

Dún Laoghaire-Rathdown County Biodiversity Action Plan **2021-2025**



Nature Recovery, Restoration & Reconnection





This Plan has been prepared by the Biodiversity Section of Dún Laoghaire-Rathdown County Council.

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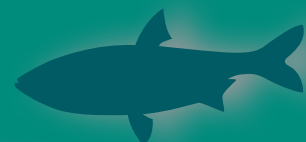
Appropriate Assessment: The SEA Screening for this DLR Biodiversity Action Plan has been carried out and is consistent with the process as recommended by the Department of Environment, Heritage and Local Government guidance document entitled *Implementation of SEA Directive 2001/42/EC Assessment of the Effects of Certain Plans and Programmes on the Environment November 2004*, in line with Schedule 1 of SI435, and uses the criteria for SEA screening criteria set out in the SEA Directive. An Appropriate Assessment Screening Report has been prepared in line with Article 6(3) of the EU Habitats Directive (92/43/EEC). The SEA Screening Report and Determination along with the AA Screening report are provided on our website with this DLR Biodiversity Action Plan.



The fact is that no species has ever had such wholesale control over everything on Earth, living or dead, as we now have.

That lays upon us, whether we like it or not, an awesome responsibility. In our hands, now lies not only our own future, but that of all other living creatures with whom we share the Earth.

David Attenborough
Life on Earth





Lettie McCarthy
DLR Cathaoirleach



Frank Curran
Chief Executive DLR

Foreword

We are delighted to welcome the publication of our Biodiversity Action Plan 2021–2025 for Dún Laoghaire–Rathdown. The implementation of this plan is central to our commitment to the restoration and recovery of our county’s biodiversity in the face of the Climate Crisis and Biodiversity Emergency. Words that are now very familiar to us all, but our actions will tell the story of how we worked together to help reverse biodiversity declines, such as the loss of our pollinators. Alongside our local communities, individuals and businesses, who are a vital part of this plan, we have shown that we can make change, we can see our pollinator areas popping up across our county – on the edges of our roads, our green spaces, at shopping centres, in gardens, and even on patios and balconies.

For many years, we have known that biodiversity is essential to our wellbeing and that if it continues to disappear, our future might be at risk. We recognise the wide range of medicines, foods, materials, and other goods that we obtain from nature. Even more important, but less obvious, is the fact that biodiversity offers us services without which our

lives on this planet would be impossible. These services include, among many others, cleaning our water, crop pollination, plant seed dispersal, pest and disease control, and the betterment of our health. If we want to keep enjoying these services in the future, we must find ways to prevent biodiversity decline. As your local authority, we will make the same effort we have made for pollinators, for the restoration of our river systems, coastal and marine areas, and those habitats and species we see less and less of, such as the beauty of our orchid-rich grasslands, our diverse hedgerows, our endangered bird species, our hedgehogs and badgers. Through this plan, we hope to do this – to restore, recover and reconnect aspects of our biodiversity – and also not forgetting our own reconnection with nature.

We would like to thank all who took part in the public consultation process, including the various NGOs and interested groups, such as BirdWatch Ireland, Coastwatch, An Taisce, the Herpetological Society of Ireland, Public Partnership Network, our Councillors, the members of the Biodiversity Forum Group, DLR’s Biodiversity Officer and the general public.





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Biodiversity & Us

Ecosystem Services



Why prepare a Biodiversity Action Plan?

The loss of the Earth's natural resources was recognised at an international level at the 1992 'Earth Summit'. The Convention on Biological Diversity was signed by all nations at that meeting, including Ireland. Ireland's first National Biodiversity Action Plan (2002-2006) called for all Local Authorities to produce Local Biodiversity Action Plans. The purpose of these plans is to ensure the protection and appreciation of biodiversity at the county (local) level.

The production of a Biodiversity Action Plan for the county is also listed in the Dún Laoghaire-Rathdown (DLR) Development Plan, the DLR Climate Change Action Plan, the DLR Heritage Plan, DLR Local Agenda 21 programme and the DLR Corporate Plan.



Biodiversity decline

While most of us are not actively seeking to harm biodiversity, modern daily life is full of unintended consequences that affect biodiversity and the plants and animals sharing this planet with us. Both natural and human caused impacts reduce biodiversity and in turn can threaten livelihoods and human survival.

In recent decades, human impacts on biodiversity in Ireland, and across the planet, have accelerated and resulted in increased damage to habitats, loss of species, reduced abundance of wildlife and degradation of our environment (air, water and soils).

If we, the current generation, continue to use our natural resources unsustainably, damage our natural habitats, drive species to extinction and pollute our seas, rivers and soils, future generations will inherit a diminished and degraded environment unfit to support them and unfit to provide them with a wide range of benefits.

After all, there cannot be a healthy, happy and prosperous future for people with a destabilised climate, depleted oceans and rivers, degraded land and empty woodlands, stripped of biodiversity.



The current state of Biodiversity in Dún Laoghaire-Rathdown

We are a small urban county with limited space and with many pressures on biodiversity, but that does not make it impossible to manage our land better and restore areas for biodiversity. We have areas of the county which provide for new buildings, roads, parking and, of course, homes. Now that we are more aware of the need to help biodiversity, which in turn helps us, we can look at how we can achieve a balance, and even gains for biodiversity.

At least 20% of our natural habitats have been lost to development in the past 10 years. This is likely an underestimation. Our marine habitats and species have yet to be surveyed in order to truly understand the losses in our marine environment.

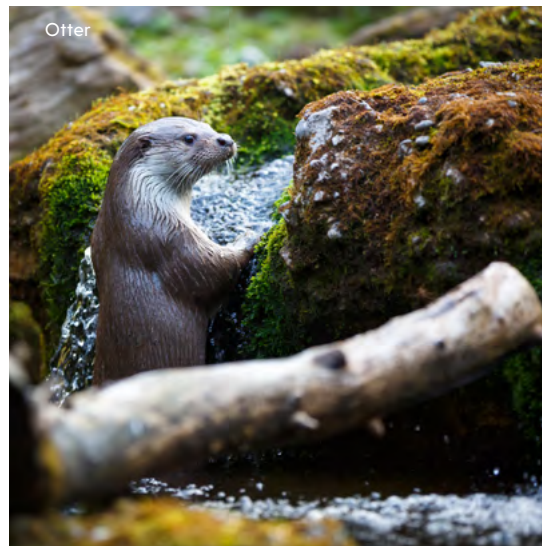
DLR have completed some of our species surveys, such as for Otter, but as yet we don't know enough about our terrestrial species populations to fully calculate the losses. However, the status of our biodiversity in DLR is likely to reflect the national state of species. At a national level, of the species that have been assessed, one in every five species is threatened with extinction here.

We have a lot of survey work to complete in order to fully understand the current state of our biodiversity. In the meantime, it will be crucial to *protect* and *restore* our important habitats and species through all our policies, plans (County Development Plan) and actions, including through this DLR Biodiversity Action Plan and the projects that come from the included actions.

Biodiversity Declines

The World Wildlife Fund (WWF) Living Planet Report² in 2018 reported an alarming 60% decline in the size of populations of mammals, birds, fish, reptiles, and amphibians over the past 40 years, all related to human activities.

In Ireland, more than 90% of our protected habitats are classified as 'poor' or 'inadequate' in their current condition (and that's to say nothing of our unprotected habitats). On average, 20% of the species that have been assessed are considered to be at risk of extinction in Ireland.



² <https://www.worldwildlife.org/pages/living-planet-report-2018>

How is Biodiversity helping us?

Natural Capital is the sum of our ecosystems, species, freshwater, land, soils, minerals, our air and our seas – our stock of nature. These are all elements of nature that either directly or indirectly bring value to people and the country at large. They do this in many ways, but chiefly by providing services to us, such as food, clean air and water, wildlife, energy, wood, recreation and protection from hazards – and these services are known as **Ecosystem Services**.

Ecosystem Services are grouped into four broad categories:

provisioning services, such as the production of food and supply of water;

regulating services, such as the control of climate or flood control;

supporting services, such as nutrient cycles and oxygen production; and

cultural services, such as spiritual and recreational benefits.

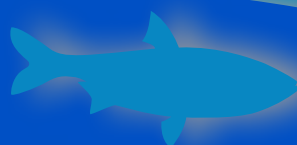
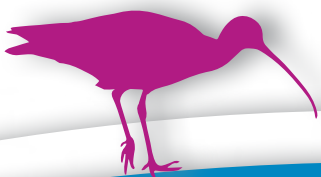
Without a doubt, biodiversity and natural resources underpin these ecosystem services. These ecosystem services are under threat due to the continuing loss of biodiversity.

Ireland has recognised the value of protecting its biodiversity through the *National Biodiversity Plan 2017-2021*. The new DLR Biodiversity Action Plan 2021-2025 will also commit to actions aimed at conserving and restoring our biodiversity and ecosystems, to strengthen the integration of the protection of ecosystem services into the decision-making and policies of DLR.

Recognising that biodiversity provides many valuable ecosystem services (the economic value of which is only now being recognised) further emphasises the importance of protecting our biodiversity, of integrating biodiversity into our decision-making, and of looking at more sustainable ways of managing our biodiversity and ecosystems. However, the value of biodiversity is not the same as its price, and it offers us so much more than just monetary or economic value.

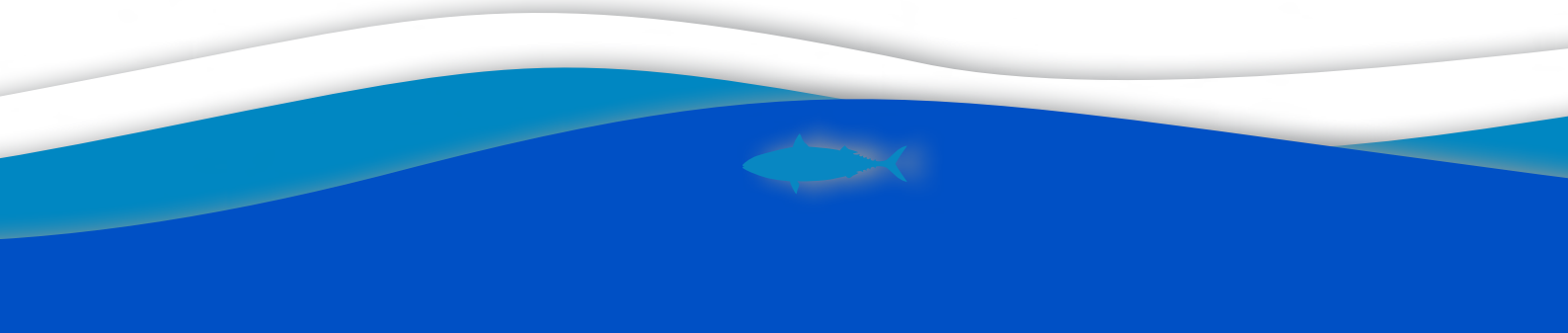
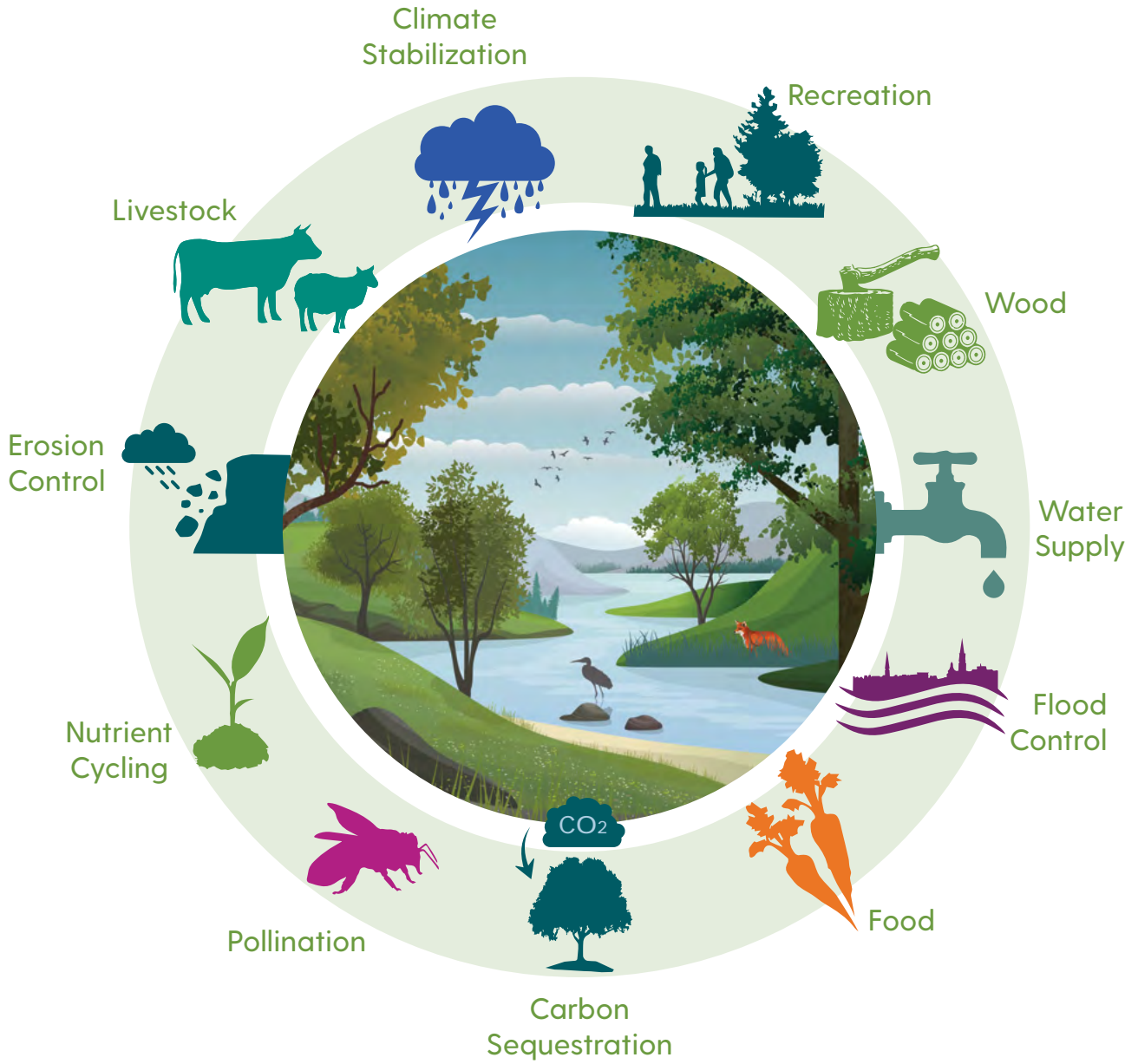
For more information on ecosystem services, please see our website:

<https://www.dlrcoco.ie/en/biodiversity/natural-capital-and-ecosystem-services>.



Ecosystem Services

How Biodiversity is helping us





Sandmartins nesting on cliffs

Path to Recovery, Restoration and Reconnection



We are now moving into a phase where we look at the ‘recovery’ of nature, rather than only looking at protecting what is left. Nature recovery, restoration and reconnection are the core aims for this Plan.



DLR Biodiversity Action Plan 2021-2025

DLR recognise that as an urban environment, there are many challenges for biodiversity and we need to expand, improve and connect biodiversity in order to improve the landscape’s resilience to climate change, providing natural solutions to reduce carbon and manage flood risk, and to sustain vital ecosystems, such as improved soil health, clean water and clean air. This will also allow us to enjoy and connect with nature where we live, work and play, benefiting our health and wellbeing.

The creation of the DLR Biodiversity Action Plan has taken into account: the EU Biodiversity Strategy 2030, the UN Convention on Biological Diversity post-2020 Global Biodiversity Framework (first draft)³ and the National Biodiversity Action Plan 2017-2021, along with other plans and policies outlined here.

Path to Recovery

Recognising the current global threat to biodiversity, the EU has committed to the Convention on Biological Diversity’s aim to “ensure that by 2050, all of the world’s ecosystems are restored, resilient, and adequately protected”.

In the meantime, the EU “aims to ensure that Europe’s biodiversity will be on the path to recovery by 2030”.

DLR are committed to reversing the decline of biodiversity through the actions of this plan. Some actions have already commenced, with the development of our pollinator areas and ‘Slow to Mow’ campaign, which are aimed at addressing the loss of our pollinators. Other actions noted in this plan are aimed at the recovery of our ecosystems, such as our habitats, rivers, wetlands and marine areas, including recovery of habitats and species we may not have seen for many years. We will have some challenges to availability of areas for this recovery and we will look to innovate, but it will require some land-take and resources to finance these projects. We will have to be ready to examine how we can give nature space and buffer the impacts of human activities.



³ <https://www.cbd.int/article/draft-1-global-biodiversity-framework>

Restoration

The EU Biodiversity Strategy recognises that significant restoration actions will be required to reverse decades of biodiversity loss. This restoration will include, for example: strengthening the EU legal framework for nature restoration; bringing nature back to agricultural land; addressing land-take and restoring soil ecosystems; increasing the quantity of forests and improving their health and resilience; restoring freshwater ecosystems; reducing pollution; and addressing invasive alien species.

Legally binding EU nature restoration targets are to be proposed in 2021, subject to an impact assessment.

The identification of areas across our county that can be restored is the first step in developing our projects for restoration and underlies actions of this Plan. The projects we develop will require help from our local communities, business communities and land managers. Our work on invasive species has commenced in our river catchments, with a number of surveys and treatment projects,

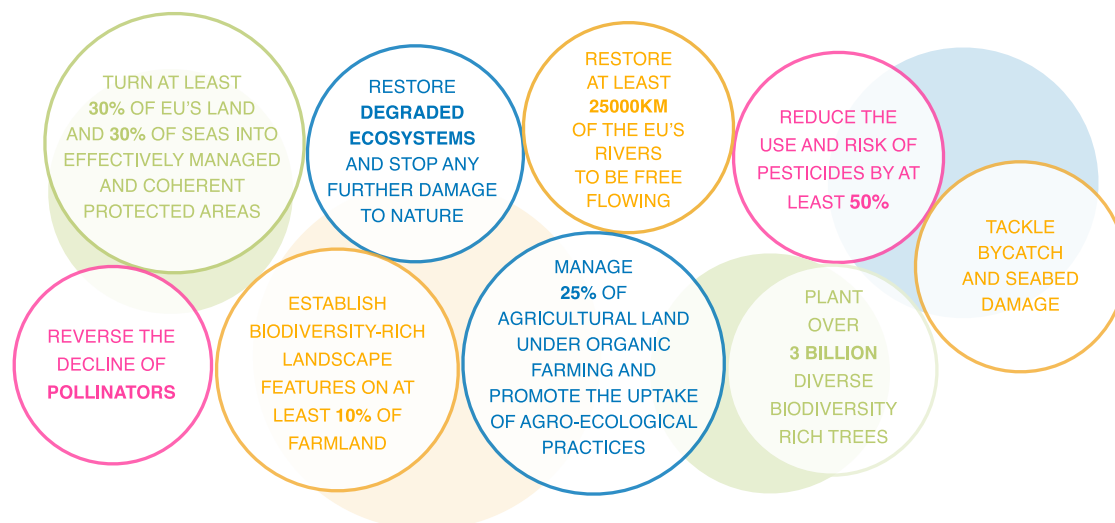
such as the treatment of Giant Hogweed in the Carrickmines river catchment and the treatment of Japanese Knotweed on the Dodder, in cooperation with other local authorities and Irish Water.

Reconnection

The EU Biodiversity Strategy aims to widen the network of protected areas and establish a “coherent network of protected areas”. The aim is that at least 30% of land (an increase of 4%) and 30% of sea (an increase of 19%) will be protected and connected through ecological corridors as part of a European-wide network. The basis of our reconnection work in DLR relates to our County Ecological Network, which also forms part of our actions.

‘Reconnection’ also has a second meaning here in DLR, as we aim to reconnect people with nature, to encourage our local communities to become involved in helping biodiversity thrive in their own area and beyond. We aim to engage with our local communities and to support them where we can.

THE EU BIODIVERSITY STRATEGY SETS AMBITIOUS EU TARGETS AND COMMITMENTS FOR 2030 TO ACHIEVE HEALTHY AND RESILIENT ECOSYSTEMS, FOR EXAMPLE:



(EU Biodiversity Strategy for 2030, EU 2020)



The Global Perspective

UN Convention on Biological Diversity

The Convention on Biological Diversity addressed the conservation and sustainable use of biological diversity, as well as the sharing of benefits arising from their utilisation with sovereign states and local communities. In June 1992, at the Earth Summit in Rio de Janeiro, Brazil, more than 178 countries adopted Agenda 21, a comprehensive plan of action to build a global partnership for sustainable development to improve human lives and protect the environment. Ireland is one of the signatories of this Convention.

Importantly, the convention is legally binding; countries that join ('Parties') are obliged to implement its provisions. This DLR Biodiversity Action Plan is seen as part of ensuring Ireland fulfils our obligations under the Convention.

In 2015, all United Nations Member States signed up to the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to conserve biodiversity.

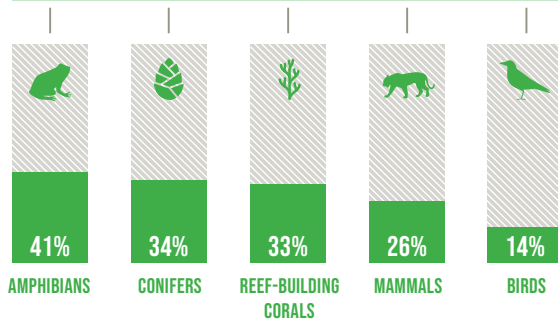




PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

MORE THAN A QUARTER OF SPECIES ASSESSED BY THE IUCN RED LIST ARE THREATENED WITH EXTINCTION

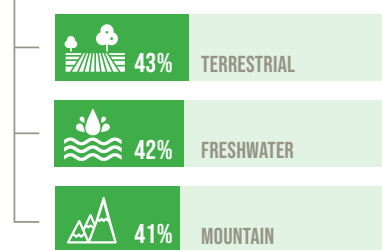
PROPORTION OF SPECIES THREATENED WITH EXTINCTION



IUCN RED LIST
TRACKS DATA ON MORE THAN 134,400 SPECIES OF MAMMALS, BIRDS, AMPHIBIANS, REEF-BUILDING CORALS AND CONIFERS. MORE THAN 37,400 SPECIES ARE THREATENED WITH EXTINCTION.

PROGRESS TO SAFEGUARD KEY BIODIVERSITY AREAS HAS STALLED OVER THE LAST 5 YEARS

GLOBAL MEAN PERCENTAGE OF EACH KEY BIODIVERSITY AREA COVERED BY PROTECTED AREAS (2021)



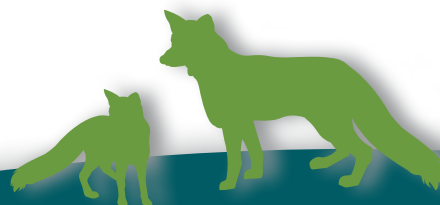
ALMOST ALL COUNTRIES HAVE ADOPTED LEGISLATION FOR PREVENTING OR CONTROLLING INVASIVE ALIEN SPECIES



INVASIVE ALIEN SPECIES NEGATIVELY AFFECT NATIVE BIODIVERSITY AND COST THE GLOBAL ECONOMY BILLIONS OF DOLLARS ANNUALLY.

PROGRESS HAS BEEN MADE TOWARDS SUSTAINABLE FOREST MANAGEMENT

BUT THE WORLD HAS LOST 100 MILLION HECTARES OF FOREST IN TWO DECADES (2000-2020)





Light-bellied Brent Goose

Biodiversity & Climate Change



The science is clear
– climate change will
exacerbate declines
in biodiversity.



Impacts of Climate Change on Biodiversity

Climate change will impact all sectors, including Agriculture, Biodiversity, Fisheries, Forestry, Energy, Water, Tourism, Transport, Built environment, and Human Health. Natural resources (biodiversity and fisheries) and the built infrastructure (including coastal areas) have been shown to be the sectors most vulnerable to climate change. (Coll and Sweeney, 2013)⁴. Climate change also has major *indirect* impacts on Irish biodiversity through its interaction with other stressors, in particular habitat fragmentation and loss; over-exploitation; pollution of air, water and soil; and spread of invasive alien

species. It is also well documented that degraded habitats are less resilient to the impacts of climate change and are less able to provide the ecosystem services humans need to survive. Changes to ecosystems, as a result of climate change, are likely to have significant and often negative social, cultural and economic consequences.

At the species level, changes observed that can be attributed to climate change include those surrounding phenology (the timing of seasonal events). Many birds and insects are showing changes, such as earlier onset of migration, egg-laying and breeding.

Let's help biodiversity adapt to climate change

Biodiversity adaptation to climate change is a challenge when other pressures also affect biodiversity, so there is a need to address these threats to biodiversity. In response to the threat that climate change poses, various sets of principles have been identified to guide adaptation for biodiversity conservation (Mitchell *et al.*, 2007). These have been incorporated into the actions of this Plan.

The impacts associated with climate change will not occur in isolation; rather climate-driven changes will combine with, and exacerbate, existing stresses

on our biodiversity and natural systems. Therefore, it is important that we understand those interactions in order to incorporate measures and actions into our plans and policies to protect biodiversity and ecosystem services.

The actions of this Plan include actions aimed at addressing climate change impacts. After all, it is biodiversity and ecosystem services that we rely on, not only for our survival, but also for regulating our climate, helping to buffer against climate change and extreme weather events.

⁴ Coll, John and Sweeney, John (2013) Current and future vulnerabilities to climate change in Ireland: (2010-CCRP-DS-2.3) End of Project Report. Technical Report. Environmental Protection Agency.

Biodiversity and Climate Change



Upsetting nature's clock

The earlier arrival of spring changes the life cycles of many plants which provide food and habitat for other species.



Habitat fragmentation happens when natural landscapes are broken up by development, such as roads, which interrupt ecological corridors.

A **changing climate** will make trees and woodlands more stressed, and more vulnerable to widespread mortality from insect and disease threats.



Phenological mismatches happen when the life cycles of dependent species change and no longer match up, e.g. caterpillars peak in numbers before dependent chicks hatch.

Climate change can lead to **competition for resources** among species, as well as bigger and more frequent infestation outbreaks.



Many species won't be able to **adapt** quickly enough to changes in their **environment**.

Range changes

Climate change can cause range contraction where already limited habitats shrink even further.

Many ecosystems are vulnerable to impacts from the influx of **Invasive Alien Species** and diseases.

Habitat destruction

In grassland ecosystems, the fluctuations between drought and flooding will harm some of our few remaining natural orchid-rich grasslands.



Extreme storms and rising sea levels can cause coastal squeeze.



Climate change causes harmful **algae growth** in habitats also threatened by overfishing, pollution and wetland drainage.

Conservation & Adaptation

Protect – our important terrestrial and marine habitats and species

Connect – wildlife corridors, fish passes, remove culverts where possible and create more connections.

Restore – ecosystems such as river corridor habitats, wetlands and other important habitats and species.

Helping Biodiversity in the Face of Climate Change – What We Can Do

1

Conserve Protected Areas and other high-quality habitats and species

Conserve a range of ecologically variable habitats and species. The richness of future biodiversity, especially in a changing world, will depend largely upon the biodiversity we conserve today.

2

Prepare for major disturbances

Natural disturbances, such as flooding, forest fires and land nutrient changes, will be more frequent in the coming years as a direct consequence of climate change. It is important to take an adaptive approach that is proactive, and better preparation for such major disturbances is vital for the conservation of biodiversity. Direct benefits to such a proactive, adaptive approach include an enhanced ability to make management responses to major natural disturbances and reduced risks of such responses impacting on biodiversity.

3

Reduce sources of harm not linked to climate

Climate change is one of many threats to biodiversity. By reducing other sources of harm, such as habitat loss or pollution, this will help natural systems maintain their biodiversity in the face of climate change.

4

Develop ecologically resilient and varied landscapes

Conserve and enhance local variation in species and habitats. Diversity of terrestrial, freshwater and marine ecosystems, in terms of physical features and habitats, should be maintained. This will increase the chances that species whose current habitat becomes inhospitable will be able to spread locally into newly favourable habitat.

- Make space for natural areas, such as riparian habitats and wetlands around our rivers and coasts.
- Re-connect the landscape across the county to support enduring features and create new connections. Develop ecological networks in ways that promote their resilience to climate change and thereby ensure their long-term value.
- Restore degraded ecosystems to become more resilient.
- Take prompt action to control spread of invasive alien species.

5

Make sound decisions based on scientific data, surveys, analysis and best practice

The importance of data in supporting biodiversity-related decision-making is well established. Understanding the direction and magnitude of ecological responses to climate change allows human communities to better anticipate these changes and adapt as necessary.





6

Monitor adaptation measures for biodiversity

- We need to factor climate change adaptation for biodiversity into the decision-making process of plans and policies, for land managers and land management advisors, in order to sequester and store carbon in the terrestrial biosphere through better land management. For example, establishing native woodlands, riparian woodlands and revegetation of areas of land. This requires strategic zoning of land uses.
- It is important that valuable habitats and species are not negatively impacted in order to provide Nature-based Solutions. For example, the development of new cycleways should not result in a loss of biodiversity and should not be located in, or too close to, wildlife corridors; a 30m buffer should be kept between cycleways and wildlife corridors.

7

Encourage and support partnerships

- **build and strengthen partnerships.** Partnerships between the public and private sectors should form a fundamental part of the process of developing climate change adaptation strategies for biodiversity from the outset.
- **raise awareness within society of benefits of the natural environment.** Wider appreciation that adaptation for biodiversity is in the interests of individuals, communities and businesses will lead to demand and support for implementation. This should build on recognition of ecosystem services.⁵

8

Integrate adaptation and mitigation measures into management, planning and decision-making.

Adaptation policy across all sectors needs to be built on a foundation of healthy and resilient ecosystems. Different sectors of society view biodiversity and ecosystems in terms of their own economic, cultural and societal needs. Biodiversity is critical, both for its intrinsic value and because of the key role it plays in providing the ecosystem services upon which we all ultimately depend.

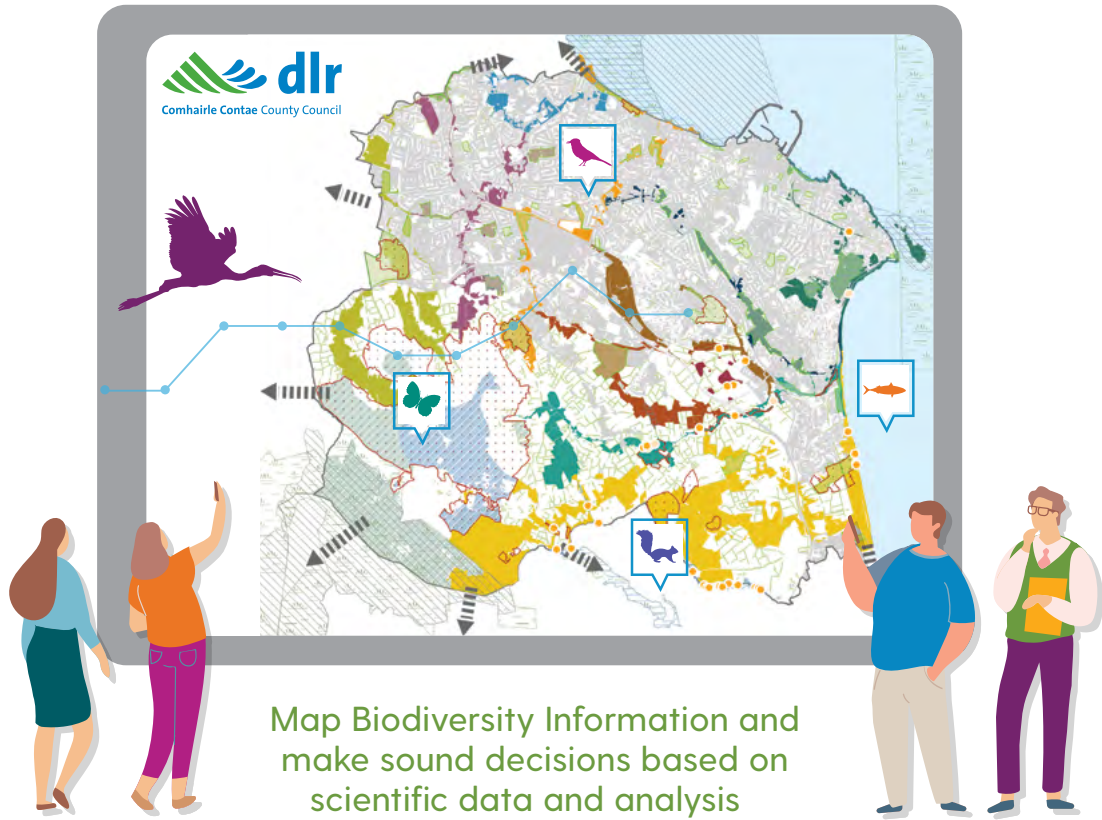
There is a need to:

- **integrate adaptation and mitigation measures.** Biodiversity conservation can contribute to carbon management; for example, through peatland restoration or native woodland creation. Mitigation should not harm biodiversity and should recognise opportunities for biodiversity, thereby contributing to adaptation.
- **integrate policy and practice across relevant economic sectors.** Adaptation measures for biodiversity should be explicitly linked with the wider benefits they bring.



⁵ Mitchell, R.J., Morecroft, M.D., Acreman, M., Crick, H.Q.P., Frost, M., Harley, M., Maclean, I.M.D., Mountford, O., Piper, J., Pontier, H., Rehfish, M.M., Ross, L.C., Smithers, R.J., Stott, A., Walmsley, C.A., Watts, O. and Wilson, E. (2007). England biodiversity strategy – towards adaptation to climate change. Report to Defra (CRO327).

What can DLR do to help Biodiversity in the face of Climate Change?



Establish ecological networks through habitat protection, restoration and creation



Develop ecologically resilient and varied landscapes

Working with communities and organisations to protect, restore and enhance our existing natural areas and ecosystems.





Reduce sources of harm not linked to climate

DLR aim to address threats such as disturbance at sensitive bird habitats or the spread of invasive species.

Build & strengthen partnerships
 We work in partnership with other local authorities, NGOs, the Dublin Bay Biosphere and others to engage in broader surveys and projects.

Monitoring
 Assess the measures we take and identify which work best.

Examples:

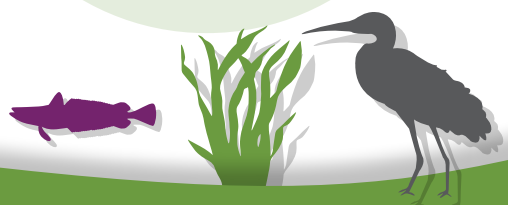
- Rare plant species monitoring surveys,
- Hedgerow evaluation and condition surveys
- and species tagging surveys.

Conserve existing biodiversity

There are a number of international and national sites for nature conservation that DLR help to protect. DLR have also designated areas of local interest called 'Locally Important Biodiversity Sites'.

Integrate adaptation and mitigation measures into conservation management, planning and practice

DLR Dalkey Island Tern Conservation Project



We must ensure that all mitigation and adaptation efforts, including NBS, avoid negative impacts on biodiversity.



Helping biodiversity will help us

Assisting biodiversity in adapting to climate change will have wider benefits for society, both in terms of ecosystem services and human adaptation to climate change. Biodiversity and ecosystems provide society with many essential services, which will become ever more important as the climate changes. Many of the measures to protect, restore and enhance biodiversity will have knock-on benefits for society, such as: flood protection, climate regulation, carbon sequestration, tourism and recreation benefits. The speed and scale of climate change means that we need to take action now.

Biodiversity, through the ecosystem services it supports, can make an important contribution to reducing the negative effects of climate change (CBD Secretariat, 2016)⁶. For example, habitats such as wetlands at Ballycours; woodlands at Loughlinstown; and marshes at Booterstown, can help to both mitigate the effects of climate change by removing carbon dioxide from the atmosphere and by stabilizing slopes or slowing flood waters in catchments.

These are examples of Nature-based Solutions (NBS) – where natural environments provide a wide range of ecosystem services (Millennium Ecosystem Assessment, 2005)⁷, many of which effectively buffer communities from the adverse effects of climate change at low cost.

In recognition of these benefits, Nature-based Solutions are becoming increasingly recognised as an effective low-cost solution to both the causes and consequences of climate change.

Nature-based Solutions

The concept of Nature-based Solutions is grounded in the knowledge that healthy, natural and managed ecosystems produce a diverse range of services on which human wellbeing depends, from storing carbon, controlling flooding, and stabilising shorelines and slopes, to providing clean air and water, food, fuel and medicines.

⁶ CBD Secretariat (2016) Making use of the findings of the IPCC's Fifth Assessment Report. <https://www.cbd.int/climate/doc/biodiversity-ar5-brochure-en.pdf>

⁷ Millennium Ecosystem Assessment 2005 Ecosystems and Human Wellbeing: Biodiversity Synthesis. Washington DC: World Resources Institute.

Working with nature, rather than against it, can further pave the way towards a more resource efficient, competitive and greener economy.

(EU, 2020)



Biodiversity is at the core of Nature-based Solutions

Manmade engineering or grey approaches to addressing risks, such as flooding, do not always address the root causes of risk, and can increase the vulnerability of populations over the long term. Therefore, it is recognised that nature and ecosystems often provide better solutions.

The EU define Nature-based Solutions to societal challenges as “solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more and more diverse nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.”⁸

The main goals of NBS are the enhancement of sustainable urbanisation; protection of existing ecosystems; the restoration of degraded ecosystems; the development of climate change adaptation and mitigation; and the improvement of risk management and resilience.

Examples of Nature-based Solutions include: the restoration of existing natural features such as riparian habitats, wetlands, woodlands or the creation of new habitats. It also includes the creation of features such as green roofs, living walls and other artificial features that provide ecosystem services.



⁸ (EU,2020 <https://ec.europa.eu/research/environment/index.cfm?pg=nbs>)



Green-veined white butterfly

Themes, Objectives
and Actions of the
DLR Biodiversity
Action Plan
2021-2025



Ireland's Vision for Biodiversity is 'that biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society.'



National Biodiversity Action Plan 2017-2021
- Ireland's Vision for Biodiversity

As outlined in the National Biodiversity Action Plan, 2017-2021⁹, Ireland's Vision for Biodiversity is 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." The next National Biodiversity Action Plan is due in 2022 and it is envisaged that this will take us a step further towards gains for biodiversity. This is also considered in our DLR Biodiversity Action Plan 2021-2025.

DLR's Biodiversity

Preparation of the DLR Biodiversity Action Plan 2021-2025

The new DLR Biodiversity Action Plan 2021-2025, the second Plan for the County, builds on the aims of the first Plan and continues to move us towards our overall EU and National Vision for Biodiversity. It is Government policy for the Local Authorities to take the lead role in the production of Local Biodiversity Action Plans. This Plan demonstrates DLR's continuing commitment to achieving our obligations to protect our biodiversity for the benefit of future generations. This is achieved through a series of targeted actions provided in this Plan.

The preparation of the DLR Biodiversity Action Plan 2021-2025 is informed by:

- Existing knowledge and a review of the information contained in the previous DLR *Biodiversity Plan 2009-2013 – Treasuring Our Wildlife*
- Consultation with our Biodiversity Steering Group, the general public, Public Participation Network (PPN) and interested groups such as BirdWatch Ireland (BWI), An Taisce, Coastwatch and others who influence biodiversity conservation in DLR
- Legislation, policy and strategies at local, national, European and international level
- National and international best practices and experiences
- DLR Climate Change Action Plan 2019-2024
- DLR County Development Plan 2022-2028 in draft
- DLR Invasive Alien Species Action Plan 2020
- In particular, this Plan is informed by the seven strategic objectives and associated targets of the third National Biodiversity Action Plan 2017-2021, Ireland's Vision for Biodiversity and the EU Biodiversity Strategy 2030.

⁹ <https://www.npws.ie/sites/default/files/publications/pdf/National%20Biodiversity%20Action%20Plan%20English.pdf>



The review of the previous DLR *Biodiversity Plan 2009-2013 – Treasuring Our Wildlife* showed that significant progress was made during the timeframe of the Plan and the implementation of the actions of the Plan have continued to date. However, during the time since its implementation, many changes have occurred both in terms of plans, policies, legislation, land use management, climate change and biodiversity initiatives.

There are still areas where increased efforts are required to meet the targets and objectives of the previous Plan, while we also look to the future and implementing new actions. Most actions of the previous plan that were identified as ongoing or requiring further action are retained in this second Plan. As we are in the face of a Climate Change and Biodiversity Emergency, the actions of this Plan have been climate-proofed.

Climate-proofing our Plan

Climate proofing is a process that makes projects, strategies, policies and measures resilient to climate change, including climate variability. In order to do this, DLR have identified each biodiversity action, the climate change risk (impact) to biodiversity and how the action helps to address the impact, e.g. making biodiversity more resilient to climate change through protection of important conservation areas.





Grey Seal, Dalkey Island

Consultations

A Biodiversity Steering Group was set up as part of the previous DLR Biodiversity Plan, with representatives from NGOs, such as BWI, and government bodies, such as the National Parks and Wildlife Service (NPWS) and others. This group has continued to participate in the drafting of the next DLR Biodiversity Action Plan 2021-2025. Some members of the group have since retired or moved on, and new members were added to represent their interests. Public consultation has been undertaken with various NGOs and interested groups, such as Coastwatch, An Taisce, the Herpetological Society of Ireland, Public Partnership Network, our Councillors, and our general public. Go to www.dlrcoco.ie for consultation documents.

Implementing and Monitoring our Plan

Each year, DLR's Biodiversity Officer will draw up an annual work plan of projects to be undertaken in that year. A detailed implementation plan for each project will then be prepared. Each project will be costed and a timeframe set for its completion.

Monitoring the implementation of the DLR County Biodiversity Action Plan will be overseen by the Biodiversity Officer. The role of the Biodiversity Forum is particularly crucial to the plan. Their expertise will provide ongoing direction for the plan, setting priorities and evaluating outcomes.



Preparation of plan: Timeframe and Consultations

Timeframe Preparation of Plan	
2018	Review of previous Biodiversity Action Plan 2009-2013
2018	Review of biodiversity datasets such as habitat and species surveys to understand what information DLRCC holds on our biodiversity resource
2019 - 2021	Surveys completed to understand the current state of our biodiversity resource, to examine what actions we might carry forward and what new legislation, plans and policies should be considered as part of this new plan
Collaborate – Involve- Consult - Inform	
2019 - 2021	Meetings with the Biodiversity Steering Group to steer the plan-making process
2019 - 2021	Discussion and collaboration with other LAs and the Dublin Bay Biosphere to examine common objectives of all our biodiversity plans
28/04/2021	Internal presentation to our DLR Staff Seniors to inform our staff of the plan and receive their input
05/05/2021	Online workshop to invite feedback from interested groups such as An Taisce, BWI, HSI, Coastwatch and the Seal Sanctuary
07/05/2021	Discussions with universities to explore where collaborations are possible and where research can be incorporated into the plan
27/05/2021	Online presentation and Q&A with the Public Participation Network to consult and inform in the development of the plan
01/06/21	Drafting of the Themes, Objectives and Actions of the plan
10/06/2021	Internal presentation to the Councillors
17/06/ 2021	Internal presentation to the Environment and Climate Action SPC
21/06/2021	Presentation to the biodiversity champions of DLR Estate Management
19/07/2021 – 20/08/21	Open invitation to the general public to inform them of the plan and to receive feedback through the DLR Have Your Say webpage
15/12/2021	Final draft plan approved by the Community, Culture and Wellbeing SPC
2021 - 2022	Strategic Environment Assessment Screening and Screening for Appropriate Assessment
14/02/2022	Final DLR County Biodiversity Action Plan presented DLR County Council Meeting



Themes, Objectives and Actions of the DLR Biodiversity Action Plan 2021-2025

1 **THEME 1:** Reaching a deeper understanding of our county's biodiversity

Theme 1 includes actions that aim to collect data about our county's biodiversity. This includes habitat and species surveys, identifying important biodiversity areas, and also identifying those areas most vulnerable to climate change.

Objective 1 Strengthen the knowledge base for conservation, management, and sustainable use of biodiversity.

2 **THEME 2:** Making good decisions for biodiversity

Theme 2 includes actions that involve placing biodiversity into our decision-making and management processes. Actions include developing guidance and tools for our staff and decision-makers, along with inputting to other plans such as the County Development Plan, Climate Change Action Plan and others.

Objective 2 Mainstream biodiversity into decision-making and improve the management of this valuable resource.

3 **THEME 3:** Powerful actions to protect biodiversity and us

Theme 3 includes actions to strengthen our understanding of natural capital and ecosystem services, to work with communities to identify opportunities where ecosystems can be restored and enhanced including terrestrial, river, coastal and marine ecosystems, to develop and implement appropriate rewilding projects in DLR and extend our local biodiversity areas within DLR and to protect, restore and expand our County Ecological Network and DLR'S Green Infrastructure.

Objective 3 Conserve and restore biodiversity and ecosystems and support ecosystem services in DLR, including coastal and marine.



<p>4 THEME 4: Connecting people and nature and inspire a positive future</p>	<p>Theme 4 includes actions to raise awareness of biodiversity and ecosystem services; to provide education and training to the public, local communities and our staff; to organise events and activities to promote biodiversity; and to work with our local communities on biodiversity projects.</p>
	<p>Objective 4 Increase awareness, training and appreciation of biodiversity, ecosystems and ecosystem services.</p>

<p>5 THEME 5: Strength in working together</p>	<p>Theme 5 includes actions to engage with local communities and business communities to develop local biodiversity projects, to work with our Biosphere partners, universities, government departments, other local authorities and organisations on biodiversity projects and to share our resources.</p>
	<p>Objective 5 Strengthen the effectiveness of collaboration between all stakeholders for the conservation of biodiversity, including with Local Authority Biodiversity Officers, Local Authority Waters Programme (LAWPRO), the National Biodiversity Data Centre, BirdWatch Ireland, NPWS and other State Bodies.</p>

More details on each action, including Agencies and Partners, Targets, and Climate-proofing, appear in Action Tables in Appendices.





Cormorant



THEME 1: Reaching a deeper understanding of our county's biodiversity

Objective 1 Strengthen the knowledge base for conservation, management, and sustainable use of biodiversity.

- Action 1.1** Gather information and map our biodiversity within DLR

- Action 1.2** Map all Locally Important Biodiversity Sites (LIBS) within DLR and identify opportunities to increase the number of sites

- Action 1.3** Identify and map all important species within DLR

- Action 1.4** Develop DLR Habitat and Species Action Plans

- Action 1.5** Map and protect our important hedgerows and promote native hedgerow enhancement and planting

- Action 1.6** Update our County Ecological Network Map to protect and enhance DLR's Green Infrastructure

- Action 1.7** Identify important biodiversity areas most vulnerable to climate change, including terrestrial, watercourses, coastal and marine areas, and establish measures and projects that assist protection of vulnerable areas

- Action 1.8** Provide a central place for all biodiversity data for decision-makers in DLR

- Action 1.9** Provide a map browser at appropriate scale to provide biodiversity information for the public

- Action 1.10** Support and encourage the volunteer network and local communities to carry out biological recording and citizen science projects that contribute to our biodiversity information and protection of biodiversity

- Action 1.11** Assess the overall state of our biodiversity resource in the county



Theme 1

Action

Project

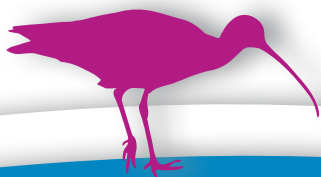


Surveying the County

Knowing about our habitats and species and where they are in our locality is very important. If we don't know what we have, then we cannot protect or enhance it. DLR have created a county-wide ecological network map to display what we know about where our biodiversity areas are, from locally to internationally important areas.

There is also an opportunity for engaging with communities and local residents to encourage them to join our ecological network by carrying out biodiversity initiatives that can restore and enhance the network.

Biodiversity, by its nature, is often changing and responding to its surroundings – to disturbance, to loss and to more positive aspects of restoration and enhancement. It is a 'moving beast' when it comes to survey work. This is why it remains as an important action of Theme 1 for this plan. Some of the previous surveys have become outdated, especially in an urban county where development and land use changes occur frequently. A lot of the surveys completed between 2008 and 2012 are now out of date. Therefore, updated surveys commenced from 2017 upon arrival of the new Biodiversity Officer. Some surveys take longer than others and are more resource demanding, some surveys are seasonally dependent and require specialists to carry out the work. All of these surveys are important to inform how we manage biodiversity and also to provide the basis for our County-wide Ecological Network.



Some of the surveys and studies carried out since 2017 for the county:

<p>1  County Riparian Bird Survey 2018</p>	<p>2  Wintering Birds Inland Sites Surveys 2018</p>	<p>3  Habitat Survey of Dalkey Island 2018</p>
<p>4  Rare Plant Survey of Dalkey Island 2018</p>	<p>5  Bryophyte Surveys 2018</p>	<p>6  Brent Geese Tagging Project 2018 – 2021 led by Fingal County Council (FCC) with Dublin City Council (DCC) and DLR</p>
<p>7  County Otter Survey 2018-2020</p>	<p>8  Ecosystem Services Scoring of Habitats 2019</p>	<p>9  Surveys of Wintering Birds (Coastal & Inland) 2019</p>
<p>10  Mapping our Ecological Network 2019-2020</p>	<p>11  Mapping of Locally Important Biodiversity Sites Phase I 2020</p>	<p>12  Review of the County Habitat Surveys 2020</p>
<p>13  Review of our County Hedgerows Surveys 2020</p>	<p>14  Surveys (and treatment) of Invasive Alien Species (IAS) 2019 and 2020</p>	<p>15  Creation of a County Invasive Species Map</p>
<p>16  County Boundary Hedgerow Surveys 2021</p>	<p>17  Important Bird Surveys 2021</p>	<p>18  Badger Study 2021</p>
<p>19  Ecosystems for Restoration Study 2021/2022</p>	<p>20  Marine Ecosystems Surveys Intertidal Study 2021</p>	<p>21  Red Squirrel Project – annual monitoring</p>

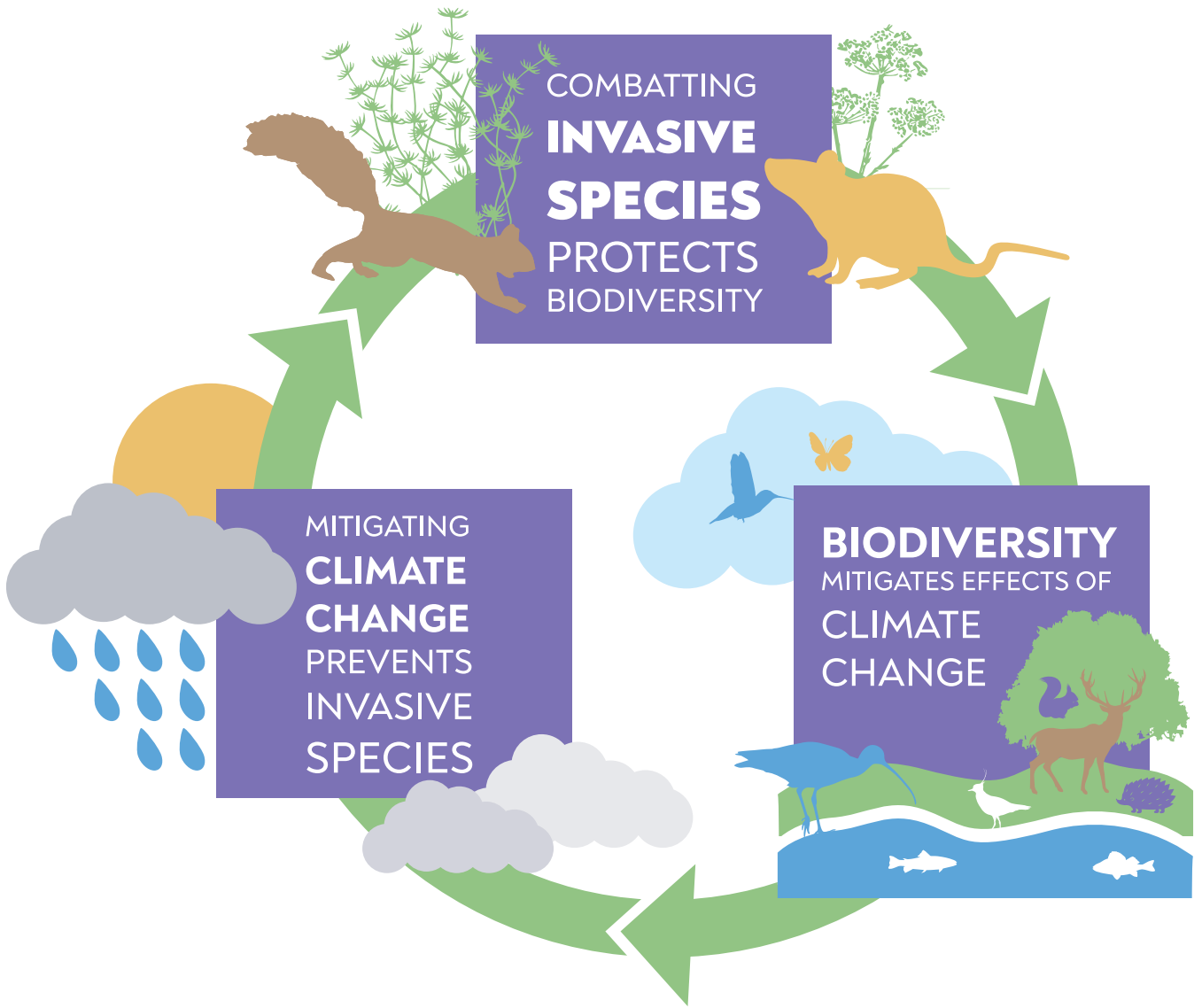


THEME 2: Making good decisions for biodiversity

Objective 2 Mainstream biodiversity into decision-making and improve the management of this valuable resource

- Action 2.1** Develop best management guidelines for important habitats and species within DLR, and communicate these to the public, decision-makers, landowners, managers and other land users
-
- Action 2.2** Input into the County Development Plan, Local Area Plans, Special Amenity Area Orders, County Tree Strategy and Historic Landscape Character Assessments, all of which offer potential in terms of addressing biodiversity at local level
-
- Action 2.3** Undertake an audit of current council policies and plans to improve the mainstreaming of biodiversity
-
- Action 2.4** Produce an Invasive Alien Species (IAS) Action Plan and ensure the implementation and monitoring of actions
-
- Action 2.5** Develop biodiversity management plans for open spaces within DLR ownership and update existing plans
-
- Action 2.6** Develop our Ecological Network Maps to inform planning and decision-making
-
- Action 2.7** Produce guidance on net gains for biodiversity¹⁰, including guidance for strategies, planning, mitigation measures, and investment in green infrastructure
-
- Action 2.8** Develop guidance related to Biodiversity, Ecosystem Services and Planning, to help those involved in Planning to ensure that development within the County protects and enhances our valuable biodiversity
-
- Action 2.9** Develop best practice guidance for Biodiversity and Greenway Developments to reduce the impacts of greenways on existing biodiversity and for the protection of existing biodiversity, enhancement of biodiversity and for biodiversity gains.
-
- Action 2.10** Incorporate the Inland Fisheries Ireland guidance: Planning for watercourses in the Urban Environment into our plans and policies.
-
- Action 2.11** Develop guidelines to outline the process to be followed where there is the potential for artificial lighting to affect wildlife and apply these to planning development, new projects, lighting upgrades (retrofitting) and where there is evidence of wildlife being affected by existing artificial light. The aim of the guidelines is that artificial light will be managed so wildlife is not disrupted within, nor displaced from, important habitat; and is able to undertake critical behaviours, such as foraging, reproduction and dispersal.
-
- Action 2.12** Develop training and guidance for land managers and local authority staff in relation to hedgerow management
-

¹⁰ Biodiversity Net Gain is an approach to development that leaves biodiversity in a better state than before. It encourages developers to provide an increase in ecological features over and above that being affected. In this way, it is hoped that the current loss of biodiversity through development will be halted and ecological networks can be restored. DLR will aim to promote an approach of gains for biodiversity by providing guidance and learning from the lessons of the UK approach.



Theme 2 Action Project

Bee Orchid



As a condition of planning permission, an area of orchid-rich grassland was translocated to a new safe site, and fenced for protection.



Orchid-rich grassland translocation

As part of a development permission, DLR requested the translocation of a small area of orchid-rich grassland rather than losing it from the area, with the aim of keeping our local soils, seeds and flora for biodiversity. The area was fenced off to protect it during construction activities and it was monitored by an ecologist. Then when the appropriate time came to move it, the translocation was completed in 2020 by moving the sods carefully to another area close by, which is planned to form part of a new park.

The translocation was a success and the area was fenced off to protect it, with orchids appearing the next year, in 2021, along with other species. The orchids include Pyramidal Orchid, Bee Orchid and Common Spotted Orchid. In 2021, the grassland was cut once in September/October to keep the grasses from overwhelming the orchids and other flowers. The area will be monitored and cut annually and we are hoping to see the orchids spread their seeds widely in the local area.

Ireland has 30 native orchid species and they represent a wonderful part of our biodiversity and heritage. If you encounter orchids on your walks, you should never pick them as it is illegal in Ireland to collect orchids from the wild. Irish orchids flower in succession from early May until late July, depending on the species and by late summer their seed pods will have ripened and opened, allowing the wind to disperse the dusty seeds over large distances.





Common Spotted Orchid

Our County-wide Ecological Network

A map showing the County-wide Ecological Network, stretching from the mountains to the sea, forms the fundamental basis of our Green Infrastructure and DLR's Biodiversity. It has been prepared using data derived from the various biodiversity studies undertaken and will be updated with future surveys. The importance of protecting and restoring our Ecological Network across the County is recognised by DLR and it is also included in our DLR County Development Plan. This network also extends beyond the county into neighbouring counties. The aim is to inform decision-making in relation to planning and development and to connect biodiversity to allow for areas that will not be impacted severely by human activity.

EU Green Infrastructure (GI) includes:

- the Natura 2000 network as its backbone
- natural and semi-natural spaces outside Natura 2000
- parks, private gardens, hedgerows, vegetated buffer strips along rivers or structure-rich agricultural landscapes with certain features and practices for biodiversity
- artificial features such as green roofs, green walls, or eco-bridges and fish ladders

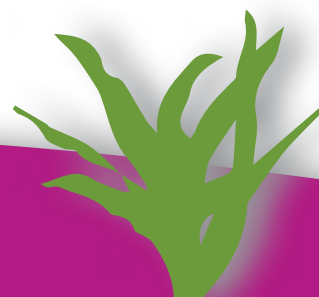
[Green Infrastructure is not to be confused with greenways (a word used to describe cycleways or pathways in Ireland) which are grey infrastructure. While the development of greenways are positive in terms of the aims to reduce our carbon footprint, we must be careful that they do not impact negatively on biodiversity in terms of location, lighting and disturbance.]

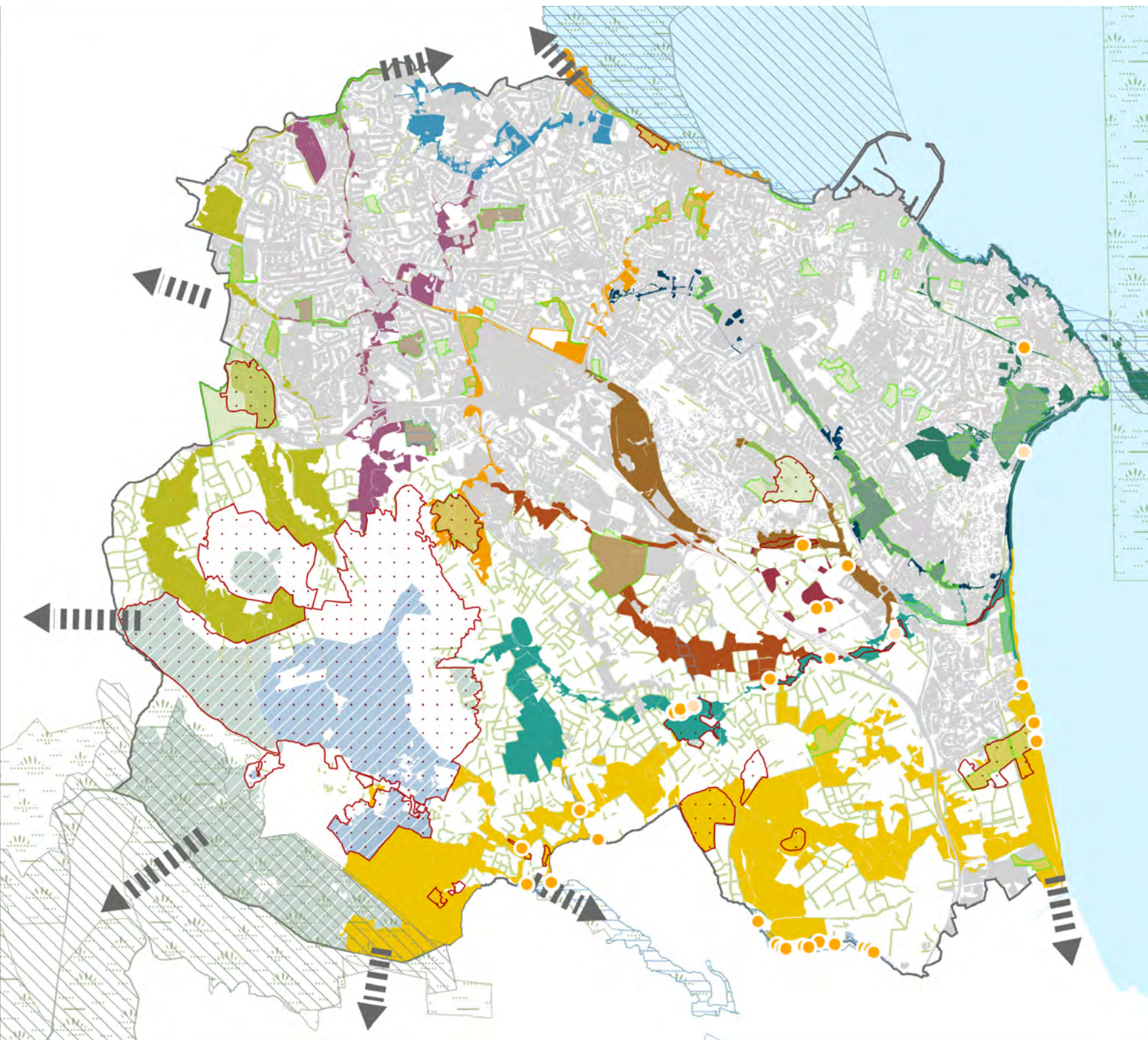
The most important biodiversity areas across the county that form the ecological network are shown on the map. Other areas may arise, during the course of surveys and data collation, in coming years. Some of these areas overlap due to their importance at various international, national, county and local levels.

These include the following:

- 1 EU Natura 2000 protected sites, which comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)
- 2 Nationally protected nature conservation sites called 'proposed Natural Heritage Areas' (pNHAs)
- 3 EU Annex I Habitats e.g. EU priority habitat 'Petrifying Springs with Tufa Formation, (Cratoneurion) 7220
- 4 EU Annex I Species – e.g. Otter
- 5 Wildlife Corridors – Watercourses, riparian habitats, hedgerows and other associated habitats
- 6 Locally Important Biodiversity Sites

This network forms our DLR Green Infrastructure and the importance of protecting and restoring our Ecological Network across the county is recognised by DLR. This Network also extends beyond the county into neighbouring counties.





- Annex Points
- Possible Annex Points
- ▨ Annex Habitats
- ▨ Possible Annex Habitats
- ▨ Locally Important Biodiversity Sites (LIBS)
- ▨ SPA
- ▨ pNHA
- ▨ SAC
- ▭ DLR County Boundary
- ▨ DLR Parks
- ▨ Hedgerow Wildlife Corridors
- ▨ Built Land
- ▨▶ Connectivity into Wider Landscape

River/Costal Wildlife Corridors

- ▨ Brides Glen corridor
- ▨ Dodder Valley corridor
- ▨ Fernhill to Booterstown corridor
- ▨ Fernhill to Brides Glen
- ▨ Glendoo Mountain to Shanganagh corridor
- ▨ Killiney and Dalkey costal corridor
- ▨ Leopardstown Brides Glen corridor
- ▨ Leopardstown to N11 corridor
- ▨ St John of Gods to Killiney corridor
- ▨ Ticknock to the River Dodder corridor
- ▨ UCD to Blackrock corridor



Fox

There are many opportunities for DLR County Council, businesses, land managers, communities and local groups to contribute to our Ecological Network by adding biodiversity to their areas, such as green areas managed by our, Slow to Mow, campaign, creation of local small biodiversity roofs, planting trees, creating wetlands or ponds, restoring areas for biodiversity and much more.

In terms of planning and development, some areas of our wildlife corridors form important habitats or contain important species, while other areas are of lower ecological value, but all areas will undergo assessment when considering development. Some of the areas within the wildlife corridors are indicative and will be subject to further survey. Some of these areas are identified as future development lands in the County Development Plan 2022-2028. Identification as a wildlife corridor

does not preclude development of the future development lands identified in the County Development Plan 2022-2028 subject to assessment under the planning process and subject to any other legal obligations. Therefore, any proposal for development will undergo an Ecological Impact Assessment and a Screening for Appropriate Assessment, as a minimum. The creation of links to the wildlife corridor however should be part of any future development, such as the planting of hedgerows or creation of other wildlife areas and will follow best practice.

There is an opportunity for any development to restore and enhance biodiversity in the design and layout of any scheme, and also to address climate action.







Dalkey Island

EU Natura 2000 sites (European sites)

EU Natura 2000 sites are internationally protected sites that have been designated specifically to protect core areas for a subset of species or habitat types listed in the Habitats and Birds Directives. They are deemed to be of European importance because they are endangered, vulnerable, rare, endemic or present outstanding examples of typical characteristics of one or more of Europe's nine biogeographical regions. In total, there are around 2000 species and 230 habitat types, for which core sites need to be designated as Natura 2000 sites. For example, in Dún Laoghaire-Rathdown, we have Natura 2,000 sites such as South Dublin Bay SAC, which contains habitat types such as mudflats and sandflats that are protected.

Proposed Natural Heritage Areas


Ireland's national designations for wildlife are the Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA). These are areas considered important for the habitats present or which hold

important species of plants and animals whose habitat needs protection. For example, in Dún Laoghaire-Rathdown, this includes pNHAs such as Loughlinstown Woods pNHA, which contains important native woodland.

EU Annex I habitats

EU Annex I habitats are habitats listed in Annex I of the Habitat Directive that are of EU Community Interest. The directive defines habitats of EU Community Interest as those that (i) are in danger of disappearance in their natural range; or (ii) have a small natural range following their regression or by reason of their intrinsically restricted area; or (iii) present outstanding examples of typical characteristics of one or more of the seven biogeographical regions. These can occur within a Natura 2000 site as described above or they can occur outside of a Natura 2000 site as individual areas of Annex I habitat. For example, in Dún Laoghaire-Rathdown, there are tufa springs that occur within the Natura 2000 site of Ballyman Glen SAC, but also occur in other parts of the county, such as Shanganagh Cliffs or Cherrywood.





Our native hedgerows act as biodiversity corridors through the landscape, as well as offering nesting habitat for birds and food sources for our birds, mammals and pollinators

Wildlife Corridors

In an increasingly urbanised county, wildlife corridors are vital for the survival of countless species, such as badgers, hedgehogs, bats and birds. They bridge the gap between habitats, which otherwise would be small and isolated, and join them together. Linking core wildlife habitats helps to restore and preserve biodiversity, allowing movement between important habitats to maintain genetic diversity in wildlife populations. Without this, local extinctions can occur. They provide refuge and foraging areas; they store carbon and regulate our water flows and water quality; clean our air; and provide resilience to climate change. Our wildlife corridors include our watercourses, riparian habitats, hedgerows, treelines and other associated habitats, such as wet grassland, scrub and woodland.

Locally important biodiversity sites

Locally Important Biodiversity Sites (LIBSs) are areas that are outside of protected areas, but which form an integral part of the ecological network across a county and are considered important at a local level, and provide a range of ecosystem

services to communities. They have no formal designation but are sites worthy of protection and enhancement. These sites also provide additional benefits to, and support, protected areas. They do not include/ overlap with protected sites, but may be adjacent to them. These include areas in our parks, along our wildlife corridors, areas of wetlands, grasslands, heath, fen and other habitats, and habitats that contain rare or important flora and fauna species.

Open Spaces

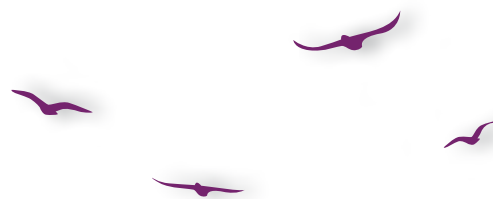
A lot of our open spaces contain areas that are important for biodiversity and this is reflected in the fact that some of our parks are included in our Locally Important Biodiversity Sites. Parks across the county contain meadows, hedgerows, native tree planting and wetlands, while fauna, such as badgers, bats, otter, hedgehogs, birds, amongst other species, live or forage in some of our parks and residential green spaces. Our wildlife corridors that provide connectivity and allow species to move and forage throughout the county often pass through our green spaces in the form of a river, a stream, a treeline or a hedgerow, all forming an important element of the wider ecological network.

THEME 3: Powerful actions to protect biodiversity and us

Objective 3 Conserve and restore biodiversity and ecosystems, and support ecosystem services in DLR, including coastal and marine.

-
- Action 3.1** Identify and map habitats, species and supporting features that provide ecosystem services
-
- Action 3.2** Work in collaboration with NPWS and others to score ecosystem services for habitats at a local level in DLR
-
- Action 3.3** Strengthen our understanding of natural capital and ecosystem services and incorporate into policy and decision-making in DLR
-
- Action 3.4** Identify opportunities where ecosystems can be restored and enhanced, including terrestrial, river, coastal and marine ecosystems.
-
- Action 3.5** Develop and implement appropriate re-wilding projects in DLR and extend our local biodiversity areas within DLR
-
- Action 3.6** To protect, restore and expand our County Ecological Network and DLR'S Green Infrastructure. Deliver Nature Recovery and Restoration as part of our Ecological Network and promote the use of Nature-based Solutions where these solutions allow the delivery and expansion of our Ecological Network
-
- Action 3.7** Carry out ecological surveys and assessment of our habitats, including hedgerows, rivers and streams, to provide information regarding areas that require restoration in order to deliver Nature Recovery and Restoration and expansion of our Ecological Network
-
- Action 3.8** Continue to implement the biodiversity actions of the Dalkey Island Heritage Plan
-
- Action 3.9** Complete the actions for councils outlined in the All-Ireland Pollinator Plans 2015-2020 and 2021-2025, and create areas for wildlife and pollinators
-
- Action 3.10** Protect existing swift nesting sites where possible; establish new sites in existing public and private properties; and request artificial swift nest boxes as part of new development in DLR
-
- Action 3.11** Continue the Red Squirrel Project and extend project to Fernhill
-

continued



Action 3.12 Continue to protect the Calcareous Wetland and Flora at Kingston, Kiltiernan

Action 3.13 Protect and enhance Booterstown Marsh, an important, unique coastal area within DLR and an EU Natura 2000 site

Action 3.14 Protect the sand martin colonies along our coastline, which occur in the coastal cliff

Action 3.15 Develop a Habitat Management Plan for Shanganagh Coast and Cliffs

Action 3.16 Promote the creation of Nature-based Solutions (NBS), such as biodiversity roofs (brown roofs), pollinator areas, native hedgerow planting, wetlands and other NBS to promote biodiversity, as part of NBS for new developments and other projects

Action 3.17 Promote local seed collection by qualified professionals, including for new developments, in order to keep our seed sources local

Action 3.18 Continue to support conservation grazing at Fernhill Park and Gardens and to develop other public lands for conservation grazing

Action 3.19 Develop habitats for reptiles and amphibians which also provide habitat for other species



Theme 3 > Action > Project

Living soils and native seed harvesting project

Soil is a fundamental and finite resource. It fulfils a number of functions and services for us (ecosystem services). It often contains a wealth of seeds and living organisms. It supports our habitats, species and pollinator areas. It stores carbon and retains water. One hectare of soil can contain up to five tonnes of living organisms and because it can take more than 500 years to form a 2cm soil thickness, it is, in practical terms, non-renewable. It is a living and valuable resource.

Soil seed banks offer plants the possibility to disperse over time by remaining dormant in the soil. Soil seed banks can reflect 'memories of communities past' (plant communities). Usually appearing above ground in response to disturbance or environmental changes.

Soil seed banks can buffer populations against local extinction following habitat loss/degradation, and may play an important role in buffering populations during climate change. These seed banks are also important in terms of our biodiversity and pollinators as they act as a 'biodiversity reservoir'.

Through our 'Slow to Mow' campaign and our development of pollinator areas (especially from existing soils), DLR aims to encourage the seed lying dormant in the soil to germinate and flourish. We have shown that this can happen and there are plenty of reports of native orchids that have remained dormant in the soil now appearing on our roadside verges.

We have the opportunity to harvest the seed that develops, where possible, for example, in our Parks' meadows. Some of our Parks' meadows are ready for harvesting, while some of our newer pollinator areas will take a few years to establish before seed collection. We can also encourage our communities to collect their own local seed when these areas develop further. This will reduce our reliance on commercial seed or from areas that are not local to DLR.

DLR have also required developers to collect the rare plant Pale Flax, which occurs in some of the Cherrywood development sites. This seed is now stored for DLR by Irish Seed Savers and has been provided to the National Botanic Gardens. It will also be seeded in appropriate areas of Cherrywood, where soils and management are appropriate.

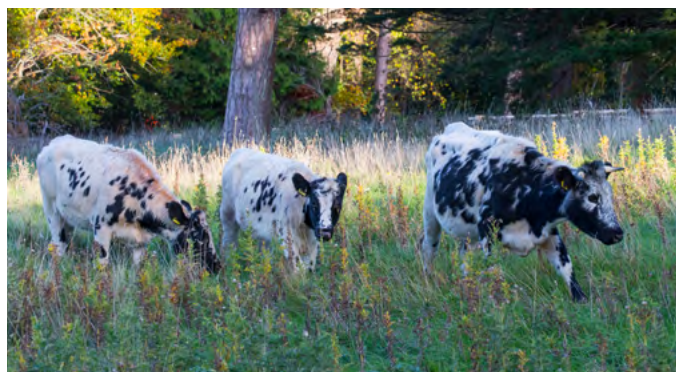


Native seed harvesting from Fernhill Park and Gardens

The meadows in Fernhill have been grazed by a small number of cattle and are chemical-free for almost a century, and this is reflected in the wonderful diversity of plants and flowers in the meadows. Now that Fernhill is a public park, the aim is to keep the meadows grazed by a small number of rare breed Droimeann cattle during winter, and maintain its chemical-free status, to help keep these meadows full of wonderful plants and to enhance biodiversity, including our pollinators.

In 2021, we commenced our native seed harvesting project in the meadows, while the cows were away for the summer. Our Fernhill Park staff had done great work in removing ragwort from the meadow by hand. Most of the plants set their seed in August, providing the opportunity to harvest some of the seed. The aim is to leave some seed to fall to the ground in order to ensure that the meadow continues to flourish.

The harvesting was a success, allowing us to collect a variety of seed, which was dried and sorted, and will be stored for use in appropriate locations and soil conditions.



Theme 3 Action Project

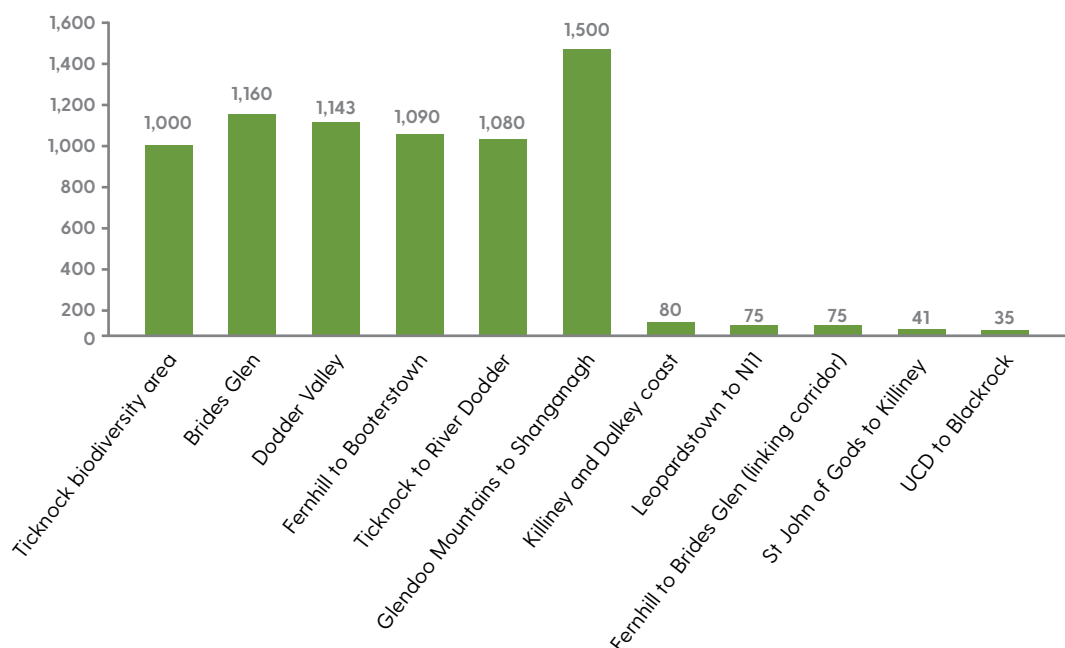
DLR were the first local authority to apply the National Ecosystem Service Scoring to our habitats. The Ecosystem Services Score (ESS) was developed by Parker *et al.* (2016) during the mapping pilot undertaken for the NPWS - National Ecosystem and Ecosystem Service (NEES)¹¹. We trialled the Ecosystem Services Scoring on our wildlife corridors and habitats so that we can further understand how they contribute to green infrastructure in our county. This work allowed us to put a value or score on our habitats which form the basis for all ecosystem services, as without habitats and biodiversity, these services would not exist.

The ecosystem services that were scored to provide the Total ESS include:

- regulation of water quality
- regulation of water flow
- regulation of greenhouse gases by soils and vegetation
- Provision of food
- overall biodiversity supports to natural systems and services and resilience

The graph shows the ESS value for those wildlife corridors with good areas of associated semi-natural habitat (e.g. riverbank vegetation, trees, wetlands) and those that scored highly are providing ecosystem services. Meanwhile the more fragmented streams and wildlife corridors on the urban part of the county score much lower. The results also highlight the importance of the semi-natural habitats of the Ticknock area, which are significant, and a lot of the high-scoring wildlife corridors are linked to that area.

**Total Ecosystem Services Scoring
DLR Wildlife Corridors**



¹¹ <https://www.npws.ie/research-projects/ecosystems-services-mapping-and-assessment>

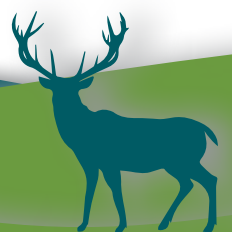


Common Frog

THEME 4: Connecting people & nature and inspiring a positive future

Objective 4 Increase awareness, training and appreciation of biodiversity, ecosystems and ecosystem services

- Action 4.1** Provide education and raise awareness of biodiversity and ecosystem services among the public, decision-makers and educators
-
- Action 4.2** Provide Information on biodiversity and ecosystem services through the DLR website and publications
-
- Action 4.3** Organise activities and events to promote biodiversity, ecosystems and ecosystem services
-
- Action 4.4** Establish training and education programmes to promote appreciation of biodiversity, ecosystems and ecosystem services
-
- Action 4.5** Establish and promote positive examples of cooperative local community biodiversity projects or demonstration models
-
- Action 4.6** Provide education and raise awareness of the impacts of climate change on biodiversity
-
- Action 4.7** Raise awareness of the physical and mental health benefits of biodiversity
-
- Action 4.8** Provide training to the public in relation to reptile and amphibian surveys with the Herpetological Society of Ireland (HSI)
-



Tern watching event



Birdwatching with DLR's Biodiversity Officer at Booterstown Marsh



Bumblebee identification workshop



Rockpooling workshop at Sandymount



Theme 4 > Action > Project

Local people helping Biodiversity – DLR’s Gardening for Biodiversity Volunteer Project

Dún Laoghaire-Rathdown County Council was delighted to form a partnership with DLR Volunteer Centre and to fund the DLR Gardening for Biodiversity Project. This project commenced in 2020 and the aim was to build a community of volunteers who would take small steps to protect and encourage biodiversity in their own gardens, patios, yards and balconies. We called on the citizens of Dún Laoghaire-Rathdown to get involved.

We asked our residents to try to take one small action to increase biodiversity. Whether they were new to gardening or have been gardening for a long time, we asked them to join us, if they owned a garden or a balcony. We also had a group of very helpful biodiversity enthusiasts standing by to help our volunteers on their journey, and provided a link to resources and information. We gathered their stories and images to create a storybook to capture this community action!



Mark George, one of the participants in DLR's Gardening for Biodiversity Project, explains some of the actions he has taken in his own garden.

Mark's story

We were incredibly lucky to inherit a mature garden from the previous owners of our house, with a variety of shrubs creating hedges around the edge and lots of different plants. We always put out feeders for the birds and added new plants that pollinators would like, as spaces became available, and last year, we started leaving areas of grass uncut. However, it was only really in the last few months that we learned about new ways to encourage biodiversity in our garden.

Based on a hedgehog talk we attended, hosted by Dún Laoghaire-Rathdown County Council, we learnt that hedgehogs need gaps in perimeter fencing/walls in order to travel between gardens. Having a side wall between our front and back garden meant this was a potential barrier, so I made a small gap in the bottom of the wall which hedgehogs could get through. I also made a hedgehog house from small logs and tree cuttings and placed this in the hedge out of sight. No visitors just yet, but fingers crossed!



Based on the materials on the 'Gardening for biodiversity' project web page, I also dug out a space and created a log pile, and built a pond (a bit harder work, but worth it!). Again, early days on the pond and no water creatures yet, but the birds are loving it as a drinking spot and bird bath – nearly always around 5pm, like they are washing away the toils of a hard day's feeding!

As a bonus, the piles of earth that were formed from digging out the log pile and pond are being used by the birds as a dust bath, and apparently may be an attractive site for some bee species to form their own nest.

It is a real privilege being able to watch the wildlife enjoy our garden, and just these few extra steps have opened up a lot more potential for increased biodiversity.



THEME 5: Strength in working together

Objective 5 Strengthen the effectiveness of collaboration between all stakeholders for the conservation of biodiversity, including with Local Communities, Local Authority Biodiversity Officers, LAWPRO, the National Biodiversity Data Centre, BirdWatch Ireland, NPWS and other State Bodies.

Action 5.1	Engage with local communities and business communities to develop local biodiversity projects
Action 5.2	Work with our Dublin Bay Biosphere Partners to promote sustainable use of the DLR biodiversity resource in the Biosphere
Action 5.3	Support implementation of the Dublin Bay Biosphere Nature Conservation Strategy, Education and Awareness strategy
Action 5.4	Carry out a study of marine ecosystems and develop marine ecosystem restoration projects with our Biosphere Partners
Action 5.5	Work with government departments and the public in relation to the designation of Marine Protected Areas
Action 5.6	Work with other local authorities to strengthen our knowledge of important habitats and species
Action 5.7	Work with other local authorities to fund satellite-tracking studies of winter birds listed as qualifying species in European sites and other important species
Action 5.8	Provide supports to BirdWatch Ireland for the Dalkey Island Tern Project, Swift conservation, and other important bird projects
Action 5.9	Work with LAWPRO to develop ways to protect and enhance our river wildlife corridors and waterway ecosystems
Action 5.10	Work with our Climate Action Regional Offices (CARO) Partners, NPWS and others to ensure the protection of biodiversity in the face of Climate Change
Action 5.11	Dún Laoghaire-Rathdown County Council is a partner in the Dublin Mountains Partnership. The Biodiversity Officer will liaise with this forum to promote the protection and enhancement of biodiversity
Action 5.12	Work with Coillte Nature for the protection and enhancement of biodiversity, including Red Squirrel
Action 5.13	Work with our colleagues across our own organisation in DLRCC and collaborate on biodiversity projects, including Nature-based Solution projects.
Action 5.14	Work with NPWS and community groups to develop woodland management plans for the protection of Loughinstown Woods pNHA and Fitzsimons Woods pNHA
Action 5.15	Engage with third level institutions to support and to develop biodiversity research in DLR



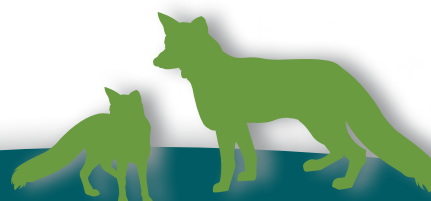


Theme 3 > Action > Project

Dalkey Islands - working in collaboration with BirdWatch Ireland

Dalkey Islands are significant for their ecology, history, architecture and archaeology, as well as for their social, cultural and historic value. They are also an important part of the coastal landscape, being visible from most parts of Dublin Bay and as far south as Wicklow. The islands are designated as an EU Natura 2000 site called a Special Protection Area (SPA) for Tern species (Common Tern, Arctic Tern and Roseate Tern) and it is important that we provide Terns with space to nest and breed. Terns may be present between May and October.

We have worked with BirdWatch Ireland to help protect the Terns and to raise awareness of these wonderful birds and their long journey to get to Ireland.





Black Guillemots

Appendices





Badger



Appendix 1: Action tables

THEME 1: Reaching a deeper understanding of our county’s biodiversity

Objective 1 Strengthen the knowledge base for conservation, management, and sustainable use of biodiversity					
Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>1.1 Gather information and map our biodiversity within DLR (2021-2025)</p>	National Parks and Wildlife Service (NPWS), Biosphere Partners, Third level, Universities, National Biodiversity Data Centre (NBDC), Public – Citizen Science	Number of habitats and species for which good data exists Number of surveys of habitats and species completed annually GIS Maps produced and updated	Collation of information regarding our biodiversity resource for its appropriate management, protection and enhancement	Potential negative impacts on our biodiversity resource due to climate change	Information on our biodiversity resource is vital to help manage our natural resources in order to provide ecosystem services and resilience to climate change
<p>1.2 Map all Locally Important Biodiversity Sites (LIBS) within DLR and identify opportunities to increase the number of sites (2021-2025)</p>	NPWS, BirdWatch Ireland (BWI), An Taisce, Herpetological Society of Ireland (HSI), Bat Conservation Ireland (BCI), Botanical Society of Britain and Ireland (BSBI)	Extent (Ha/km) of Locally Important Biodiversity Sites (LIBS) for which good data exists Extent of LIBS (Ha/Km) identified and mapped Number of LIBS across the county GIS Maps produced and updated	Identification and collation of information regarding biodiversity areas of local and county importance, in order to protect and enhance these areas – and their ecosystem services	Potential negative impacts on our biodiversity resource due to climate change	Information on our biodiversity resource is vital to help manage our natural resources in order to provide ecosystem services and resilience to climate change
<p>1.3 Identify and map all important species within DLR (2023)</p>	NPWS, BWI, An Taisce, HSI, BCI, BSBI	Number of Important species identified Number of species surveys completed Number of Species Action Plans across the four Dublin local authorities GIS Maps produced and updated	Collate information, identify and map all important species within DLR, in order to protect and enhance these areas – and their ecosystem services	Potential negative impacts on our biodiversity resource due to climate change	Information on our biodiversity resource is vital to help manage our natural resources in order to provide ecosystem services and resilience to climate change
<p>1.4 Develop DLR Habitat and Species Action Plans of our terrestrial, coastal and marine areas (2024)</p>	NPWS, Fingal County Council (FCC), Dublin City Council (DCC), South Dublin County Council (SDCC)	Extent (Ha) of EU Annexed habitats and number of EU Annexed species for which good data exists Extent (Ha) of EU Annexed habitats and populations of species surveyed and mapped Number of Habitat Action Plans across the four Dublin local authorities GIS Maps produced and updated	Collation of information on EU Annexed habitats and species, in order to protect and enhance these areas – and their ecosystem services	Potential negative impacts on our biodiversity resource due to climate change	The aim is to conserve protected areas and their important species. These areas have characteristics that will continue to favour high levels of biodiversity. These areas provide ecosystem services and resilience to climate change
<p>1.5 Map and protect our important hedgerows and promote native hedgerow enhancement and planting (2023)</p>	DLR Planning, DLR Parks, NPWS, BWI, Landowners	Completion of a new county hedgerow survey Implementation of recommendations Inclusion of the survey in our County Ecological Network Map	Collation of information on important hedgerows in order to protect and enhance these areas – and their ecosystem services	Potential negative impacts on our biodiversity resource due to climate change	Hedgerows are important wildlife corridors and have characteristics that will continue to favour high levels of biodiversity. They provide ecosystem services and resilience to climate change.

continued



Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>1.6</p> <p>Update our County Ecological Network Map to protect and enhance DLR'S Green Infrastructure</p> <p>(2021-2025)</p>	DLR Planning, DLR Parks, NPWS, BWI, An Taisce, HSI, BCI, Local Authority Waters Programme (LAWPRO)	<p>Completion of our current County Ecological Network Map</p> <p>Inclusion in the DLR County Development Plan</p> <p>Inclusion of pollinator areas on the network</p>	Provide easily accessible and user-friendly information and data on our County Ecological Network to inform decision-makers and others	Without joined-up thinking on climate change and biodiversity loss, the impacts of both will result in losses in ecosystem services	Provide more integrated decision-making to climate change and biodiversity
<p>1.7</p> <p>Identify important biodiversity areas most vulnerable to climate change, including terrestrial, watercourses, coastal and marine areas, and establish measures and projects that assist protection of vulnerable areas</p> <p>(2025)</p>	NPWS, Department of Marine	<p>Completion of report on the relevant important areas vulnerable to climate change</p> <p>Extent (Ha) mapped</p> <p>Protection measures identified and implemented</p>	<p>To identify important areas that may require strict protection in the future</p> <p>To identify the protection measures required</p>	Climate change pressures can cause habitat fragmentation, habitat loss and loss of associated species	Increase resilience to climate change by protecting important areas for biodiversity against the impacts of climate change
<p>1.8</p> <p>Provide a central place for all biodiversity data for decision-makers in DLR</p> <p>(2023)</p>	DLR GIS Technical, DLR Forward Planning	<p>Completion of GIS Browser for Biodiversity Maps by 2023</p> <p>Completion of Wildlife Corridor Plan Mapping for Planners and Decision-makers in 2021</p> <p>Completion of our current Ecological Network Map</p>	Provide easily accessible and user-friendly information and data to inform decision-makers and others	Without joined-up thinking on climate change and biodiversity, the impacts of both will result in biodiversity loss and ecosystem services loss	Provide a more integrated information source for decision-makers in relation to climate change and biodiversity
<p>1.9</p> <p>Provide a map browser at appropriate scale to provide biodiversity information for the public</p> <p>(2024)</p>	NPWS, NBDC, DLR Drawing Office and GIS	Public Map browser available on DLR website	Provide easily accessible and user-friendly information to the public and raise awareness of the value and importance of biodiversity	The drivers of biodiversity loss today are human impacts, land use pressures, climate change and invasive species.	Provide information on biodiversity, to raise awareness and help reduce biodiversity loss, in order that biodiversity can provide ecosystem services and resilience to climate change
<p>1.10</p> <p>Support and encourage the volunteer network and local communities to carry out biological recording and citizen science projects that contribute to our biodiversity information and protection of biodiversity</p> <p>(2021-2025)</p>	NBDC, BWI, NPWS, Local groups, DLR Volunteers	<p>Number of records submitted to NBDC</p> <p>Number of participants in volunteer organisations</p> <p>Number of projects where data is gathered by citizen scientists</p>	Provide support to community groups and DLR Volunteers, etc.	The drivers of biodiversity loss today are human impacts, land use pressures, climate change and invasive species.	Support local volunteers and communities to help reduce biodiversity loss, in order that biodiversity can provide ecosystem services and resilience to climate change
<p>1.11</p> <p>Assess the overall state of our biodiversity resource in the county</p> <p>(2024)</p>	NBDC, BWI, NPWS, Universities, Ecologists	<p>Assessment and analysis report completed</p> <p>Implementation of measures to address any issues highlighted</p>	Collation of information regarding our biodiversity resource for its appropriate management, protection and enhancement	Potential negative impacts on our biodiversity resource due to climate change	Information on our biodiversity resource is vital to help manage our natural resources in order to provide ecosystem services and resilience to climate change

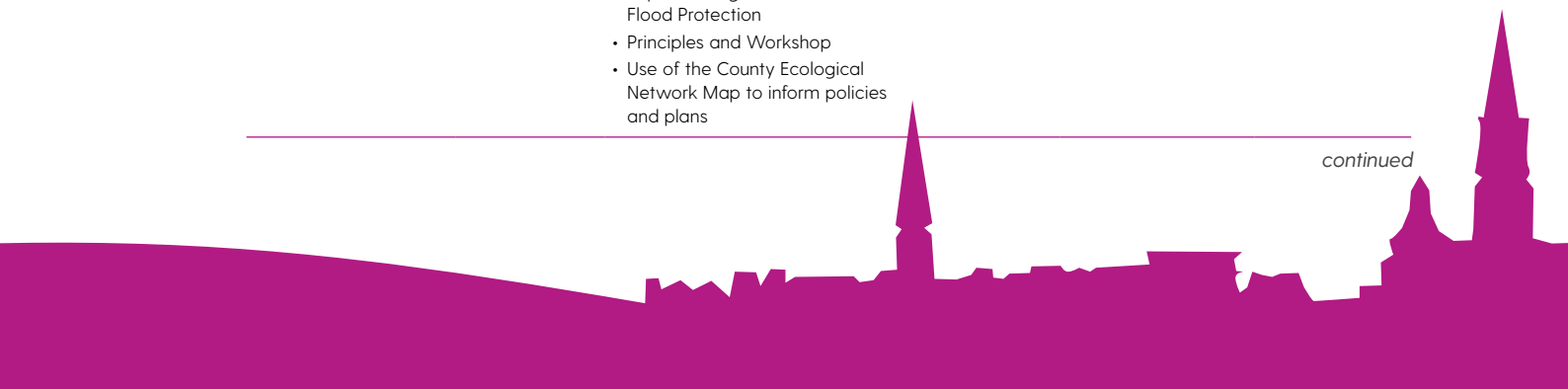
THEME 2: Making good decisions for biodiversity



Objective 2 Mainstream biodiversity into decision-making and improve the management of this valuable resource

Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>2.1 Develop best management guidelines for important habitats and species within DLR, and communicate these to the public, decision-makers, landowners, managers and other land users (2023)</p>	<p>DLR Planning Section, Developers, Landowners, four Dublin local authorities, NPWS</p>	<p>Number of guidelines produced including:</p> <ul style="list-style-type: none"> Guidance for management of watercourses for Otter Ecological Guidance for Design of Greenways Habitat and Species Action Plans across the four Dublin Local Authorities Instream Management for Biodiversity – Guidance and Toolbox talks – Water and Drainage works (Biodiversity Training) Best Practice Invasive Species Guidance for Developers and LAs 	<p>Provide advice and guidance on important habitats and species</p>	<p>The drivers of biodiversity loss today are human impacts, land use pressures, climate change and invasive species</p>	<p>Provide guidance, to reduce biodiversity loss, in order that biodiversity can provide ecosystem services and resilience to climate change</p>
<p>2.2 Input into the County Development Plan, Local Area Plans, County Tree Strategy, Special Amenity Area Orders and Historic Landscape Character Assessments, all of which offer potential in terms of addressing biodiversity at local level (2021-2025)</p>	<p>DLR Forward Planning DLR Planning Development</p>	<p>Objectives and Actions identified from the County Biodiversity Action Plan that have been integrated into each DLR Plan</p> <p>Number of Policies and Plans demonstrating the integration of Biodiversity</p> <p>Use of the Ecological Network Maps to inform policies and plans</p>	<p>To integrate Biodiversity Objectives from the County Biodiversity Action Plan into each DLR Policy and Planning</p>	<p>Without joined-up thinking on climate change and biodiversity, the impacts of both will result in biodiversity loss and ecosystem services loss</p>	<p>Provide a more integrated approach to decision-making in relation to climate change and biodiversity</p>
<p>2.3 Undertake an audit of current council policies and plans to improve the mainstreaming of biodiversity (2024)</p>	<p>All DLR sections</p>	<ul style="list-style-type: none"> Policies, guidelines and administrative mechanisms identified through a Biodiversity Audit Policies, Plans and Projects demonstrating the integration of Biodiversity Number of actions completed from the DLR Climate Change Action Plan 2019-2024 relating to biodiversity Number of actions completed from the DLR IAS Action Plan relating to biodiversity Projects demonstrating restoration and conservation of ecosystems Guidance completed for Implementing Nature-based Flood Protection Principles and Workshop Use of the County Ecological Network Map to inform policies and plans 	<p>To identify gaps and ensure that biodiversity is incorporated into each DLR policy and plan</p>	<p>Without joined-up thinking on climate change and biodiversity, the impacts of both will result in biodiversity loss and ecosystem services loss</p>	<p>Provide a more integrated approach to decision-making in relation to climate change and biodiversity</p>

continued



Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>2.4 Produce an Invasive Alien Species (IAS) Action Plan and ensure the implementation and monitoring of actions (2021 Plan produced, 2022-2025 Monitoring)</p>	All DLR sections, NBDC, NPWS, Local Communities	<ul style="list-style-type: none"> Completion of the DLR IAS Action Plan Grey Squirrel Project – ongoing in consultation with NPWS Completion of DLR IAS Map Establishment of the DLR Section Leads for IAS actions Number of actions completed by 2025 by various Section Leads 	Invasive species are identified, priority species controlled or eradicated, and pathways managed to prevent new invasive species from impacting on biodiversity	The drivers of biodiversity loss today are human impacts, land use pressures, climate change and invasive species	Provide a more integrated approach to decision-making in relation to climate change and biodiversity
<p>2.5 Develop biodiversity management plans for open spaces within DLR ownership and update existing plans (2024)</p>	DLR Parks, DLR Water and Drainage	Parks ecology surveys and management plans	To manage biodiversity in our Parks	Without joined-up thinking on climate change and biodiversity, the impacts of both will result in biodiversity loss and ecosystem services loss	Provide a more integrated approach to decision-making in relation to climate change and biodiversity
<p>2.6 Develop our Ecological Network Maps to inform planning and decision-making (2021-2025)</p>	DLR Sections, NPWS, NBDC	Input to the new Green Infrastructure (GI) Strategy in line with the EU GI Strategy and the fundamental role of biodiversity, including its protection and enhancement	Protection of our Ecological Network Increase our resilience to climate change	Climate change can cause fragmentation and damage to our Ecological Network	Protecting our Ecological Network (which is the backbone of our Green Infrastructure) will help our resilience to climate change, including threats such as flooding
<p>2.7 Produce guidance on net gain for biodiversity, including guidance for strategies, planning, mitigation measures, and investment in green infrastructure (2023)</p>	NPWS, DLR Planning, Consultant Ecologists, Developers	Guidance on Biodiversity Net Gain completed	Biodiversity net gain is an approach which aims to leave the natural environment in a measurably better state than beforehand	Climate change impacts, along with other pressures such as development, can result in biodiversity loss	Provide guidance on biodiversity net gain and increase our resilience to climate change
<p>2.8 Develop guidance related to Biodiversity, Ecosystem Services and Planning, to help those involved in Planning to ensure that development within the County protects and enhances its valuable biodiversity (2021-2025)</p>	NPWS, DLR Planning, Consultant Ecologists and Environment specialists, Developers	<ul style="list-style-type: none"> Guidance on Biodiversity, Ecosystem Services and Planning GIS Mapping integrated into the Planning GIS tools 	Provide guidance to Planners to assist with decision-making related to biodiversity	Climate change impacts, along with other pressures such as development, can result in biodiversity loss	Provide guidance and tools to Planners in order to improve our resilience to climate change
<p>2.9 Develop best practice guidance for Biodiversity and Greenway Developments to reduce the impacts of greenways on existing biodiversity, and enhancement of biodiversity and for biodiversity gains (2022)</p>	NPWS, NTA, Infrastructure and Climate Change Department, DLR Transport, DLR Roads, DLR Parks, Consultant Ecologists and Environment specialists, Consultant Engineers, Developers	Guidance on Greenways and Biodiversity	Provide guidance to Transport and Roads to assist with decision-making related to biodiversity	Climate change impacts, along with other pressures such as development, can result in biodiversity loss	Provide guidance for better decision-making in order to improve our resilience to climate change

continued

Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>2.10 Incorporate the Inland Fisheries Ireland guidance: Planning for watercourses in the Urban Environment into our plans and policies (2021-2025)</p>	<p>DLR Planning, LAWPRO, IFI</p>	<p>Implementation of best practice into our plans and policies</p>	<p>Provide guidance to assist with decision-making related to biodiversity.</p>	<p>Climate change impacts, along with other pressures, such as development, can result in biodiversity loss</p>	<p>Provide guidance for better decision-making in order to improve our resilience to climate change, in particular, flooding and water quality impacts</p>
<p>2.11 Develop guidelines to outline the process to be followed where there is the potential for artificial lighting to affect wildlife and apply these to planning development, new projects, lighting upgrades (retrofitting) and where there is evidence of wildlife being affected by existing artificial light (2022)</p>	<p>NPWS, NTA, Infrastructure and Climate Change Department, DLR Transport, DLR Roads, DLR Parks, Consultant Ecologists, Consultant Engineers, Developers</p>	<p>Guidance provided to ensure that artificial light will be managed so wildlife is not disrupted within, nor displaced from, important habitat; and is able to undertake critical behaviours such as foraging, reproduction and dispersal</p>	<p>Provide guidance to assist with decision-making related to artificial lighting</p>	<p>Climate change impacts, along with other pressures such as artificial lighting, can result in biodiversity loss</p>	<p>Provide guidance for better decision-making in order to reduce impacts on biodiversity in face of climate change</p>
<p>2.12 Develop training and guidance for land managers and local authority staff in relation to hedgerow management (2022-2023)</p>	<p>NPWS, NTA, Infrastructure and Climate Change Department, DLR Transport, DLR Roads, DLR Parks, Consultant Ecologists, Consultant Engineers, Developers, Land managers and land owners</p>	<p>Guidance provided to ensure that our hedgerows are managed in an appropriate way and so wildlife is not disrupted within, nor displaced from, hedgerows; and is able to undertake critical behaviours such as foraging, reproduction and dispersal</p>	<p>Provide training and guidance to assist landowners, managers and local authority staff in their role of managing hedgerows</p>	<p>Climate change impacts, along with other pressures such as poor management of our hedgerows, can result in biodiversity loss</p>	<p>Provide training and guidance for better management of our hedgerows in order to reduce impacts on biodiversity in face of climate change</p>





THEME 3: Powerful actions to protect biodiversity and us

Objective 3 Conserve and restore biodiversity and ecosystems, and support ecosystem services in DLR, including coastal and marine

Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>3.1 Identify and map habitats, species and supporting features that provide ecosystem services</p> <p>(2022)</p>	DLR, NPWS, EPA, INCASE Project, Biosphere Partners and others	<ul style="list-style-type: none"> Completion of an ecosystem services map for biodiversity in DLR Number of habitats and species that have been assessed for extent and condition. Completion of DLR Natural Capital Accounting, using baseline information on extent and condition 	To establish baseline information on ecosystem services scoring and natural capital accounting	Climate change threatens biodiversity and causes significant alterations to the supply of ecosystem services that are vital for human wellbeing.	Knowledge of the value of ecosystem services is important to enhancing biodiversity to improve resilience to climate change
<p>3.2 Work in collaboration with NPWS and others to score ecosystem services for habitats at a local level in DLR</p> <p>(2021-2022)</p>	NPWS	Map produced of ecosystem services for biodiversity in DLR Habitats with an ecosystem service score	To establish baseline information on ecosystem services scoring and natural capital accounting	Climate change threatens biodiversity and causes significant alterations to the supply of ecosystem services that are vital for human wellbeing.	Knowledge of the value of ecosystem services is important to enhancing biodiversity to improve resilience to climate change
<p>3.3 Strengthen our understanding of natural capital and ecosystem services and incorporate into policy and decision-making in DLR</p> <p>(2021-2023)</p>	DLR All Sections, NPWS	<ul style="list-style-type: none"> Number of presentations to DLR decision-makers, including the promotion and use of DLR Ecosystem Services – Benefits of Biodiversity Animation Number of objectives relating to ecosystem services and natural capital in DLR County Development Plan 2020-2025 (incl. Green Infrastructure) Continue to develop Ecosystem Services Scoring and Natural Capital Accounting, which provide tools for decision-makers 	Integrating ecosystem services into policy, planning and practice	Climate change threatens biodiversity and causes significant alterations to the supply of ecosystem services that are vital for human wellbeing.	Highlighting the interrelationship between biodiversity, ecosystem services and climate change in decision-making
<p>3.4 Identify opportunities where ecosystems can be restored and enhanced, including terrestrial, river, coastal and marine ecosystems</p> <p>(2022-2024)</p>	DLR All Sections, NPWS, Inland Fisheries, LAWPRO, EPA, Dept of Marine, landowners, local communities	<p>Restoration and enhancement projects of ecosystems undertaken across all DLR departments</p> <p>Number of Nature-based Solution Flood Projects demonstrating restoration and conservation of ecosystems</p>	Investment in ecosystem restoration and enhancement projects to mitigate habitat loss, conserve biodiversity, and boost ecosystem services	Climate change threatens biodiversity and causes significant alterations to the supply of ecosystem services that are vital for human wellbeing	Enhancing biodiversity and ecosystem services to improve resilience to climate change
<p>3.5 Develop and implement appropriate rewilding projects in DLR and extend our local biodiversity areas within DLR</p> <p>(2022-2025)</p>	NPWS, Inland Fisheries, EPA, LAWPRO, DLR Parks, DLR Water and Drainage, Infrastructure & Climate Change Department, local communities	Number of appropriate rewilding projects completed	Investment in ecosystem restoration and enhancement projects to mitigate habitat loss, conserve biodiversity, and boost ecosystem services	Climate change threatens biodiversity and causes significant alterations to the supply of ecosystem services that are vital for human wellbeing	Enhancing biodiversity and ecosystem services to improve resilience to climate change

continued



Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>3.6 To protect, restore and expand our County Ecological Network and DLR'S Green Infrastructure. Deliver Nature Recovery and Restoration as part of our Ecological Network and promote the use of nature-based solutions where these solutions allow the delivery and expansion of our Ecological Network.</p> <p>(2021-2025)</p>	NPWS, Inland Fisheries, EPA, LAWPRO, DLR Parks, DLR Water and Drainage, Infrastructure & Climate Change Department, other Local Authorities	Area (HA) or length (KM) recovered	Investment in ecosystem restoration, NBS and ecological network projects to mitigate habitat loss, increase connectivity, conserve biodiversity, and boost ecosystem services	Climate change threatens biodiversity and causes significant alterations to the supply of ecosystem services that are vital for human well-being	Enhancing biodiversity, connectivity and ecosystem services to improve resilience to climate change
<p>3.7 Carry out ecological surveys and assessment of our habitats, including hedgerows, rivers and streams, to provide information regarding areas that require restoration in order to deliver the recovery of our Ecological Network</p> <p>(2022-2025)</p>	NPWS, Universities, Ecologists	Number of surveys completed and areas identified for restoration	To establish baseline information areas in need of investment and recovery of our Ecological Network	Climate change can cause fragmentation and damage to our Ecological Network.	Restoring and protecting our Ecological Network (which is the backbone of our Green Infrastructure) will help our resilience to climate change including threats such as flooding.
<p>3.8 Continue to implement the biodiversity actions of the Dalkey Island Heritage Plan</p> <p>(2021-2025)</p>	DLR Parks, DLR Heritage, BWI, NPWS, Biosphere Partners	<ul style="list-style-type: none"> • Tern species population returning annually • Tern species young successfully fledged annually • Goat population maintained on island • Area of habitat unchanged or improving (Ha) • Presence of rare plants 	Management of Dalkey Island, in order to protect and enhance the island for tern species, habitats and flora, including rare plant species – and their ecosystem services	The drivers of biodiversity loss today are human impacts, including visitor pressures to natural areas, climate change and invasive species.	Protecting and enhancing biodiversity and ecosystem services to improve resilience to climate change
<p>3.9 Complete the actions for councils outlined in the All-Ireland Pollinator Plans 2015-2020 and 2021- 2025, and create areas for wildlife and pollinators</p> <p>(2021-2025)</p>	DLR Sections, Local Communities, e.g.Tidy Towns, Residents' Associations; NBDC	<ul style="list-style-type: none"> • Pollinator Areas created and increasing • Enhancements of Biodiversity including Wildlife Corridors and Green Infrastructure • Council pollinator-friendly actions completed • Ecosystem Services Scoring of Biodiversity and Wildlife Corridors and the level of increased scoring achieved through habitat restoration, enhancements and rewilding projects. 	Increase pollinator-friendly areas across the county	Climate change pressures can cause the loss of wildlife corridors and refuges and loss of pollinators, resulting in loss of ecosystem services.	Enhancing biodiversity and ecosystem services to improve resilience to climate change

continued



Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>3.10 Protect existing swift nesting sites where possible; establish new sites in existing public and private properties; and request artificial swift nest boxes as part of new suitable development in DLR</p> <p>(2021-2025)</p>	DLR Sections, Schools, Swift Conservation Group, BWI	<p>Number of successful swift nesting boxes and monitoring of these</p> <p>Map completed of the locations of existing and newly created swift nests</p>	To assist swift populations to survive the threats of climate change and to address threats to swifts from renovation of old buildings and development	Increased storms and wet weather are affecting swift migration and threatening their populations as a result of climate change, along with the renovation of old buildings which causes a loss of nesting sites.	Enhancing biodiversity to improve resilience to climate change
<p>3.11 Continue the Red Squirrel Project and extend project to Fernhill</p> <p>(2021-2025)</p>	NPWS Research, UCD, DLR Parks	<p>Red squirrel juveniles annually in Killiney Hill and viable population</p> <p>Red squirrel in Fernhill</p>	To assist the Red Squirrel population to survive in Killiney Hill Park and to monitor their use of Fernhill Park	Habitat fragmentation and habitat loss as a result of climate change impacts on the red squirrel populations and their survival	Protecting biodiversity to improve resilience to climate change
<p>3.12 Continue to protect the Calcareous Wetland and Flora at Kingston, Kiltiernan</p> <p>(2021-2025)</p>	NPWS, DLR Water and Drainage	Monitoring surveys completed every 3 years	To protect the important EU Annex habitats at Kingston and prevent their loss	The drivers of biodiversity loss today are land use pressures, climate change and invasive species	Protecting biodiversity to improve resilience to climate change
<p>3.13 Protect and enhance Booterstown Marsh, an important, unique coastal area within DLR and an EU Natura 2000 site</p> <p>(2021-2025)</p>	NPWS, An Taisce, DLR Parks, DLR Water and Drainage	Monitoring programme developed and implemented annually	To protect the important EU Annex habitats and species at Booterstown Marsh and to prevent their deterioration and loss	The drivers of biodiversity loss today are land use pressures, climate change and invasive species	Protecting biodiversity to improve resilience to climate change
<p>3.14 Protect the sand martin colonies along our coastline which occur in the coastal cliffs</p> <p>(2021-2025)</p>	NPWS, BWI, DLR Infrastructure and Climate Change Department, and Water and Drainage Department	Awareness campaign of the occurrence of these species to DLR staff and to the public, in particular in relation to coastal protection projects	To protect the sand martin colonies	Climate change related projects may impact on biodiversity	Protecting biodiversity to improve resilience to climate change
<p>3.15 Develop a Habitat Management Plan for Shanganagh coast and cliffs</p> <p>(2023)</p>	NPWS, BWI, DLR Infrastructure and Climate Change Department, and Water and Drainage Department	Habitat Management Plan completed	To provide an understanding of the biodiversity role of the coastal habitats along the Shanganagh coastline and for their appropriate management	Climate change related projects and coastal erosion may impact on biodiversity	Protecting biodiversity to improve resilience to climate change

continued



Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>3.16 Promote the creation of nature-based solutions (NBS), such as biodiversity roofs (brown roofs), pollinator areas, native hedgerow planting, wetlands and other NBS to promote biodiversity, as part of NBS for new development and other projects</p> <p>(2021-2025)</p>	<p>DLR Water and Drainage, developers, Infrastructure and Climate Change Department, decision-makers</p>	<p>Number of biodiversity roofs incorporated into new development</p>	<p>To provide additional biodiversity measures in an urban environment</p>	<p>Climate change impacts, along with other pressures such as development, can result in biodiversity loss</p>	<p>Providing additional biodiversity measures to improve resilience to climate change</p>
<p>3.17 Promote local seed collection by qualified professionals, including for new developments, in order to keep our seed sources local, and encourage communities to collect and share local seed</p> <p>(2021-2025)</p>	<p>NPWS, Botanic Gardens, DLR Parks, other LAs; local communities</p>	<p>Pilot seed collection project from DLR public lands to preserve seeds for future use in community and capital projects.</p>	<p>To keep local seed sources for re-use in the county. To share rare plant species' seed source where appropriate</p>	<p>Climate change impacts, including soil loss, along with other pressures such as development, can result in loss of our local seed sources</p>	<p>Providing additional biodiversity measures to improve resilience to climate change</p>
<p>3.18 Continue to support conservation grazing at Fernhill Park and Gardens and to develop other public lands for conservation grazing</p> <p>(2021-2025)</p>	<p>Irish Droimeann Society, DLR Parks, Universities</p>	<p>Fernhill meadows managed through grazing</p>	<p>To maintain the diversity of the old meadows through traditional, low-impact grazing</p>	<p>Climate change will compound the existing pressures on our pollinators and biodiversity</p>	<p>Providing opportunities for more diverse habitats for pollinators to improve resilience to climate change</p>
<p>3.19 Develop habitats for reptiles and amphibians which also provide habitat for other species</p> <p>(2023)</p>	<p>Herpetological Society of Ireland (HSI), DLR Parks, DLR Infrastructure and Climate Change Department, and Water and Drainage Department</p>	<p>Habitats created for reptiles and amphibians</p>	<p>To increase habitats for reptiles and amphibians</p>	<p>Climate change impacts, along with other pressures such as development, can result in biodiversity loss</p>	<p>Providing opportunities for more diverse habitats for reptiles and amphibians to improve resilience to climate change</p>



THEME 4: Connecting people & nature and inspiring a positive future

Objective 4: Increase awareness, training and appreciation of biodiversity, ecosystems and ecosystem services

Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>4.1 Provide education and raise awareness of biodiversity and ecosystem services among the public, decision-makers and educators</p> <p>(2021-2025)</p>	<p>Schools, Third level, DLR sections, Dept of Marine, NPWS, EPA, BWI WFD officers, LAWPRO, Inland Fisheries</p>	<ul style="list-style-type: none"> Number of schools taking part in the Ecosystem Services programme Public biodiversity events annually Promotion and use of DLR animation <i>Ecosystem Services – Benefits of Biodiversity</i> by others in education and training 	To inform and raise awareness of ecosystem services	Lack of awareness of the impacts of climate change on ecosystem services can lead to poor decisions and unintended loss of biodiversity	Increasing awareness of the interrelationship between biodiversity, ecosystem services and climate change
<p>4.2 Provide Information on biodiversity and ecosystem services through the DLR website and publications</p> <p>(2021-2025)</p>	<p>DLR - all sections, DLR Communications, Schools, Third level, Biosphere Partners</p>	<ul style="list-style-type: none"> Biodiversity Section of DLR website updates Biodiversity News updates on social media Completion of the <i>Biodiversity Tour of DLR</i> publication Completion of <i>Biodiversity Action Plan</i> Publication Completion of DLR Biodiversity Map Browser for Habitats and Species Completion of biodiversity signs in parks and green spaces 	Increase awareness of biodiversity	Lack of awareness of the impacts of climate change on biodiversity can lead to poor decisions and unintended loss of biodiversity	Increasing awareness of the interrelationship between biodiversity, ecosystem services and climate change
<p>4.3 Organise activities and events to promote biodiversity, ecosystems and ecosystem services</p> <p>(2021-2025)</p>	<p>Parks, Schools, Educational Groups, Local Communities, BWI, NPWS, Heritage Council</p>	<ul style="list-style-type: none"> Promotion and use of the DLR animation <i>Ecosystem Services – Benefits of Biodiversity</i> Monthly biodiversity events Staff biodiversity training events Local Communities engagement events and projects 	Increase awareness of biodiversity	Lack of awareness of the impacts of climate change on biodiversity can lead to poor decisions and unintended loss of biodiversity	Increasing awareness of the interrelationship between biodiversity, ecosystem services and climate change
<p>4.4 Establish training and education programmes to promote appreciation of biodiversity, ecosystems and ecosystem services</p> <p>(2021-2022)</p>	<p>Educational organisations, Green Schools, Third level, Local communities, BWI, NPWS</p>	<ul style="list-style-type: none"> Number of schools taking part in the Ecosystem Services programme Number of BWI Schools Bird Workshops Number of public training workshops and staff biodiversity training workshops Dog training courses in parks and public spaces, including beaches, to raise awareness of the impacts of dogs on biodiversity 	Increase training and awareness of biodiversity	Lack of awareness of the impacts of climate change on biodiversity can lead to poor decisions and unintended loss of biodiversity	Increasing awareness of the interrelationship between biodiversity, ecosystem services and climate change
<p>4.5 Establish and promote positive examples of cooperative local community biodiversity projects or demonstration models</p> <p>(2021-2025)</p>	<p>Local community groups, Tidy Towns, residents' groups, DLR Volunteers</p>	<p>Number of local community projects</p>	Encouraging and supporting local communities to become involved in biodiversity	Impacts of climate change on local communities are increasing. The involvement and empowerment of local communities to protect and enhance biodiversity is important	Partnership with communities and encouraging community involvement to foster active participation in biodiversity conservation also increases climate change resilience

continued



Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>4.6 Provide education and raise awareness of the impacts of climate change on biodiversity (2021-2023)</p>	<p>Schools, Third level, DLR sections, Dept of Marine, NPWS, EPA, BWI, WFD officers, LAWPRO, Inland Fisheries</p>	<p>Number of schools taking part in the Ecosystem Services programme Public biodiversity and climate change events Promotion and use of DLR Biodiversity and Climate Change Poster</p>	<p>To inform and raise awareness of ecosystem services</p>	<p>Lack of awareness of the impacts of climate change on biodiversity can lead to poor decisions and unintended loss of biodiversity</p>	<p>Increasing awareness of the interrelationship between biodiversity, ecosystem services and climate change</p>
<p>4.7 Raise awareness of the physical and mental health benefits of biodiversity (2021-2023)</p>	<p>Local community groups, Tidy Towns, residents' groups, DLR Volunteers</p>	<p>Number of events</p>	<p>To inform and raise awareness of the benefits of biodiversity</p>	<p>Lack of awareness of the impacts of climate change on biodiversity can lead to poor decisions and unintended loss of biodiversity</p>	<p>Increasing awareness of the interrelationship between biodiversity, physical and mental health benefits (part of ecosystem services) and climate change</p>
<p>4.8 Provide training to the public in relation to reptile and amphibian surveys with the Herpetological Society of Ireland (HSI) (2023)</p>	<p>Local community groups, Tidy Towns, residents' groups, DLR Volunteers</p>	<p>Number of training events</p>	<p>To provide training for local communities to survey reptiles and amphibians and take part in citizen science</p>	<p>Lack of awareness of the impacts of climate change on biodiversity can lead to poor decisions and unintended loss of biodiversity</p>	<p>Partnership with communities and encouraging community involvement to foster active participation in biodiversity conservation also increases climate change resilience</p>



THEME 5: Strength in working together

Objective 5 Strengthen the effectiveness of collaboration between all stakeholders for the conservation of biodiversity, including with Local Communities, Local Authority Biodiversity Officers, LAWPRO, the National Biodiversity Data Centre, BirdWatch Ireland, NPWS and other State Bodies

Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
5.1 Engage with local communities and business communities to develop local biodiversity projects (2021-2025)	Schools, Tidy Towns, Residential Groups, Faith Communities	Number of community biodiversity projects	Building partnerships with communities for biodiversity conservation and engaging people in biodiversity	Lack of awareness of the impacts of climate change on biodiversity can lead to poor decisions and unintended loss of biodiversity	Partnerships with communities and encouraging community involvement to foster active participation in biodiversity conservation also increases climate change resilience
5.2 Work with our Dublin Bay Biosphere Partners to promote sustainable use of the DLR Biodiversity Resource in the Biosphere (2021-2025)	Biosphere Partners	Biosphere events annually Biosphere projects completed Biosphere Conservation Actions completed for DLR	Provide support for the Biosphere and promote the Biosphere	The impacts of climate change would be compounded by unsustainable use of the Biosphere	By encouraging sustainable use of the Biosphere with our partners, we can protect and enhance biodiversity and ecosystems to improve resilience to climate change
5.3 Support implementation of Dublin Bay Biosphere Nature Conservation Strategy, Education and Awareness strategy (2022)	Biosphere Partners	Completion of the Dublin Bay Biosphere Nature Conservation Strategy, Education and Awareness strategy Implementation of priority actions in DLR	Dublin Bay Biosphere Nature Conservation Strategy, Education and Awareness strategy	Lack of awareness of the impacts of climate change on biodiversity can lead to poor decisions and unintended loss of biodiversity	Increasing awareness and appreciation of the Biosphere and sustainable use of the Biosphere will help to improve resilience to climate change
5.4 Carry out a study of marine ecosystems and develop marine ecosystem restoration projects with our Biosphere Partners (2023)	Biosphere Partners	Number of marine ecosystem restoration projects implemented with our Biosphere Partners	Part of the Biosphere Conservation Actions common to all partners	Without joined-up thinking on our shared marine environment, the impacts of climate change may result in biodiversity loss and ecosystem services loss	Working with our Biosphere Partners, we aim to strengthen and share our biodiversity information and to provide a collaborative approach at the wider Dublin bay level in relation to marine ecosystems. This in turn will help to improve our resilience to climate change
5.5 Work with government departments and the public in relation to the designation of Marine Protected Areas (MPAs) (2021-2025)	DAFM, NPWS, EPA, Coastwatch, Universities, local communities	Progression of the designation of MPAs	To protect our marine areas and encourage sustainable use of these areas	Climate change is a serious threat to the marine environment and its resources. Degraded marine ecosystems are less likely to be resilient to the effects of climate change than healthy, fully-functional ecosystems	MPAs have the potential to play an important role in maintaining and restoring ecosystem resilience, protecting biodiversity and creating refugia from climate change impacts
5.6 Work with other local authorities to strengthen our knowledge of important habitats and species (2021-2025)	FCC, DCC, SDCC and others	Number of projects completed in collaboration with other local authorities	To protect biodiversity that extends beyond geographical boundaries of local authorities	Without joined-up thinking on climate change and biodiversity, the impacts of climate change may result in biodiversity loss and ecosystem services loss	Working with other local authorities, we aim to strengthen and share our biodiversity information and to provide a collaborative approach at a wider landscape level. This in turn will help to improve our resilience to climate change

continued



Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>5.7 Work with other local authorities to fund satellite-tracking studies of winter birds listed as qualifying features in European sites and other important species</p> <p>(2021-2025)</p>	FCC, DCC, SDCC and others	Projects completed in collaboration with other local authorities	To protect biodiversity that extends beyond geographical boundaries of local authorities	Without joined-up thinking on climate change and biodiversity, the impacts of climate change may result in biodiversity loss and ecosystem services loss	Working with other local authorities, we aim to strengthen and share our biodiversity information and to provide a collaborative approach at a wider landscape level. This in turn will help to improve our resilience to climate change
<p>5.8 Provide supports to BirdWatch Ireland for the Dalkey Island Tern Project, Swift conservation, and other important bird projects</p> <p>(2021-2025)</p>	NPWS, DLR Parks, BWI, other LAs	Projects related to the protection of DLR's important bird species completed	To protect our important bird species	The impacts of climate change can be seen in the changes in the breeding and distribution patterns of bird species and this is compounded by other pressures	Working with BWI on bird-related projects will help to understand and address, where possible, climate change pressures on bird species
<p>5.9 Work with LAWPRO to develop ways to protect and enhance our river wildlife corridors and waterways</p> <p>(2022)</p>	DLR Water and Drainage, DLR Parks, DLR Planning, LAWPRO, IFI	Projects related to our wildlife corridors completed	To protect our important river wildlife corridors	Climate change impacts, such as increased peak river flows, bank erosion, flood protection measures in response to climate change may all impact on biodiversity.	Working with LAWPRO and other partners, to protect and enhance our river wildlife corridors and waterways will also help to build our climate change resilience
<p>5.10 Work with our CARO Partners, NPWS and others to ensure the protection of biodiversity in the face of Climate Change</p> <p>(2021-2025)</p>	CARO, DLR Climate Action Officer, Infrastructure and Climate Change Department DLR Sections, NPWS	Biodiversity - Climate Change Collaboration projects completed. Raise awareness and training on the impacts of climate change on biodiversity	To protect biodiversity in the face of climate change and its associated impacts.	Climate change impacts, such as habitat fragmentation, biodiversity loss, shifts in species distribution, species unable to adapt, phenological mismatches, invasive alien species, etc.	Working with CARO and other partners, to raise awareness of the impact of climate change on biodiversity and to collaborate on projects that support and assist biodiversity to build climate change resilience
<p>5.11 Dún Laoghaire-Rathdown County Council is a partner in the Dublin Mountains Partnership. The Biodiversity Officer will liaise with this forum to promote the protection and enhancement of biodiversity</p> <p>(2021-2025)</p>	Dublin Mountains Partnership (DMP), Coillte	Collaborations with DMP	To protect the biodiversity of our upland areas	Without joined-up thinking on our shared upland environment, the impacts of climate change may result in biodiversity loss and ecosystem services loss	Working with Dublin Mountain Partnership, we aim to strengthen and share our biodiversity information and to provide a collaborative approach to the uplands. This in turn will help to improve our resilience to climate change.

continued

Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>5.12 Work with Coillte Nature for the protection and enhancement of biodiversity, including Red Squirrel (2021-2025)</p>	Coillte, NPWS	Collaborations with Coillte	To protect biodiversity of our forested areas	Climate change impacts, such as increased wildfires, pests and diseases, along with increased visitor pressures, may result in biodiversity loss and ecosystem services loss	Working with Coillte, we aim to strengthen and share our biodiversity information and to provide a collaborative approach to managing biodiversity on Coillte lands. This in turn will help to improve our resilience to climate change.
<p>5.13 Work with our colleagues across our own organisation in DLRCC and collaborate on biodiversity projects, including nature-based solution projects (2021-2025)</p>	DLR Sections	DLRCC NBS projects	To increase collaborations for biodiversity across DLRCC	Without joined up thinking on climate change and biodiversity, the impacts of climate change may result in biodiversity loss and ecosystem services loss	Working within DLRCC, we aim to strengthen a collaborative approach for the management and protection of biodiversity in relation to DLRCC projects. This in turn will help to improve our resilience to climate change.
<p>5.14 Work with NPWS and community groups to develop woodland management plans and the protection of Loughlinstown Woods pNHA and Fitzsimons Woods pNHA (2022-2024)</p>	NPWS, community groups	Completion of the Loughlinstown Wood pNHA Woodland Management Plan and the Fitzsimons Woods pNHA Woodland Management Plan	To protect our native woodlands	Climate change impacts, such as increased wildfires, tree pests and diseases, along with increased invasive species, may result in biodiversity loss and ecosystem services loss	Working with communities to ensure that the only two native woodlands in DLR have comprehensive management plans to conserve these important areas so they can continue to take up carbon.
<p>5.15 Engage with third level institutions to support and to develop biodiversity research in DLR (2021-2025)</p>	Third level institutions, Universities	Student research projects	To develop scientific biodiversity data that can assist local authorities	Potential negative impacts on our biodiversity resource due to climate change	Scientific data in relation to our biodiversity resource is vital to help manage our natural resources in order to provide ecosystem services and resilience to climate change

Monitoring and tracking our plan

Biodiversity Actions	Agencies & Partners	Indicators	Target	Climate Change Impacts	Climate Proofing
<p>Undertake an annual review of the implementation and success of the Actions proposed in the Biodiversity Action Plan 2019-2024 and future plans (2021-2025)</p>	DLR Biodiversity Officer	<ul style="list-style-type: none"> Number of Biodiversity Actions implemented Tracking success of the action taken Annual review and presentation to Steering Group Steering Group meeting annually Publication of report on DLR webpages 	To monitor implementation of Biodiversity Actions	Potential negative impacts on our biodiversity resource due to climate change	Monitoring our plan is important in providing resilience to Climate Change

Appendix 2: Nature Conservation Sites

Table 1: Protected International and National Nature Conservation Sites in DLR

Site no	Site name	SPA	pNHA	SAC
00210	South Dublin Bay SAC		✓	✓
004024	South Dublin Bay and River Tolka Estuary SPA (includes Booterstown Marsh)	✓		
004172	Dalkey Islands SPA	✓	✓	
004040	Wicklow Mountains SPA	✓		
001205	Booterstown Marsh pNHA	✓	✓	
001206	Dalkey Coastal Zone and Killiney Hill pNHA		✓	
001753	Fitzsimons Wood pNHA		✓	
001211	Loughlinstown Woods pNHA		✓	
001207	Dingle Glen pNHA		✓	
001202	Ballybetagh Bog pNHA		✓	
000713	Ballyman Glen SAC		✓	✓
00725	Knocksink Woods SAC (also a Nature Reserve)		✓	✓
002122	Wicklow Mountains SAC	✓		✓
003000	Rockabill to Dalkey Islands SAC			✓

Note: SPA -Special Protection Area (Birds), SAC - Special Area of Conservation, pNHA - Proposed Natural Heritage Area

For more information on international and national designations see www.npws.ie.

Table 2: Locally Important Biodiversity Sites (LIBS) 2021

LIBS01	Shanganagh Park and Coastline
LIBS02	Carrickgollogan Hill and Ballycorus Leadmine
LIBS03	Barnaslingan Forest and the Scalp
LIBS04	Shanganagh River and Cliff
LIBS05	Cabinteely Park
LIBS06	Druid's Glen
LIBS07	Bride's Glen East
LIBS08	Heronford Bridge
LIBS09	Ballycorus Road/Ticknick
LIBS10	Ballycorus/Kingston Grassland
LIBS11	Ballycoog
LIBS12	Glendoo Mountain
LIBS13	Blackrock Park
LIBS14	Cherrywood Tullyvale springs
LIBS15	Kearneystown
LIBS16	Glencullen Valley
LIBS17	Two Rock Mountain and Ballybrack
LIBS18	Kilmashogue
LIBS19	Marlay Park
LIBS20	Fernhill Park
LIBS21	DL Golf Course - Ballyman



Note: This is an initial LIBS list and will be added to as surveys are completed over coming years.

For information on our LIBS go to our DLR Biodiversity web pages at www.dlrcoco.ie.

Locally Important Biodiversity Sites (LIBS) are areas designated by DLR's Biodiversity Section that are outside of international or national nature conservation sites, but which provide a network of services (including biodiversity) across the county. They have no formal designation but can highlight sites which may be worthy of protection or enhancement and which provide additional benefits to, and support, the protected area network. They do not include/ overlap with protected sites but may be adjacent or link to them



Acronyms

BCI	Bat Conservation Ireland
BSBI	Botanical Society of Britain and Ireland
BWI	BirdWatch Ireland
CARO	Climate Action Regional Offices
DCC	Dublin City Council
DMP	Dublin Mountains Partnership
DLR	Dún Laoghaire-Rathdown County Council
EPA	Environmental Protection Agency
FCC	Fingal County Council
HSI	Herpetological Society of Ireland
IFI	Inland Fisheries Ireland
LAWPRO	Local Authority Waters Programme
NBDC	National Biodiversity Data Centre
NPWS	National Parks and Wildlife Service
SDCC	South Dublin County Council

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