

Draft 3rd National Biodiversity Action Plan

Ireland's Vision for Biodiversity:

“That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally.”

Objectives and Targets of Ireland's NBSAP

1. Mainstream biodiversity in the decision making process across all sectors

- 1.1. Shared responsibility for the conservation of biodiversity and the sustainable use of its components is fully recognised, and acted upon, by all sectors
- 1.2. Strengthened legislation in support of tackling biodiversity loss in Ireland

2. Substantially strengthen the knowledge base for conservation management and sustainable use of biodiversity

- 2.1. Knowledge of biodiversity and ecosystem services has substantially advanced our ability to ensure conservation, effective management and sustainable use by 2021

3. Increase awareness and appreciation of biodiversity and ecosystems services

- 3.1 Enhanced appreciation of the value of biodiversity and ecosystem services among policy makers, stakeholders, local communities and the general public

4. Conserve and restore biodiversity and ecosystem services in the wider countryside

- 4.1. Agricultural, rural development, forestry and peatland policies and strategies to achieve net benefits for biodiversity and ecosystem services
- 4.2. Principal pollutant pressures on terrestrial and freshwater biodiversity substantially reduced by 2020
- 4.3. Optimised benefits for biodiversity in Flood Risk Management Planning and drainage schemes
- 4.4. Harmful invasive alien species are controlled and there is reduced risk of introduction and/or spread of new species
- 4.5. Effective management and restoration in place for biodiversity and ecosystem services in the wider countryside by 2021
- 4.6. Improved enforcement of wildlife law

5. Conserve and restore biodiversity and ecosystem services in the marine environment

- 5.1. Substantial progress made towards “good ecological status” of marine waters over the lifetime of this Plan
- 5.2. Fish stock levels maintained or restored to levels that can produce maximum sustainable yield, where possible, no later than 2020

6. Expand and improve on the management of protected areas and legally protected species

- 6.1. Natura 2000 network established, safeguarded, designated by 2018 and under effective conservation management by 2020
- 6.2. Sufficiency, coherence, connectivity and resilience of the protected areas network substantially enhanced by 2020
- 6.3. No protected habitats or species in worsening conservation status by 2020; majority of habitats and species in, or moving towards, favourable conservation status by 2027

7. Strengthen international governance for biodiversity and ecosystem services

- 7.1. Substantially strengthened support for biodiversity and ecosystem services in external assistance
- 7.2. Enhanced contribution to international governance for biodiversity and ecosystem services
- 7.3. Enhanced cooperation with Northern Ireland on common issues
- 7.4. Substantial reduction in the impact of Irish trade on global biodiversity and ecosystem services

Summary of Objectives of Ireland's NBSAP

1. Mainstream biodiversity in the decision making process across all sectors

If we are to ensure conservation and, if necessary, restoration of biodiversity, then many levels of government and society need to be engaged. Government Departments, agencies and Local Authorities have responsibility for policies and plans for biodiversity related issues. Decision-making across the private sector also needs to consider impacts on biodiversity and ecosystem services.

2. Substantially strengthen the knowledge base for conservation management and sustainable use of biodiversity

During the period of the second Biodiversity Action Plan there was a significant improvement in our knowledge of the conservation of species and habitats. However, there are still gaps in knowledge that need to be filled and basic taxonomic skills are lacking for many groups. Without a comprehensive knowledge base, it is difficult to achieve effective conservation management and sustainable use of biodiversity.

3. Increase awareness and appreciation of biodiversity and ecosystems services

Public engagement with biodiversity issues is essential for realizing the full range of benefits from nature including: strengthening local grass-roots community initiatives, increased educational opportunities, health benefits from community activities and direct exposure to nature, and realization of local business opportunities in nature based tourism and ecosystem service provision.

4. Conserve and restore biodiversity and ecosystem services in the wider countryside

Ireland's wider countryside supports thousands of species and a wealth of ecosystem services many of which are under significant pressures from unsustainable activities. Concerted efforts are needed to restore biodiversity and ecosystem services that have been degraded.

5. Conserve and restore biodiversity and ecosystem services in the marine environment

Ireland's marine environment and coastal habitats support a rich diversity of biodiversity and ecosystem services (for example, fisheries, aquaculture, and tourism). However, many of these are under pressure from human impacts such as nutrient and chemical pollution, litter, and man-made noise. Our marine biodiversity needs to be sustainably managed and conserved for present and future generations.

6. Expand and improve on the management of protected areas and legally protected species

Ireland has made progress in expanding and improving the management of protected areas and legally protected species. However, more progress is needed on this objective to ensure protection and effective conservation of these areas and the they species contain.

7. Strengthen international governance for biodiversity and ecosystem services

Ireland is a party to a large number of international conventions, treaties, protocols and agreements, acknowledging the fact that conservation of species and habitats traverses international boundaries and requires cooperation across the international community. The most recent global assessments show that, despite accelerating policy and management responses to the biodiversity crisis, the impacts of these efforts are unlikely to be reflected in improved trends in the state of biodiversity by 2020. More effort is needed, therefore, to ensure international targets are met.

Ireland's Vision for Biodiversity

"Biological diversity" means 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. Thus, the term biodiversity includes all life on Earth. Globally, biodiversity is declining and despite increased awareness and efforts to halt its loss, biodiversity remains threatened by human activities worldwide¹. Major causes of global biodiversity loss include overexploitation of wild species² and conversion of land to agricultural use³. Loss of biodiversity worldwide led to the wide acceptance of the need to coordinate action for biodiversity on a global scale. In 1992 the United Nations Convention on Biological Diversity (CBD) was established and Ireland ratified the Convention in 1996⁴. The objectives of the CBD are "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources". Toward this end the CBD has identified in its Strategic Plan five Strategic Goals and 20 Biodiversity Targets⁵ (see Appendix V). In addition, the CBD requires each Contracting Party to develop national strategies and action plans for the conservation and sustainable use of biodiversity.

This National Biodiversity Strategy and Action Plan (NBSAP), the third such plan for Ireland, captures the objectives, targets and actions for biodiversity that will be undertaken by a wide range of government, civil society and private sectors to achieve Ireland's Vision for Biodiversity. This NBSAP provides a framework to track and assess progress towards Ireland's Vision for Biodiversity over a five-year timeframe from 2017 to 2021. To achieve the Vision, seven strategic objectives were identified in the second National Biodiversity Strategy and Action Plan "Actions for Biodiversity 2011-2016"⁶. These objectives (Figure 1) have been retained for this new Plan with the intention to see them through to completion. Actions required to achieve the strategic objectives as well as the actors and key partners responsible for their implementation are set out in the Table of Actions.

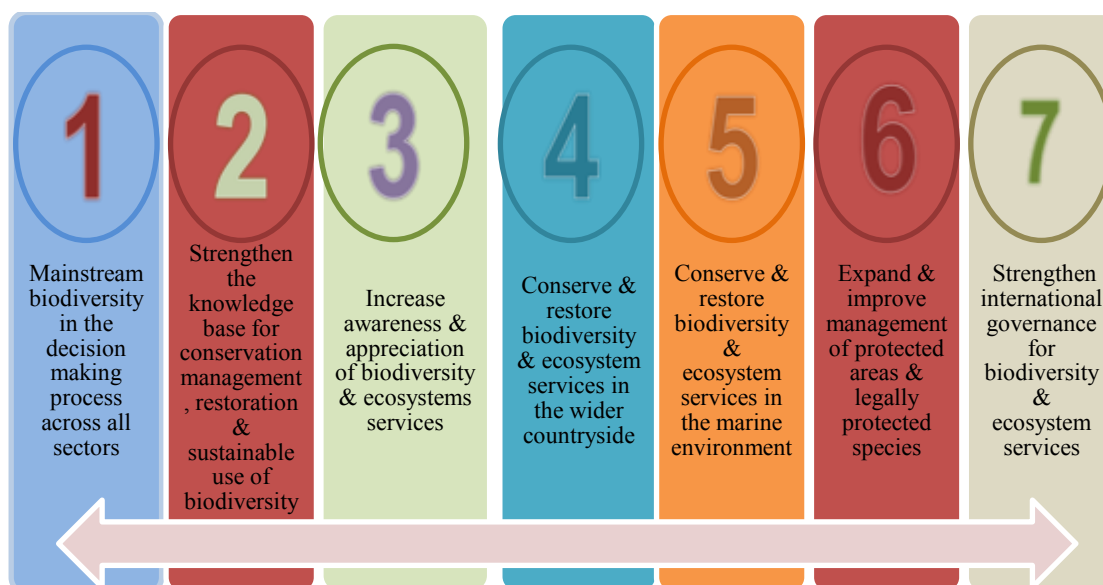


Figure 1. Objectives of Ireland's National Biodiversity Strategy and Action Plan

Ireland's biodiversity

Ireland has a rich diversity of ecosystems and wildlife in its land, freshwater and marine environments. Ireland's natural habitats have evolved over millions of years and support globally important populations of birds, fish, mammals, invertebrates, plants and fungi. Marine habitats surrounding our island are home to whales, dolphins, vast colonies of seabirds, abundant fish and cold-water coral reefs. On land, there is a wealth of species in our mountains, peatlands, turloughs, woodlands, lakes, rivers, and coastal habitats. Over 31,000 species have been recorded in Ireland and its surrounding seas and many more have yet to be discovered⁷.

For many years, we have sought to conserve nature for its own sake, purely for moral and ethical reasons. This rationale remains as valid and relevant as ever. More recently, additional arguments for nature conservation have emerged, based on the social, cultural and economic value of biodiversity and the benefits or “ecosystem services” it provides to society (Figure 2). An example of an ecosystem service provided to the agriculture sector in Ireland is nutrient cycling by soil organisms. This service is estimated to be worth €1 billion each year⁸. Recognising that biodiversity provides numerous valuable but previously unvalued ecosystem services further compels us to protect our biodiversity from unsustainable exploitation.

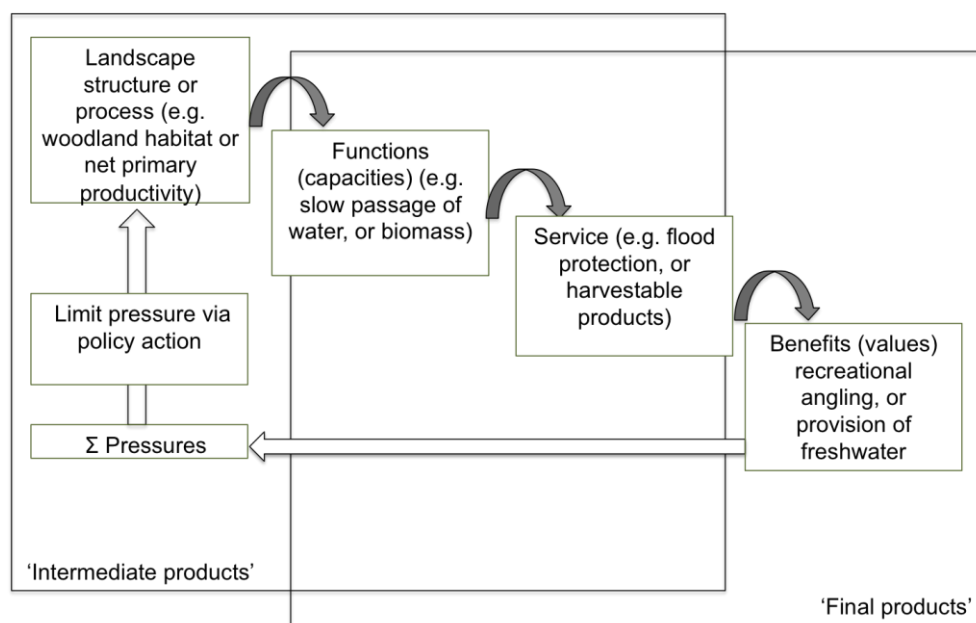


Figure 2. The relationship between biodiversity, ecosystem function and human well-being⁹

At the UN Sustainable Development Summit in 2015, Ireland played an important role in negotiating 17 Sustainable Development Goals (SDGs) and 169 Targets to promote sustainable use of Earth's natural resources and to protect the planet from degradation¹⁰. Through sustainable management of healthy ecosystems and the many species that function within them, we hope to continue to benefit from a wide range of ecosystem services. Biodiversity is an important asset and governments and the private sector need to recognize its intrinsic and economic values as part of the decision-making process.

In recent decades, human impacts on biodiversity in Ireland and across the planet has accelerated and resulted in increased damage to habitats, loss of species, reduced abundance of wildlife and degradation of our air, water and soils^{1,11}. If we, the current generation, continue to unsustainably exploit our nation's and our planet's natural resources, pollute our seas, freshwater and soils, future generations will inherit a diminished and degraded environment unfit to provide them with wide range of benefits to society and the economy.

Many of Ireland's economic sectors, particularly tourism and food production, depend on high quality air, soils, water, and diverse habitats. However, these industries can only be sustainable if the natural assets on which they are based are protected from degradation. This is particularly true for initiatives such as Ireland's "Wild Atlantic Way", which markets the western seaboard as a nature, wildlife, and cultural heritage destination (Figure 3). However, there are many other less obvious ways in which nature sustains us, for example, contributing to our heritage, health, well-being, enjoyment and national identity.



Figure 3. Tourism, food production and marine industries rely on sustainable management of our biodiversity

Biodiversity, ecosystem services and the economic, social, cultural and societal benefits they provide are vital to Ireland's economic recovery and healthy and sustainable future (Table 1). Ireland's plan for infrastructure and capital investment 2016-2021¹² acknowledges the role of our natural heritage for economic growth, highlighting investments in the rehabilitation of peatlands and initiatives such as the "Wild Atlantic Way". In addition to investment in physical infrastructure, investing directly in biodiversity through protection and rehabilitation of habitats is fundamental for sustaining and improving the benefits we get from nature. This NBSAP identifies key actions for sustaining and improving the condition of biodiversity, and consequently its ecosystem services, on our land and in our sea.

Table 1. Examples from Ireland of ecosystem services and valuation

In 2014, revenue from overseas tourism amounted to €3.5 billion¹³. Ireland's natural, unspoilt environment was cited by 86% of visitors surveyed as an important reason for visiting Ireland¹⁴.

Recreational angling in Ireland contributes €836 million to the Irish economy every year and over 11,000 Irish jobs are supported as a result of angling, often in rural communities¹⁵.

In 2008 an Irish study 'The Economic and Social Benefits of Biodiversity', conservatively valued national ecosystem services at over €2.6 billion per year⁸.

Ireland's ocean economy had a turnover of €4.2 billion in 2012 and was worth approximately 0.7% of GDP¹².

The State of Ireland's Biodiversity

There have been a number of assessments of the state of our biodiversity. To date, Ireland has undertaken Red List assessments of the conservation status of 4.5% of the total known species to occur on the island¹⁶ (Figure 4). Many are in good status, but just under 4% are now regionally extinct (for example, Mountain Ringlet butterfly and Grey Wolf) and over 20% have been assessed as under threat of extinction (including 30 species of bees, European Eel, Arctic Char, and Natterjack Toad).

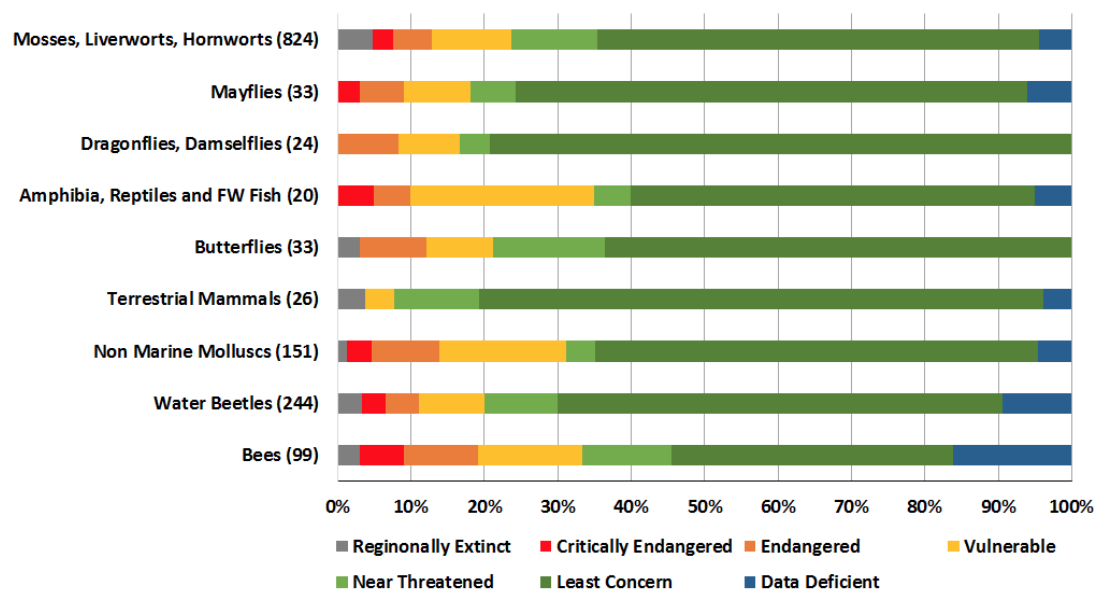


Figure 4. Proportion of the Irish species assessed under the IUCN Red List process per taxonomic group (number of species in brackets) and threat category. Those species currently in the critically endangered (CR), endangered (EN) and vulnerable (VU) categories are considered to be of immediate conservation concern.

The most recent assessment of the status of EU protected habitats and species in Ireland in 2013 showed that 91% of the 58 habitats assessed have an unfavourable conservation status¹⁷ (i.e. 50% were 'Inadequate' and 41% were 'Bad') (Figure 5). Assessments that are unfavourable were assigned qualifiers to determine whether the status is improving, declining, stable, or unknown. Since 2007, nine habitats demonstrated a genuine improving trend, 18 habitats are considered to be declining, no change is reported for 28 habitats and an unknown trend reported for three habitats. Many of the coastal habitats and lakes are assessed as 'Inadequate', with

ongoing declines. 'Inadequate' but improving trends are noted for some marine habitats. The status of several peatland and grassland habitats remains 'Bad', with ongoing declines. The conservation status of species was slightly more positive, although 20% of those assessed were reported as being 'Inadequate' and 12% as 'Bad' (Figure 5). Those species assessed as 'Bad' are Freshwater Pearl Mussel, Sea Lamprey, Twaite Shad, Pollan, and Natterjack Toad¹⁷.

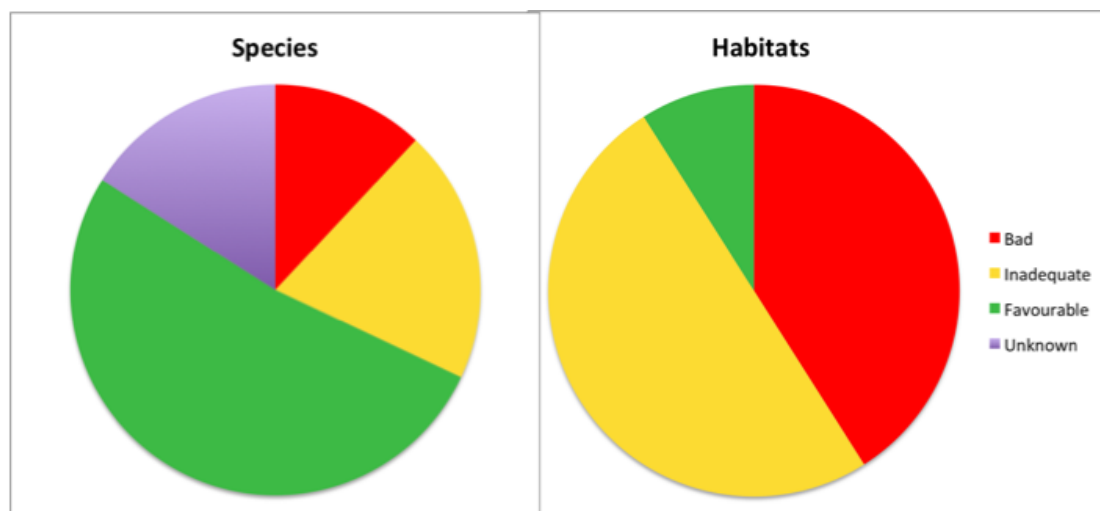


Figure 5. 2013 Article 17 assessment of the status of EU protected habitats and species in Ireland showing proportion assessed as 'Bad', 'Inadequate', 'Favourable', and 'Unknown',¹⁷.

Ireland's reporting on the EU Birds Directive shows that the short-term (2001-2012) population trends of 38% of breeding bird taxa are increasing, that 24% are stable, 27% are decreasing and 11% are unknown (Figure 6). The trends are less clear for wintering bird taxa with short-term population trends of 25% of taxa increasing, 12% of taxa stable, 24% decreasing, 23% unknown, and 16% fluctuating (Figure 6).

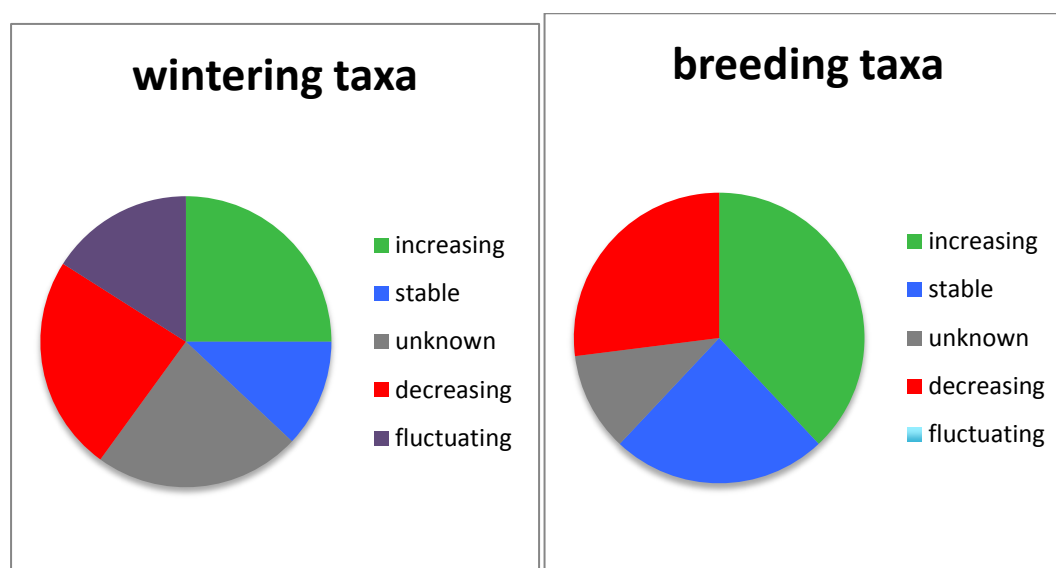


Figure 6. 2012 Article 12 report on the status and trends of Ireland's bird species showing proportion of taxa reported as having decreasing, stable, fluctuating, increasing or unknown population trends.

The overall picture is that a large proportion of Ireland's biodiversity is in a poor and vulnerable state.

Pressures on Ireland's biodiversity and ecosystem services

Despite the demonstrated value of Ireland's biodiversity and ecosystem services, it continues to be under considerable pressure. The main threats and pressures on EU protected habitats and species are from agriculture and fisheries, natural system modifications (including drainage), climate change, pollution, and invasive and problematic species¹⁷. Urbanisation, industrialisation, and ocean acidification¹⁸ contribute further stress to species and habitats.

Without significant action to change current trends there will be no significant decrease in these pressures over the next decade. Indeed several, including climate and agricultural system changes and invasive species, are likely to increase if action is not taken now. Globally, over 65% of the world's surface ecosystems have been degraded beyond safe planetary limits³; particularly in grassland ecosystems, which are important economically, socially and ecologically. The main threats and pressures reported for EU protected habitats and species are also likely to be the major pressures on species and habitats in the wider natural, urban and marine environments.

In Ireland, pressures associated with agriculture have had major impacts on land-based habitats and species with over 70% of Annex 1 habitats (habitats of particular conservation concern) negatively impacted by agriculture¹⁷. Ecologically unsuitable grazing regimes represent approximately 50% of the pressures recorded in the "agriculture" category in Ireland's 2013 Article 17 report¹⁷. One-third of the pressures in the "agriculture" category were assigned to abandonment¹⁷. In addition, the breeding distributions of bird species that are associated with farmland, including the Curlew, Lapwing and Yellowhammer has declined substantially over recent decades.

There is evidence that climate change is negatively impacting Irish habitats, especially coastal and upland habitats¹⁹ as well as a suite of species^{20, 21, 22, 23}, and is driving ocean acidification¹⁸. Climate change models indicate that degraded upland habitats, in particular, will become less resilient to the impacts of climate change in the immediate future²⁴. Expected increases in temperature, changes in precipitation patterns, weather extremes (storms and flooding, sea surges, flash floods) and sea-level rise will affect the abundance and distribution of Irish species and possibly encourage the spread of alien invasive species. For example, the flight periods, number of generations per year, and abundances of Irish butterflies will change, as well as the timing of bud burst in Irish tree species with subsequent effects on insects and the birds which feed on them.

Pollution, mainly as a result of agricultural- or forestry-related activities and household sewage systems, was cited as one of the main threats to habitats of EU interest (for example estuaries, coastal lagoons, and turloughs) and was the most frequent threat to species of EU interest¹⁷. Elevated nutrient concentrations (phosphorus and nitrogen) continue to be the most widespread water quality problem in Ireland arising primarily from human activities such as agriculture and waste water discharges to water from human settlements.²⁵ *Ireland's Environment – An*

*Assessment 2016*²⁵ reports that there has been no improvement in river water quality or transitional and coastal water quality over the past six years. Pollution was the most frequent threat to species of EU interest¹⁷ and is therefore a key pressure that needs to be urgently addressed.

The occurrence and spread of invasive and non-native species in Ireland is increasing for all environments²⁸. Invasive species, such as the Zebra Mussel and Grey Squirrel, may displace native species and considerably alter biodiversity, and subsequently, ecosystem processes and services. To date, the majority of invasive species in Ireland have been plants (including Hottentot Fig, Giant Rhubarb, and Giant Hogweed) but the future trend may be towards invertebrates and vertebrate species comprising a greater percentage of new arrivals^{28, 29}. The direct annual cost of invasive species to Ireland's economy was estimated in 2013 to be €202,894,406³⁰, but with an increase in introductions and impact there may also be an increase in economic cost.

Ireland's responses to biodiversity loss

In 2002, Ireland published its first National Biodiversity Action Plan (2002-2006)³¹ as the main vehicle for meeting commitments under the Convention on Biological Diversity (CBD) and EU Biodiversity Strategy. The overall objective of the first Plan was to secure the conservation, including where possible the enhancement, and sustainable use of biological diversity in Ireland. Ireland's second National Biodiversity Action Plan, "Actions for 2011-2016"⁶, was launched in November 2011 and built upon the achievements of the first Plan. It focused on actions that were not fully completed and addressed emerging issues.

The second Plan was a statement by a range of Government Departments and agencies and its ambitions were considerable. An interim review of the second Plan showed that while some significant progress has been made, there are still areas where increased efforts will be required to meet its targets and objectives³². The review concluded that of the 102 Actions, 24 were implemented, 67 were on-going and 11 required substantial further action (Figure 7). Forty of the 102 actions are of an on-going or open-ended nature. Key achievements for the period of the second Plan include:

- The establishment of an Interdepartmental Working Group on Biodiversity composed of key Government Departments and state agencies;
- The development of the Irish Vegetation Classification by the National Biodiversity Data Centre in collaboration with the National Parks and Wildlife Service (NPWS);
- The establishment of the Irish Forum on Natural Capital;
- The introduction of the European Communities (Environmental Impact Assessment)(Agriculture) Regulation (S.I.456/11) by the Department of Agriculture, Food and the Marine (DAFM);
- On-going development and delivery of agri-environment measures through the Rural Development Programme (RDP);
- The publication of an Integrated Maritime Plan (IMP) entitled "Harnessing Our Ocean Wealth";
- The publication of the National Peatland Strategy; and

- The commencement of six EU LIFE projects (AranLIFE farming project; Burren GeoparkLIFE; KerryLIFE Freshwater Pearl mussel conservation project; RaptorLIFE project focussing on connecting and restoring habitats for Hen Harrier, Merlin, Atlantic Salmon and Brook Lamprey; LIFE Irish Raised Bogs project; and WISER LIFE project involved with developing best practice for waste reuse and preparation for reuse).

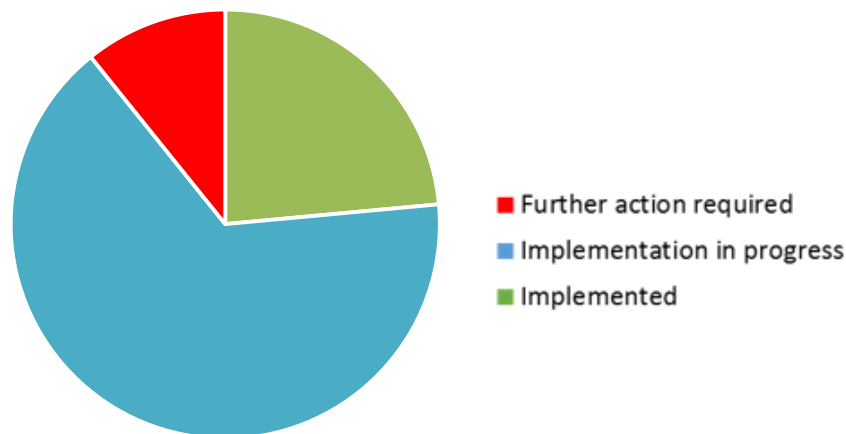


Figure 7. Assessment of overall progress on implementation of the 102 Actions for Biodiversity 2011-2016 ³²

This, the third Plan, builds on the momentum of the first two Plans and continues to move us towards our Vision for Biodiversity: ‘That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally’.



Figure 8. History of National Biodiversity Action Plans for Ireland

The starting point for the development of the third Plan was the interim review of the second Plan³². Actions that were identified as on-going or requiring further action were retained in the third Plan. These actions were reviewed for relevancy and their content and timelines updated accordingly. Responsible actors were assigned to each action. Actions were subsequently examined against Ireland’s Vision for Biodiversity and new actions added where necessary. All of the actions are collated together in the Table of Actions. Government Departments and state agencies will undertake the majority of the actions in this Plan but greater engagement with industry and civil

society will be necessary. All updates were reviewed by the Biodiversity Working Group and the Biodiversity Forum (see Appendix II for membership of these).

Monitoring and evaluating the implementation of this NBSAP

The Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAH) is the main administrative institute responsible for oversight of the implementation of this Plan and for coordinating the other public authorities, NGOs and private sector organisations involved in the process. The Biodiversity Working Group and the Biodiversity Forum are the main vehicles for implementing and monitoring this Plan and for delivering an interim review in 2019. This review will quantify the successful implementation of the strategy based on indicators. Suggested indicators for each action are presented in the Table of Actions. These will be coordinated under the National Biodiversity Indicators collated by the National Biodiversity Data Centre. These indicators provide an important source of evidence for the public and decision makers on the state, pressures, and conservation actions relating to Ireland's biodiversity. The indicators also facilitate reporting on Ireland's progress towards attaining national, European and global biodiversity targets and Sustainable Development Goals.

Table of Actions

Introduction:

This Table of Actions is the core element of Ireland's third National Biodiversity Strategy and Action Plan. Each of the seven objectives is prefaced with explanatory text and also a cross reference to the relevant Aichi Biodiversity targets and Sustainable Development Goals that the actions under the objective help to achieve. Each objective also has a number of targets which group a set of related actions. For each action there is a specified timeframe, actors (in bold) and key partners who have responsibility for implementation, performance indicators with which achievement of the actions can be tracked, and a baseline that describes the current situation. Abbreviations of actors and partners can be found in Appendix I.

Objective 1: Mainstream biodiversity into decision-making across all sectors

The Convention on Biological Diversity's Cancun Declaration³³ (CBD, 2016) focuses on the need for governments at the national, sub-national and local levels to mainstream the conservation and sustainable use of biodiversity for human well-being. This can be achieved through sectoral and cross-sectoral policies, plans and programs, to establish an effective institutional, legislative and regulatory framework that incorporates an economic and socially inclusive approach.

The first strategic objective of this NBSAP aims to strengthen this mainstreaming process. It is important that relevant sectors are more aware of biodiversity considerations and take them into account in their policies and operations. All sectors should be fully engaged to ensure protection and restoration of biodiversity.

Some progress in mainstreaming biodiversity and ecosystem services into decision-making across sectors has been made in Ireland. There is growing recognition of the wider benefits of considering biodiversity and ecosystem services, in particular, in the agriculture, forestry, marine and tourism sectors. For example, the contribution of natural capital to Ireland's food production sector is showcased through the Origin Green initiative as well as Food Wise 2025³⁴. Adhering to sustainability principles and efficiency in food production will also achieve environmental benefits. A central priority of the Irish Rural Development Programme is restoring, preserving and enhancing ecosystems related to agriculture and forestry. This highlights the importance of the contribution of this sector to the protection of biodiversity through the delivery of the Green, Low-Carbon, Agri-Environment Scheme (GLAS) and the GLAS+ scheme that provides additional compensation in return for exceptional environmental commitment. The current European Maritime and Fisheries Fund puts a greater focus on the sustainable use of resources, preserving marine biodiversity and shifting towards a low-carbon economy.

Under this NBSAP further action will be undertaken to raise awareness within Government Departments, Local Authorities and state agencies of the implications of policy and decisions on biodiversity, through for example, the articulation of no net loss biodiversity targets in plans/policies and the strengthening of ecological expertise. In addition, engagement with the private sector will be improved through the establishment of a national Business and Biodiversity Platform under the CBD's Global Business Partnership.

In previous Plans, local action was highlighted as being very important in tackling biodiversity loss. Local Authorities will review and update their Biodiversity and Heritage Action Plans as well as their Development Plans and policies, giving due consideration to the protection and restoration of biodiversity. To support locally-led action to safeguard biodiversity and ecosystem services additional biodiversity-related guidance for Local Authorities will be published. For example, on screening for Appropriate Assessment for Planning Authorities as well as best practice guidance for use of GIS in Strategic Environmental Assessment (SEA), for cumulative effects assessment and for better practice in SEA for the energy sector.

Ireland will continue to implement key EU Directives to improve Ireland's environment and wildlife. The EU Directive on SEA came into force in Ireland in 2004, obliging consideration of biodiversity in public plans and programmes, mainly due to the need to meet reporting requirements for various EU Directives. A recent review shows that SEA is fulfilling its role and is providing a vital tool for environmental protection in Ireland³⁵. SEA ensures that environmental considerations are taken into account in policy development and implementation and is raising the profile of environmental issues in decision-making at plan level among 11 sectors applying SEA.

Under the EU Nature Directives Ireland must contribute to Natura 2000 network of sites for the protection of Europe's most valuable and threatened habitats and species (see Objective 6). The Government intends to streamline financial expenditure tracking relating to Natura 2000 and biodiversity more broadly, including linkages to the Prioritised Action Framework for Natura 2000 (PAF). The Prioritised Action Framework is a tool used by EU Member States that aims to integrate financing for Natura 2000 into EU financial instruments.

The European Communities (Environmental Liability) Regulations establish a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. In Ireland, the EPA has been designated as the competent authority for all aspects of these Regulations. The Regulations achieve the prevention and remediation of environmental damage by introducing, among other things, a reporting obligation on operators in respect of actual or threatened environmental damage.

In addition to being essential for our survival and human well-being, healthy ecosystems are the bedrock of a sustainable economy. Gross Domestic Product (GDP) can give misleading signals about the economic performance and well-being of a country as it looks at income, only one part of economic performance, and not the wealth and assets that underlie this income. GDP does not show the full contribution of natural capital such as forests, wetlands, and agricultural land. Natural capital accounts can therefore provide detailed statistics for better management of the economy. Natural capital accounting has advanced with the aid of the UN Statistical Commission of the System for Environmental and Economic Accounts (SEEA), which provides an internationally agreed method to account for material natural resources like minerals, timber and fisheries³⁶. Progress in measuring and valuing elements of Ireland's biodiversity will be made under this NBSAP through the valuation of water services, the production of guidelines for natural capital accounting and reporting for government and industry, and the development of national forest accounts using the SEEA framework.

A report from the CBD (CBD, 2011³⁷) on the role of economic incentives in shaping environmental behaviour concludes that the removal of subsidies that lead to environmentally damaging practices and the promotion of incentive schemes that promote positive ones can produce economic and environmental benefits if they are coordinated and well implemented. The Plan seeks to identify perverse incentives (a policy or practice that encourages, either directly or indirectly, resource use leading to degradation of biodiversity) and take measures to ensure they do not contribute to biodiversity loss.

Legislative support is essential to underpin actions that assist in the conservation of biodiversity. Further development in this area will be made through the publication of legislation, for example, that provides a legal basis for National Parks by 2020 and that addresses the required provisions under the EU Regulation on invasive species. For marine biodiversity, this NBSAP commits to facilitating improved engagement with the Convention for the Protection of the Marine Environment of the North-East Atlantic (or OSPAR Convention) and the International Council for the Exploration of the Sea (ICES).

Aichi targets that these actions help us achieve: 1, 2, 3, 4, 14, 15, 17, 18, 19

Sustainable Development Goals these actions help us achieve: 1, 3, 8, 9, 12, 14, 15

Target 1.1: Shared responsibility for the conservation of biodiversity and the sustainable use of its components is fully recognised, and acted upon, by all sectors

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicators</i>	<i>Baseline</i>	<i>Related actions</i>
1.1.1. All public authorities and private sector move towards no net loss of biodiversity through strategies, planning, mitigation measures, appropriate offsetting and/or investment in green-blue infrastructure	2017 -2021	Public authorities, private sector	1. Number of Departments /Agencies articulating a no net loss target in plans and policies	<p>EPA³⁸ and BnM³⁹ have Biodiversity Action Plans. BnM are planning rehabilitation and restoration of a number of their bogs. The EPA's plan demonstrates a wide range of significant actions undertaken by the EPA in relation to the protection of biodiversity</p> <p>This NBSAP (2017-2021) sets out biodiversity targets to help public authorities and the private sector move towards no net loss of biodiversity</p> <p><i>Our Sustainable Future</i>⁴⁰ sets out a framework for advancing sustainable development and the green economy in Ireland including the conservation and management of natural resources and the development of an integrated approach to green infrastructure</p> <p>The EPA published a guidance document to assist the public sector to implement and</p>	

				maintain procedures for green public procurement ⁴¹
1.1.2. Public and Private Sector relevant policies and decisions explicitly consider implications for biodiversity and engage with this NBSAP	2017-2021	Public authorities, private	<p>1. New policies and plans explicitly state considerations of biodiversity</p> <p>2. Number of policies and plans that take biodiversity into account (or fail to do so)</p>	<p>NESC published a report on environmental policy integration in 2015⁴²</p> <p>In “Partnership Agreement Ireland” DPER highlighted need for enhanced capacity to meet objectives under RDP⁴³, EU Biodiversity Strategy to 2020⁴⁴ and EU Birds and Habitat Directives</p> <p>BnM use a Strategic Decision Framework to balance and optimise commercial, social and environmental after-uses of its land</p> <p>SEA Directive should ensure that policies are “biodiversity proofed”</p> <p>Non-Financial Reporting Directive coming into force in 2017</p> <p>Teagasc has a Biodiversity Working Group promote Biodiversity within Teagasc and effect biodiversity practice change</p>
1.1.3. Strengthen ecological expertise in public authorities	2017-2021	Public authorities, The Heritage Council	<p>1. Number of full-time biodiversity officers in place in all Local Authorities</p> <p>2. Training of Public authority staff with responsibility for biodiversity issues to further develop their skills and expertise</p>	<p>DAFM has a Nitrates, Biodiversity & Engineering Unit</p> <p>NBDC provides training to Local Authorities staff on some aspects of biodiversity survey and data</p> <p>23 Heritage Officers and four Biodiversity Officers are employed across 26 Local Authorities⁴⁵</p>

Draft National Biodiversity Strategy and Action Plan v2.0

1.1.4. Local Authorities will review and update their Biodiversity and Heritage Action Plans as well as their Development Plans and policies giving due consideration to the protection and restoration of biodiversity	2017-2021	Local Authorities, DHPCLG, The Heritage Council	1. Explicit consideration of biodiversity and ecosystem services in Local Authority Development Plans 2. Number of Plans reviewed	21 Local Authorities have Biodiversity Action Plans, with six current for 2016. Biodiversity is also incorporated into Heritage Plans and 29 Local Authorities have produced Heritage Plans since 2000. Planning Authorities and Government Departments have duties under the European Communities (Birds and Natural Habitats) Regulations 2011, whereby all public authorities are obliged to undertake and exercise their functions “ <i>which may have implications for or effects on nature conservation shall exercise those functions in compliance with and, as appropriate, so as to secure compliance with, the requirements of the Habitats Directives and the Birds Directive and these Regulations</i> ”. This obligation is also reflected in the Planning and Development Acts ¹ in relation to Part XAB Appropriate Assessment.
1.1.5. In consultation with Local Authorities, continue to publish guidance for Local Authorities regarding biodiversity	2017-2021	DAH, EPA, Local Authorities, The Heritage Council	1. Number of guidance documents published	DAH are developing guidelines on screening for Appropriate Assessment for Planning Authorities, these are prepared jointly with DHPCLG EPA are developing best practice guidance for use of GIS in SEA, for cumulative effects assessment and for better practice in SEA for the energy sector
1.1.6. Integrate Natura 2000 and Biodiversity financial expenditure tracking into	2017-2021	Relevant Government Departments	1. Publish financial expenditure for Natura 2000 including	The Prioritised Action Framework (Section D) requires reporting across all funding streams and expenditure for Natura 2000 management.

¹ Section 177S (1) which states that “*A competent authority, in performing the functions conferred on it by or under this Part [XAB Appropriate Assessment], shall take appropriate steps to avoid in a European site the deterioration of natural habitats and the habitats of species as well as the disturbance of the species for which the site has been designated, insofar as such disturbance could be significant in relation to the objectives of the Habitats Directive*”.

Operational Programmes internal paying agency management procedures including linkage to the Prioritised Action Framework ⁴⁶ and this NBSAP		explicit reference to the Prioritised Action Framework 2. Number of operational programmes which integrate biodiversity expenditure		
1.1.7. Begin the integration of environmental and economic statistics using the framework of the UN System of Experimental-Ecosystem Accounting (SEEA) beginning with delivery of national forest accounts by 2018	2017-2021	CSO, IFNC	1. National Forestry accounts published	UN publish international statistical standards SEEA Central Framework ⁴⁷ and SEEA Experimental Ecosystem Accounting ⁴⁸ in 2014 Socio-economic Marine Research Unit of NUIG are leading research on valuation of benefits derived from marine ecosystem services ⁴⁹ The Irish Forum on Natural Capital was established in 2014 to, amongst other things, promote establishment of a national natural capital accounting standards
1.1.8. Develop valuation of water services	2020	CSO, Irish Water DHPCLG, EPA, NESC, IFNC	1. Research project/s completed and published on the valuation of water- related ecosystem services and payment for water-related ecosystem services schemes 2. National map of water-related ecosystem services	Irish Water published its Water Services Strategic Plan (WSSP) in 2015, which is a 25-year plan with a specific objective to “Protect and Enhance the Environment” focussing on requirements of the EU Birds, Habitats and Water Framework Directives
1.1.9. Produce guidelines for	2018	DAH, EPA, IFNC,	1. Guidelines published	The Natural Capital Protocol was published in

Draft National Biodiversity Strategy and Action Plan v2.0

natural capital accounting and reporting for government and industry in Ireland including for those companies that will need to comply with the EU Non-Financial Reporting Directive		Sustainable Nation, CSO		2016 by the Natural Capital Coalition. This Protocol outlines steps to measuring, valuing, and integrating natural capital into business processes
1.1.10. Establish a national Business and Biodiversity Platform under the CBD's Global Business Partnership	2018	IFNC, Sustainable Nation	1. Platform established and engaging with private sector organisations	Existing corporate networks could be expanded e.g.: Business in the Community Ireland's SME network and Sustainable Nation, Ireland's sustainable finance community Irish Forum on Natural Capital works to promote natural capital to businesses
1.1.11. Ensure the agriculture sector produces tangible benefits for biodiversity with increased emphasis on conservation and restoration of biodiversity in Origin Green	2018	Bord Bia , Teagasc, DAFM	1. Origin Green reports include assessment of biodiversity benefits 2. Level of support for development of farmland habitat management plans 3. Methodology to assess farmland habitats developed 3. Development and trialling of a biodiversity Indicator in the Teagasc National Farm Survey 4. Number of Origin Green businesses actively engaged with other biodiversity actions	Origin Green's network of food companies have committed to sustainable practices such as carbon efficiencies

Draft National Biodiversity Strategy and Action Plan v2.0

1.1.12. Identify and take measures to ensure that incentives and subsidies do not contribute to biodiversity loss, and develop positive incentive measures, where necessary, to assist the conservation of biodiversity	2021	DAH, DAFM	1. Policies and practices that generate perverse incentives identified 2. Number of appropriate reform policies designed and implemented	A perverse incentive is a policy or practice that encourages, either directly or indirectly, resource uses leading to degradation of biodiversity.	
1.1.13. Establish and implement mechanisms for the payments of ecosystem services (PES) including carbon stocks, to generate increased revenue for biodiversity conservation and restoration	2020	DAH, DCCAE, DAFM	1. Number of mechanisms established for PES	Carbon offset standards and the carbon market industry have developed in response to a demand for products through which companies and individual can offset greenhouse gas emissions. While the primary goal of carbon offsets is to reduce global carbon emissions, many offset projects can lead to benefits for biodiversity	
1.1.14. Monitor the implementation of this Plan	2017-2021	Biodiversity Working Group	1. Number of meetings of BWG 2. Attendance of representatives of departments and agencies 3. Track status of National Biodiversity Indicators 4. Interim report produced	BWG established in December 2011 During the period of the 2 nd Plan the BWG met 4 times. 29 departments and agencies represented	
1.1.15. Develop and implement a National Biodiversity Finance Plan to set out in detail how the actions and targets of this NBSAP will be delivered from 2017 and beyond	2017-2021	DAH, BWG	1. National Biodiversity Finance Plan produced	DAH funded research in 2016-2018 in biodiversity financing policy including analysing current policy and institutional frameworks and assessing the full range of potential financing mechanisms	1.1.12, 1.1.13

Target 1.2: Strengthened legislation in support of tackling biodiversity loss in Ireland					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partner</i>	<i>Performance indicators</i>	<i>Baseline</i>	<i>Related actions</i>
1.2.1. Incorporate into legislation a biodiversity duty to ensure that conservation and sustainable use of biodiversity are taken into account in all relevant plans and programmes and all new legislation	2019	DAH	1. Enactment of biodiversity duty	This was included as an action in the second Plan. Effectiveness of biodiversity duty legislation implemented in Northern Ireland was reviewed	
1.2.2. Publish legislation to provide a legal basis for National Parks	2020	DAH	1. Legislation drafted 2. Law enacted and enforced	National Parks are currently protected under the State Property Act	
1.2.3. Consolidate the Wildlife Acts in a new Bill	2019	DAH	1. Review of existing legislation published		
1.2.4. Review Flora Protection Order and Schedule 5 of the Wildlife Act in light of publication of new Vascular Plant Red Data list and other regional and global Red Lists. Further review Section 40 to ensure control of invasive species may be carried out subject to screening process in the summer months	2017	DAH	1. Reviews of Flora Protection Order and Schedule 5 of the Wildlife Act	The updated Red List for vascular plants is due for publication in 2017 Regional Red List assessments for number taxa published however species categorized as threatened may have no legal protection Section 40 of the Wildlife Acts 1976 to 2012 prohibits the cutting, grubbing, burning or destruction of vegetation, with certain strict exemptions, from 1 March to 31 August during the nesting and breeding season for birds and wildlife	
1.2.5. Ensure the various provisions of the	2018	DAFM	1. Commencement orders	The Forestry Act became law in	

Target 1.2: Strengthened legislation in support of tackling biodiversity loss in Ireland

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partner</i>	<i>Performance indicators</i>	<i>Baseline</i>	<i>Related actions</i>
Forestry Act 2014 that protect biodiversity and the wider environment are brought into effect			for all provisions of the Act	October 2014 and includes provisions for the protection of biodiversity	
1.2.6. Implement OSPAR recommendations on Habitats and Species and their implementation and ensure government resources available to engage with OSPAR and ICES	2019	DHPCLG, DFA, Marine Institute, DAH		From a Biodiversity perspective Ireland's engagement with OSPAR, and ICES as an advisory body to OSPAR, is insufficient at present. This hampers effective protection of biodiversity that is otherwise facilitated by international harmonisation, consensus building and agreement around appropriate action.	Ireland participates in the North Atlantic Salmon Conservation organisation (NASCO) with IFI as the lead agency under DCCAE
1.2.7. Publish legislation to address required provisions under the EU Regulation on invasive alien species (No. 1143/2014)	2019	DAH			
1.2.8. Prepare legislation to provide responsibilities and powers to IFI to control aquatic invasive species		DCCAE, DAH, IFI			
1.2.9. Ratify the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity and write Regulation	2017	DAH	1. The Protocol ratified	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, also known as the Nagoya Protocol on	

Target 1.2: Strengthened legislation in support of tackling biodiversity loss in Ireland

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partner</i>	<i>Performance indicators</i>	<i>Baseline</i>	<i>Related actions</i>
				Access and Benefit Sharing (ABS) is a 2010 supplementary agreement to the 1992 Convention on Biological Diversity (CBD). Its aim is the implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.	

Objective 2: Substantially strengthen the knowledge base for conservation management and sustainable use of biodiversity

Up-to-date scientific knowledge is essential for an informed assessment of the status of biodiversity, for insight into the causes of biodiversity loss and for developing the means to halt or reverse losses. During the period of the second Biodiversity Action Plan there was a significant improvement in our knowledge of conservation of species and habitats. Major research projects were completed in the areas of forestry, agriculture and agri-environment schemes, marine ecosystems, and climate change. A significant amount of monitoring, assessment and research was undertaken to fulfil obligations under the EU Habitats, Birds, Marine Strategy Framework and Water Framework Directives. The national report on the conservation status of species and habitats of EU interest was published in 2013¹⁷. Five Red Lists were published for species of: large moths⁵⁰, mayflies²¹, mosses and liverworts⁵¹, amphibians, reptiles and freshwater fish⁵², and dragonflies²². Wildlife Manuals were published by the DAH on a range of topics including monitoring and survey techniques for species and habitats⁵³. Primary literature has been published on interactions between activities in the marine and designated habitats and species⁵⁴. An online data management system (“Biodiversity Maps”) has now been established where biodiversity data is collated, stored and made available⁵⁵. Habitat maps for the marine and terrestrial environments were progressed and the National Vegetation Classification scheme was initiated⁵⁶.

This NBSAP will build on the achievements of the second Biodiversity Action Plan by addressing outstanding areas of survey and research to strengthen our biodiversity knowledge base and inform decision-making. Information on the location, extent and condition of habitats and species in Ireland is essential for good conservation management. Under this NBSAP national terrestrial habitat, land cover, land use and ecosystem services maps will be completed. To underpin this mapping, work will continue on the development of a National Vegetation Classification scheme, including for marine habitats. Further mapping will be undertaken as part of efforts to identify Ireland’s Key Biodiversity Areas (KBAs), which are sites that make significant contributions to the global persistence of biodiversity⁵⁷, as well as Ecologically or Biologically Significant Marine Areas (EBSAs).

Ireland recognises the value of long-term monitoring of species and habitats to generate data that tracks biodiversity change over time and commits to expanding the network of long-term monitoring schemes. Uses of biodiversity indicators at the national level can include reporting, policy-making, environmental management, and education. The existing suite of National Biodiversity Indicators will be built upon to develop state, pressure and response indicators to aid the assessment of Ireland’s national and international biodiversity commitments by 2020. In addition, progress towards the development of a national Red List Index will be made via the undertaking of new Red List assessments for elasmobranchs, lichens, bryophytes and seaweeds, which assess extinction risk of these taxonomic groups, and the repetition of existing Red List assessments (such as the Red List for Vascular Plants).

Access to data and the best available up-to-date information is essential for evidence-based decision-making by policy makers, planners and others. Acquiring and updating data and information can be difficult and expensive so it is necessary to ensure it can be put to as many uses as possible. Ireland will continue to support and encourage the volunteer network who play such an important role in biological recording schemes. Environmental data will be made accessible through implementation of the INSPIRE Directive, and where appropriate, made available through the Irish government’s open data portal (data.gov.ie) that was progressed during the period of the second Biodiversity Action Plan. Ireland will continue to implement common data standards, as well as quality assurance procedures, to

allow the data to be used for multiple purposes.

Despite advances in our understanding of Ireland's biodiversity and their inter-relationships, basic taxonomic skills and knowledge are lacking for many taxonomic groups⁷. The National Platform for Biodiversity Research published research recommendations for agriculture and soils⁵⁸, freshwaters⁵⁹, marine⁶⁰, peatland⁶¹, and invasive species⁶². To address some of the knowledge gaps national and sectoral research strategies have been published to direct research efforts. The EPA has published its research strategy for 2014-2020⁶³ centred on climate change, water and sustainability. The DAFM published its strategic research plan for Forestry up to 2017 that aims at sustainable production and management of ecosystem services⁶⁴. The Agri-Food sector research plan (SHARP)⁶⁵ focuses on sustainable production whilst supporting implementation of the Water Framework Directive (WFD) and Marine Strategy Framework Directive (MSFD) and biodiversity goals.

Under this NBSAP research will be undertaken to enhance knowledge of the most significant direct and indirect causes of biodiversity loss and to develop and test prevention and mitigation options in that regard. There is consensus among scientists that climate change affects biodiversity and that it is likely to become one of the most significant drivers of biodiversity loss by the end of the century⁶⁶. In addition to implementing biodiversity-related actions from the Climate Change Adaption Strategy, Ireland will prioritise needs for and undertake research into the mechanisms and impacts of climate change on its biodiversity.

The existing forest research programme on forest biodiversity, carbon accounting, and the interaction of climate change and forest systems will be continued in order to strengthen our understanding in that area. Valuation (both monetary and non-monetary) of ecosystems and biodiversity is a subject of growing importance and more detailed research on it is needed in Ireland. Work will be undertaken in this area generally and also to tie into actions under Target 1. To strengthen Ireland's research capacity in order to deliver on our national priorities relating to the marine environment a Marine Research Strategy is due to be published in 2016. To guide the future biodiversity research agenda the Government, academia and research institutions will undertake a review of biodiversity research needs in 2019.

Aichi targets that these actions help us achieve: 1, 2, 5, 7, 10, 11, 14, 15, 17, 19

Sustainable Development Goals that these actions help us achieve: 2, 3, 9

Target 2.1: Knowledge of biodiversity and ecosystem services has substantially advanced our ability to ensure conservation, effective management and sustainable use by 2021					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
2.1.1. Review needs for biodiversity research in 2019	2019	DAH, Academia and Research Institutions	1. 1. Review of biodiversity research needs published	National Platform for Biodiversity Research (NPBR) recommendations produced in 2012 ⁵⁸ and were taken into account in drafting this Plan Agri-Food ⁶⁷ and Forestry ⁶⁴ sectors and EPA ⁶⁸ have published research strategies Periodic reviews of biodiversity research needs were conducted by NPBR in 2005 and 2012	
2.1.2. Complete national terrestrial habitat, land cover, land use, and ecosystem service maps ²	2021	DAH, OSI, EPA, Heritage Council, Teagasc, DAFM	2. Data standards agreed 3. Habitat maps produced and made available 4. Extent of area mapped 4. Maps developed and made available for use	A working group was established in 2012 to produce a national landcover and habitat map. A case study of Co. Roscommon was completed in 2015 INFOMAR programme is mapping physical, chemical and biological features of the seabed BnM have habitat maps for all its lands (80,000 ha) Action 5 of the EU Biodiversity Strategy to 2020 calls Member States to map and assess the state of	

² This is a 'domino' action meaning that other actions and targets are dependent on this being achieved. In this case, the development of national natural capital accounts will require a national habitat map on which to build these accounts.

				ecosystems and their services in their national territory with the assistance of the European Commission
				NPWS has produced initial maps for a prioritised suite of ecosystem services
2.1.3. Develop a vegetation classification scheme for Ireland including for marine habitats	2020	DAH	1. Percentage of Irish habitats classified 2. Vegetation Classification System developed for Ireland	National Vegetation Database holds 34,000 relevés Irish data provided to European scale projects. Classification of certain Irish habitat types (woodlands, grasslands, uplands, saltmarsh, raised bogs, turloughs and lagoons) completed or on-going BnM have developed pioneer vegetation community classification scheme for cutaway bog communities
2.1.4. Make available data and mapping on rare, threatened and protected species and habitats to all public authorities and developers and agents acting on their behalf to inform consent decisions including integrating this data into the FS-DAFM's iFORIS system and corresponding iNET system used by Registered Foresters	2017-2021	DAH, NBDC, EPA, OPW, MI, IFI, WI, Teagasc, Academia, NGOs, Private sector	1. Number of datasets available	NBDC mapping systems makes data on many species available Species and habitats data are needed for SEA, EIA, and AA As habitat surveys are conducted along arterial drainage channels, habitat maps are now made publically available through OPW's web mapping
2.1.5. Continue to implement common data standards and quality assurance procedures in line with the INSPIRE Directive and ensure that data and mapping on rare, threatened and protected species and habitats are	2020	MI, DAH, EPA, Heritage Council, NBDC, DPER	1. Number of datasets published and open to interoperable standards 2. Number of	The Irish Spatial Data Exchange, National Geospatial Strategy and DPER Open Data initiatives are developing common data standards to ensure interoperability of key biodiversity databases and inventories

freely available			datasets used in different domains (e.g. research papers, mapping products) 3. Promotion of the open data available through an engagement event	<p>The main biodiversity data providers are in the process of adopting open data and open licensing standards outlined in the DPER Open Data Technical Framework. A common INSPIRE compliant metadata profile has also been established through the Irish Spatial Data Exchange project.</p> <p>The EPA and DAH are collaborating on data sharing workflows for cross-reporting on Natura 2000 and the Water Dependent Habitat parts of the WFD Article 6 register of protected areas</p>
2.1.6. Support research on economic and societal valuations and non-economic valuations of ecosystem services and benefits and how biodiversity underpins these values	2017-2021	DAH, EPA, IFNC, NESC, CSO, SFI, Academia and Research Organisations, BnM	<p>1. Social and cultural values of ecosystems and biodiversity in Ireland documented</p> <p>2. National maps of ecosystem services produced</p>	<p>Report on the benefits and costs of biodiversity and ecosystem services published in 2008⁸</p> <p>Numerous projects are noted in report on implementation of the second NBSAP including, ecosystem services from forestry, woodland, upland farming, and marine sector.</p> <p>BnM have target in the second NBSAP to map ecosystem goods and services for BnM lands</p> <p>Natural Capital and Ecosystem Services is one of the EPA's Sustainability Research Themes</p>
2.1.7. Continue assessments on status, trends and distribution of all habitats and species of EU interest and	2017-2021	DAH, IFI, NBDC, Academia and Research Institutions,	1. Reports on status of habitats and species of EU	2013 report to the EU under Article 17 of the Habitats Directive

Draft National Biodiversity Strategy and Action Plan v2.0

additional habitats and species of national and regional importance		NGOs	interest 2. Level of funding for monitoring habitats and species of EU interest 3. Number of Red Data lists	2014 report to the EU under Article 12 of the Birds Directive
2.1.8. Build on the National Biodiversity Indicators to develop state, pressures, and response indicators to allow assessment of Ireland's national and international biodiversity commitments by 2020, including this the 3 rd NBSAP, the EU Biodiversity Strategy, the Convention on Biological Diversity, and the Sustainable Development Goals	2019	NBDC, DAH, Academia and Research Institutions	1. Sufficient indicators developed	www.indicators.biodiversityireland.ie presents data on 50 indicators with a further 26 indicators under development
2.1.9. Support and encourage the volunteer network and local communities to carry out biological recording and other citizen science projects including grants for such activities as habitat conservation management, monitoring and restoration research needs	2017-2021	NBDC, BirdWatch Ireland, IWDG, BCI, CoastWatch, SeaSearch The Heritage Council, EPA, Wetlands Forum, IPCC, DAH	1. Number of records submitted 2. Number of participants in volunteer organisations 3. Number of monitoring schemes 4. Number of projects where data is gathered by citizen scientists	NBDC supports volunteer biological recording schemes and a programme of training workshops BirdWatch, Bat Conservation Ireland and IWDG deliver important national surveys based in part on volunteer effort Ireland has one of the highest rates in Europe of participation in voluntary actions and activities related to biodiversity (19%, Eurobarometer 2015) ⁶⁹
2.1.10. Ensure that international collaborative funding opportunities are effectively targeted to assist implementation of this NBSAP through consultation between funders,	2018	DAH, EPA, SFI, Academia and Research Institutions		

researchers and users of research				
2.1.11. Enhance knowledge of the most significant direct and indirect causes of biodiversity and ecosystem service loss including combined and cumulative stressors; develop and test prevention and mitigation options	2017-2021	DAH, Academia and Research Institutions, EPA, DAFM	1. Red List assessments completed 2. Published research papers and reports	<p>Main pressures and threats to birds, habitats and species of EU interest highlighted in reports on Birds and Habitats Directives. Marine Institute has commissioned studies on fisheries and aquaculture on Natura 2000 sites. Red List assessments highlight threats for certain species groups.</p> <p>Report for DHPCLG on managing sea-bed habitats in near-shore Special Areas of Conservation (SACs)⁷⁰ contains summaries of knowledge of impacts of pressures at that time and a matrix of research into the effects of multiple stressors</p> <p>EPA has launched their EPA Research programme that is funding work on ‘Prevention, control and eradication of invasive species’</p> <p>The EPA-funded project, “Sea-Mat” is identifying sources of terrestrial pollution and their effects on marine habitats</p>
2.1.12. Continue forest research programme on forest biodiversity, the delivery of wider ecosystem services (e.g. protection of water), carbon accounting and the interaction of climate change and forest systems	2017-2021	DAFM, COFORD, Forest Service, Academia and Research Institutions	1. Published research papers and reports 2. Funding levels	DAFM publicly funded forest research programme supports research on forest biodiversity, wider ecosystem service delivery, and climate change Research Strategy to 2017 published
2.1.13. Enhance the capacity to build	2017-2021	Academia and Research	1. Funding for	Taxonomy skills taught through

Draft National Biodiversity Strategy and Action Plan v2.0

and maintain the human resources, systems and infrastructure needed to identify, obtain, collate and curate the biological specimens that are the basis for taxonomic knowledge through vocational training and specialised M.Sc. programmes		arch Institutions, Museums, Botanic Gardens, NBDC, CIEEM, BSBI	dedicated training courses	various institutions but dedicated training needed for many taxonomic groups NBDC currently runs circa 20 identification workshops each year
2.1.14 Support capacity of the Local Authorities to monitor the ecological status of hedgerows	2021	DAH, DHPCLG, Woodlands of Ireland, NBDC	1. Length of hedgerow surveyed 2. Ecological status of hedgerows	National Hedgerow Appraisal - best practice guidance on hedgerow surveying, data collection and appraisal was published in 2013 ⁷¹ . A national hedgerow database, bringing the data from hedgerow surveys carried out in 15 counties, has also been established. The database and the national standard are available for download from the National Biodiversity Data Centre website: www.biodiversityireland.ie
2.1.15. Produce conservation guidance for fisheries sector, aggregates, offshore wind and other industries for mitigation of impacts on elasmobranchs	2018	MI, DAH, IFI, NBDC	1. Guidance documents published	
2.1.16. Undertake Red List assessments for taxonomic groups (for which sufficient data can be gathered) and repeat existing Red List assessments at appropriate intervals to facilitate the development of a national Red List index	2017-2021	DAH, NBDC	1. Number of Red Lists completed 2. Number of repeat Red Lists completed	Red Lists published for macro-moths (2016) ⁵⁰ , mayflies (2012) ²¹ , bryophytes (2012) ⁵¹ , amphibians, reptiles and freshwater fish (2011) ⁵² , damselflies and dragonflies (2011) ²² , butterflies (2010) ⁷² , water beetles (2009) ²³ , non-marine molluscs (2009) ⁷³ , terrestrial mammals (2009) ⁷⁴ , bees (2006) ⁷⁵ , and vascular plants (1988) ⁷⁶ Red Lists for vascular plants and

				elasmobranchs due for publication in 2016
2.1.17. Build upon Red List assessments to identify conservation priority species and identify knowledge gaps for those prioritised species	2017-2021	NBDC, IFI, DAH	1. Number of completed Red Lists processed to identify conservation priority species	Regional Red Lists provide an objective assessment of regional extinction risk that can be built upon as a distinct and broader process to identify conservation priorities
2.1.18. Identify and map nationally important Key Biodiversity Areas (KBAs) of Ireland's terrestrial and marine territories, including Ecologically or Biologically Significant Marine Areas (EBSAs)	2020	NBDC, DAH, Marine Institute, DAFM, DCCAE	1. Number of KBAs identified	Spatial distribution data for many taxonomic groups collated by the NBDC Red List assessments for some taxonomic groups published (see 2.1.13)
2.1.19. Implement biodiversity-related action from the Climate Change Adaptation Strategy and prioritise needs for research (and conduct it) into the mechanism and impacts of climate change on biodiversity including resilience of protected areas, green and blue infrastructure, and ecosystem restoration	2017-2021	DCCAE, Academia and Research Institutions, DAH, EPA, SFI, Marine Institute	1. Number of longterm datasets on climate change related features, e.g., acidification of surface and deep waters	IFI are looking a potential impact of climate on certain fish species Climate Change is one of the principal thematic areas covered by the EPA STRIVE Research Programme
2.1.20. Expand the network of long-term monitoring schemes to enable tracking of biodiversity change over time (including diversity and ecosystem functioning) and environmental noise	2017-2021	DAH, NBDC, EPA, DAFM, Academia and Research Institutions	1. Number of long-term monitoring databases 2. Establishment and support of a number of LTER-equivalent sites across the country associated with the key habitats 3. Number of marine long-term	Light traps as part of Rothamsted network have been established in Dublin Zoo, Fota Wildlife Park, and Wexford Wildfowl Reserve. Long-term water quality and ecosystem functioning monitoring are in place at the catchment scale. Butterfly, bat and bee monitoring schemes in place. Continuous plankton sampling is operated by SAHFOS. Annual monitoring of seal population

			monitoring sites	<p>sites and whale and dolphin strandings in coastal areas is being undertaken</p> <p>Long-term monitoring is currently on-going in Killarney and Burren National Parks</p> <p>A catalogue of geo-referenced photos are being compiled for large lengths of arterial drainage channels, which will give a widespread visual snapshot of Irish rivers to track future change</p> <p>The Countryside Bird Survey (CBS) monitors population trends of Ireland's common and widespread breeding birds. It has been running since 1998. The Irish Wetland Bird Survey (I-WeBS) is the scheme that monitors wintering waterbirds in Ireland and has been running since 1994</p>
2.1.21. Conduct research into the threat posed to Ireland's marine biodiversity by marine litter including microplastics, ocean acidification and noise	2017-2021	Academia and Research Institutions, DAH, EPA, SFI, Marine Institute	<p>1. Number of published papers and reports</p> <p>2. Number of research projects completed and results published</p> <p>3. Level of funding</p>	First study of seabird ingestion of plastics in Irish waters published ⁷⁷
2.1.22. Update the Marine Research Strategy	2016-2021	Marine Institute, DAFM	<p>1. Datasets generated from long-term study sites</p> <p>2. Primary literature publications</p>	The Marine Research Strategy was first published in 2007

2.1.23. Review priorities for restoration of habitats and species in Ireland and develop a programme of restoration activities for priority biodiversity	2018	DAH	1. Review published 2. Restoration programme in place	
2.1.24. Explore biodiversity offsets as a means to achieve no net loss of biodiversity under this Plan and as an source of revenue for biodiversity conservation and restoration	2018	DAH, DHPCLG		Over 100 countries have offsets legislation to facilitate compensation for the loss of biodiversity due to development projects
2.1.25. Explore areas/instruments and tax enablers that could be developed to precipitate biodiversity/conservation project funding by the private sector		Biodiversity Forum, NPRF, Department of Finance, Sustainable Nation	1. Number of instruments/tax enablers identified	In 2010 a carbon tax was introduced in Ireland. The carbon tax applies to kerosene, marked gas oil, liquid petroleum gas, fuel oil, natural gas and solid fuels. The rate of tax is based on a charge of €20 per tonne of CO2 emitted by the fuel concerned
2.1.26. Explore the options of using the Life Programme to enable projects implementing the EU Biodiversity Strategy and this Plan		DCCAE, DAH, The Heritage Council	1. Number of projects funded	The Life Programme co funds projects involving activities aimed at Targets 2, 3, 4, and 5 of the EU Biodiversity Strategy

Objective 3: Increase awareness and appreciation of biodiversity and ecosystem services

There is increasing awareness of the importance of biodiversity in Ireland. The Eurobarometer results from 2007, 2013, and 2015 show strong support from the Irish and European public for the conservation of biodiversity and the services it provides. However, in 2015 35% of the Irish people interviewed for Eurobarometer had never heard of the term biodiversity and more than 90% would like better information about the importance of biodiversity.

Increased awareness and understanding of biodiversity issues will be important to increasing proactive behaviour and to buy-in to many of the actions outlined in this NBSAP. Engagement with relevant sectors and stakeholder participation will be key in reaching our targets and therefore the aim will be to enhance training, communication, cooperation and concerted action between all relevant sectors, (government, landowners, business, farming, forestry, scientific and conservation communities, etc.) in support of biodiversity conservation.

Public engagement with biodiversity issues facilitates greater awareness of the full range of benefits from nature such as strengthening local grass-roots community initiatives, as well as increased educational opportunities, health benefits from community activities and direct exposure to nature, and realization that local business opportunities often rely on the provision of ecosystem services, including for instance, nature based tourism. So further action is needed in raising awareness of biodiversity, ecosystem services and the benefits of biodiversity investments to the economy and society. Awareness also needs to be translated into public support for decisions that are taken to look after wildlife (even when at the expense of a particular development).

There are a growing number of activities around increasing awareness and appreciation of biodiversity and ecosystem services. For example, since the addition of the biodiversity theme to the Green-Schools programme in 2010, over 600 schools have been awarded a biodiversity flag. The number of entries into the Biological and Ecological Category of the BT Young Scientist and Technology Exhibition has increased from 221 entries in 2002 to 604 entries in 2017. Woodlands of Ireland has focused attention on Ireland's native woodland resource and promoted the management and creation of native woodlands nationally. One of the seven categories of the Tidy Towns award is 'Wildlife, Habitats, and Natural Amenities' and there are now two special awards around biodiversity (The Pollinator Award and Tree Project Award). 2016 was first year of the Pollinator Award in the Tidy Towns and it received 57 entries.

Building on the actions taken to date, actions are tailored to key stakeholders, such as working with horticultural and constructed wetlands industries to raise awareness of the benefits of using native plants in place of invasive species. An island-wide Biodiversity Awards Initiative will be established to incentivize local, sectoral and education projects to help raise public awareness of and participation in biodiversity- and ecosystem service-related conservation efforts. Further work is needed to include biodiversity and ecosystem goods and services into relevant courses in primary, secondary and tertiary level education. Particularly in areas which benefit most from, or impact on, biodiversity, such as agriculture, food, tourism, engineering and planning as well as medicine, healthcare, enterprise and business studies.

Effective communication requires the information to be tailored to key audiences and the use of appropriate media (e.g. web-based, radio, TV etc.) to share these messages. As part of implementing this NBSAP, Ireland will develop and implement a communication campaign aimed at supporting public and sectoral

understanding of the value of biodiversity. In addition, academia and research institutions will help their scientists to develop key communication skills to facilitate the sharing of new information on biodiversity and ecosystem services to different audiences.

Aichi Targets that these actions help us to achieve: 1, 2, 4, 19

Sustainable Development Goals that these actions help us to achieve: 4, 8

Target 3.1: Enhanced appreciation of the value of biodiversity and ecosystem services amongst policy makers, stakeholders, local communities and the general public

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
3.1.1. Consult with local communities to develop actions and performance indicators to help achieve the objectives of this plan	2017-2021	DAH, Community Groups, Community Wetlands Forum, Irish Rural Link	1. Consultation with community groups	Local communities are the ones who can most directly benefit from those ecosystem services	
3.1.2. Enhance training, communication, cooperation and concerted action between relevant sectors in support of biodiversity conservation	2021	Civil society organisations, Academia and Research Institutions, museums, DAH, NBDC, BnM, IEN, local communities, The Heritage Council	1. Establishment and delivery of courses at various NFQ levels accessible across the country 2. Visits to natural heritage attractions 3. Number of biodiversity-related day events and number of Irish people involved. 4. Number of people surveyed through the Eurobarometer that have heard of term 'biodiversity' 5. Number of local community groups involved in conservation projects	No overall strategy or coordination	

Target 3.1: Enhanced appreciation of the value of biodiversity and ecosystem services amongst policy makers, stakeholders, local communities and the general public

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
3.1.3. Raise awareness in private sector organisations of impacts and dependencies on biodiversity and ecosystem services	2017-2021	Private sector organisations , IFNC, IBEC, ISME, IFA, IOOA	1. Biodiversity issues reported in non-financial reporting (CSR) 2. Guidelines and support tools are available to inform private sector action	Business in the Community Ireland (BITCI) is already working with the private sector on incorporating biodiversity into corporate decision-making. Currently their biodiversity work is only available to their members	
3.1.4. Build public awareness and communications training into Biodiversity Research so that scientists and other stakeholders are empowered to communicate their findings and perspectives to a wider audience	2021	Academia and Research Institutions			
3.1.5. Support radio, TV, web-based and other media products that emphasise or are centred around showcasing biodiversity, its importance, and current or future challenges		DAH	1. Number of media products centred around biodiversity	“Ear to the Ground” produced by Independent Pictures EPA and DAH have part-funded a wide variety of media e.g. ‘Living the Wildlife’, ‘Eco Eye’ and ‘Biodiversity in Our Wetlands’	
3.1.6. Establish an island-wide Biodiversity Awards initiative where local, sectoral and educational projects or groups with a “biodiversity enhancement” focus compete for innovative prizes that will support their on-going work and provide a springboard for public awareness and participation	2018	British-Irish Council, DAH	1. Biodiversity awards initiative established	The Tidy Towns Pollinator Award encourages Tidy Towns Groups to implement pollinator friendly actions in their towns and villages as part of the Tidy Towns competition run by HPCLG	

Target 3.1: Enhanced appreciation of the value of biodiversity and ecosystem services amongst policy makers, stakeholders, local communities and the general public

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
3.1.7. Work with relevant Government Departments and stakeholders to include biodiversity and ecosystem services in relevant courses in primary, secondary and tertiary level education		SEC, Academia and Research Institutions, DAH, Dept. Education, An Taisce	1. Quantify inclusion of biodiversity and ecosystem services in primary and secondary curriculum 2. Number of students taking science or biology for Junior and Leaving Certificates, respectively 3. Number of students studying biodiversity related topics at the tertiary level	One of the six themes of the Green-Schools Ireland Green Flag Awards is biodiversity. Bord na Móna has a primary schools education programme called Eco-Rangers. BurrenBeo Trust runs Ecobeo which is a programme for primary-level in the Burren. Irish Peatland Conservation Council (IPCC) runs educational school tours, visits and field studies; teacher training; workshops as well as publishing a variety of educational resources on their website. IFI runs 'Something Fishy' - an educational programme aimed at Primary school pupils delivered to over 100 schools each year in collaboration with Blackrock and Monaghan Education Centers. A number of National Parks have education programmes delivered to thousands of school children each year and the EPA have developed a suite of education programmes including a Leaving Certificate Geography multi-media pack. The Heritage in Schools Scheme provides a panel of 175 heritage specialists to visit primary schools throughout the country.	
3.1.8. Develop and implement a communications campaign in support	2020	DAH, NBDC	1. Number of media mentions for launch,	The United Nations has proclaimed May 22 The International Day for	

Target 3.1: Enhanced appreciation of the value of biodiversity and ecosystem services amongst policy makers, stakeholders, local communities and the general public

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
of public and sectoral understanding of the value of biodiversity and full implementation of this NBSAP			<p>achievements and future actions</p> <p>2. Reach of dedicated media attention (how many people are reached)</p> <p>3. Number of commissioned biodiversity and related elements in curricula across the education sector</p>	<p>Biological Diversity (IDB) to increase understanding and awareness of biodiversity issues. There are a large number of events held in Ireland around that time including Ireland's National Biodiversity Week, Bioblitz, and local events such as Kildare Biodiversity Week.</p> <p>The Irish BioBlitz is a national competition organised by the National Biodiversity Data Centre. Run at different sites each year, the aim is to record as many species as possible within a specific time period.</p> <p>Ireland's National Biodiversity Week is organised by NPWS and Irish Environmental Network (IEN).</p>	
3.1.9. Work with farming organisations and landowners to promote wider understanding of ecologically sustainable land use and the benefit to farmers of biodiversity, e.g. soil protection	2021	DAH, Teagasc, farming groups including IFA, ICOSA, INHA, ICMSA, Macra na Feirme, Woodlands of Ireland		Targeted use of the Native Woodland Scheme for establishment and conservation of ecologically sustainable woodland in sensitive areas	
3.1.10. Increase awareness within the horticultural and constructed wetlands industries of native alternatives that can be used in place of invasive species	2021	NBDC, IFI	1. Number of plant species on EU list that are no longer available for sale in Ireland	<p>Invasive Species Ireland launched "Be Plant Wise" awareness campaign</p> <p>NBDC initiated a project to raise awareness amongst the horticulture section</p>	

Target 3.1: Enhanced appreciation of the value of biodiversity and ecosystem services amongst policy makers, stakeholders, local communities and the general public

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
				IFI produced information, educational and advocacy materials	
3.1.11. Provide support, education and training opportunities necessary to inform local communities about important biodiversity in their area and to enable them to act as useful local monitors of environmental change	2017-2021	DAH, Irish Rural Link, local community organisations/groups	1. Number of training courses	Locally Led Agri-Environment Schemes (LLAES) are funded through the Rural Development Programme and currently funds biodiversity work including for Hen Harriers and Freshwater Pearl Mussel	Irish Rural Link has a Wetlands Forum

Objective 4: Conserve and restore biodiversity and ecosystem services in the wider countryside

The Irish countryside is predominantly grassland, woodland, uplands, peatlands, and freshwater habitats. Over 31,000 species of plants, animals and fungi inhabit Ireland's terrestrial and marine environments⁷. This biodiversity provides a wealth of ecosystem services including: water provision, soil maintenance, air and water quality, food, timber, pollination, fisheries, recreation and other cultural services. Ireland's tourism and food industries promote the image of a clean, natural and scenic countryside. Despite the importance of biodiversity and ecosystem services to Ireland's economy and human well-being, the wider countryside has been significantly degraded and some species are moving towards extinction. A large proportion of our rivers, lakes and estuaries require improvement in water quality²⁶ and our peatland resources have been diminished so that only 10% of the original raised bog and 28% of the original blanket peatland resource are deemed suitable for conservation⁷⁸. Many of Ireland's farmland bird species have undergone severe declines in population and range over recent decades and despite conservation efforts to date most species have not shown population increases⁷⁹. Widespread agricultural intensification has led to a loss of diversity of habitats and species throughout the countryside and many upland areas have been unsustainably managed. Forest cover has increased in Ireland in recent years under various Forestry Programmes, but only about 16% of Ireland's forests comprise woodlands with more than 80% native species. However, a further 12.7% of forests comprise woodland with 20-80% native species, and many of these woodlands have a high degree of 'nativeness'⁸⁰.

Our biodiversity and ecosystem services are facing multiple pressures. Significant efforts must be made to restore biodiversity and ecosystem services that have been lost due to inappropriate land use. It is only possible to reduce or halt the loss of biodiversity if the drivers of pressures on biodiversity are themselves reduced or eliminated. According to Ireland's report to the EU on the condition of habitats and species of European interest, the main pressures and threats to biodiversity are: agricultural intensification, natural system modifications (drainage, burning, reclamation, coastal protection), invasive and problematic species, and human intrusion and disturbances¹⁷.

Responses to these pressures on biodiversity and ecosystem services include the EU Directives on Water, Habitats, Birds, and Nitrates, Regulation on Invasive Alien Species, and reform of the Common Agricultural Policy (CAP). On-going monitoring of the implementation of these policies shows that substantial progress has been made although there is much to be done to conserve and restore biodiversity and ecosystem services in the wider countryside. At a national level, the current major policies to address declines in biodiversity in the wider countryside include: the Rural Development Programme (RDP) which provides for agri-environment schemes⁴³, the National Peatland Strategy⁷⁸, and the European Maritime and Fisheries Fund.

This NBSAP will build on the achievements made to date to protect and restore Ireland's biodiversity and ecosystem services. Target 4.1 focuses on the role of agricultural, rural development, forestry and peatland policies and strategies. A central priority of the Irish RDP is restoring, preserving and enhancing ecosystems related to agriculture and forestry. Ireland will continue to develop and implement agri-environment schemes such as the Green Low-carbon Agri-Environment Scheme (GLAS) and Locally Led Agri-Environment Schemes (LLAES) and ensure that a measurable net gain for biodiversity is attained. An evolving approach to farming that is gaining recognition across EU Member States is High Nature Value (HNV) farming, due to the growing awareness that biodiversity is usually higher on farmland that is managed at a lower intensity. This can include habitats and species that fall outside designation under the Habitats and Birds Directives. Work will carry on to identify HNV farmland and to develop measures to maintain and enhance its biodiversity and ecosystem services.

Progress towards implementing a number of existing strategies and action plans relating to agricultural, peatland, rural development and forestry will be made under Target 4.1. These include the All-Ireland Pollinator Plan, national Genetic Conservation Strategies for plants and animals, National Peatland Strategy, BirdWatch Ireland's action plans for wider countryside birds, and the biodiversity action plan from the company Bord na Móna. The new Forestry Programme 2014-2020⁸¹ includes higher support for broadleaf planting and also measures to promote the creation of new native woodlands and the appropriate restoration management of existing native woodlands, to promote associated biodiversity and other ecosystem services (especially water protection). The Government commits to implementing actions in this programme in order to maximise positive outcomes for biodiversity and ecosystem services and restoration of areas impacted by inappropriate forestry. Additional forest-related actions under Target 4.1. include implementing recommendations from the assessment of the impacts of forest operations on the ecological quality of water⁸² and the continued updating of the inventory of native woodlands.

Implementation of key Directives, such as the Water Framework and Marine Strategy Framework Directives, will reduce pressure on biodiversity by protecting the quality of our water, air and soils and reducing diffuse pollution (e.g. from pesticides, nitrates). Target 4.2 refers to a significant reduction of pollutant pressures on terrestrial and freshwater biodiversity. In addition, it is important to ensure that benefits for biodiversity are optimised in Flood Risk Management Planning and drainage schemes to ensure a positive rather than negative impact of these activities on biodiversity (Target 4.3).

This NBSAP sets out a number of actions in Target 4.4 to ensure that harmful invasive alien species are controlled and there is reduced risk of spread of new species. The establishment of a multi-agency working group to bring together all relevant parties to meet on an all-island basis is a key action to achieve this target.

Finally, Target 4.5. of this objective ensures that effective management and restoration is in place for biodiversity and ecosystems in the wider countryside by 2021 including implementing species action and restoration plans and reviewing the effects of the revision of hedge cutting and burning dates.

Aichi Targets that these actions help us achieve: 1, 2, 3, 4, 5, 7, 8, 13, 15, 18, 19, 20

Sustainable Development Goals that these actions help us achieve: 2, 6, 8, 12, 15

Target 4.1: Agricultural, rural development, forestry and peatland policies and strategies to achieve net benefits for biodiversity and ecosystem services

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
4.1.1. Development and implementation of agri-environment schemes (AES) under the Rural Development Programme (i.e. Green, Low	2021	DAFM, Teagasc	1. Length/area of habitats under AES measures. 2. Ecological monitoring tools implemented which allow for quantifying real	All farms are required to meet baseline levels of Good Agricultural and Ecological Condition (GAEC) for cross compliance GLAS measures planned for 50,000 farms	

Target 4.1: Agricultural, rural development, forestry and peatland policies and strategies to achieve net benefits for biodiversity and ecosystem services

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
Carbon, Agri-environment Scheme (GLAS) and locally led AES (LLAES). Ensure AES achieve a quantifiable net gain for biodiversity and ecosystem services including significant habitat restoration measures			ecological benefits of AES 3. Area of habitat restored 4. Compliance rates of farms	including priority access for farmers within Natura 2000 sites DAH farm plans and other AES also in operation	
4.1.2. Identify High Nature Value (HNV) farmland and develop measures to maintain and enhance its biodiversity and ecosystem services	2017-2021	DAFM, DAH, Teagasc, The Heritage Council, Academia and Research Institutions	1. Identification methodology agreed and implemented 2. Number of areas identified as HNV 3. Extent of area identified as HNV 4. Expenditure on AES in HNV areas	On-going research on results-based agri-environment schemes (RBAPS) on HNV farmland on Shannon callows and in Co. Leitrim European Forum for Nature Conservation and Pastoralism (EFNCP) undertake work on HNV farming since 2010 Forest Service has safeguards to avoid afforestation on environmentally unsuitable sites, taking account of habitats and species of EU interest, water quality and acid sensitive areas ⁸¹	
4.1.3. Implement the National Peatland Strategy	2017-2021	DAH, BnM	1. Area of bog under restoration 2. Number of bog sites with restoration activities completed	Raised and Blanket bogs designated as Natural Heritage Areas (NHAs) in 2014 National Peatland Strategy published in 2015 Draft National Raised Bog SAC Management Plan published in 2014 ⁸³ Restoration projects underway: DAH LIFE, Coillte LIFE and BnM projects. 1000 ha of	

Target 4.1: Agricultural, rural development, forestry and peatland policies and strategies to achieve net benefits for biodiversity and ecosystem services

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
				BnM raised high bog already undergoing restoration including Clonboley Bog, which is due to be designated as a SAC. BnM raised bog restoration programme on-going. BnM also assisting with turf-cutter relocation and providing relocation sites	
4.1.4. Implement Bord na Móna's Biodiversity Action Plan 2016-2021	2021	BnM	1. Number of actions implemented	Bord na Móna published their second Biodiversity Action Plan ³⁹ in 2016 and are committed to balancing and optimising the commercial, social and environmental values of the company land bank	
4.1.5. Implement actions in the Forestry Programme 2014-2020, ensuring maximised positive outcomes for biodiversity and ecosystem services and restoration of areas impacted by inappropriate forestry, including implementation of recommendations of HYDROFOR study ⁸² and incorporating the inventory of native woodlands	2017-2020	DAFM	1. Achievement of 30% target for broadleaf afforestation 2. Uptake of Native Woodland Scheme 3. New Environmental Afforestation Requirements in place that are fully compliant with EU Directives	The Forestry Programme 2014-2020 ⁸¹ includes supports for broadleaf planting and native woodland creation, restoration and management of existing forests (e.g. 'retro-fitting' of open spaces alongside watercourses and other important habitats Measures such as the requirement for 15% open spaces and 10% broadleaves apply within new planting	
4.1.6. Continue to update the inventory of native woodlands, review and, where appropriate, incorporate the results of the Native Woodland Survey into the conservation and expansion of the native woodland cover	2017-2021	DAH, Woodlands of Ireland		Woodlands of Ireland published its "Strategy for Native Woodlands in Ireland 2016-2020" in July 2016 ⁸⁴ setting out a framework for ongoing cooperation and the use of available funding within the native woodland 'sector' (including Government Agencies such as FS-DAFM, DAH and Heritage Council).	

Target 4.1: Agricultural, rural development, forestry and peatland policies and strategies to achieve net benefits for biodiversity and ecosystem services

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
4.1.7. Progress implementation of BirdWatch Ireland's action plans for wider countryside birds	2021	BirdWatch Ireland and other actors listed in their plans		BirdWatch Ireland have published comprehensive plans for the conservation of Irish birds	
4.1.8. Implement the National Genetic Conservation Strategies for animals and plants	2020	DAFM		<p>Plant genetic conservation strategy through the genetic resources grant aid scheme published</p> <p>National Genetic Conservation Strategy Document for livestock published in 2013⁸⁵. A plant conservation strategy has not yet been finalised although initial studies have been undertaken on crop wild relatives and landraces⁸⁶.</p> <p>Under the Forestry Programme, the Forest Service-DAFM operates the Seed Stand and Seed Orchard Scheme to promote (<i>inter alia</i>) <i>in situ</i> and <i>ex situ</i> conservation of genetic biodiversity, including the improvement and management of oak seed stands within ancient woodland, to supply seed for native woodland projects elsewhere</p>	
4.1.9. Implement the All-Ireland Pollinator Plan including: making the Irish countryside more pollinator friendly; raising awareness of pollinators; supporting beekeepers and growers; expanding knowledge of pollinators; and collecting	2015-2020	NBDC and other actors listed in the plan	<p>1. Number of actions implemented</p> <p>2. Status of pollinator populations</p>	<p>All-Ireland Pollinator Plan published in 2015 lists actions for various sectors to support conservation and recovery of Ireland's pollinators</p> <p>All-Ireland Pollinator Plan project officer was appointed in 2016</p>	

Target 4.1: Agricultural, rural development, forestry and peatland policies and strategies to achieve net benefits for biodiversity and ecosystem services

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
evidence to track changes ⁸⁷					
4.1.10. Implement the management of deer in Ireland's woodlands as per recommendations in the Woodlands of Ireland strategy		Irish Deer Management Forum, DAFM		Woodlands of Ireland strategy ⁸⁴ highlights potential impacts of deer management in Ireland: A Framework for Action ⁸⁸ and that the introduction of muntjac and roe deer has created a significant threat to the ground flora and to young trees and shrub.	

Target 4.2: Principal pollutant pressures on terrestrial and freshwater biodiversity substantially reduced by 2020

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Mid-term target</i>
4.2.1. Continue to protect, enhance and monitor water quality during the second cycle of the Water Framework Directive (2015-2021) by reducing risks to water quality and utilising ecological expertise in decision-making, and in analysis of cumulative effects	2017-2021	EPA, DAFM DHPCCLG, Local Authorities, Academia and Research Institutions, IFI, Waterways Ireland, Marine Institute	1. The status of water quality in Ireland 2. Number of River Basin Management Plan (Programme of Measures) measures implemented	The first cycle River Basin Management Plans (RBMP) 2009-2014 has been prepared and the status of all water bodies reported The second cycle of RBMPs is underway, it sets out the status (and risk of not meeting their WFD objectives) of waters in River Basin Districts; the proposed environmental objectives; and the draft programme of measures to achieve those objectives by 2021 Nitrates Action Programme in place ⁸⁹	
4.2.2. Irish Water to implement its Water Services Strategic Plan (2015-2040) in particular its objective to protect and enhance the environment	2017-2040	Irish Water DHPCCLG	1. Environmental monitoring of the implementation of the plan	Irish Water published its strategic plan in 2015 with actions to protect and enhance the environment ⁹⁰	

4.2.3. Implement recommendations of EPA STRIVE Report Series No. 99 (Management Strategies for the Protection of High Status Waterbodies) ⁹¹ including, amongst other measures: prioritisation for protection measures; planning/licensing control; assessment of cumulative impacts; and integrated monitoring and protection	2017-2021	EPA, Local Authorities, DAFM	<ol style="list-style-type: none"> 1. High status catchment delineation and prioritisation for protection measures 2. Establishment of a monitoring system 3. Centralised GIS database or activities database 4. Monitoring results 	High status sites are particularly sensitive to diffuse pollution. There was a decline in the proportion of high status river sites in all River Basin Districts between 1987 and 2009 ⁹¹
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Target 4.3: Optimised benefits for biodiversity in Flood Risk Management Planning and drainage schemes					
Action	Timeframe	Actors/key partners	Performance indicator	Baseline	Related actions
4.3.1. Ensure that Flood Risk Management (FRM) planning and associated SEA, EIA and AA, minimises loss of biodiversity and ecosystem services through policies to promote use of “soft” options, landscape and habitat restoration and sustainable land management	2021	OPW	<ol style="list-style-type: none"> 1. Inclusion of biodiversity considerations in FRM plans 2. Long-term biodiversity monitoring in place 	<p>A Multi Criteria Analysis (MCA) framework has been developed and is used to guide the selection of measures in the national set of Flood Risk Management Plans</p> <p>SEA and AA processes consider effects of FRM on the environment</p>	
4.3.2. All significant drainage (arterial drainage), including both initial drainage and maintenance drainage will be assessed for its implications for biodiversity, particularly for wetlands		OPW, IFI	<ol style="list-style-type: none"> 1. Inclusion of biodiversity considerations in drainage programs 2. Number of drainage works assessed 	OPW operate a series of Environmental Management Protocols and Standard Operating Procedures for arterial drainage maintenance. ⁹² The national Environmental River Enhancement Programme 2013-2017, carries out fisheries type enhancement works on selected arterial drainage channels to	

Target 4.4: Harmful invasive alien species are controlled and there is reduced risk of spread of new species					
Action	Timeframe	Actors/key partners	Performance indicator	Baseline	Related actions
4.4.1 Develop national and whole island plans to implement the EU Invasive Alien Species (IAS) Regulation and relevant sections of Ireland's EU (Birds and Natural Habitats) Regulations 2011 including: development and adoption of biosecurity plans in relevant state bodies; a Rapid Response Protocol for the island of Ireland; and coordination and collation of invasive species surveillance and monitoring data; and work with Northern Ireland and UK authorities on invasive species of mutual concern	2021	DAH, DAERA NBDC, IFI, TII, Waterways Ireland, Local Authorities.	1. Number of state bodies with biosecurity plans 2. Rapid Response protocol for Ireland developed 3. Number of successfully controlled invasions 4. Number of new IAS recorded and established	ISI biosecurity Codes of Practice developed for Aquaculture, Marina Operators, Water Users and Horticulture Invasive Species Risk Assessments were carried out for 41 species NBDC published "Invasive and Non-native Species in Ireland - Trends in Introductions" report ²⁸ Some of the core provisions of EU Regulation (1143/2014) came into force on the 3rd August, 2016 British-Irish Council work includes work on invasive species	
4.4.2. Continue and enhance measures for eradication, where feasible, control and containment of invasive species	2017-2021	IFI, DAH, Local Authorities, TII (Transport Infrastructure Ireland), Waterways Ireland, National Botanic Gardens	1. Number of projects or research studies being undertaken	IFI has an active work programme and devotes resources to the control, eradication and containment of aquatic and riparian invasive species Funding available under the FS-DAFM Native Woodland Conservation Scheme to eradicate <i>Rhododendron</i> and other invasive species from existing native woodland sites, based on prioritised sites A working group was established in 2016 by NPWS	

				and NBDC to bring all relevant marine parties to meet on an all-island basis. This model could also be used for freshwater and terrestrial invasive species.
4.4.3. Support horticultural nurseries to: produce native species, varieties and landraces from appropriate native sources for public, and private sector plantings and public bodies will endeavour to plant native species	2021	DAH, OPW, DTTAS	1. Number of new plantings that use native plants for landscaping	Roads Division of DTTAS uses native planting in landscaping national road schemes
4.4.4. Continue to produce Risk Assessments for potentially invasive non-native species	2017-2021	NBDC, DAH	1. Number of Risk Assessments completed for potentially invasive non-native species	Risk Assessments are a formal methodology to objectively identify the risk posed by non-native species to Ireland's ecosystems and services
4.4.5. Establish a multi-agency working group to bring together all relevant parties to meet on an all-island basis to work to achieve this target	2017-2021	DAH, DAERA NBDC, IFI, TII, Waterways Ireland, Local Authorities.	1. Working group established, meeting regularly, and catalysing action on invasive species	A working group was established in 2016 by NPWS and NBDC to bring all relevant marine parties to meet on an all-island basis.

Target 4.5: Effective management and restoration in place for biodiversity and ecosystems in the wider countryside by 2021

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
4.5.1. Review the effects of the revision of hedge cutting and	2018	EPA, DAH, DAFM	1. Review with recommendations for	Hedgerows, drains and ditches are designated as landscape features which must be retained under the	

Target 4.5: Effective management and restoration in place for biodiversity and ecosystems in the wider countryside by 2021

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
burning dates in the Heritage Bill 2016 prior to the end of its two-year pilot phase			management options and timing	single (basic) payment scheme, and as such form part of the eligible area for payment	
				When introduced, the Heritage Bill 2016 will change hedgerow management restrictions during the two-year pilot phase	
4.5.2. Develop, adopt and implement restoration programmes for Salmon, Sea trout and Eels. Improve passage of migratory fish species and address barriers to fish movement. Put in place traceability scheme for Eel	2020	IFI, Marine Institute, Forest Service, Irish Water, OPW, ESB	1. Management plans published for Salmon and Sea Trout 2. Traceability scheme for Eel in place	Conservation Limits (CL) for individual salmon rivers were developed in 2007. In 2015, 55 salmon stocks met conservation limits but 61 stocks did not attain conservation requirements and were closed for fishing ⁹³ In the enhancement of salmonid waters in arterially-drained rivers under the Environmental River Enhancement Programme (EREP) 2013-2017, barriers that are identified as a major passage issue are breached or where this is not feasible fish passage easement measures are implemented by OPW under guidance of IFI ⁹⁴ EC Regulation (Council Regulation 1100/2007) required Ireland to establish Eel management plan for implementation in 2009. Irish Eel Management Plan in place since 2009 and reported upon in 2012 and 2015. In 2015, Ireland demonstrated an increase in biomass of silver eel and marked reduction in fishing and hydropower mortality Sea trout stocks monitored in the Burrishoole System since 1970 and the Erriff fishery since 1984	

Target 4.5: Effective management and restoration in place for biodiversity and ecosystems in the wider countryside by 2021

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
				Consideration of appropriate recommendations on the protection of habitats and species including Eel, for Salmon OSPAR, NASCO and EIFAAC (European Inland Fisheries and Aquaculture Advisory Commission)	
4.5.3. Implement species action plans including for: Red Squirrel, Red Grouse, Grey Partridge and reintroduced raptors and initiate further management actions as necessary	2017-2021	Golden Eagle Trust, Grey Partridge Trust, BirdWatch Ireland, DAH	1. Population levels of target species 2. Further management actions initiated in response to population trends	Red Grouse Species Action Plan ⁹⁵ Grey Partridge Trust working on reintroductions ⁹⁶ Red Squirrel Action Plan ⁹⁷ 13 breeding pairs of White-tailed Sea Eagle in 2015 ⁹⁸ Golden Eagle breeding unsuccessful in 2014 and 2015 ⁹⁹ 53 territorial pairs of Red Kite in Ireland ¹⁰⁰	
4.5.4. Identify and implement measures to substantially reduce Ireland's ecological footprint on biodiversity		DAH, Fáilte Ireland		Fáilte Ireland is currently preparing environmental guidelines for large events Fáilte Ireland is also a contributor to the Burren Geopark LIFE Project and environment monitoring for the Wild Atlantic Way In 2012 the DHPCLG developed a medium to long-term framework for advancing sustainable	

Target 4.5: Effective management and restoration in place for biodiversity and ecosystems in the wider countryside by 2021

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
				development and the green economy in Ireland entitled "Our Sustainable Future"	

Target 4.6: Improved enforcement of Wildlife Law

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
4.6.1. Enhance understanding and role of An Garda Síochána and Customs and the judiciary in enforcing Wildlife legislation, including provision of specific training and guidance	2017-2021	An Garda Síochána, Revenue (Customs)	1. Number of training courses and trainees	Convention on International Trade in Endangered Species of Flora and Fauna (CITES) enforcement course for customs enforcement officers	
4.6.2. Ensure adequate training in Wildlife Crime detection and enforcement is provided to all DAH enforcement staff	2017-2021	DAH		Training courses are in place for authorised officials on courtroom skills and expert witness procedures	
4.6.3. DAH enforcement staff will investigate along with An Garda Síochána and Revenue (Customs) officials (as appropriate) suspected and alleged wildlife crime affecting biodiversity	2017-2021	DAH, An Garda Síochána, Revenue (Customs)	1. Number of seizure/prosecutions	Revenue Customs have made 59 seizures between 2011 and 2015 ³² One successful prosecution during the period of the second NBSAP	

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4.6.4. Continue to enforce the Wildlife Acts and Regulations	2017-2021	DAH, An Garda Síochána	In the period 2011 to 2013 some 100 prosecution cases were taken by the Department under the Wildlife Acts and Habitats Regulations, of which 74 were successful
4.6.5. Train and upskill enforcement officers in other agencies that are in the field on wildlife law	2017-2021	Forestry Service, Agricultural Inspectors, Fisheries Officers	

Objective 5: Conserve and restore biodiversity and ecosystem services in the marine environment

Ireland has a unique wealth of marine biodiversity from its inshore waters to the ocean depths and its marine Exclusive Economic Zone (EEZ) far outweighs its land area. Marine industries in Ireland are worth €1.3 billion annually to the Irish economy and provide around 17,000 jobs⁴⁹. Ireland's tourism industry also relies on a clean and unspoilt marine and coastal environment. In 1991 the Irish Government declared all Irish waters to be a whale and dolphin sanctuary highlighting the importance of these animals.

The current state of Ireland's marine environment is highlighted in Ireland's reports on the Habitats Directive and the Marine Strategy Framework Directive (MSFD) in 2013. Of the marine habitats assessed under the Habitats Directive, only sandbanks and sea caves were assessed as being in 'favourable' condition. Estuaries, tidal mudflats, large shallow inlets and bays were assessed as being in 'inadequate' condition. Reefs and lagoons were in 'bad' condition¹⁷. Further monitoring and reporting on the ecological status of Ireland's marine habitats will be forthcoming in 2018 under the MSFD and the Water Framework Directive (WFD), which will give a clearer picture of the state of Ireland's marine environment.

Pressures from human activities on Ireland's coastal and marine biodiversity and ecosystem services arise from a growing range of sources including nutrient and chemical discharge from terrestrial ecosystems and through direct physical disturbance and habitat degradation from pollution, litter and man-made noise¹⁰¹. These pressures are mainly in transitional and coastal waters. Fishing has widespread impacts on both pelagic (i.e., water column) and seabed communities, particularly for species with low growth rates, soft substrates or cold water coral reefs, and some areas have been heavily impacted by this activity¹⁰¹. There are also concerns about the level of by-catch of birds and marine mammals in certain fisheries. Fish populations are generally improving since reform of the Common Fisheries Policy (CFP) and more sustainable management of fish populations with the setting of Maximum Sustainable Yield (MSY) for commercial species¹⁰². There are also provisions in the revised CFP for the establishment and implementation of clear conservation measures where adverse environmental impacts from fishing are thought to occur, with a view to ensuring better marine ecosystem and biodiversity protection. Climate change and ocean acidification present considerable threats and may modify effects of other pressures and facilitate further establishment and spread of invasive species.

The protection of our marine ecosystems and compliance with national and international environmental legislation and full implementation of the MSFD, WFD, Habitats Directive and revised CFP will help achieve Ireland's Vision for Biodiversity (i.e. that Ireland's marine biodiversity and ecosystems are conserved and restored, delivering benefits essential for all sectors of society). The development, by contributing Government Departments, of effective Marine Spatial Planning for Ireland's coastal zone and EEZ waters will also assist in the identification and improved protection of pressurised or threatened habitats and species, in line with the aims of the EU Maritime Spatial Planning Directive (2014/89/EU) and MSFD. The European Maritime Fisheries Fund (EMFF) contains measures such as investments in the protection and restoration of marine flora and fauna, improvements to the selectivity of fishing gear, and schemes to improve the environmental performance of aquaculture farms.

Aichi targets that these actions help us achieve: 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 19

Sustainable Development Goals that these actions help us achieve: 6, 7, 8, 14

Target 5.1: Substantial progress made towards good ecological and environmental status of marine waters over the lifetime of this Plan					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
5.1.1. Continue to develop a Marine Spatial Plan for Ireland	2021	Inter-Departmental Marine Coordination Group	1. Reports on implementation of the Integrated Marine Plan (IMP) 2. Compliance with EU Maritime Spatial Planning Directive (2014)	Integrated Maritime Plan entitled ‘Harnessing Our Ocean Wealth’ (HOOW) was published in 2012 ¹⁰³ Significant progress has been made on all actions directly relating to marine ecosystem conservation SI No. 352 of 2016 European Union (Framework for Maritime Spatial Planning) Regulations 2016 was published	
5.1.2. Implement measures to achieve good ecological and environmental status of marine and coastal habitats as required by the Habitats, Directive, Water Framework Directive and Marine Strategy Framework Directive (MSFD) and in line with the OSPAR Convention	2017-2021	DHPCLG, DCCAE, Marine Institute, DAFM, Irish water, Local Authorities, IFI, DAH, EPA	1. Progress on measures under MSFD 2. River Basin Management Plans (RBMP) completed 3. Number of Blue Flag beaches 4. Number of sites where untreated sewage discharged	The Initial Assessment of Ireland’s marine waters, was completed in 2013 ¹⁰¹ The Programme of Measures under Article 13 of the MSFD was submitted to the EU Commission in July 2016 RBMP is due to be finalised by 2017 EPA report on urban waste water treatment highlighted lack of or insufficient treatment in numerous areas ¹⁰⁴ The Irish Water Water Services Strategic Plan (WSSP) ⁹⁰ , has set a target to “provide the appropriate level of wastewater treatment to the areas from which raw sewage is discharged”	
5.1.3. Support, build capacity of and co-ordinate the citizen science network for near-shore and inter-tidal	2017-2021	DAH, DAFM, NBDC, IWDG,	1. Number of long-term monitoring databases	Irish Federation of Sea Anglers, Irish Specimen Fish Committee, Coastwatch, Irish Whale and Dolphin Group, Seasearch Ireland represent the growing network of marine citizen scientists in	

Target 5.1: Substantial progress made towards good ecological and environmental status of marine waters over the lifetime of this Plan

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
ecological monitoring		IFSA, ISFC, Coastwatch		Ireland	
5.1.4. Promote the incorporation of ecological engineering features in new and existing structures such as coastal defences	2017-2021	OPW, Local Authorities	1. Number of new ecological engineering projects		

Target 5.2: Fish stock levels maintained or restored to levels that can produce maximum sustainable yield, where possible, no later than 2020

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
5.2.1. Continue to ensure the Common Fisheries Policy (CFP) and marine fisheries provide for the conservation of fish species and marine biodiversity	2017-2021	DAFM	1. Number of fish stocks fished within their maximum sustainable yield (MSY) 2. Accidental capture of non-target species under consistent and representative monitoring	CFP stocks are managed within their MSY framework Harvest control rules are in place to bring stocks to MSY in 2015	
5.2.2. Implement stock recovery plans for any fish stocks outside safe biological limits, and management plans to maintain other stocks at safe biological levels as determined by the standards for Good Environmental Status in the Marine Strategy Framework Directive	2017-2021	DAFM	1. Number of over-exploited stocks in Irish waters	For stocks fished in Irish EEZ, there are a number of long-term management plans and recovery plans including: West of Scotland Cod, Irish Sea Cod and Northern Hake, NEA mackerel, NEA Blue whiting, Herring VIaN, North Sea and west of Scotland Saithe and Herring	
5.2.3. Adopt and implement provisions under Common Fisheries Policy (CFP)	2017-2021	DAFM	1. Number of management actions e.g. no take zones	No take zones for benthic-impacting fishing gears are being considered in	

Target 5.2: Fish stock levels maintained or restored to levels that can produce maximum sustainable yield, where possible, no later than 2020					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
for the establishment of appropriate management measure, (e.g. no-take zones) that conserve biodiversity and fish stock levels			identified	inshore Natura 2000 sites to protect sensitive habitats. CFP Spatial fisheries management measures are in place in the Irish EEZ to protect vulnerable marine habitats in offshore Natura 2000 sites such as: juvenile fish and depleted stocks	
5.2.4. Take concerted action to combat illegal, unreported and unregulated fishing	2017-2021	SFPA, IFI	1. Number of patrols 2. Number of interceptions	The Sea-Fisheries Protection Authority (SFPA) is mandated under EU and National Law to take action against illegal, unreported and unregulated (IUU) fishing activities. SFPA produces an annual National Fisheries Control Plan for management of monitoring, surveillance and control of sea-fisheries at sea by the Naval Service, Air Corps and at landing ports	

Objective 6: Expand and improve management of protected areas and legally protected species

Protected areas are central to conservation policy. They enable us to protect key habitats and species and provide refuges for the movement and migration of species. Globally speaking, protected areas are estimated to provide livelihoods for 1.1 billion people. Protected areas are the primary source of drinking water for over a third of the world's largest cities and play a major role in ensuring global food security. It has been estimated that investment in creating and managing protected areas across the world will yield returns of the order of 25:1 to 100:1. Governments around the world are increasingly looking at protected areas not only to conserve biodiversity but also to secure vital ecosystem services and enable adaptation to the impacts of climate change.

There are several categories of protected areas in Ireland that afford varying degrees of protection to the species and habitats they contain. The basic designation for nationally important areas for wildlife is Natural Heritage Area (NHA). Over 800 NHAs were identified in the 1990s, however only 148 peatland NHAs have been statutorily designated and given legal protection. The remainder of the areas proposed as NHAs since 1995 have only limited protection. Sites designated as Nature Reserves have strict protection for wildlife by ministerial order and most are state owned. Ireland's six National Parks are important resources for both wildlife conservation and for Ireland's tourism and recreation industries. The bulk of Ireland's high biodiversity areas of EU interest have been designated as Special Areas of Conservation (SACs) under the Habitats Directive or Special Protection Areas (SPAs) under the Birds Directive. To date, 430 SACs and 154 SPAs have been designated in Ireland and provide legal protection for habitats and species of EU interest. The Strategic Environmental Assessment Directive ensures that SACs and SPAs are considered in policies that may impact upon them.

Ireland's report on the conservation status of habitats and species of EU interest showed that only five of the 57 habitat types assessed in 2013 had 'Favourable' conservation status¹⁷. Twenty-four habitats were reported to be in 'Bad' conservation status. Habitat categories of particular concern are grasslands, heaths, peatlands, forest, certain types of lakes, and reefs, which had mostly 'Bad' conservation status. The main threats and pressures on habitats are: agriculture, invasive species, pollution and natural system modifications. The picture for 61 native species protected under EU Habitats Directive is somewhat better with 52% assessed as being in 'Favourable' conservation status and only 12% as 'Bad'. In addition, a range of species are legally protected under the Wildlife Acts. Ireland's protected area network contributes to the conservation of these habitats and species.

Significant progress was made during the period of the second Plan such as implementing a Prioritised Action Framework for the Natura 2000 network, including documenting conservation objectives. Progress was made toward the conservation of peatland sites with publication of The National Peatlands Strategy and the National Raised Bog SAC Management Plan in 2016, which outlines the way forward for conservation and restoration of important peatland sites. Monitoring of habitats and species of EU interest has increased our knowledge of the status of these habitats and species and over the lifetime of this plan further progress will be made toward ensuring conservation of protected areas and species.

Where the Marine Strategy Framework Directive is concerned Ireland's existing network of Marine Protected Areas (MPAs) has an important role to play in the

maintenance of biodiversity and achievement of Good Environmental Status (GES) by 2020 as required by the Directive. Currently some Natura 2000 sites designated under the Birds Directive or the Habitats Directive, and also meeting OSPAR objectives, are part of that network but a further coherent and representative extension of this network of protected sites is envisaged to take place approximately within the lifetime of this NBSAP. Ongoing scientific research, marine spatial planning and biodiversity priorities will help to identify those sites that represent the best candidates for future MPA designation.

The National Botanic Gardens and the Trinity College Botanic Gardens, together with Ireland's zoos and other private and State collections, play an important role as gene banks and living collections. The National Botanic Gardens is also the focal point for the National Strategy for Plant Conservation, modelled on the Global Strategy for Plant Conservation.

Aichi Targets that these actions help us achieve: 2, 3, 4, 6, 7, 10, 11, 13, 14, 15, 18, 20

Sustainable Development Goals that these actions help us to achieve: 3, 4, 8, 14, 15

Target 6.1: Natura 2000 network established, safeguarded, designated by 2018 and under effective conservation management by 2020

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
6.1.1. By 2018 complete designation process for Special Areas of Conservation (SACs) and Special Protected Areas (SPAs), in particular, for marine coastal and offshore SACs	2017-2020	DAH, DCCA	1. Number of formal site designations completed	Designation of Ireland's terrestrial SACs and SPAs has been largely completed. Designation of marine SACs is under way.	Marine SPA designation will be based on surveys being carried out by the DECNR and DAH in 2015-2016
6.1.2. Develop and utilise consent systems to facilitate sustainable activities within Natura 2000 sites		DAH	1. Consultation paper published	Consultation paper for developments in the marine has been published ¹⁰⁵	
6.1.3. Prepare detailed site-specific conservation objectives for Natura 2000 sites	2018	DAH	1. Number/proportion of sites for which conservation objectives have been prepared	As of July 2016, site-specific conservation objectives are published for 129 SACs and 37 SPAs	For Raised and Blanket bog NHAs site-specific management plans are being put in place
6.1.4 Implement the National	2016-2021	DAH,	1. A system of	Development of a drainage management plan	

Target 6.1: Natura 2000 network established, safeguarded, designated by 2018 and under effective conservation management by 2020

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
Raised Bog Special Areas of Conservation (SAC) Management Plan (2016-2021)		OPW	management devised and implemented that will ensure turf-cutting on protected bog sites continues only in such a way that will not threaten the integrity of SACs 2. Successful completion of LIFE project (on 12 SAC sites): <i>Restoring Active Raised Bog in Ireland's SAC Network 2016-2020 (LIFE14 NAT/IE/000032)</i>	for a fen SAC is on-going between OPW and DAH, with Tory Hill SAC as the pilot site	
6.1.5. Review the conservation measures necessary to achieve the published conservation objectives for Natura 2000 sites. If current measures are not adequate, develop and implement additional measures necessary to achieve favourable conservation status both nationally and at site level including for non-farmed habitats	2017-2021	DAFM, DAH, Teagasc, EPA	1. Number of farms implementing appropriate agri-environment measures in protected and other targeted areas 2. Improved conservation status of habitats reported to EU	New agri-environmental schemes including GLAS have targeted measures for priority environmental assets (including designated habitats and species) Conservation measures are being reviewed for Raised Bog SACs (see Action 4.1.3)	
6.1.6. Implement measures to ensure that, taking account of climate change, there are no adverse effects from marine fisheries and aquaculture in and adjacent to Natura 2000 sites	2021	DAFM	1. Number of habitats and species of EU interest reported to be impacted by fisheries/aquaculture 2. Mitigation plans and other conservation measures for marine fisheries in and adjacent to Natura 2000 sites as	National Strategic Plan for Sustainable Aquaculture was published in 2015 ¹⁰⁶ A systematic process for the assessment of the potential significant impacts of fishing and aquaculture, "Roadmap to Compliance" is on-going in agreement with the European Commission	

Target 6.1: Natura 2000 network established, safeguarded, designated by 2018 and under effective conservation management by 2020

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
			required.		

Target 6.2: Sufficiency, coherence, connectivity and resilience of the protected areas network substantially enhanced by 2020

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
6.2.1. Increase connectivity of the protected areas network using appropriate buffer zones, corridors stepping stones and/or, flyways	2021	DAH, Local Authorities, BnM, NGOs	1. Number/extent of features established to improve connectivity and resilience of protected areas 2. Management activities in place for increasing connectivity where appropriate 3. Number of County Development Plans with policies on these (if they're being updated in the time between now and 2020)	The national Landscape Strategy for Ireland 2015-2025 ¹⁰⁷ outlines a suite of national initiatives to recognise the importance of all landscapes in Ireland FS-DAFM Native Woodland package provides funding for native woodland creation and management, with a focus on wider landscape connectivity, particularly adjacent to existing native woodlands and along watercourses. There are semi-natural habitats developing on BnM cutaway bog that can act as refuge for wildlife and could provide ecological connectivity if appropriately managed The OPW have published a source-pathway-receptor model and screening methodology for identifying potential impacts on Natura sites from longitudinal works such as arterial drainage maintenance operations. Buffer distances have been developed for typical activities and a wide range of Natura qualifying	

interests			
6.2.2. Extend the Marine Protected Area designation under the MSFD	2021	DHPCLG, DAH, DCCAE	1. Number of additional areas designated

Target 6.3: No protected habitats or species in worsening conservation status by 2020; majority of habitats and species in, or moving towards, favourable conservation status by 2027

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
6.3.1. Provide and implement guidelines for Planning Authorities and other consent bodies on the protection of species listed in Annex II, IV and V and habitats in Annex I of the Habitats Directive including around preserving and increasing the connectivity of protected areas	2017	DAH Planning and other consent bodies	1. New guides published for aquatic and terrestrial habitats and species	Guidelines have been drafted but require finalisation and circulation	
6.3.2. Identify and subsequently fill critical gaps in ex-situ conservation programmes for wild species, in line with best	2021	DAFM, DAH, Fota Wildlife Park, Tayto Wildlife Park, National Botanic Gardens, Dublin		Fota Wildlife Park currently has 15 species involved in European breeding programmes Fota Wildlife Park has identified wild Irish species for future potential ex-situ programmes, such as the Corncrake (on-	

Target 6.3: No protected habitats or species in worsening conservation status by 2020; majority of habitats and species in, or moving towards, favourable conservation status by 2027

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
practice		Zoo		going), Grey Partridge, Corn Bunting, Lapwing, Barn Owl, Eurasian Crane, Natterjack Toad	
				Tayto Wildlife Park is currently participating in the Grey Partridge reintroduction programme	
				The National Botanic Gardens has an ex-situ conservation programme for rare and threatened flora	
6.3.3. Review, update and publicise the National Plant Conservation Strategy including updating the strategy in line with current global targets	2017	DAH		Ireland's National Strategy for Plant Conservation was published in 2006 and comprises a set of targets, actions, milestones and indicators for Ireland to fulfil its obligations under the Global Strategy for Plant Conservation (GSPC) as part of its commitments to the Convention on Biological Diversity (CBD)	

Objective 7: Strengthen international governance for biodiversity and ecosystem services

In addition to the actions set out above to conserve biodiversity in Ireland, there is also a role to be played globally through the overseas aid programme by: minimising trade in endangered species; reducing trade in commodities in cases where production causes damage to biodiversity; Ireland's involvement in important global issues such as climate change and access to genetic resources; and acting as an advocate for biodiversity in international fora.

The UN Convention on Biological Diversity's (CBD) Strategic Plan for Biodiversity 2011-2020, including the Aichi Biodiversity Targets, focused international efforts to alleviate global biodiversity decline. This plan provides an overarching framework on biodiversity, not only for the biodiversity-related conventions, but also for the entire United Nations system and all other partners engaged in biodiversity management and policy development. The CBD's fourth edition of the Global Biodiversity Outlook (GBO4) published in 2014 summarised the latest data on the status and trends of biodiversity and serves as a mid-term assessment of implementation of the Strategic Plan and its targets. It reports that there has been significant progress towards meeting some components of the majority of these targets¹. However, in most cases this progress will not be sufficient to achieve the targets set for 2020 and additional action is required to keep the Strategic Plan for Biodiversity 2011-2020 on course¹.

The major pressures on biodiversity globally include: loss, degradation and fragmentation of natural habitats; overexploitation of biological resources; pollution; the impacts of invasive alien species on ecosystems and the services they provide to people; and climate change and the acidification of the oceans¹. Some ecosystems are being pushed towards critical thresholds or tipping points. If these thresholds are passed, there is a real risk of dramatic loss of biodiversity and degradation of a broad range of services on which people depend for their livelihoods and well-being.

Through its Overseas Development Aid Programme, administered by Irish Aid, Ireland has the opportunity to widen the scope of its activities to embrace biodiversity conservation, and in so doing, take advantage of the skills base in life sciences that Ireland possesses.

Ireland has signed and ratified a number of international conventions, treaties, protocols and other agreements that seek to provide a global response and approach to protecting biodiversity and ecosystem services including: the CBD, the UN Convention on Trade in Endangered Species (CITES), the Bonn Convention (on conservation of migratory species of wild animals) (CMS), the Global Strategy for Plant Conservation (GSPC), OSPAR Convention (North-East Atlantic), International Convention for the Regulation of Whaling, and the RAMSAR Convention (on wetlands). Ireland is also a member of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), a Party to the UN Framework Convention on Climate Change and has adopted the Sustainable Development Goals (SDG). Meeting the Aichi Biodiversity Targets would contribute significantly to broader global priorities addressed by the post-2015 development agenda; namely, reducing hunger and poverty, improving human health; and ensuring a sustainable supply of energy, food and clean water. The SDGs reaffirm the importance of biodiversity for human well-being and apply equally to developed countries, such as Ireland, and undeveloped countries.

Ireland is a single geographic entity and therefore an all-Ireland approach is necessary to safeguard biodiversity on this island. Biodiversity does not recognise political boundaries and Ireland and Northern Ireland share the same biogeographic space with many species moving between the two territories. There is already substantial North/South dialogue and co-operation on biodiversity issues and it is envisaged that this will continue, as reflected in the actions in this chapter and previous chapters.

Aichi targets that these actions help us achieve: 1, 2, 3, 4, 9, 10, 12, 14, 15, 16, 19

Sustainable Development Goals that these actions help us achieve: 1, 2, 3, 8, 10, 12, 16, 17

Target 7.1: Substantially strengthened support for biodiversity and ecosystem services in external assistance

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
7.1.1. Biodiversity will be made a component of Ireland's development cooperation programme; and support to, and cooperation with, developing countries shall take into account biological diversity through the application of the CBD		DFAT	1. Amount allocated to biodiversity components and biodiversity specific Irish Aid grants	In May 2013 Ireland launched a new policy for International Development entitled "One World One Future", which places importance on biodiversity as part of the priority area for action on Climate Change and Development In 2013 Irish Aid allocated grants totalling €27,626,000 in respect of activities that were biodiversity relevant or had biodiversity elements. Of this fund around €13,000,000 was substantively biodiversity relevant. In addition, grants totalling €300,000 were allocated for biodiversity specific projects	

Target 7.2: Enhanced contribution to international governance for biodiversity and ecosystem services

<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
7.2.1. International agreements (including CBD, CITES, CMS, OSPAR, ICES, GSPC, IPBES and NASCO) will be serviced to ensure that	2017-2021	DAH DHPCLG, DFAT, Academia and Research Organisations		Ireland plays a pro-active role in CITES, CBD, IPBES, and EUROBATS (which comes under CMS)	

Target 7.2: Enhanced contribution to international governance for biodiversity and ecosystem services					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
Ireland plays a role in the future of international biodiversity policy, particularly in the area of mainstreaming biodiversity and ecosystem services across all sectors					
7.2.2. Continue to contribute data and information to European and international networks (including Global Biodiversity Information Facility, and European Environment Agency) to support conservation research and policy	2017-2021	DAH, NBDC	1. Number of networks provided with data from Ireland	<p>Ireland contributes to many European and international information networks to assist policy implementation and research</p> <p>Ireland became a member of the Global Biodiversity Information Facility (GBIF) in 2008, and the National Biodiversity Data Centre is the national node for Ireland. Biodiversity data contained in the Data Centre's database feeds into the GBIF portal to ensure that future international and global maps will now also include Irish data. It also means that the GBIF data resources of in excess of 500 million global biodiversity records are available to the Irish research community.</p>	

Target 7.3: Enhanced cooperation with Northern Ireland on common issues					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
7.3.1. On-going communication and		DAH,		There are frequent meetings on policy and	

Target 7.3: Enhanced cooperation with Northern Ireland on common issues					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
harmonized action on issues of common concern		DAERA		technical issues between the relevant Government Departments/agencies in both jurisdictions. Recent meetings have focussed on the potential for joint approaches for cross border conservation management programmes	
7.3.2. Cooperation and coordination (where possible and relevant) on Species and Habitat surveillance initiatives under the Habitats and Birds Directives (e.g., All-Ireland seal surveys; All-Ireland cetacean strandings scheme)	2017-2021	DAH, DAERA, British/Irish Council, NBDC, CEDaR	1. Number of long-term all-island monitoring schemes		
7.3.3. Further cooperation on and co-ordination of All-Island Species Protection Plans		DAH, DAERA		No further developments to report since 2011	

Target 7.4: Substantial reduction in the impact of Irish trade on global biodiversity and ecosystem services					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
7.4.1. Adopt measures to significantly reduce major impacts of trade on biodiversity and (in the case of negative impacts) and/or enhance these impacts (in the case of positive impacts)	2021	DAH, DFAT, DAFM	1. Knowledge on the pressures placed on biodiversity by trading activity and trade routing 2. Measures implemented to reduce or offset those	The EPA published a guidance document to assist the public sector to implement and maintain procedures for green public procurement ⁴¹	

Target 7.4: Substantial reduction in the impact of Irish trade on global biodiversity and ecosystem services					
<i>Action</i>	<i>Timeframe</i>	<i>Actors/key partners</i>	<i>Performance indicator</i>	<i>Baseline</i>	<i>Related actions</i>
			pressures and their impacts		
7.4.2. Ensure CITES Regulations are effectively implemented and enforced	2017-2021	DAH, Revenue (Customs)	1. Annual reports submitted 2. Biennial reports submitted		
7.4.3. Implement legislation to control imports of illegally harvested timber into Ireland. Facilitate exchange of best practice in private and public sector procurement policies favouring wood products from sustainable sources, including certifiable wood products	2019	Forest Service, DAFM, DFAT	1. Legislation drafted and enacted	The EU Timber Regulations are in force in Ireland. Legislation to ensure full compliance with the EU Timber Regulations in the jurisdiction will be finalised	
7.4.4. Investigate potential measures to prevent, minimise and/or mitigate deforestation due to non-wood imports		DAFM, Bord Bia, DFAT		The main imports driving deforestation are palm oil and Brazilian beef ³²	

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Appendix I: List of Acronyms

AA	Appropriate Assessment
AES	Agri-environment scheme
BCI	Bat Conservation Ireland
BF	Biodiversity Forum
BITCI	Business in the Community Ireland
BnM	Bord na Móna
BWG	Biodiversity Working Group
CAP	Common Agricultural Policy
CBD	Convention on Biological Diversity
CeDAR	Centre for Environmental Data and Recording
CFP	Common Fisheries Policy
CITES	Convention for International Trade in Endangered Species
CMS	Convention on Migratory Species
CSO	Central Statistics Office
COFORD	Council for Forest Research and Development
DAFM	Department of Agriculture, Food and the Marine
DAH	Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
DAERA	Department of Agriculture Environment and Rural Affairs
DCCAIE	Department of Communications, Climate Action and Environment
DECLG	Department of Environment, Community and Local Government
DEHLG	Department of Environment, Heritage and Local Government
DFAT	Department of Foreign Affairs and Trade
DHPCLG	Department of Housing, Planning, Community and Local Government
DPER	Department of Public Expenditure and Reform
DTTAS	Department of Transport Tourism and Sport
ESB	Electricity Supply Board
EIFAAC	European Inland Fisheries and Aquaculture Advisory Commission)
EMFF	European Maritime and Fisheries Fund
EPA	Environmental Protection Agency Ireland
GLAS	Green, Low-Carbon, Agri-environment Scheme
GSPC	Global Strategy for Plant Conservation
HOOW	Harnessing our Ocean Wealth
ICES	International Council for the Exploration of the Sea
IFA	Irish Farmers Association

IFI	Inland Fisheries Ireland
IFNC	Irish Forum on Natural Capital
INFOMAR	INtegrated Mapping FOr the Sustainable Development of Ireland's MARine Resource
IOOA	Irish Offshore Operators' Association
IPCC	Irish Peatland Conservation Council
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
ISME	Irish Small and Medium Enterprises Association
IWDG	Irish Whale and Dolphin Group
KBA	Key Biodiversity Area
LAWCO	Local Authorities Water and Communities Office
LLAES	Locally led agri-environmental schemes
MI	Marine Institute
MSFD	Marine Strategy Framework Directive
MSY	Maximum Sustainable Yield
NASCO	North Atlantic Salmon Conservation Organisation
NBDC	National Biodiversity Data Centre
NESC	National Economic and Social Council
NPBR	National Platform for Biodiversity Research
NPRF	National Pension Reserve Fund
NPWS	National Parks and Wildlife Service
NGO	Non-governmental organisation
OPW	Office of Public Works
OSI	Ordnance Survey Ireland
OSPAR	Convention for the protection of the marine environment in the North- East Atlantic
RBMP	River Basin Management Plan
RDP	Rural Development Programme
SAC	Special Area of Conservation
SAHFOS	Sir Alister Hardy Foundation for Ocean Science
SEA	Strategic Environmental Assessment
SEEA	System for Environmental-Economic Accounting
SFI	Science Foundation Ireland
SFPA	Sea Fisheries Protection Authority
SPA	Special Protection Area

TII	Transport Infrastructure Ireland
WFD	Water Framework Directive

Appendix II: List of organisations consulted or provided input to this NBSAP

Irish Forum for Natural Capital
Central Statistics Office
National Economic and Social Council
Sustainable Nation Ireland
IBEC
Bord na Móna
Biodiversity Forum
Biodiversity Working Group
Irish Water
Marine Institute
Irish Rural Link's Community Wetlands Forum
National Biodiversity Data Centre
DHPCLG
An Taisce
Environmental Protection Agency

Appendix III: Members of the Biodiversity Forum and Biodiversity Working Group

Biodiversity Forum

Yvonne Buckley, Chair
John Finn, Teagasc
Séamus Boland, Irish Rural Link
Siobhan Ryan, Heritage Council-Sligo
Ken Bradley, Department of the Environment Northern Ireland
Oonagh Duggan, BirdWatch Ireland
Tasman Crowe, University College Dublin
Sharon Parr, Burren LIFE
Fintan Kelly, Irish Environmental Network
Anja Murray, Irish Environmental Network
Ciaran O'Keeffe, Department of Arts, Heritage and the Gaeltacht
Frank Donohoe, Department of Arts, Heritage and the Gaeltacht
Simon Berrow, Irish Whale and Dolphin Group
Paul Harris, Bank of Ireland
Paul Giller, Emeritus Professor, University College Cork
Orla Casey, Ibec
Joe Caffrey, Inland Fisheries Ireland (retired)

Biodiversity Working Group

Members and organisations (to be updated)
Ciaran O'Keeffe, Department of Arts, Heritage and the Gaeltacht
Deirdre Lynn, Department of Arts, Heritage and the Gaeltacht
Wayne Trodd, DHPCLG
Donal Cronin, DHPCLG
Liam Lysaght, National Biodiversity Data Centre
Francis O Beirn Marine Institute
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Anthony Donnelly Department of Transport Tourism and Sport
Christina MacCarthy Department of Health
Nathy Gilligan Office of Public Works
Jerome Walsh, Department of Agriculture, Food and the Marine
Fergus Healy, An Garda Síochána
Nicki O'Connor, Department of Education and Skills
Cian Ó Lionáin Department of Housing Planning Community and Local Government
Sean O'Donncha, Department of Foreign Affairs
John Moloney Department of Education and Skills
Cathal Gallagher, Inland Fisheries Ireland
Ciara Phelan, Department of Jobs, Enterprise and Innovation
Patricia Ballantine, Department of Public Expenditure and Reform
Orla Kenny, Department of Justice and Equality
Michael O'Sullivan, Department of Defence
Michael O'Dochartaigh, Office of the Revenue Commissioners

Brian Deegan, Irish Water

Orla O'Brien, Department of Jobs, Enterprise and Innovation

Tomas Murray, National Biodiversity Data Centre

Matthew Jebb, National Botanic Gardens

Jennifer Payne Office of the Attorney General

Garrett Cunnane, Department of Agriculture, Food and the Marine

Frank Griffin, Department of Public Expenditure and Reform

Declan Hughes, Department of Jobs, Enterprise and Innovation

Appendix IV: EU Biodiversity Strategy

Targets in the EU's biodiversity strategy

In 2011 the European Commission adopted a Communication Strategy for Biodiversity (the EU's Biodiversity Strategy 2011-2020), which was subsequently supported by the Council and the European Parliament. The EU's strategy consists of a vision for biodiversity in 2050 and a headline target of halting the loss of biodiversity by 2020. The strategy also sets out six targets with associated specific initiatives.

Target 1

Fully implement the Birds and Habitats Directives

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

Target 2

Maintain and restore ecosystems and their services

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

Target 3

Increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity

3A) Agriculture: By 2020, maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by agriculture and in the provision of ecosystem services as compared to the EU2010 Baseline, thus contributing to enhance sustainable management.

3B) Forests: By 2020, Forest Management Plans or equivalent instruments, in line with Sustainable Forest Management (SFM), are in place for all forests that are publicly owned and for forest holdings above a certain size (to be defined by the Member States or regions and communicated in their Rural

Development Programmes) that receive funding under the EU Rural Development Policy so as to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 Baseline.

Target 4

Ensure the sustainable use of fisheries resources

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

Target 5

Combat invasive alien species

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

Target 6

Help avert global biodiversity loss

By 2020, the EU has stepped up its contribution to averting global biodiversity loss.

Appendix V: CBD Strategic Plan for Biodiversity and Aichi Biodiversity Targets

In 2010, in Nagoya, Aichi Prefecture, Japan, the CBD adopted a **revised and updated Strategic Plan for Biodiversity**, including the Aichi Biodiversity Targets, for the 2011-2020 period. The plan provides an overarching framework on biodiversity, not only for the biodiversity-related conventions, but for the entire United Nations system and all other partners engaged in biodiversity management and policy development.

Parties agreed to translate this overarching international framework into [revised and updated national biodiversity strategies and action plans](#) within two years. Additionally, the Conference of the Parties decided that the fifth national reports, due by 31 March 2014, should focus on the implementation of the 2011-2020 Strategic Plan and progress achieved towards the Aichi Biodiversity Targets.

- Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
- Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use
- Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
- Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services
- Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 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.

Target 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.

Target 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.

Target 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.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Target 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.

Target 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.

Target 7

By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8

By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 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.

Target 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.

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 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.

Target 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.

Target 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.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

Target 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.

Target 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.

Target 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.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

Target 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.

Target 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.

Target 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.

Appendix IV: Sustainable Development Goals

Goal 1: End poverty in all its forms everywhere

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5: Achieve gender equality and empower all women and girls

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10: Reduce inequality within and among countries

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12: Ensure sustainable consumption and production patterns

Goal 13: Take urgent action to combat climate change and its impacts

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development