



NATURE-BASED SOLUTIONS





OVERVIEW



30

PUBLIC PARKS
MAINTAINED
BY DLRCC300km²

DUBLIN BAY BIOSPHERE

18.9%

ESTIMATED
AVERAGE TREE
CANOPY COVER IN DLR

TARGET



A CLIMATE-RESILIENT REGION

PREVENTING HABITAT AND
SPECIES LOSSPROTECTING NATIVE SPECIES,
PARKS AND TREE COVER

EXAMPLES OF MAIN ACTION TYPES

Implementing Biosphere
Work Programme

Maximising tree canopy cover

Sustainable management
of public parksDeveloping the County's
green infrastructureProtecting and enhancing
biodiversity and ecosystemsProtecting, maintaining and
planting trees across the County

STAKEHOLDERS TO WORK WITH AND INFLUENCE

GOVERNMENT
DEPARTMENTSENVIRONMENTAL
GROUPSDUBLIN BAY BIOSPHERE
PARTNERSHIPCOMMUNITY
GROUPSGENERAL PUBLIC
& ELECTED MEMBERSTHIRD LEVEL
INSTITUTIONS & SCHOOLS

3

The landscape, heritage and biodiversity of Dún Laoghaire-Rathdown represent some of the most important intrinsic assets of the County. Indeed, to a great degree they actually define the County. The heritage of the County encompasses built, archaeological, cultural and natural heritage, while the extensive network of public parks and open spaces provide important areas for passive and active recreation as well as key spaces for enhancing biodiversity.

- County Development Plan 2016-2022

Nature-based solutions are defined by the International Union for Conservation of Nature as “*actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits*”^[29]

Nature-based solutions are provided by a combination of factors including the urban tree canopy, green infrastructure and sustainable urban drainage. These are critical in climate change mitigation and adaptation and perform many important functions. For example, they help to prevent flooding and erosion, regulate temperatures, absorb carbon and filter pollutants from the air. Some of these functions are:

- Vegetation, particularly trees through photosynthesis, sequesters and stores carbon as it grows, it can also reduce air pollution through filtration
- During storm events with high winds, trees act as a natural barrier to reduce wind speed and provide shelter
- Plants in wetland areas attenuate, filtrate and purify water
- Trees and plants reduce water runoff in extreme rain events, taking pressure off the urban drainage system, they also prevent soil erosion

All of the above have the added value of providing recreational opportunities while building resilience to climate change. DLRCC is working to ensure that biodiversity loss is minimised or prevented, and that increasing vegetative cover, particularly through tree planting, is maximised throughout the County. This involves working both internally and collaboratively across the four Dublin Local Authorities to protect and enhance existing greenfield sites, both public and private. DLRCC, together with the other Dublin Local Authorities, will cooperate in order to set standards for the incorporation of green infrastructure, sustainable urban drainage systems,

tree management, and the protection and conservation of biodiversity to maximise the benefits of nature-based solutions.

DLRCC is responsible for over 30 parks of varying sizes, and countless areas of public open space. These will continue to be protected and cared for to ensure that future generations can enjoy the benefits these amenities offer in terms of recreation, physical and mental health and well-being. These areas are vital in the constant adaptation to climate change and mitigating future impacts through acting as carbon sinks and flood protection.

CASE STUDY



Photo Source: Dún Laoghaire-Rathdown County Council

Fernhill Park

In 2017, DLRCC acquired Fernhill Estate and Gardens and embarked on an ambitious plan to convert the estate into a public park. The vision for this park is to create a space where residents and visitors can engage in recreational activities, while learning about the region's natural and cultural heritage.

Given the diversity of the estate's natural environment, which includes woodlands, parklands, agricultural land and gardens, the development of the park is an opportunity to put DLRCC's biodiversity and tree plans into action. In October 2018, the Council secured €100,000 in funding to assist in developing a community garden within the park, which will directly benefit all the local people in the area and will foster a strong community spirit as it will be a place where everyone can come and interact in a nurturing and pleasant environment. By developing this community garden, DLRCC aims to raise awareness about the environment, and the need to protect local flora and fauna and of course sustainable food production, which can be sold in the café on the grounds of the park.



GREEN INFRASTRUCTURE

It is Council policy to develop a comprehensive network of County Greenways linking parks and public open spaces and to liaise with adjoining local authorities and other stakeholders to achieve and improve wider external linkages and corridors.

- County Development Plan 2016-2022

Green infrastructure delivers a wide range of services, from water purification and air quality management to recreation space. Green infrastructure also helps in climate change mitigation and adaptation, by reducing CO₂ in the air, absorbing water, and cooling the urban environment. Incorporating green infrastructure into the urban environment is a science that recognises which species of plants will suit the local environment and not cause harm or threaten the local ecosystem. Planning for the inclusion of green infrastructure in the urban environment is about understanding the role of nature in supporting life and making places liveable.

CASE STUDY

Cherrywood Way

The Cherrywood Planning Scheme aims to create a viable green infrastructure and open space network that conserves, maintains and enhances the unique character, heritage and distinctiveness of the Strategic Development Zone (SDZ) and enables residents, workers and visitors to enjoy a high quality, inclusive environment with good leisure and recreation amenities.

Core to the proposed green infrastructure network is 'The Cherrywood Way', a network of planned open spaces and green infrastructure throughout the Cherrywood Planning Scheme area. At its centre is the archaeologically-sensitive Tully Church site and its environs, which form the basis for a unique and distinctive flagship park. A network of greenways, ultimately extending beyond the Planning Scheme boundary, will link the principal open spaces.

TREE MANAGEMENT

It is Council policy to implement the objectives and policies of the Tree Strategy for the County... to ensure that the tree cover in the County is managed and developed to optimise the environmental, climatic and educational benefits which derive from an 'urban forest'.

- County Development Plan 2016-2022

Trees have multiple benefits in reducing the risk of climate change impacts. Through their root systems they reduce soil erosion, and sequester atmospheric carbon as part of the carbon cycle, meaning that over its lifetime, a single tree can absorb several tonnes of atmospheric carbon dioxide. The right tree in the right place can provide shelter from both wind and sun and help to reduce the urban heat island effect.

CASE STUDY



Photo Source: Dún Laoghaire-Rathdown County Council

The Heritage Tree Hunt

The trees throughout the County are a vital resource and help make Dún Laoghaire-Rathdown a great place to live, work and visit. DLRCC's Parks Team has developed a County-wide tree strategy (*dlr TREES 2011-2015*); a key part of this is to promote the national Heritage Tree Hunt, which is run by the Tree Council of Ireland.

The Heritage Tree Hunt is a survey of heritage trees in Ireland. It aims to record and catalogue information about Ireland's heritage trees, and capture their unique stories and images. It has a designated website that offers everyone the opportunity to access the Heritage Tree Hunt records, see the photos and read the stories behind these magnificent trees.

The *Tree Canopy Study*, carried out by UCD's School of Geography, estimates that in Dún Laoghaire-Rathdown, (where 59.8% of the land is built up) trees cover 18.9% of the total area, which is the highest of the four Dublin local authority areas, but can be as low as 3-10% in urban areas^[30]. DLRCC is now at an advanced stage in measuring the existing urban tree canopy and has embarked on a detailed survey of its street trees. Through mapping and documenting the tree population, DLRCC can now provide species-specific figures in relation to how these trees are helping to mitigate the effects of climate change.

CONSERVATION AND PRESERVATION



The Council will take a proactive approach to the landscape with policies that seek to conserve and enhance the strongly distinctive landscape character of the County by protecting landscape elements of significance that are intrinsically important or contribute to the general amenity of the County. Landscape assets are non-renewable resources that the Council will seek to protect.

- County Development Plan 2016-2022

Wetlands, floodplains, lakes and reservoir ecosystems play an important role in the regulation of floods in inland systems and provide protection from the adverse consequences of natural hazards to humans. They also play a role in temperature regulation and are home to a rich biodiversity of flora and fauna.

DLRCC has developed a range of plans and strategies (*Biodiversity Action Plan*, *dlr TREES 2011-2015* and *Invasive Alien Species Action Plan*) to protect its biodiversity. As the Dublin Region's natural ecosystems have a critical role in the international migration of various bird species, it is important to protect and conserve these habitats. The expansion of the Dublin Bay Biosphere to include the area between Howth Head and Dalkey will ensure that the mosaic of ecological systems that make up the biosphere are protected. The biosphere is the first in the world to include a national capital city; this is an opportunity for Dublin to be a world leader in biodiversity management in the urban context.

CASE STUDY



Photo Source: Fáilte Ireland / BigO Media

Dublin Bay Biosphere - UNESCO Site

In 1981, UNESCO recognised the importance of Dublin Bay by designating North Bull Island as a biosphere because of its rare and internationally important habitats and species of wildlife. UNESCO's concept of a biosphere has evolved to include not just areas of ecological value, but also the areas around them and the communities that live and work within these areas. There have since been additional international and national designations, covering much of Dublin Bay, to ensure the protection of its water quality and biodiversity.

The biosphere was expanded in 2015, and now covers all of Dublin Bay, and extends to over 300 km². Over 300,000 people live within the newly enlarged biosphere.

The Dublin Bay biosphere contains three different zones, which are managed in different ways:

- The core zone of the Dublin Bay biosphere comprises of 50 km² of areas of high natural value. Key areas include the Tolka and Baldoyle Estuaries, Booterstown Marsh, Howth Head, North Bull Island, Dalkey Island and Ireland's Eye.
- The buffer zone comprises 82 km² of public and private green spaces, such as parks, greenbelts and golf courses, which surround and adjoin the core zones.
- The transition zone comprises 173 km² and forms the outer part of the biosphere. It includes residential areas, harbours, ports and industrial and commercial areas.



NATURE-BASED SOLUTIONS



NO	ACTION	TIMEFRAME	LEAD(S)	INDICATORS	TARGET(S) IMPACTED
ACTIONS CURRENTLY BUDGETED					
OPERATIONS					
1	Establish regional working group on nature-based solutions	2019	Parks and Biodiversity	Working group established	
2	Agree joint action plans to protect habitats and species native to the County	2020	Parks and Biodiversity	Action plans agreed and implemented	
3	Establish interdepartmental working group with engineers and planners	2019 onwards	Parks and Biodiversity	Working group established	
4	Workshop on NBS, green infrastructure and Sustainable urban Drainage Systems (SuDS)	2019	Parks and Biodiversity	Workshop undertaken, report of outcomes	
5	Produce regional floodplain management guidelines - use Santry River as demonstration	2019	Parks and Biodiversity	Guidelines produced	
6	Undertake a feasibility study to develop an ecosystems audit template	2021	Parks and Biodiversity	Template produced	
7	Assessment of the impact of climate change on biodiversity and ecosystem services	2019	Parks and Biodiversity, Drainage	Report and recommendations	
GREEN INFRASTRUCTURE					
8	Develop and implement pollinator support actions	2019	Parks	Strategy completed	
9	Create region-wide map of green networks to support walking and cycling	2020	Parks and Traffic	Map produced	
10	Implement Public Open Space and Parks Strategy	Ongoing	Parks	Strategy produced	
11	Incorporate natural play space into existing parks	Ongoing	Parks	# of spaces incorporated	
TREE MANAGEMENT					
12	Implement <i>dlr TREES 2011-2015</i> strategy by producing a map of trees in the County	Ongoing	Parks	Online map of trees and plants	
13	Develop Dublin tree and plant guide	Ongoing	Parks	Completion of tree and plant guide	
14	Update <i>dlr TREES 2011-2015</i> strategy	2019	Parks	# and variety of trees planted or removed per annum	



NO	ACTION	TIMEFRAME	LEAD(S)	INDICATORS	TARGET(S) IMPACTED
TREE MANAGEMENT					
15	Promote the Heritage Tree Hunt	Ongoing	Parks	# of site visits	
CONSERVATION AND PRESERVATION					
16	Complete and climate proof <i>Biodiversity Action Plan</i> , <i>Invasive Alien Species Plan</i> , and <i>dlr TREES 2011-2015</i> strategy	2019	Parks, Planning	Plans completed	
17	Review <i>Dublin Bay Biosphere Plan</i> and identify areas vulnerable to climate change	Ongoing	Parks, Engineering, Planning	Map of vulnerable areas and species' habitats, # of hectares protected	
18	Coordinate action on biodiversity across the four Dublin Local Authorities	Ongoing	Parks	Working group established	
19	Protect and conserve floodplains, wetlands, and coastal areas subject to flooding	Ongoing	Park	Map of areas to be protected	
20	Promote the natural, historical and amenity value of watercourses while maximising flood protection	Ongoing	Parks	Map of areas to be protected	
21	Launch awareness campaign to build awareness of native species	2019	Parks	Campaign launched, # of citizens participating in campaign activities	
22	Bee Friendly Estates - promote planting of pro-pollinator flora	2020	Parks, Environment and Climate Change	Increase in bee population	
23	Update hedgerow study	2020	Parks	2007 hedgerow study updated	
24	Development of community garden at Fernhill Park	2018 onwards	Parks	# of citizens using community garden, # of food produced on-site	
25	Deliver green roofs on civic buildings	Ongoing	Architects	# of Council buildings with green roofs	 
ACTIONS AWAITING BUDGET					
26	Develop demonstration sites to show how to combine nature conservation with existing land uses	2022	Parks	Demonstration sites implemented	  
27	Produce A Guide to Sustainable Living in County Dublin	2022	Parks, Environment and Climate Change	Guide produced	 



NO	ACTION	TIMEFRAME	LEAD(S)	INDICATORS	TARGET(S) IMPACTED
28	Identify further sites suitable for community gardens for local food production	Ongoing	Parks	Number of sites across County	
29	Sustainable gardening workshops	Ongoing	Parks, Environment and Climate Change	# of workshops held, # of attendees	
30	Support local communities through Lifelong Biodiversity Education	Ongoing	Parks, Communications	# of participants, yearly reports	
31	Assess benefit of increasing buffer distance of 10m from water courses to distances of 20m, 50m and 100m, in order to protect biodiversity and provide greater flood attenuation	To be decided	Parks	Comprehensive assessment completed	
32	Establish a grant scheme to landowners of riparian habitat for the planting of trees and enhancement of riparian habitats to increase resilience to climate change	2020	Biodiversity, Parks, Environment and Climate Change, Water and Drainage	# of hectares planted and enhanced	
33	Tree planting in areas identified for climate change resilience	2022	Biodiversity, Parks, Water and Drainage	# of hectares planted	
34	Pilot Demonstrator Projects for Rain Gardens and Blue-Green Streets – new builds and retrofitting	2020-2022	Parks and Landscape Services, Drainage, Roads Maintenance	Successful pilot trials (vegetation establishment, civic engagement, water quality, stormwater mitigation)	

RELEVANT LEGISLATION/POLICIES/GUIDANCE

- All-Ireland Pollinator Plan 2015-2020
- dlr Green Infrastructure Strategy (dlrcoco County Development Plan 2016 - 2022 Policy OSR3)
- dlr TREES 2011 - 2015
- Dublin Bay Biosphere Biodiversity Conservation and Research Strategy 2016-2020
- Dublin Tree Canopy Study (2017)
- Dún Laoghaire-Rathdown Biodiversity Plan
- dlrcoco County Development Plan 2016 - 2022 (Policies LHB2, LHB4, LHB7, LHB11; LHB12; LHB13, LHB16, LHB18; LHB19; LHB19; LHB20; LHB21; LHB22; LHB23; LHB24; LHB25; LHB26; LHB28; OSR1; OSR2; OSR3; OSR6; OSR8; UD7)
- EU Biodiversity Strategy
- EU Birds Directive 2009/147/EC
- EU Environmental Impact Assessment Directive 2014/52/EU
- EU Habitats Directive 92/43/EEC
- EU (Invasive Alien Species) (Freshwater Crayfish) Regulations 2018
- European Communities (Birds and Natural Habitats) Regulations 2011 S.I. 477 of 2011
- EU (Planning and Development) (Environmental Impact Assessment) Regulations 2018 S.I. 296 of 2018
- EU Regulation on Invasive Alien Species - EU Regulation 1143/2014
- EU Strategy on Green Infrastructure 2013
- Green Low Carbon Agriculture Environment Scheme (GLAS)
- National Biodiversity Action Plan 2017-2021
- National Landscape Strategy for Ireland 2015-2025
- Water Framework Directive 2000/60/EC
- Wildlife (and Amendment) Acts 1976-2012