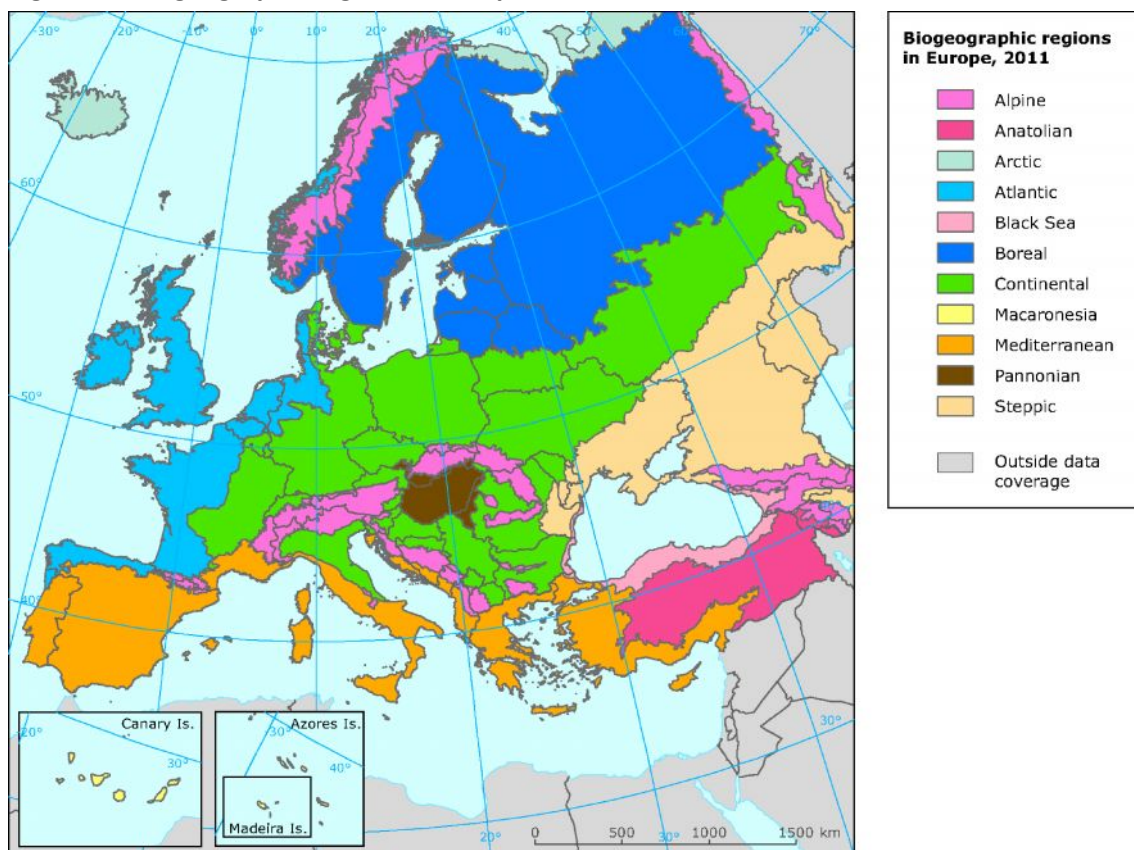
Data source: [European Environment Agency](#), 2012.

The status of species by biogeographic region is somewhat more favourable. The highest proportion of 'favourable' assessments is in the Alpine, Boreal and Pannonian regions. The proportion of species assessed as 'unfavourable – bad' exceeds 20% in most biogeographic regions, while the highest 'unfavourable – bad' assessments are in the Continental and Atlantic regions.

Figure 6 – Conservation status of species by biogeographic region (2010)



Data source: [European Environment Agency](#), 2012.

Figure 7 – Biogeographic regions in Europe

Data source: [European Environment Agency](http://www.eea.europa.eu/).

Knowledge about the status of habitats and species remains patchy. The percentage of habitats and species, especially marine ones, whose status is 'unknown' is relatively high: 31% for all species (59% for marine species); 18% for all habitats (40% for marine habitats). In most marine regions, the proportion of 'unknown' assessments is overwhelming. Although knowledge gaps are generally lower in terrestrial biogeographic regions, they remain higher than average in the Mediterranean and Atlantic regions.

IUCN European Red List

Although the Red List of Threatened Species looks at the state of species at a global level, the IUCN has also drawn up a European Red List with the support of the European Commission, assessing the status of species on European and EU territory. The IUCN has published specific European Red List reports on amphibians, butterflies, dragonflies and damselflies, freshwater fish, mammals, non-marine molluscs, reptiles, saproxylic beetles and vascular plants.¹²

The main threats to habitats are fragmentation, degradation and destruction due to land-use change, climate change and use of the seas. In the EU, artificial land cover has grown in recent decades at the expense of other land-cover types (mainly agricultural land, but also forests, natural grasslands and open spaces). From 1990 until 2006, only two ecosystem types have grown in area: heath and scrub (+5.9%) and forest (+0.6%). All other ecosystems have been declining at differing degrees, such as: wetland (-5%), natural grasslands (-2.4%) and extensive agro-ecosystems (-2.6%). Fragmentation of ecosystems due to urban sprawl and infrastructure development – nearly 30% of the

¹² European Red List reports are accessible at <http://www.iucnredlist.org/initiatives/europe/publications>.

EU land mass shows signs of fragmentation – severely affects ecosystem connectivity, health and ability to provide services.

Species also face direct pressures. The European Commission estimates that over-exploitation of forests, oceans, rivers, lakes and soils threatens 30% of species, while pollution from pesticides and fertilisers (such as nitrates and phosphates) threatens a further 26% of species.¹³ Climate change poses another threat, with concrete negative impacts due to long-term drought and sudden extreme weather events, for example on the majority of bird species.

Invasive alien species represent an increasing threat to biodiversity: about 12 000 alien species have been found in the EU environment, 10–15% of them becoming invasive, i.e. a threat to biodiversity. Their number is steadily rising, in particular in marine and river environments. Among examples of invasive alien species are the Zebra mussel (*Dreissena polymorpha*), carried in ships' ballast water, which fouls pipes and waterways; the 'killer slug' (*Arion vulgaris*), a native of the Iberian peninsula which has spread around Europe and eats weaker species of slug; or the Harlequin ladybird (*Harmonia axyridis*), native to Asia, which kills ladybirds, butterflies and other insects.

The cost of invasive alien species

According to the European Commission, invasive alien species cost businesses, citizens, and public authorities in the EU at least €12 billion per year over the past 20 years. This figure accounts for damage (e.g. lost revenue, health costs, damage to riverbanks and infrastructure) and management costs (control measures to tackle established invasive alien species). Because the impacts of many invasive alien species are still unknown, this figure can be considered a conservative estimate.

4. EU policy framework

The main legislative acts related to the protection of biodiversity in the European Union are the Birds Directive (2009/147/EC, which repealed the original Directive 79/409/EEC) and the Habitats Directive (92/43/EEC, most recently modified in 2013). The aim of both directives (sometimes called 'Nature Directives') is to contribute to the conservation of natural habitats and species (wild fauna and flora) in the EU. They are complemented by several other pieces of legislation relating to the protection of biodiversity.

The **Birds Directive** aims to achieve good conservation status for all wild bird species occurring naturally in the European territory of the Member States. Recognising that habitat loss and degradation are serious threats to wild bird conservation, it protects habitats for endangered and migratory species by establishing a coherent network of 'special protection areas.

The **Habitats Directive** aims specifically to achieve 'favourable conservation status'¹⁴ for habitat types and species deemed to be of Community interest. Under this Directive,

¹³ Half of the geographical range of natural and semi-natural habitats across the European Union was exposed to atmospheric nitrogen deposits above the critical load in 2004.

¹⁴ As defined in Article 1 of the Habitats Directive, the conservation status of a species is 'favourable' when it maintains itself on a long-term basis, its natural range not being reduced, and there is a sufficiently large habitat to maintain it on a long-term basis. A habitat enjoys favourable conservation status if its range or area is stable or increasing, its long-term maintenance is supported, and its typical species enjoy favourable conservation status.

Member States must designate 'special areas of conservation' and establish conservation measures, which may include management plans. They are required to carry out an appropriate impact assessment for any plan or project likely to have an impact on a designated site. In principle, a project can only be approved if it has no negative impacts on the integrity of the site, although exceptions are possible if there is an overriding public interest and if alternative solutions do not exist, provided that compensatory measures are taken. Member States must take measures to ensure the strict protection of all plant and animal species listed in the annexes to the Habitats Directive. They must monitor the conservation status of habitats and species and report to the Commission every six years.

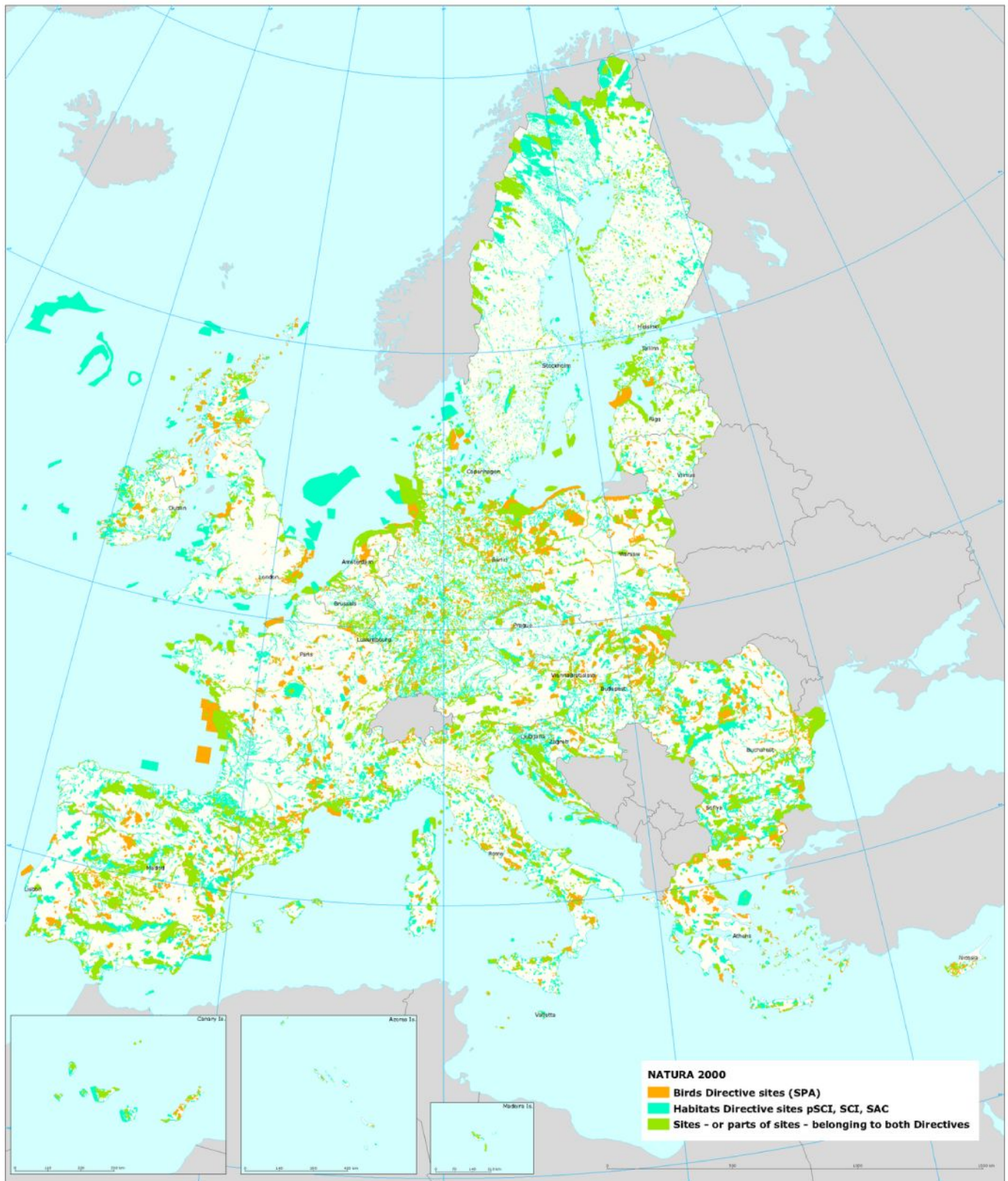
A **biodiversity strategy** (COM(2011) 244), presented in 2011 by the Commission, sets a target for 2020 ('halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible') and a vision for 2050 ('European Union biodiversity and the ecosystem services it provides are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity.') Trying to address the shortcomings of the 2006 Biodiversity Action Plan,¹⁵ the biodiversity strategy seeks to integrate some sectors such as agriculture, forestry and fisheries, and to halt biodiversity loss outside protected areas. It prioritises 20 actions grouped into six targets: to fully implement the Birds and Habitats Directives; to maintain and enhance ecosystems and their services; to increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity; to ensure the sustainable use of fisheries resources; to control invasive alien species; and to help avert global biodiversity loss. A mid-term review is planned in 2015.

The **Regulation on Invasive Alien Species** (1143/2014) sets out rules to prevent and mitigate the adverse impact of invasive alien species on biodiversity in the EU. It effectively bans, through a system of permits and derogations, 'invasive alien species of Union concern' listed in an implementing act to be drawn up by the Commission. Member States must put in place controls to prevent the introduction of invasive alien species.

Natura 2000

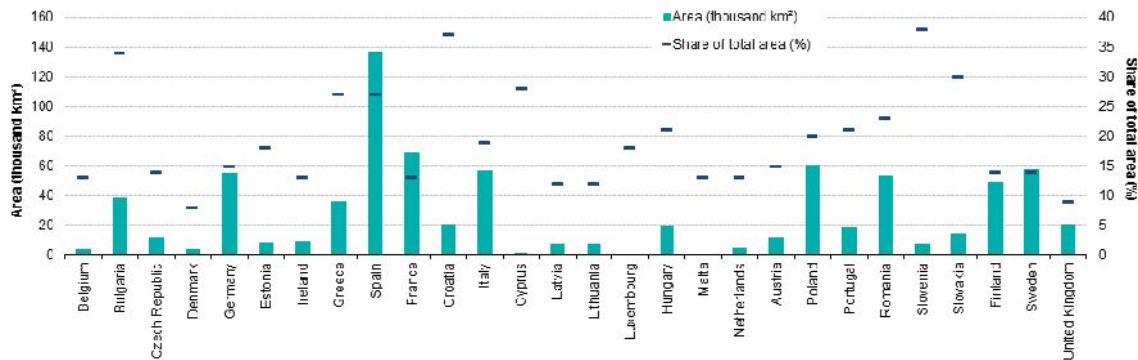
The Natura 2000 network is central to EU biodiversity policy. Established under the Habitats Directive, it comprises the 'special areas of conservation' designated by Member States under the Habitats Directive and the 'special protection areas' under the Birds Directive. These areas are not strict nature reserves, and often include land which is inhabited, privately owned, or used for recreational or economic purposes. In December 2013, Natura 2000 comprised 27 308 sites on land, covering over 1 million square kilometres or over 18% of EU land area, as well as 2 960 marine sites covering over 250 000 km².

¹⁵ The Biodiversity Action Plan, adopted in 2006, was meant to help implement the ambitious target of halting biodiversity loss by 2010. The target was initially set in 2001.

Figure 8 – Natura 2000 sites (2013)

Data source: [European Environment Agency](https://www.eea.europa.eu/en/themes/biodiversity/natura-2000).

Protected areas are further safeguarded by additional pieces of legislation. The **Directive on the Sustainable Use of Pesticides** (2009/128/EC) restricts the use of pesticides in nature conservation areas. The **Directive on Environmental Liability** (2004/35/EC) requires measures to prevent damage to protected species or habitats, and restoration measures in cases where such damage has occurred.

Figure 9 – Protected terrestrial area in Member States (2013)

Data source: [Eurostat](#).

Potential impact on biodiversity must be taken into account ahead of new projects. The **Environmental Impact Assessment Directive** (85/337/EEC, as amended by Directive 2011/92/EU) requires an 'environmental impact assessment' for a wide range of public and private projects, and the **Strategic Impact Assessment Directive** (2001/42/EC) requires a 'strategic environmental assessment' at an early stage for major plans and projects. In protected sites, the Habitats Directive requires that new projects be subject to a more stringent 'appropriate assessment' of possible impacts on the site.¹⁶

EU biodiversity policy also aims to promote an approach based on ecosystem services. A **Green Infrastructure Strategy** (COM(2013) 249), presented in 2013 by the Commission, seeks to promote natural and semi-natural areas designed and managed to deliver ecosystem services (e.g. flood defences), to foster the development of innovative technology in this field and promote access to finance for green infrastructure projects.

Trade aspects play an important role in biodiversity protection. The EU and its Member States are bound by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), aiming to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. CITES provisions are implemented mainly through the **Regulation on the Protection of Species of Wild Fauna and Flora by Regulating Trade Therein** (EU Wildlife Trade Regulation, 338/97). The Commission also recently published a communication setting a new approach to counter wildlife trafficking (COM(2014) 64), a criminal activity that has become highly profitable and has increased greatly over the past few years. New measures on the import of hunting trophies (Regulation 2015/56) came into force in 2015.

Specific EU legislation has been adopted in order to implement obligations under international treaties. Nagoya Protocol provisions on access to genetic resources and the sharing of benefits arising from their use are implemented through a **Regulation on Access and Benefit-Sharing** (511/2014).

Other EU policies, such as those on agriculture, forestry, fisheries, marine and water protection policies, regional policy, and climate change policy, interact with biodiversity protection. These aspects are dealt with in section 8, below.

¹⁶ For a more in-depth perspective, read a [detailed comparison](#) of relevant assessments, environmental impact assessments and strategic environmental assessments.

5. European Parliament

In its Resolution of 21 September 2010 on the Implementation of EU Legislation Aiming at the Conservation of Biodiversity (2009/2108(INI)), Parliament expressed its deep concern about the fast pace of human-induced biodiversity loss. It recognised that full implementation of Natura 2000 legislation plays a major role in achieving the EU's biodiversity objectives, and supported further mainstreaming of biodiversity in other policy areas, especially agriculture and fisheries.

In its Resolution of 20 April 2012 on 'Our Life Insurance, Our Natural Capital: an EU Biodiversity Strategy to 2020' (2011/2307(INI)), Parliament supported the EU biodiversity strategy, including all its targets and actions, but indicated that more concrete measures should be deployed to ensure effective implementation of the strategy. It recognised that NGOs have an important role to play in biodiversity protection. It furthermore stressed the importance of mainstreaming biodiversity in all EU policies and called on the Commission and the Member States to identify all existing environmentally harmful subsidies and phase them out by 2020. Lastly, Parliament called for at least €5.8 billion per year to be devoted to the Natura 2000 network through EU and Member State funding.

In its Resolution of 12 December 2013 on Green Infrastructure (2013/2663(RSP)), Parliament welcomed the communication on green infrastructure, and stressed the contribution of green infrastructure to the Union's 2020 biodiversity objectives. It highlighted the key role of the private sector, especially SMEs, in implementing the strategy and calls for innovative financing mechanisms to support green infrastructure investments.

On 16 April 2014, voting to approve the text agreed in trilogue of the proposed regulation on Prevention and Management of the Introduction and Spread of Invasive Alien Species (2013/0307(COD)), Parliament recalled that alien species generally cause damage to ecosystems and reduce their resilience. It welcomed the fact that the list of invasive alien species would not be capped at 50, as initially proposed by the Commission, but will be open and based on clear criteria.

6. Financing biodiversity protection in the EU

Biodiversity objectives, especially as regards the Natura 2000 network and green infrastructure, are mainstreamed throughout the EU budget. No general figure is currently available on the funds spent annually by the EU and Member States on biodiversity protection. While the main responsibility for financing Natura 2000 lies with Member States, Article 8 of the Habitats Directive provides for EU co-financing of conservation measures.

Based on data from Member States, the Commission has estimated that at least €5.8 billion per year is needed to manage Natura 2000 and restore sites, and that economic benefits delivered by this network are worth between €200 and €300 billion per year. Environmental NGOs estimate that investing €5.8 billion euro in Natura 2000 would create 180 000 jobs, with wider positive employment effects in sectors depending on healthy ecosystems.

The **LIFE programme**, the EU's only financial instrument fully dedicated to the environment, plays a key role in financing biodiversity protection. Since its launch in 1992, LIFE and its successor LIFE+ have co-financed thousands of conservation projects

and supported site management, capacity building, and species action plans. For the 2014-20 funding period, €2.6 billion has been earmarked under LIFE for environmental protection, of which half is for nature and biodiversity conservation.

Apart from LIFE, funding related to Natura 2000 is available under the common agricultural policy, the Structural Funds, and to a limited extent – through the European Maritime and Fisheries Fund and the Horizon 2020 Framework Programme for Research and Innovation.

Recent reforms of the common agricultural policy (CAP) and the common fisheries policy (CFP) have aimed at reducing negative impacts on the environment and at promoting measures protecting biodiversity. In the 2007-13 funding period, rural development programmes under the CAP funded biodiversity protection, while measures related specifically to biodiversity accounted for about 6% of expenditure commitments under the CFP.¹⁷ In the 2014-20 funding period, under the CAP's new direct payments scheme, 30% of direct payments will be dependent on meeting 'greening' requirements, while the European Maritime and Fisheries Fund will use specific indicators to track biodiversity-related spending and to measure environmental impacts.

The European Regional Development Fund and the Cohesion Fund can support Member States in financing measures related to biodiversity, including green infrastructure and Natura 2000, as well as broader measures with indirect impact on biodiversity protection. Funding provided under the European Social Fund can also contribute indirectly to the achievement of biodiversity objectives through supporting education and training, investments in skills and the creation of new jobs.

In 2014, the European Investment Bank and the Commission set up the **Natural Capital Financing Capacity** (NCFF), an instrument intended to finance green infrastructure, payments for ecosystem services, biodiversity compensation beyond legal requirements and pro-biodiversity business initiatives through market-based mechanisms. The NCFF will start with a pilot phase of three to four years (2014-17) and a total budget of €100 million.

An assessment of Natura 2000 co-financing¹⁸, published in 2011 by the Commission, concludes that eligibility gaps and constraints hinder Member States' uptake of EU funds, and that more transparency and capacity-building are needed to increase the uptake of the funds available.

The Commission has been assisting Member States in the development of 'prioritised action frameworks' in order to define Natura 2000 funding needs and priorities at national or regional level and to better integrate them into the operational programmes for the different EU funding instruments. The Commission also produced a new Guidance Handbook for Financing Natura 2000¹⁹ in 2014 to help Member States strengthen the uptake of EU funds for the management and conservation of their Natura 2000 sites.

¹⁷ The Commission estimates that measures related specifically to biodiversity and measures with aimed at achieving an indirect positive impact on biodiversity accounted for up to a third of 2007-13 CFP funds.

¹⁸ [Assessment of the Natura 2000 co-financing arrangements of the EU financing instrument](#), Kettunen et al., European Commission, 2011.

¹⁹ Available at http://ec.europa.eu/environment/nature/natura2000/financing/index_en.htm.

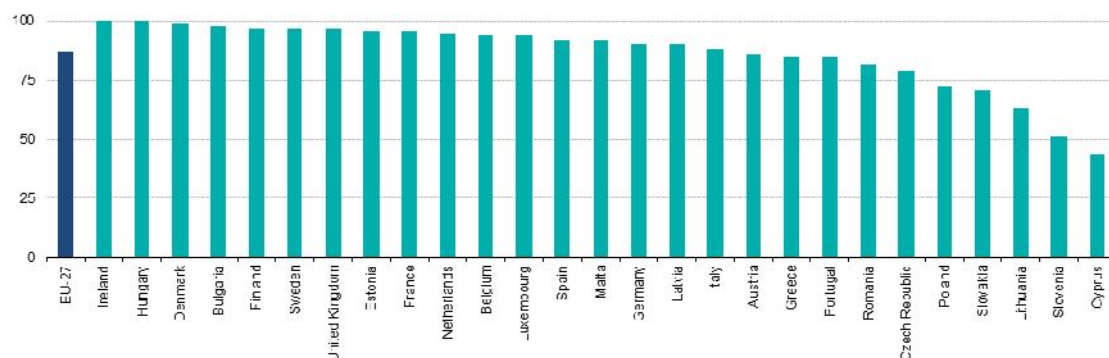
A study²⁰ published by the Commission in 2013, looks at the cost of meeting Target 2 of the EU biodiversity strategy ('by 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems'). It concludes that the additional cost of maintaining the ecological condition of all ecosystems would range between €618 and €1 660 million per year. The cost of restoring 15% of degraded ecosystems would range, depending on the scenario, from €500 million to €10 billion.

7. Achievements and failures of EU biodiversity policy

Data published by the Commission show that progress has been achieved as regards biodiversity protection: certain populations and distributions of wildlife species show positive trends, with some species, once considered at risk of extinction, now stabilising or even increasing. For instance, the Alpine ibex (*Capra ibex*) which was almost extinct 200 years ago, now has an expanding population of 30 000 individuals thanks to reintroduction and introduction in the wild, hunting restrictions, and the establishment of protected areas.

In 2013, Natura 2000 covered some 18% of EU land area, offering habitats and species a degree of protection. In 2012, Natura 2000 sites were considered to cover 87% of the species and habitats protected under the Habitats and Birds Directives. This figure stood at 95% or more in ten Member States, reaching 100% in both Ireland and Hungary. For 14 of the remaining Member States (no data are available for Croatia), the proportion of protected habitats and species covered by Natura 2000 sites was within the range of 70-95%.

Figure 10 – Percentage of protected habitats and species under EU law covered by Natura 2000 sites, by Member State (2012)



Data source: [Eurostat](#).

Pressures on biodiversity have been somewhat reduced thanks to improvements in some areas, mainly as a result of EU legislation: the state of freshwater ecosystems is improving while marine environments are stable, thanks to an improvement in water quality; pressures from agriculture are decreasing, thanks to a reduction in nitrogen losses from fertilisers and an increase in organic farming; forest cover is still increasing slightly in Europe, and timber harvests from European forests are generally sustainable.

²⁰ [Estimating the financing needs to implement target 2 of the EU biodiversity strategy](#), Tucker et al., European Commission, 2013.

Over the years, the knowledge base on European biodiversity has strengthened. The Biodiversity Information System for Europe (BISE) was set up as a single entry point for published data and information related to the implementation and monitoring of the EU biodiversity strategy. However, important gaps in knowledge remain, especially as regards marine habitats and species.

The implementation of the Habitats Directive has been a lengthy and complicated process: five Member States transposed the directive into national law more than three years late; Member States amended their initial implementing legislation a number of times; conservation measures, especially for marine areas, were often delayed in implementation. The large number of complaints sent to both the Commission and the Parliament's Petitions Committee shows frustration among citizens and environmental NGOs regarding unsatisfactory processes.

The Commission opened infringement cases against Member States that did not meet their obligations, and threatened to withhold funding from the structural and rural development funds. Infringement cases mainly relate to the Birds and Habitats Directives, and more specifically to the following issues, among others: deficiencies in national transposing legislation, incomplete designation of special conservation areas, lack of implementation reports, and unsatisfactory application of the protection regime in relation to planned development. However, as shown in table 1, the number of ongoing infringement cases in the area of nature conservation, and concerning impact assessments, has been declining since 2006.

Table 1 – Environmental infringement cases open at the end of each year

	2006	2007	2008	2009	2010	2011	2012	2013
Nature conservation	117	121	105	92	89	76	69	64
Impact assessments	63	57	50	50	42	43	34	29

Data source: [European Commission](#).

Case Law on Birds and Habitats Directives

The Court of Justice of the EU has played a role in the interpretation of the Birds and Habitats Directives. As regards the Birds Directive, the Court has, for example, ruled that the protection system applies to all bird species living naturally in the wild (case C-247/85); Member States cannot invoke economic or recreational requirements when defining the special protection areas (C-355/90, C-44/95).

As regards the Habitats Directive, the Court has for example ruled that the choice of sites must be based only on the scientific criteria laid down in the Directive (C-67/99, C-71/99, C-220/99); Member States must ensure an effective system for strict protection of species (C-103/00, C-98/03); all alternatives to a project must be examined (C-239/04); an impact assessment must be carried out if risks cannot be excluded, according to the precautionary principle (C-127/02).

The status of large carnivorous species in the EU, like brown bears (*Ursus arctos*), Eurasian lynx (*Lynx lynx*), grey wolves (*Canis lupus*), and wolverines (*Gulo gulo*), is stable or improving. This conservation success can be attributed to protective legislation, supportive public opinion and a variety of practices making coexistence between large carnivores and people possible, from the use of livestock guard dogs to specialised teams managing specific conflict with human activities. Roughly a third of mainland Europe now hosts at least one large carnivorous species. However, coexistence with large carnivores remains a source of tension. In February 2015, Copa-Cogeca, an organisation representing European farmers, left a stakeholder forum on coexistence

with large carnivores,²¹ over perceived imbalances between wildlife conservation and attacks on livestock affecting the livelihood of farmers.

The European Federation of Associations for Hunting and Conservation (FACE) recognises the success of the Nature Directives but calls for a greater recognition of socio-cultural diversity within the EU.

Some associations, like the UK Country Land and Business Association (CLA), have called for a reduction in the cost, complexity and delay to business that the Nature Directives are currently considered to cause.

According to a report on the management of Natura 2000,²² published in 2011 by EEB, an environmental NGO, a majority of sites lack management plans and conservation objectives. The report also points out that responsibilities for managing sites are often not clearly established and that human and financial resources are generally insufficient. However, conservationists point out that with proper implementation and financing, the existing framework has shown itself to be capable of halting the decline of protected habitats and species.

8. Interaction with other EU policies

Interaction between biodiversity protection policy and other EU policies can be complex, with a risk of reduction in policy efficiency caused by sometimes conflicting policy goals. In 1999, the Treaty of Amsterdam introduced the requirement to take environmental protection (including as regards biodiversity) into account across all EU policies. This principle is now enshrined in Article 11 TFEU, which provides that 'environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development'. As regards the Natura 2000 network specifically, the European Commission has produced detailed guidance for Member States and stakeholders on the implementation of the Habitats and Birds Directives in various sectors.²³

8.1. Agriculture and forest policies

Biodiversity and agricultural systems in Europe are closely interrelated, for three main reasons. First, agriculture is dependent on ecosystem processes which support plant production (e.g. pollination, maintenance of soils, regulation of pests and diseases) and rely ultimately on biodiversity. Second, many (semi-natural) European habitats have been shaped by thousands of years of human activities, and depend on traditional, extensive agricultural practices for their existence. Third, many of the habitats and species protected under EU law are themselves dependent on agricultural practices.²⁴

Biodiversity is declining as a result of agricultural practices associated with intensive farming, such as use of pesticides and artificial fertilisers, conventional ploughing,

²¹ EU [Platform on coexistence between people and large carnivores](#), set up by the European Commission in June 2014.

²² [Where there is a will there is a way: Snapshot report of Natura 2000 management](#), European Environmental Bureau, 2011.

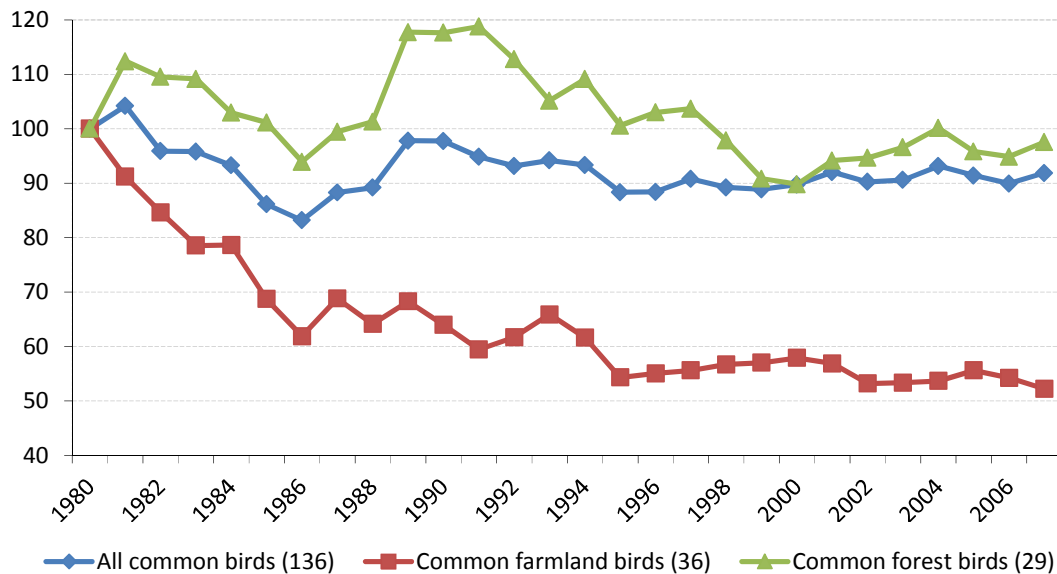
²³ Sector specific guidance is available on the [Natura 2000 network website](#).

²⁴ 255 species and 57 habitat types of Community interest are closely associated with agriculture, while farmland makes up around 40% of the total area included in Natura 2000.

overgrazing, drainage and irrigation. Biodiversity loss may threaten the long-term sustainability of farming in some areas as a result of the degradation of the ecosystem services on which farming depends, including soil processes, natural pest control, and pollination. The Commission estimates the value of pollination services alone at €14 billion per year in the EU, or 10% of agricultural productivity.

Indicators of farmland biodiversity are also declining. Although 'high nature value' farming systems still cover around a third of EU agricultural land, semi-natural farmlands are slowly decreasing.²⁵ European farmland-bird populations are more or less stable after a sharp fall in the 1980s, as shown in the figure below.

Figure 11 – Evolution of European farmland bird species (1980 = 100) (1980-2007)



Data source: [European Environment Agency](#).

Under the CAP 2014-20 programming period, biodiversity concerns have been further integrated into EU policy, as provided for in Target 3 of the EU biodiversity strategy. Income support to farmers (CAP pillar 1) is now partially linked to 'greening' measures, among other supporting measures related to the implementation of biodiversity.²⁶ One of the priorities of the long-term strategic objective on 'sustainable management of natural resources and climate action' related to rural development (CAP pillar 2) focuses on 'restoring, preserving and enhancing ecosystems dependent on agriculture and forestry'.²⁷

Forest policy also impacts on biodiversity protection, as forests cover around 40% of EU land area. The EU's new forest strategy (COM(2013) 659) calls for sustainable forest management²⁸ in order to address pressures on forest ecosystems due to

²⁵ The EU has lost 2.4% of semi-natural farmland since 1990.

²⁶ These measures are mainly focused on three actions: maintenance of permanent grassland; crop diversification (at least two crops when the arable land exceeds ten hectares, and at least three crops when it exceeds 30 hectares); and maintenance of ecological focus areas (i.e. field margins, hedges, trees, fallow land, landscape features, biotopes, buffer strips, forested areas).

²⁷ The focus areas under this priority are: restoring, preserving and enhancing biodiversity; improving water management, including fertiliser and pesticide management; preventing soil erosion and improving soil management.

²⁸ Defined as 'using forests and forest land in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future,

environmental changes (reduced water availability, spread of invasive alien species, increased risk of forest fires) and to human-induced changes (forest fragmentation and over-exploitation of forest resources).

Biodiversity preservation, especially in Natura 2000 sites, represents a cost for farm and forest owners and managers. The main economic consequences are due to restrictions in use value, to lower productivity and the labour-intensive farming practices which generally characterise 'high nature value' farmlands, and to additional administrative tasks and costs (in particular information-gathering and supporting the overall management of sites). Support schemes, such as those introduced in the CAP, aim to preserve biodiversity outside protected areas while preserving jobs and maintaining the competitiveness of the EU farming and forestry sectors against foreign counterparts which do not face the same constraints.

8.2. Fisheries, marine and water policies

EU marine policies are closely interlinked with the health of natural systems sustaining sea-related economic activities and their ability to cope with pressure ('resilience'). Fisheries impact marine biodiversity mainly through the depletion of a species due to overfishing, the effects of unintentional catches (called 'by-catch') on fish, sea mammals and sea birds, and the creation of imbalances in marine food chains. Aquaculture also interacts with the marine environment, just like agriculture on land. Many factors influence the ultimate impact of aquaculture on biodiversity, among others the location of the farm, the type of culture (fish, crustaceans, molluscs, seaweed), and the methods used (e.g. quantity and type of food, stock density, use of chemicals).

Under Target 4 of the EU biodiversity strategy, biodiversity issues are to be integrated into the development and implementation of the maritime and fisheries policy. The **Marine Strategy Framework Directive** (2008/56/EC) aims to achieve good environmental status for European marine waters by 2020, based on an ecosystem-centred approach. In order to reach this goal, the Directive establishes European marine regions and sub-regions based on geographical and environmental criteria,²⁹ and requires each Member State to develop a strategy for its marine waters ('marine strategy'), to be reviewed every six years.

The **Water Framework Directive** (2000/60/EC), which sets up a protection framework for all surface waters and groundwater in the EU with the aim of reaching good status in all waters by 2015, broadly supports biodiversity protection and the sustainable use of natural resources. Aquatic ecosystems and species generally require clean water (i.e. a good physicochemical status). Unlike the Birds and Habitats Directives, whose objectives are assessed by biogeographic region and which aim to protect certain species and habitats, the Water Framework Directive addresses all surface waters and

relevant ecological, economic and social functions ... and that does not cause damage to other ecosystems.'

²⁹ The Directive lists four European marine regions (Baltic Sea, North-east Atlantic Ocean, Mediterranean Sea and Black Sea) located within the geographical boundaries of the existing [Regional Sea Conventions](#) (Convention on the Protection of the Marine Environment of the Baltic Sea Area, Convention for the Protection of the Marine Environment of the North-East Atlantic, Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources).

groundwater, and uses species (aquatic plants and animals) as indicators to determine the quality of waters. In spite of obvious synergies between the Water Framework Directive and the Habitats and Birds Directives, there may be cases of conflict between the objectives of both policies (for instance when the restoration of the natural processes of rivers may threaten the conservation of certain bird species).³⁰

8.3. Regional policy

Regional policy (also known as 'cohesion policy'), the EU's main investment policy represents almost a third of the EU budget and provides the investment framework to meet the Europe 2020 strategy goals for smart, sustainable and inclusive growth. Regional policy may seem at odds with biodiversity protection policy, as economic development, especially the building of new infrastructure, can contribute to pressures on habitats and species.³¹

However, EU regional policy provides direct funding opportunities for nature protection and biodiversity.³² Indirectly, funding is also available through synergies with a wide range of policy areas (i.e. research, innovation, business development, employment, climate change mitigation and adaptation).

Environmental NGOs argue that focusing regional policy further towards protecting biodiversity would deliver advantages, such as achieving carbon savings at a low cost (e.g. by re-wetting degraded peatland to retain the large amount of carbon it stores, as in Mecklenburg-Vorpommern), lessening the impact of extreme weather events (e.g. by widening flood plains, as along the river Scheldt, or by restoring natural vegetation in mountain areas), and protecting vulnerable coastal cities (e.g. by restoring coastal wetlands that collect sediment).

Practical cases in coastal areas

Coastal zones are characterised by a high degree of human activity and a rapidly changing nature, where species (sometimes protected ones) can quickly claim new (artificial) habitats. In the past, this has caused conflict and high costs. New projects now tend to be undertaken with a more pro-active approach.

An example is the Waterdunen project in the Netherlands, where dune zones act as safety zones for nearby port infrastructure, recreational areas and nature conservation. The early integration of environmental concerns in projects can also result in cost savings, as illustrated by the example in the port of Antwerp, Belgium.

8.4. Climate policy

Climate policy and biodiversity protection are interlinked. On the one hand, healthy and resilient ecosystems can contribute towards climate change mitigation and adaptation, for instance through carbon storage,³³ and protection against extreme

³⁰ Examples include the Veluwezoom in the Netherlands and the Krumme Spree in Brandenburg, Germany. More details on the [Natura 2000 network website](#).

³¹ A [study](#) on 'Direct and indirect land use impacts of the EU cohesion policy' published by the European Commission in 2013 indicates that regional policy can induce additional land take through investment in infrastructure and positive effects on economic growth leading to higher demand for land (although some of these effects can be offset through adequate urbanisation policies).

³² Under Thematic Objective 6 'Preserving and protecting the environment and promoting resource efficiency.'

³³ Terrestrial and marine ecosystems absorb around 50% of carbon emissions produced by humans.

weather events such as floods or heatwaves. On the other hand, climate change threatens habitats and species, thereby weakening their ability to provide ecosystem services. For instance, coral reefs are at risk because of warmer water temperatures and ocean acidification induced by climate change. In this respect, climate change and biodiversity policies complement and reinforce each other.

Low carbon energy sources and biodiversity

Renewable energy infrastructure, such as onshore and offshore wind-farms, biofuels, hydropower dams and marine energy, contribute to climate change mitigation by reducing greenhouse gas emissions. However, they can have significant impacts on biodiversity. This leads some conservation scientists to argue that nuclear power has a key role to play in global biodiversity conservation,³⁴ as a low carbon energy source with low direct impacts on biodiversity. A study³⁵ published by the Commission in 2011 suggests that large hydropower dams and tidal barrages have the highest impacts on biodiversity, while offshore wind-farms and wave energy have the lowest impacts.

Wind-farms (onshore and offshore) can impact on biodiversity due to habitat loss for species, risks of collision between birds and wind turbines, deviation of migratory routes of birds and whales, noise and electromagnetic disturbance. Impacts can be reduced, mainly by choosing locations appropriately, taking biodiversity fully into account. On the whole, the 2011 Commission study concludes that the overall impact of wind-farms on EU species and habitats has been rather limited. Experts argue that in some cases offshore wind-farms can produce positive biodiversity benefits by creating artificial reefs which can host new habitats.

Large hydropower dams can have impacts on biodiversity due to fragmentation of river ecosystems, disruption of the water flow, reduced floodplain inundation and shrinking of estuaries. Opportunities to mitigate negative impacts are limited, and relate mainly to the location of dams (for instance avoiding pristine rivers).

Marine energy (from tides or waves) can have impacts on biodiversity, although these vary a great deal according to design and location. Biofuels can have impacts on biodiversity when natural habitats (like tropical forest in Brazil or Indonesia) are cleared to grow fuel crops.

9. Current developments in EU biodiversity policy

The Commission has launched a process of 'biodiversity proofing' of the EU budget intended to ensure primarily that spending under the EU budget has no negative impacts on biodiversity, and additionally that spending under the EU budget is generally supportive in achieving biodiversity targets. This process relates to policy instruments across many policy areas (such as agriculture, fisheries, transport, regional policy, and environmental protection). The Commission has issued general and specific guidance³⁶ to national and regional authorities, as well as its own departments. To complement this approach, the Commission has started tracking biodiversity-related expenditure under the EU budget.

³⁴ [Key role for nuclear energy in global biodiversity conservation](#), Brook and Bradshaw, Conservation biology, 2014.

³⁵ [Impacts of climate change and selected renewable energy infrastructures on EU biodiversity and the Natura 2000 network](#), Bertzky et al., European Commission, 2011.

³⁶ [Guidance](#) relates specifically to major EU funds: cohesion policy funds, common agricultural policy funds (EAGF and EAFRD), Connecting Europe Facility (TEN-E and TEN-T) and European maritime and fisheries funds.

Monitoring policies at all governance levels and strengthening the knowledge base on the state of EU biodiversity remains a challenge. The Commission is developing a monitoring framework for the EU biodiversity strategy in preparation for the mid-term review in 2015. The EU strives to collect and share satellite data on the state of the environment, through Copernicus Sentinels for instance.³⁷ However, large remaining knowledge gaps about biodiversity mean public authorities and businesses may not have the full picture when taking decisions, especially as regards social, economic and environmental benefits and costs.

Member States are developing, with the assistance of the Commission, a strategic framework setting priorities for the restoration of degraded ecosystems, as required under Action 6a of the EU biodiversity strategy. In 2014, the Commission published a study³⁸ with a view to developing common understanding and to promoting good practice with regard to how restoration priorities are identified in the Member States. However, NGOs have criticised the process for the lack of methodological consistency across Member States, the delays in preparation, and the poor quality of some strategic frameworks.

The 'No Net Loss' EU initiative aims to make sure no biodiversity is lost as a result of unavoidable residual impacts of planned developments on species and habitats not covered by nature legislation.³⁹ In this context, the Commission has identified 'biodiversity offsetting' (i.e. compensating biodiversity loss due to a planned development with concrete measures in favour of biodiversity) as an essential element. In December 2014, it published a study⁴⁰ on the design elements of a biodiversity offset scheme. Such policies already exist in some Member States, including France and Germany. However, results of a recent consultation on the topic show there is strong opposition to biodiversity offsetting: NGOs tend to oppose it on the grounds that the risk of abuse would be too high since Member States would not have the necessary capacity to monitor and control implementation. Businesses also tend to oppose it, citing cost concerns and regulatory burden.⁴¹

In 2014, the Commission launched a 'fitness check' of EU nature legislation, in order to analyse whether EU actions are proportionate to their objectives and delivering as expected. The process will assess the Habitats and Birds Directives in terms of their effectiveness (to what extent do they contribute to EU biodiversity strategy?), their efficiency (what are the costs and benefits?), relevance, coherence, and added value for the EU. The results of the fitness check are expected to be published in early 2016. In addition, Commissioner for Environment, Maritime Affairs and Fisheries, Karmenu Vella, has been allocated the mission to 'carry out an in-depth evaluation of the Birds and Habitats Directives and assess the potential for merging them into a more modern piece of legislation', during the first part of the current legislative term.

³⁷ [Copernicus](#) is a programme coordinated and managed by the Commission with the support of the European Space Agency and the European Environment Agency.

³⁸ [Implementation of 2020 EU biodiversity strategy: Priorities for the restoration of ecosystems and their services in the EU](#), Lammerant et al., European Commission, 2014.

³⁹ Unlike in protected areas, there is currently no requirement for compensation of unavoidable residual impacts on species and habitats not covered by nature legislation, which leads to net losses.

⁴⁰ [Study on specific design elements of biodiversity offsets: Biodiversity metrics and mechanisms for securing long term conservation benefits](#), Rayment et al., European Commission, 2014.

⁴¹ Full results of the 'No Net Loss' public consultation are available [online](#).

Environmental NGOs have expressed concern that the fitness check could result in weakened legislation.

10. Outlook

Significant progress has been achieved since the beginnings of the European biodiversity protection policy in the 1970s. A complex legal and policy framework has been established and almost a fifth of EU land area is now protected. The current strategy has set ambitious goals for 2020 and 2050 with a view to preserving habitats, species and ecosystems. With economic aspects taken increasingly into account, the rationale for protecting biodiversity has become stronger.

However, the European Environment Agency indicates in its 2015 Report on the state and outlook of the environment⁴² that the European Union is unlikely to meet its main 2020 biodiversity objectives: halting biodiversity loss and restoring degraded ecosystems. If the EU is to meet its objectives, efforts must be increased, such as the improved management of protected sites and impacts in unprotected areas, in both land and marine environments.

Upcoming challenges include a continued increase in knowledge on the status of habitats and species as well as the functioning of ecosystems, mainstreaming biodiversity protection across policies, and ensuring that population and economic growth do not adversely impact biodiversity.

⁴² [The European environment: state and outlook 2015](#), European Environment Agency, 2015.

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Biodiversity, the diversity of life on earth at all levels, is declining, mainly as a result of human-induced pressures such as over-exploitation of natural resources, loss of viable habitats, pollution, climate change or invasive alien species.

EU biodiversity policy is based on the Birds and Habitats Directives, which served as the basis for the development of the Natura 2000 network of protected sites now covering 1 million square kilometres on land (or 18% of EU land area) and 250 000 square kilometres of marine sites. The policy is driven by the biodiversity strategy setting ambitious aims for 2020 (halting the loss of biodiversity) and 2050 (protecting and valuing biodiversity and ecosystem services), with the addition of a strategy on green infrastructure.

The European Commission estimates that the Natura 2000 network delivers benefits worth between €200 and €300 billion per year, against management costs estimated at €5.8 billion per year. The LIFE Programme co-finances some measures related to biodiversity, especially as regards Natura 2000. Funding aimed at protecting biodiversity is also available under the agricultural, regional, fisheries, and research policies. The European Parliament has long been supportive of EU biodiversity protection policy. Developments in EU biodiversity policy include a process of 'biodiversity proofing' of the EU budget, improved monitoring, definition of priorities for the restoration of degraded ecosystems, 'biodiversity offsetting' of unavoidable residual impacts, and a 'fitness check' of EU nature legislation.

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