

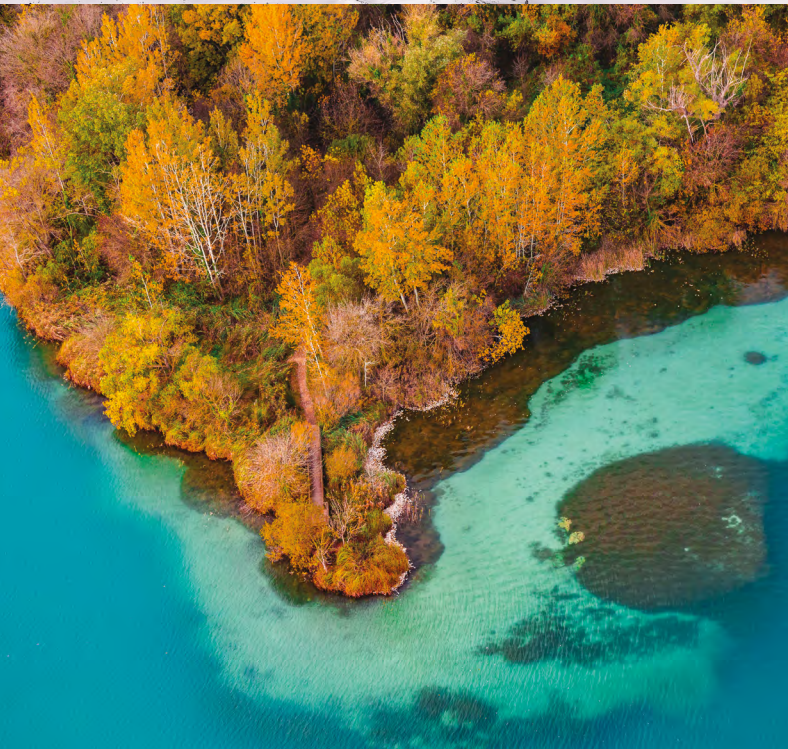


ÉSNATURA

NATURAL HERITAGE AND BIODIVERSITY
STRATEGY OF CATALONIA
2030
SUMMARY DOCUMENT



Generalitat de Catalunya
Government of Catalonia





NATURAL HERITAGE
AND BIODIVERSITY
STRATEGY OF
CATALONIA

The Natural Heritage and Biodiversity Strategy of Catalonia is the framework document which will guide the Government of Catalonia's nature conservation work until 2030. The ultimate objective is to check natural heritage degradation and biodiversity loss in Catalonia, while guaranteeing its sustainable use and ensuring provision of the ecosystem services upon which we depend.



Generalitat de Catalunya
Government of Catalonia



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Oriol Alamany

Adriana Olsina	Ferran Aguilar	Marta Bretó
Pere Soler	Jordi Bas	Martín Gallego
Jordi Chias	Juan Manuel Borrero	Francesc Muntada

NATURAL HERITAGE AND BIODIVERSITY STRATEGY OF CATALONIA

Project team:

Project team of the Natural Environment Planning Service. Directorate General for Environmental Policy and Natural Resources. Secretary of the Environment and Sustainability of the Ministry of Territory and Sustainability.

Institutions and organisations involved in producing the Strategy:

- Acústics Ambient, SL
- ADEFFA Associació de Defensa Estudi de la Fauna i Flora Autòctona
- AGBAR
- Agrupació Naturalista i Ecologista de la Garrotxa
- Aigües de Terrassa
- Ajuntament d'Alt Aneu
- Ajuntament d'Alcoletge
- Ajuntament de Cornellà de Llobregat
- Ajuntament de Girona
- Ajuntament de Granollers
- Ajuntament de la Pobla de Segur
- Ajuntament de Lleida
- Ajuntament de Montornès del Vallès
- Ajuntament de Sort
- Ajuntament de Terrassa
- Ajuntament de Torres de Segre
- Ajuntament de Vic
- Ajuntament de Vilanova i la Geltrú
- Ajuntament d'Horta de Sant Joan
- Ajuntament del Brull
- Amics de les illes Formigues
- Aprèn Serveis Ambientals
- Àrea Metropolitana de Barcelona
- ARTQUATIC
- Ass. Guies Intèrprets del Parc Nacional d'Aigüestortes i Estany Sant Maurici
- Associació Aurora - Salut Mental, Territori i Paisatge
- Associació de Pesca Cardós Tirvia
- Associació de Propietaris del Montseny
- Associació Eòlica de Catalunya - EolicCAT
- Associació Grup d'Acció Local Pesquer Costa Brava
- Associació Hàbitats
- Associació Mediambiental La Sinia
- Associació Naturalistes de Girona
- Associació Trenca
- Banc de Dades de la Biodiversitat de Catalunya
- BIOSCICAT
- Bosquerols SCCL
- CEN - Associació per a la Conservació dels Ecosistemes Naturals
- Centre de Fauna del Pont de Suert
- Centre de la Propietat Forestal
- Centre de Recursos de Biodiversitat Animal (Universitat de Barcelona)
- Centre Ecogestor Xarxa Natura 2000
- Centre per la Sostenibilitat Territorial
- Centre d'Estudis Avançats de Blanes, CEAB-CSIC
- Cincagroup - Raimat
- COAMB Col·legi d'Ambientòlegs de Catalunya
- COAC Col·legi Oficial d'Arquitectes de Catalunya - Demarcació de l'Ebre
- Col·legi d'Enginyers Agrònoms de Catalunya
- Col·legi de Biòlegs de Catalunya - Comissió de Medi Ambient
- Col·legi d'Enginyers Graduats i Enginyers Tècnics Industrials de Girona
- Col·legi d'Enginyers de Forests de Catalunya
- Col·legi Oficial de Geòlegs de Catalunya
- COMEI, SL, Consultoria ambiental
- Consell Comarcal del Baix Camp
- Consell Comarcal de la Conca de Barberà
- Consell Comarcal de la Noguera
- Consell Comarcal del Bages
- Consell Comarcal del Pallars Jussà
- Consell Comarcal del Pallars Sobirà
- Consell Comarcal d'Osona
- Consorci Alba-Ter
- Consorci Centre de Ciència i Tecnologia Forestal de Catalunya (CTFC)
- Consorci del Parc Natural Serra de Collserola
- Consorci del Ter
- Consorci Forestal de Catalunya
- Consorci Leader Pirineu Occidental
- Consorci Serra de Llaberia
- COPATE - Reserva de la Biosfera de Terres de l'Ebre
- CRAM Fundació per a la Conservació i Recuperació d'Animals Marins
- CREAf Centre de Recerca Ecològica i Aplicacions Forestals
- DARP Departament d'Agricultura, Ramaderia, Pesca i Alimentació
- DAUCAT, Serveis Turístics de Catalunya
- DCD Taller Ambiental S.L.
- DEPANA Lliga per la Defensa del Patrimoni Natural
- Diputació de Barcelona
- Diputació de Girona
- Diputació de Tarragona
- dnota medio ambiente, SL
- DTES Departament de Territori i Sostenibilitat
- Ecomuseu de les valls d'Aneu
- El Punt Avui
- ENVERS environmental services, SL
- Escola Forestal Casa Xifra
- Espai TReS Territori i Responsabilitat Social
- FCAL
- FEDAS y FECDAS
- Federació Catalana d'Associacions de Propietaris Forestals (BOSCAT)
- Federació Catalana de Caça a Barcelona

- Federació Catalana de Pesca Esportiva i Càsting
- Federació d'Ecologistes de Catalunya (EdC)
- Forestal Catalana SA
- Fotografia i Biodiversitat / Biodiversitat Virtual
- Fundació Catalunya La Pedrera - Àrea de Territori i Medi Ambient
- Fundació ENT
- Fundació Miquel Agustí
- Fundació Món Rural
- Fundació Privada Vincles
- Fundació Privada World Nature
- Fundació Bancària “la Caixa”
- Galanthus, Associació per a l'estudi i divulgació del medi ambient
- GENERA
- GEPEC, Grup d'Estudis i Protecció dels Ecosistemes Catalans
- Gestió Ambiental ENDESA
- Girbau Consultoria SLP
- Gremi d'Àrids de Catalunya
- Grup de Recerca BETA. Departament de Biociències. Universitat de Vic- Universitat Central de Catalunya
- Grup d'Ecologia i de Medi Ambient
- INSTA Serveis Jurídics Ambientals
- Institució Catalana d'Història Natural (ICHN)
- Institut Botànic de Barcelona (CSIC-ICUB)
- Institut Català d'Ornitologia
- Institut de Ciència i Tecnologia Ambientals (ICTA-UAB)
- IPCENA Institució de Ponent per a la Conservació i l'Estudi de l'Entorn Natural
- Institut de Recerca i Tecnologia Agroalimentària (IRTA)
- Jardí Botànic de Barcelona
- Joves Agricultors i Ramaders de Catalunya (JARC)
- La Llena Serveis i Projectes Ambientals
- La Petjada, Serveis Ambientals, S.L
- L'Era, Espai de Recursos Agroecològics
- Limonium SL
- Mas Tornamiva
- MEDPAN (Xarxa d'àrees marines protegides a la Mediterrània)
- Minuartia
- Museu de Ciències Naturals de Barcelona - Museu Blau
- Museu de Ciències Naturals de Granollers
- Museu de les Terres de l'Ebre
- Myrmex. Serveis tècnics a les ciències naturals SL
- OBAGA Activitats
- Paisatges Vius
- Parc de l'Alba
- Parc Natural de la Zona Volcànica de la Garrotxa
- Parc Natural de l'Alt Pirineu
- Parc Natural de les Capçaleres del Ter i del Freser
- Parc Natural del Cadí - Moixeró
- Patronat de la Muntanya de Montserrat
- Projecte Boscos de Muntanya
- Projecte Sàpia
- Provital Group - Product Safety and Regulatory Affairs Manager
- Societat Catalana d'Herpetologia
- SEO / Bird Life
- Societat Catalana Educació Ambiental (SCEA)
- Societat de Pesca Sant Llorenç de Montgai
- Societat de Pescadors Esportius de Lleida
- Universitat Autònoma de Barcelona - GRAMP
- Universitat de Barcelona - GEOVEG
- Universitat de Barcelona
- Unió de Pagesos
- Universitat Autònoma de Barcelona
- Universitat de Barcelona - Facultat de Biologia
- Universitat de Girona
- Universitat Rovira i Virgili
- Verd e Blu
- Xarxa de Custòdia del Territori (XCT)
- Xarxa de Voluntariat Ambiental de Catalunya

Different Government of Catalonia bodies and units also played a significant role in revising the document and made numerous contributions. These include:

- Consell de Protecció de la Natura (Nature Protection Council - CPN), which supervised production
- Institució Catalana d'Història Natural (Catalan Institution of Natural History - ICHN), which contributed to producing the diagnosis
- Consell Assessor per al Desenvolupament Sostenible (Advisory Council for Sustainable Development - CADS)

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Why does Catalonia need this strategy?

To comply with international mandates and to help halt global biodiversity loss

Catalonia has an obligation to tackle the current situation of loss of global biodiversity and also a moral responsibility to help halt biodiversity loss beyond its borders. All the international reference documents, from the United Nations Convention on Biological Diversity (1992) and the Aichi Biodiversity Targets included in the 2011-2020 Strategic Plan devised to implement it, to the EU Biodiversity Strategy to 2020 (2011), indicate a need to develop strategies and action plans for the biodiversity conservation in order to guide, plan and programme the actions necessary to reverse this loss. These instruments should be implemented using a cascade model from a state to a local level with a view to ensuring they are applied consistently and effectively.

Because Catalonia is also losing biodiversity and needs its own roadmap to revert the situation

Catalonia, like other countries and regions in the world, is losing biodiversity, and until now has not had its own specific roadmap for conserving natural heritage and biodiversity, adapted to the situation in Catalonia and with strategic objectives that identify priorities. There are many public policies that either favourably or unfavourably affect natural heritage and biodiversity but these have had no clear, unequivocal reference to guide action. The Strategy is therefore a reference that has been adopted by the Government, not only for specific nature conservation policies, but also for other sectoral policies of the Government of Catalonia, which may thus help to improve the integration of biodiversity. It is also intended as an inspirational reference document for all public and private stakeholders in Catalonia to promote joint action throughout society in favour of conserving natural heritage and biodiversity.

The Living Planet Index indicator calculated for Catalonia shows a serious loss of biodiversity. In just 14 years (2002-2016), the populations of 258 species of vertebrates and invertebrates have decreased by at least 22%. This loss affects agricultural, freshwater and coastal habitats particularly.

For economic reasons

Conserving nature and guaranteeing the ecosystem services inherent in it –upon which people’s welfare is based– has favourable economic repercussions, and fosters local social and economic development. This has been demonstrated in different studies: in Europe, for example, crop pollination is estimated to be worth 14 trillion euros, and wetlands are calculated to provide services worth 6 trillion euros a year. In Catalonia, the social and economic benefit associated with protected natural areas has been evaluated: a study from 2015 based on analysis of 16 natural areas with active management estimated the benefits to be 5,110 jobs and gross revenue of 192 million euros a year. Every euro invested in special protection areas thus yields an economic and social return of over eight euros. Although the benefits of biodiversity to human health are difficult to quantify, they range from providing active ingredients for medicines, medical research, food safety and even control of contagious diseases.

To respond to society’s demands

Historically, many institutions, research centres and environmental organisations have regularly called on Catalonia to develop a strategic document that establishes nature conservation objectives and the path to be followed in order to achieve them. The Natural Heritage and Biodiversity Strategy of Catalonia, developed with the involvement of civil society, not only establishes this roadmap, but also determines mechanisms and instruments for opening new channels for participation and increasing the societal engagement and territorial stakeholders in the governance of natural heritage.

Vision

By 2030, while complying with international mandates and agreements, Catalonia will have managed to bring a halt to biodiversity loss and effectively and adaptively conserve natural heritage, while guaranteeing sustainable use of natural resources and the provision of ecosystem services. It will also have started to restore degraded ecosystems, recovering them and increasing their capacity to adapt to climate change. The conservation of natural heritage and biodiversity will have been sufficiently integrated in sectoral policies with public and private sector co-responsibility.

Mission

To strengthen natural environment and biodiversity policies with a view to improving the current status of biodiversity and natural heritage, in accordance with the objectives of the Natural Heritage and Biodiversity Strategy.

To guide Government policy in order to curb the pressures on natural heritage and biodiversity, control the factors that cause their degradation, and facilitate the inclusion of biodiversity and natural heritage in all decision-making processes.

To encourage involvement in government action by the different territorial stakeholders –public and private– that play a key role in it, in order to ensure coordinated implementation of nature conservation policies.



Guiding principles

The Strategy's objectives and action lines are linked to six areas, which are defined by six guiding principles.

The Strategy is based on an extensive diagnosis, identifying the main challenges facing nature conservation in Catalonia. Both the diagnosis and the resulting objectives and action lines have undergone an extensive participatory process.

Area 1

Knowledge, information and monitoring of the natural heritage

The natural heritage is an irreplaceable and intrinsically valuable asset, upon which society's welfare and progress rely: deeper knowledge of it and better organisation are required to improve its management, evaluate its conservation status and identify trends.

Area 2

Conservation of the components of the natural heritage in the context of global change

Conservation of the natural heritage addresses biodiversity loss and helps adapt to and mitigate climate change: it is necessary to protect areas, recover species, restore ecosystems, manage humanised areas and halt the biodiversity loss associated with certain human activities. There is also a need to create closer links between conservation and sustainable management of the environment, and improve planning and management of the activities that take place within it.

Area 3

Territorial model

Implementing a territorial and economic model that is compatible with conservation of the natural heritage guarantees the provision of ecosystem services, which are vital for society's health and welfare: it is necessary to incorporate green infrastructure in territorial planning, overcome habitat fragmentation, and conserve and restore landscape connectivity.

Area 4

Integration of natural heritage in sectoral policies

Nature is the driving force of local development and economic progress and amplifies economic benefits and opportunities in all sectors: enhancing the integration of nature conservation objectives in sectoral policies reduces pressure on natural heritage, gives coherence to government action, and improves people's quality of life.

Area 5

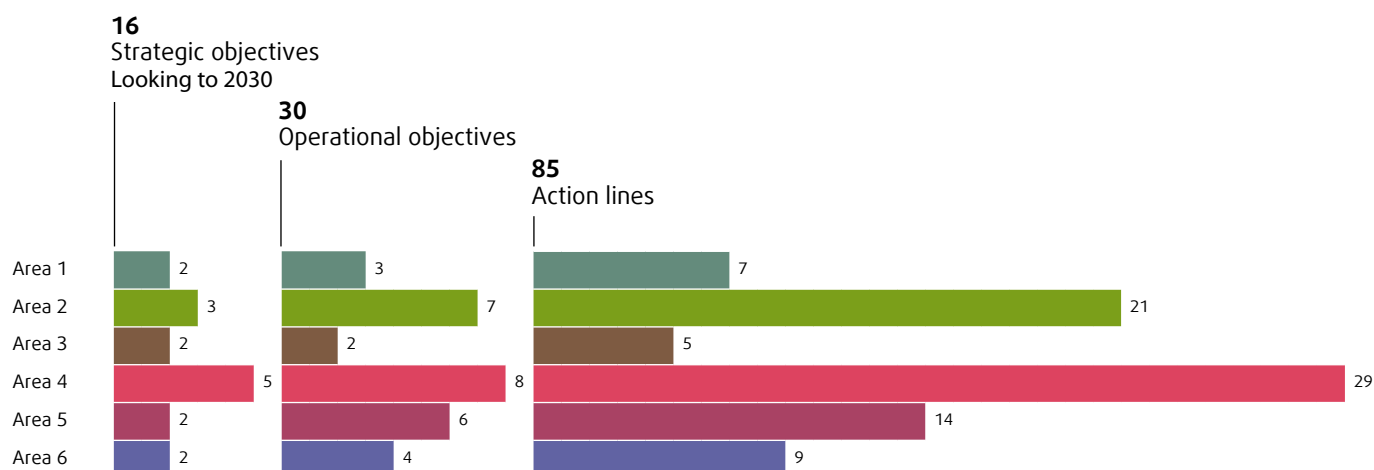
Administrative organisation, legal framework and taxation

Adapting the natural heritage governance instruments to current social and economic reality increases the effectiveness of conservation policies: it is necessary to optimise resources, facilitate fluid relations between the Administration and citizens while taking territorial stakeholders into consideration, improve administrative structure and establish a new legal and taxation framework that favours conservation.

Area 6

Societal engagement

Beyond its value as a productive resource, the natural heritage also has historical, cultural, social and spiritual values that people closely identify with. By acknowledging the emotional bond with nature and involving society in the conservation of natural heritage, society is put at the forefront of efforts, becoming co-responsible for the challenge of halting biodiversity loss and improving the environment's conservation status: society should be made an active and committed stakeholder.



Area 1

Knowledge, information and monitoring of the natural heritage

The facts	Strategic objective	Operational objectives	Action lines
<ul style="list-style-type: none"> Knowledge of many of the components of the natural heritage is broad yet insufficient. There are large gaps of knowledge about the microbial biodiversity of soils and crops, pollinators, genetic information about species and populations, and the marine environment, among others. Efforts to obtain information have not always been specifically focused on key species, habitats or processes for which Catalonia has most responsibility in their conservation. The lack of series of historical data on species and habitats hinders identification of changes and trends, and detection of threats for the biodiversity conservation. 	1.1 Increase information and knowledge about the components of the natural heritage and their conservation status.	1.1.1 Increase research on the key components of the natural heritage and biodiversity for which Catalonia has most responsibility in their conservation. 1.1.2 Improve monitoring of the components of the natural heritage and the factors that affect them.	1* Identify the key components of the natural heritage (habitats, species, elements of geodiversity and processes) and diagnose the degree of knowledge about them. 2 Integrate and improve the information available on marine habitats and produce useful cartography for management. 3 Establish a common biodiversity and geodiversity research agenda among public administrations, universities and research centres. 4* Develop a global monitoring system for biodiversity and its evolution. 5 Define an evaluation and monitoring programme to track the conservation status of protected natural areas in Catalonia and its effectiveness. 6 Monitor the effects of implementing ecological flows on aquatic ecosystems.
<ul style="list-style-type: none"> The administration responsible for conservation policies and the academic and research world do not have a common agenda for transferring useful cutting-edge knowledge for natural heritage management and planning and for promoting applied research. The information about the natural heritage is abundant but scattered and organised heterogeneously. It is not sufficiently integrated to enable effective use in planning and management. Citizen science biodiversity platforms and projects are a growing phenomenon. They could be extremely useful if the information they generate is properly organised, validated and processed. The information available is more descriptive than evaluative, and not focused enough on generating useful knowledge for decision-making. The natural heritage evaluation system is not broad enough to identify trends in biodiversity and natural heritage in Catalonia or render account to society for the conservation policies' effectiveness. The human resources allocated to processing biodiversity data are totally insufficient, bearing in mind the importance of information management in decision-making. 	1.2 Improve integration, processing and accessibility of information on the natural heritage.	1.2.1 Integrate the information available on a common platform, disseminate it and make it accessible.	7* Establish a natural heritage observatory focused on information and knowledge.

* Priority 2018-2021

Area 2

Conservation of the components of the natural heritage in the context of global change

The facts	Strategic objective	Operational objectives	Action lines
<ul style="list-style-type: none"> 32% of the territory of Catalonia is formally and legally protected, as it is included within the System of Protected Natural Areas (SENP). However, resources for active management are patently insufficient. The Natura 2000 network, included within the SENP, establishes guidelines for habitat and species management, and enforces their application and periodic accountability to the European Union. There is no system for ongoing review of the management measures for protected areas that enable them to be adapted and improved on the basis of the results obtained. Management shortfalls are more acute in protected marine areas, where gathering information, gaining access and implementing actions is more complex. Adaptation to climate change requires active management based on ongoing evaluation. 	<p>2.1</p> <p>Strengthen active and adaptive management of the System of Protected Natural Areas of Catalonia.</p>	<p>2.1.1</p> <p>Achieve effective management of the System of Protected Natural Areas.</p> <p>2.1.2</p> <p>Complete the System of Protected Natural Areas and ensure it is representative, diverse and balanced.</p>	<p>8* Approve the programmed planning tools for protected natural areas.</p> <p>9* Implement the management guidelines and instruments of the Natura 2000 network.</p> <p>10 Promote shared management with local groups, environmental institutions and owners in protected natural areas.</p> <p>11 Endow protected marine areas with specific and sufficient management.</p> <p>12 Move forward in the declaration of new natural areas with special protection.</p> <p>13 Design a strategy to purchase estates with a high natural value.</p> <p>14 Approve the Catalogue of wetlands of Catalonia.</p> <p>15* Introduce the concept of free evolution in the forestry management of Catalonia.</p> <p>16 Integrate natural river reserves in the System of Protected Natural Areas of Catalonia.</p>
<ul style="list-style-type: none"> There are no conservation or recovery plans for most endangered species. Plans exist for only 20% of endangered species of flora and 6% of endangered species of fauna. The 2014-2020 Catalan flora conservation strategy has been drafted but not approved. The existing fauna Catalogue proposal has not been processed. Of 1067 alien species identified in Catalonia, 109 are considered invasive or detrimental for the conservation of native species. The arrival of invasive species has intensified in recent years. Natural and semi-natural habitats cover 60% of the area of Catalonia. Of these, 23% are endangered. There is no programme for the restoration of degraded habitats. With regard to geodiversity, despite the existence of the Inventory of Sites of Geological Interest and the establishment of the Geopark of Central Catalonia, there are no specific legal concepts for protection. Resources for the active and preventive conservation of species, habitats and geological heritage of priority interest are insufficient. 	<p>2.2</p> <p>Improve the conservation of native species, ecosystems and geodiversity.</p>	<p>2.2.1</p> <p>Apply endangered species recovery and conservation strategies.</p> <p>2.2.2</p> <p>Prevent and control invasive alien species and other pest species.</p> <p>2.2.3</p> <p>Inventory and protect natural and semi-natural habitats.</p> <p>2.2.4</p> <p>Inventory and protect elements of the geological heritage.</p>	<p>17* Approve the Catalogue of endangered fauna of Catalonia.</p> <p>18* Approve the recovery and conservation plans for the most endangered species.</p> <p>19 Define and implement a coordinated action strategy among the Network of Centres for Fauna Recovery.</p> <p>20 Implement the action plan to counter the use of poison and other eco-toxic substances.</p> <p>21* Approve the Catalan flora conservation strategy and execute its priority actions.</p> <p>22 Improve the database on invasive alien species.</p> <p>23* Produce a prevention and control plan for invasive alien species and other pest species.</p> <p>24 Draw up a Red List of endangered habitats in Catalonia, in accordance with the standards of the IUCN and the European Commission.</p> <p>25* Review the Inventory of Sites of Geological Interest of Catalonia and approve a decree on geological heritage conservation.</p>
<ul style="list-style-type: none"> The environmental evaluation of plans, programmes and projects has been consolidated as a key mechanism for the preventive management of biodiversity. There are, however, shortfalls in monitoring the required conditions. Preventive management has been focused on minimising environmental impacts. However, there remain residual impacts that lead to a net loss of biodiversity and must be offset. Only 4.7% of environmental impact declarations yield compensatory measures and there is no consolidated offsetting system. 	<p>2.3</p> <p>Strengthen preventive management and prevent a net loss of biodiversity in the area of environmental evaluation.</p>	<p>2.3.1</p> <p>Improve the environmental evaluation's effectiveness and consolidate application of the mitigation hierarchy.</p>	<p>26 Approve an environmental impact evaluation law for Catalonia.</p> <p>27 Implement an effective environmental monitoring system for execution of the evaluated plans, programmes and projects.</p> <p>28* Incorporate systematic offsetting of the residual impacts of plans, programmes and projects.</p>

* Priority 2018-2021

Area 3

Territorial model

The facts	Strategic objective	Operational objectives	Action lines
<ul style="list-style-type: none"> In recent decades, territorial and urban development has been based on an expansionist model, involving excessive land consumption and scattered urbanisation. This has had a direct negative impact on the components of the natural heritage. In protecting nature and its functions, the environmental authority has basically played a reactive role. The challenge lies in assuming a proactive role based on the definition of the country's green infrastructure. Territorial planning covers the whole of Catalonia and includes the System of Protected Natural Areas. It classifies 64% of the territory as specially protected land and establishes an initial framework for planning green infrastructure. The elements of the green infrastructure or the ecosystem services that must be guaranteed have still not been identified or mapped for all of Catalonia. Landscape connectivity is one of the key functions of green infrastructure. There is sufficient information to define connecting areas of interest and other elements of connectivity as a prior step for integrating them in territorial planning. Water masses are part of the green infrastructure. Conservation status is good in 35% and mediocre, deficient or poor in 52%. Their contribution to green infrastructure depends on the implementation and review of river planning instruments. 	3.1 Plan green infrastructure and integrate it in territorial planning.	3.1.1 Identify and define the functional value of the territorial elements that make up the green infrastructure.	29* Map Catalonia's ecosystem services, landscape connectivity and critical points for connectivity. 30 Develop the definition of natural heritage protection and improvement criteria in urban and territorial planning.
<ul style="list-style-type: none"> In order to guarantee the green infrastructure's functionality, it is not enough to halt biodiversity loss. There needs to be a nature recovery effort Experiences in restoring degraded habitats are few and far between, and lack planning and specific financing. A programme of green infrastructure improvement actions –with a limited budget– has been initiated to recover biodiversity, ecological functionality and ecosystem services. The ecological flows of all the surface water masses that require them have not been implemented. 	3.2 Restore and improve the green infrastructure's functionality.	3.2.1 Reduce ecosystem fragmentation and quality loss.	31* Draw up and implement a programme of green infrastructure improvement and restoration actions. 32 Draw up a Plan to correct the impact of weirs and obsolete water-related infrastructures. 33* Recover the riverbank morphology and habitats of priority water masses and wetlands.

* Priority 2018-2021

Area 4

Integration of the natural heritage in sectoral policies

The facts	Strategic objective	Operational objectives	Action lines
<p>Agriculture</p> <ul style="list-style-type: none"> ■ Much of the territory of Catalonia consists of agroecosystems; crop diversity and agricultural landscapes directly favour biodiversity, while excessively intensive farming is detrimental. ■ In Catalonia, there are two contrasting trends: environmental renaturalisation through the abandonment of agricultural holdings (46% in three decades) and the intensification of those that are still operating. This polarisation is detrimental to agroforestry mosaics, which are very rich in biodiversity. ■ Different indicators show that agroecosystems are one of the semi-natural environments losing the most biodiversity. Steppe ecosystems are those most affected by the conversion to irrigation and intensification. ■ The loss of insect species, pollinators and edaphic organisms due to harmful agricultural practices and the use of agrochemicals disrupts food chains, and reduces the resilience of agroecosystems and of the crops themselves. ■ Organic agriculture, albeit minority, is growing 20% a year in Catalonia. The adoption of integrated production models that reduce the release of pollutants and other agrochemicals into the environment is also growing. <p>Livestock</p> <ul style="list-style-type: none"> ■ Extensive livestock farming is a key agricultural practice for maintaining the diversity of habitats and landscapes. The regression of extensive livestock farming is causing a decrease in the quantity and quality of pastoral ecosystems, the silvopastoral mosaic and the associated biodiversity. ■ In general, bovine livestock has increased and ovine has decreased. <p>Forestry management</p> <ul style="list-style-type: none"> ■ Forest covers 64% of the area of Catalonia. 40% of this area is planned with mainly forestry production criteria. ■ There is a lack of definition in the technical criteria established between the administration and forest owners to improve the integration of biodiversity in planning and making forestry operations and the bioeconomy compatible with the biodiversity conservation. ■ 75% of forest area is privately owned, and 25% is publicly owned. Forest estate ownership is very fragmented. The management of forest ecosystems requires working jointly with private stakeholders. ■ The expansion of forest tracts due to afforestation of cropland and the abandonment of forest management due to lack of economic return favours naturalisation but is also associated with a loss of management practices that are beneficial for biodiversity and for adapting these ecosystems to climate change. <p>↓ Continued on the following page</p>	<p>4.1</p> <p>Improve the contribution of agricultural, livestock and forestry policies to conservation of the natural heritage and biodiversity.</p>	<p>4.1.1</p> <p>Encourage positive synergies among agricultural, livestock and forestry activities and the conservation of natural heritage.</p> <p>4.1.2</p> <p>Incorporate fire as a tool of forestry management and of habitats in a context of climate change.</p>	<p>34* Create an Action and Coordination Board between the administration responsible for conservation of the natural heritage and biodiversity, the agricultural and forestry administration, and the private sector.</p> <p>35* Draw up an inter-sectoral plan for the conservation of wild pollinators.</p> <p>36* Encourage extensive livestock farming to conserve agroforestry habitats and to prevent fires.</p> <p>37 Reduce the release of pollutants from agricultural and livestock uses and activities into the environment.</p> <p>38 Monitor the programme for agrobiodiversity, local crop, species and breeds conservation.</p> <p>39* Strengthen the prevention and compensation system for damage caused by wild fauna in the rural environment.</p> <p>40 Promote farm products produced in protected natural areas.</p> <p>41 Review the focus of the forest fire prevention plans in natural areas with special protection.</p> <p>42 Create an interdepartmental working group to include fire as an environmental management tool.</p>

* Priority 2018-2021

Area 4

Integration of the natural heritage in sectoral policies (continued)

The facts	Strategic objective	Operational objectives	Action lines
<p>↓ Continued</p> <ul style="list-style-type: none"> The aspects with the most negative impact on forest biodiversity and forest ecosystems are associated with inappropriate management practices, the mono-specificity of some forest tracts, forest fires and extreme climatic factors. Young and unstructured forests predominate. It is estimated that 2% of Catalonia's forests still have naturalised stands and little human intervention, offering a high natural value for their biodiversity and are benchmarks for forestry management conservation initiatives. However, criteria have yet to be defined for identifying forests in which to prioritise free evolution and encourage forest maturity, and establish suitable management instruments. 			
<p>Fishing and maritime activity</p> <ul style="list-style-type: none"> Littoral and coastal ecosystems are the most endangered and affected by human activities in Catalonia. The volume of catches of the Catalan fishing fleet has fallen 57% in the last 25 years due to overexploitation of fishing grounds. This has had a direct impact on biodiversity. Fishing impacts species of fauna and flora –such as cetaceans, sea birds and turtles– that are not the activity's production target, because fishing methods are still not selective enough. Protected marine areas are potentially a beneficial and complementary instrument for the sustainable exploitation of fishing resources. Fishing management and co-management plans are one of the measures of the EU Biodiversity Strategy to 2020 for improving the management of fish stocks through application of the maximum sustainable yield. The impact of recreational fishing on coastal and littoral fish populations has not been studied sufficiently, although it is estimated that the pressure on some species could be considerable. 	<p>4.2</p> <p>Make biodiversity conservation compatible with maritime and fishing activities.</p>	<p>4.2.1</p> <p>Improve management of recreational, tourism and sports uses on the coast and in the marine environment.</p> <p>4.2.2</p> <p>Foster fishing activity that is compatible with conservation of marine biodiversity.</p>	<p>43 Develop a new recreational fishing model.</p> <p>44 Install low-impact anchorage systems.</p> <p>45 Increase control and surveillance of public use of the coast and marine environment, and reduce the impact of nautical activities.</p> <p>46* Adopt a fishing governance model that guarantees sustainable use of marine resources.</p> <p>47 Provide training to the fishing industry with a view to implementing measures that reduce bycatches of protected species.</p>
<p>Business and financial sector</p> <ul style="list-style-type: none"> Although corporate commitment to the environment is growing, there is little business sector involvement in conservation –specifically– of the natural heritage is slight. Production policies rarely include impact on biodiversity in the balance sheets. Zoning of wind power operations should be reviewed in order to guarantee the twin objective of promoting renewable energies and conserving biodiversity. The legal framework for mining activities pioneered introduction of environmental restoration in 1981. However, it needs to be adapted to new Spanish and international biodiversity requirements. Although Catalonia has pioneered the analysis of external responsibility in the conservation of global biodiversity, effective measures have not been adopted to ensure that foreign investment and goods imports contribute to biodiversity conservation. 	<p>4.3</p> <p>Increase the involvement of the business and financial sector in conservation of the natural heritage.</p>	<p>4.3.1</p> <p>Introduce conservation of the natural heritage in business strategies.</p> <p>4.3.2</p> <p>Reduce the impact of exploitation of natural resources on the natural heritage and the landscape.</p>	<p>48 Create the concept of business-targeted voluntary nature agreements.</p> <p>49 Measure the impact of Catalonia's production and consumption model on global biodiversity.</p> <p>50* Quantify the social and economic benefits contributed by protected natural areas to the business and production sector.</p> <p>51* Correct the electricity pylons that cause electrocution of birds.</p> <p>52 Update the regulatory framework governing mining activities.</p> <p>53 Create a working party for deployment of wind power in a manner compatible with biodiversity.</p>

* Priority 2018-2021

The facts	Strategic objective	Operational objectives	Action lines
<p>Hunting and inland fishing</p> <ul style="list-style-type: none"> ■ The legal framework for hunting in Catalonia has not been updated. The current law is from 1970. ■ The establishment of legal hunting periods, or moratoria or special prohibitions, hunting enclosures and capture methods in hunting and fishing activities has a significant impact on biodiversity conservation and can help improve it. ■ Planning of hunting and fishing is not always coordinated enough with planning in other significant sectors in conservation of the natural heritage, such as the planning of protected natural areas. ■ The number of hunting licences has decreased drastically in Catalonia as a whole, which has therefore also meant a decrease in the potential of hunting as a tool for managing biodiversity. ■ Lead in hunting and fishing equipment is a bioaccumulable pollutant, which is currently only prohibited in certain wetlands. ■ Although poaching has decreased, it still exists. Surveillance and control must be strengthened in order to eradicate it. ■ The collaboration of hunting and angling associations is key in improving the management of hunting and fishing and making them compatible with biodiversity. 	<p>4.4</p> <p>Increase compatibility of hunting and inland fishing with biodiversity conservation.</p>	<p>4.4.1</p> <p>Plan and encourage hunting and inland fishing activities based on biodiversity conservation criteria.</p>	<p>54* Approve a new law on hunting.</p> <p>55 Introduce habitat and species management criteria in hunting planning instruments and review regulations on half-close season.</p> <p>56 Start replacing elements that contain lead in hunting and fishing.</p> <p>57 Unify management criteria for the management of national hunting reserves and protected natural areas, where they coincide.</p> <p>58 Implement current sectoral legislation applicable to inland fishing and improve regulation of fishing zones.</p> <p>59* Work with angling associations in the conservation of aquatic ecosystems, recovery of native species and control of invasive alien species.</p>
<p>Outdoor tourism and sporting activities</p> <ul style="list-style-type: none"> ■ Sporting, tourism and outdoor activities have become popular in recent decades. This has prompted a very considerable increase in social use of the territory and natural heritage. ■ Pressure has intensified on the natural environment, particularly on protected natural areas and on specific species that are subject to exploitation (such as wild mushrooms or different plant species) or are highly vulnerable and sensitive. Excessive visiting by people is now one of the main concerns for nature managers. ■ Nature tourism is an expending activity in Catalonia and all over Europe and is highly resilient to economic crises. Properly regulated, it opens up local socio-economic development opportunities that are compatible with environmental conservation. 	<p>4.5</p> <p>Encourage the compatibility of tourism, sporting and outdoor activities with conservation of nature and socio-economic development.</p>	<p>4.5.1</p> <p>Reduce the impact of outdoor tourism, recreational and sporting activities on the natural heritage.</p>	<p>60 Implement the actions of the Plan to promote nature tourism in protected natural areas.</p> <p>61 Increase accession of natural areas with special protection to the European Charter for Sustainable Tourism.</p> <p>62* Regulate social use and access to the natural environment.</p>

* Priority 2018-2021

Area 5

Administrative organisation, legal framework and taxation

The facts	Strategic objective	Operational objectives	Action lines
<ul style="list-style-type: none"> ■ The Government of Catalonia does not have a stable and sufficiently endowed organisational structure or an up-to-date legal framework regarding natural heritage and biodiversity to meet the Strategy's objectives, apply the Birds and Habitats Directives fully and comply with the other provisions of the EU Biodiversity Strategy and the Aichi Biodiversity Targets. ■ A nature conservation policy is not possible without the effective participation of owners and other stakeholders involved in the management of the natural environment. Review of current governance instruments is therefore necessary ■ Without increasing surveillance and control efforts and without reviewing the sanctioning regime, it is impossible to guarantee the effectiveness of the natural heritage conservation policy. ■ The local administrations have a key role to play both in the conservation of natural heritage on a local level, and in the governance of protected natural areas. 	<p>5.1</p> <p>Adapt instruments for governing natural heritage to new conservation challenges and make them more effective.</p>	<p>5.1.1</p> <p>Restructure the administrative organisation of the Government of Catalonia with regard to nature conservation.</p> <p>5.1.2</p> <p>Update the legal framework on natural heritage and biodiversity.</p> <p>5.1.3</p> <p>Improve surveillance and control of the activities that affect natural heritage, and effective application of current legislation.</p> <p>5.1.4</p> <p>Strengthen the role of local administration in the governance of natural heritage.</p>	<p>63* Strengthen natural heritage management teams.</p> <p>64* Create and deploy the Natural Heritage and Biodiversity Agency of Catalonia.</p> <p>65* Create spaces for the participation of the territory's stakeholders in the governance of nature conservation.</p> <p>66 Define the bases of a marine and coastal co-management model for marine biodiversity management.</p> <p>67* Approve a law on the natural heritage and biodiversity of Catalonia.</p> <p>68 Update specific regulations concerning the natural heritage.</p> <p>69* Increase the resources of environmental surveillance agents and improve coordination with the administration responsible for conservation of the natural heritage and biodiversity.</p> <p>70 Strengthen the administration's sanctioning power.</p> <p>71 Promote collaboration agreements with local bodies.</p>
<ul style="list-style-type: none"> ■ Environmental taxation has not been sufficiently deployed in the conservation of natural heritage; effective formulae that reward nature conservation and penalise its destruction have not been implemented. ■ There are no fees, rates, or earmarked taxes allocated to nature conservation. ■ Tourism, leisure and sporting activities that use nature as a resource do not contribute financially to its conservation. ■ The authority responsible for environmental conservation has practically zero influence in the application of European funds allocated for agricultural, livestock and forestry policies. ■ Acknowledgement of environmental services provides an opportunity to create ties between owners of estates with natural assets and users or managers of these services. 	<p>5.2</p> <p>Implement financial and taxation instruments that favour conservation of the natural heritage.</p>	<p>5.2.1</p> <p>Review the tax system and incentivise involvement of the private sector in conservation of the natural heritage.</p> <p>5.2.2</p> <p>Improve use of financial instruments and European Union funds to foster conservation of the natural heritage.</p>	<p>72* Implement and strengthen the natural heritage fund.</p> <p>73* Establish tax measures for encouraging conservation of the natural heritage.</p> <p>74 Identify tax measures that impact on conservation of the natural heritage.</p> <p>75* Create a Register of land stewardship agreements.</p> <p>76* Propose the allocation of those European Union funds that may have an impact on biodiversity conservation</p>

* Priority 2018-2021

Area 6

Societal engagement

The facts	Strategic objective	Operational objectives	Action lines
<ul style="list-style-type: none"> In recent decades, with rural depopulation and growing concentration of people in cities, much of society has evolved from perceiving nature as a primary source for obtaining and using natural resources to perceiving it mainly as a necessary space for leisure. The polarisation of these two perceptions creates difficulties in addressing the challenges of nature conservation as, taken in isolation, they are incomplete. There is a lack of dialogue between the rural and urban worlds. To ensure conservation of the natural heritage, the balance between the perception of nature for production and for leisure, and between knowledge and experience of it are equally as important. The latter establishes an emotional bond that encourages social engagement in conservation. The links between nature, health and well-being are broadening environmental awareness and may help increase the social base of people who are aware of the need for nature conservation. The perception of the value of biodiversity and ecosystem services has not fully permeated the general public and social and economic sectors. Messages to increase awareness of nature are often simplistic and demagogic; they usually do not take all the shades of reality into consideration. Biodiversity loss causes less concern to society than other environmental issues such as pollution, climate change or air quality. Compulsory education includes basic competencies in sustainability, respect for and conservation of the environment and respectful and responsible enjoyment of natural resources and the landscape. Education and training of professionals do not incorporate the general nature conservation message. Since the 80's, Catalonia has been a pioneer in non-formal environmental education. 	<p>6.1</p> <p>Raise people's awareness of natural heritage and biodiversity.</p>	<p>6.1.1</p> <p>Raise social awareness of the impact of human activities on the services provided by nature.</p> <p>6.1.2</p> <p>Incorporate the conservation of natural heritage in awareness-raising, education and training.</p>	<p>77 Programme actions to heighten social awareness of biodiversity and monitor social perception of nature conservation.</p> <p>78* Raise the awareness and increase the training of nature users.</p> <p>79 Review educational resources on natural heritage.</p> <p>80 Devote particular attention to the training of specific groups.</p>
<ul style="list-style-type: none"> Co-responsibility and citizen engagement have a growing weight in nature conservation policies. It is no longer a matter of leaving conservation solely in the administration's hands, as the authorities cannot address new challenges alone. The role of landowners, private sector companies and organised society is crucial. The Environmental Third Sector (TSACat) groups 220 organisations, some 5,500 volunteers (only 35% have salaried personnel) and nearly 25,000 members. Environmental volunteering and citizen science encourage effective involvement of civil society in improving nature conservation. Despite the existence of good experiences, private nature conservation initiatives are still in an early stage in Catalonia, with no defined legal framework and largely unrecognised by society. Experiences of active participation in conservation mainly involve terrestrial habitats. The number of land stewardship agreements has grown significantly over the last few years. 1.4% of the territory of Catalonia is managed according to this formula, with the involvement of 77 entities. 	<p>6.2</p> <p>Increase individual and collective participation in conservation of the natural heritage and biodiversity.</p>	<p>6.2.1</p> <p>Strengthen private conservation, co-management and land stewardship initiatives.</p> <p>6.2.2</p> <p>Strengthen the Environmental Third Sector and citizen participation platforms.</p>	<p>81 Encourage land stewardship.</p> <p>82 Define the framework for a network of private areas of natural interest.</p> <p>83* Coordinate citizen science initiatives on biodiversity.</p> <p>84 Introduce nature conservation as a Community Service in schools.</p> <p>85* Encourage volunteering for nature conservation.</p>

* Priority 2018-2021



Governance

Implementation, monitoring and evaluation of the Strategy are the responsibility of three bodies

The directorate general with responsibility for natural heritage and biodiversity is the main driver of the Strategy. Its functions include:

- assigning a technical team to working permanently on the Strategy;
- producing annual technical monitoring reports to evaluate general progress in nature conservation, the biodiversity trends in Catalonia and the extent to which the Strategy's objectives have been met;
- presenting an annual programme of activities; and
- establishing the four-yearly proposal of action lines.

The Monitoring Commission, with advisory, monitoring and deliberative functions. Its members are representatives from the ministries most involved in natural heritage and biodiversity conservation policies, from advisory bodies, environmental institutions, the production, agricultural and fishing sectors, rural landowners, the scientific community and local representatives. It meets at least twice a year and is responsible for:

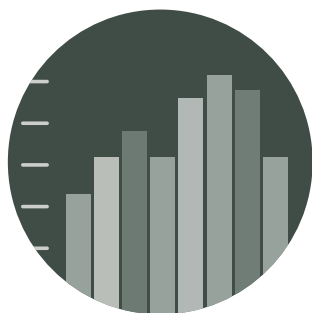
- annual monitoring of the Strategy, with regard to fulfilment of objectives and assessment of monitoring indicators;
- participating in the annual programming of actions necessary to ensure compliance with the Strategy's targets;
- contributing to the four-yearly review of the operational objectives and action lines.

The Coordination Board between the ministries responsible for natural heritage and biodiversity, agriculture, livestock, fishing, forestry management, hunting and rural development. Its objective is to integrate the Strategy's action lines in each ministry's annual programmes. It meets at least every quarter.



Monitoring

Every calendar year, selected action lines are spelled out in executive actions and allocated a budget for implementation.



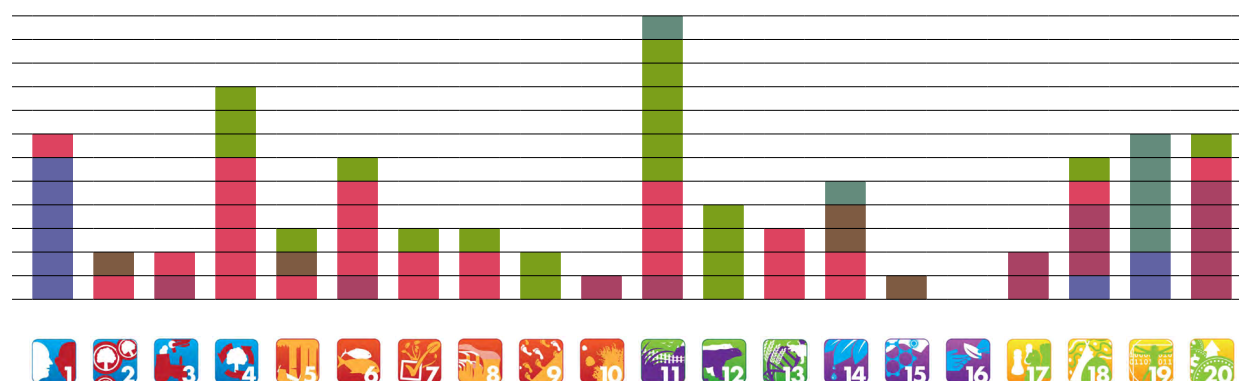
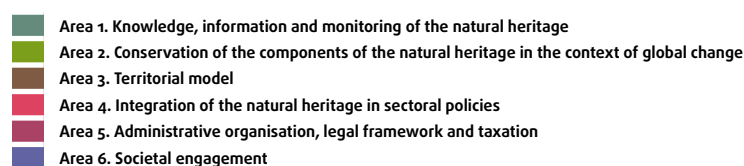
Indicators

A system of 78 indicators is used to monitor and evaluate the Strategy, and also to check compliance with the Aichi Biodiversity Targets and the United Nations Strategic Plan for Biodiversity 2011-2020 in Catalonia.

Indicator		Strategy objectives	Aichi objectives
1	Total species described in Catalonia	1.1	19
2	Number of scientific publications on the biodiversity of Catalonia	1.1	19
3	Economic resources allocated to biodiversity knowledge and research in Catalonia	1.1	19
4	Generation of scientific data on biodiversity	1.2	19
5	Biodiversity monitoring programmes in Catalonia	1.2	19
6	Evolution in the Catalan air quality index	1.2	8
7	Total area of protected natural areas	2.1	11
8	Area with special protection coverage (ENPE)	2.1	11
9	Protected natural areas with active management	2.1	11
10	Protected natural areas with shared management formulae	2.1	11
11	Protected natural marine areas with an approved planning instrument	2.1	11
12	Marine area protected with planning and management instruments	2.1	11
13	Total investment in protected natural areas	2.1	2
14	Land and inland water area protected with planning and management instruments	2.1	11
15	Degree of coverage of protected or endangered species by protected natural areas	2.2	11
16	Endangered species with approved recovery or conservation plan	2.2	12
17	Vertebrate and invertebrate population trend (Living Catalonia Index)	2.2	12
18	Bird population trend (associated with natural and semi-natural habitats)	2.2	5
19	Butterfly population trend (associated with natural and semi-natural habitats)	2.2	5
20	Population trend of endangered flora species	2.2	12
21	Area and quality of marine phanerogamae	2.2	5
22	Trend in the expansion of invasive species (ExoCat)	2.2	9
23	Area of habitats particularly vulnerable to climate change	2.2	10
24	Area and quality of natural and semi-natural habitats	2.2	5
25	Forest area affected by die-off	2.2	10
26	Quality of inland waters	2.2	5
27	Area of groundwater aquifers established as vulnerable to nitrate pollution	2.2	8
28	Plans, programmes and projects with compensatory measures	2.3	4
29	Number of environmental impact declarations with compensatory measures on residual impacts	2.3	4
30	Plans, programmes and projects subject to environmental evaluation with biodiversity loss associated with residual impacts	2.3	4
31	Area of habitats compensated through environmental evaluation	2.3	4
32	Area of non-developable land	3.1	14
33	Area with cartography of ecosystem services	3.1	14
34	Area with high landscape connectivity	3.1	11
35	Evolution of the connectivity of protected natural areas	3.1	5

Indicator		Strategy objectives	Aichi objectives
36	Percentage naturalness of riverside land uses	3.1	14
37	Area of protected land (by urban planning concepts other than the Plan for Areas of Natural Interest - PEIN)	3.1	14
38	Area of urban green areas included in municipal urban planning associated with urban and developable land	3.1	14
39	Recovered area of degraded natural and semi-natural habitats	3.2	15
40	Number of demolished transversal and longitudinal river structures	3.2	15
41	Number of water masses with good hydromorphological quality (according to the HIDRI protocol)	3.2	14
42	Area of planned forest land for improving ecosystem services	3.2	14
43	Percentage of water masses occupied by infrastructures and services in river areas	3.2	14
44	Request for CAP environmental measures for the biodiversity conservation	4.1	4
45	Total water demand for agricultural irrigation	4.1	7
46	Agricultural area irrigated with recycled water	4.1	7
47	Percentage of agricultural land used for organic or integrated production or production based on sustainable practices	4.1	7
48	Population trends of birds dependent on agricultural practices (FarmLand Indicator)	4.1	7
49	Population trend of pollinators	4.1	14
50	Population trend of seed-dispersing birds	4.1	14
51	Evolution of native Catalan livestock breeds	4.1	13
52	Species of local varieties of agricultural interest kept at the Seed Bank of Catalonia	4.1	13
53	Forest area with approved planning instruments	4.1	7
54	Forest area with certification	4.1	7
55	Percentage of forests with a high level of naturalness	4.1	7
56	Area affected by forest fires	4.1	10
57	Tons of CO2 absorbed by Catalan forests	4.1	14
58	Trend in fishing catches per unit effort (CPUE)	4.2	6
59	Number of commercial fish species governed by the fishing management plan	4.2	4
60	Percentage of coral populations with good conservation status	4.2	10
61	Percentage of coastal waters with a good or very good environmental quality	4.2	8
62	Number of voluntary biodiversity agreements	4.3	4
63	Ecological footprint of Catalonia	4.3	4
64	Population trend of game mammals	4.4	4
65	Population trend of game birds	4.4	4
66	Population trend of inland water fish for fish farming	4.4	4
67	Number of authorised sporting and leisure activities in protected natural areas	4.5	5
68	Biodiversity strategies or action plans developed in Catalonia	5.1	17
69	Total endowment of human resources for nature conservation	5.1	20
70	Collaboration agreements with local organisations to foster biodiversity	5.1	4
71	Sectoral strategies and plans approved in Catalonia that integrate biodiversity	5.1	17
72	Revenue from environmental taxation with an impact on biodiversity	5.2	20
73	Public funds allocated to conservation of the natural heritage	5.2	20
74	Public subsidies and grants detrimental and favourable to biodiversity conservation	5.2	3
75	Percentage of society concerned about biodiversity conservation	6.1	1
76	Number of Environmental Third Sector entities dedicated to nature conservation	6.2	1
77	Environmental Third Sector funds allocated to biodiversity conservation	6.2	20
78	Participants at Catalonia Nature Week	6.2	1

Contribution of the 85 action lines to compliance with Aichi Biodiversity Targets



Aichi Biodiversity Targets

A. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

1	By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
2	By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.
3	By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.
4	By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

B. Reduce the direct pressures on biodiversity and promote sustainable use

5	By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.
6	By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.
7	By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring biodiversity conservation.
8	By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
9	By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
10	By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

C. Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

11	By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.
12	By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
13	By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

D. Enhance the benefits to all from biodiversity and ecosystem services

14	By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.
15	By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.
16	By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

E. Enhance implementation through participatory planning, knowledge management and capacity building

17	By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.
18	By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.
19	By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.
20	By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

