

Green City Guidelines

Advice for the protection and enhancement of biodiversity
in medium to high-density urban developments



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UCD Urban Institute Ireland,
Dún Laoghaire-Rathdown County Council,
Fingal County Council.

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Whilst conventional wisdom holds that high levels of biodiversity are rarely to be found outside of rural areas and specific protected habitats, this work highlights the role and importance of urban biodiversity as well as providing practical guidance on how to retain and enhance biodiversity in medium-high density developments. Initially a range of sites within Dún Laoghaire-Rathdown and Fingal were selected based on their urban typologies which reflect a range of forms of differing ages, layouts and compositions. The biodiversity resource in each site was identified using standard survey techniques and recorded on a site by site basis. Then an extensive literature review of best practice internationally was carried out. Finally, planners working in local authorities and in private practice were asked for suggestions concerning the form, layout, design and content of the guidelines. We hope that the information and advice contained in the Guidelines will serve as a practical and easy to-access guide for local authorities, planners and property developers such that the design of medium to high-density developments takes proper and appropriate account of the opportunities for retaining and enhancing biodiversity in urban areas.

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Acknowledgements	III
Preface	IV
Overview	VII
Glossary	IX
1. Introduction to Green City Guidelines	1
1.1 Background	2
1.2 Defining biodiversity	3
1.3 The value of urban biodiversity	3
1.4 Threats to biodiversity	6
1.5 Halting the loss of Irish biodiversity	6
2. Making space for biodiversity in urban areas	9
2.1 Green space	10
2.2 Grey space	10
2.3 Brownfield sites	11
2.4 Private gardens and balconies	11
2.5 The evolution of the green city	12
2.6 Designing green space for biodiversity	15
2.6.1 Landscape-scale design	15
2.6.2 Habitat-scale design	16
3. Overview of planning and development process	19
3.1 Biodiversity management in forward planning	20
3.1.1 Developing a County policy framework for biodiversity	20
3.1.2 Local biodiversity action plans	20
3.1.3 Biodiversity in area plans	21
3.1.4 Approaches to area planning	22
3.2 Biodiversity management within the development management process	25
3.2.1 Guidelines in the development management process	25
3.2.2 Site preparation	25
3.2.3 Pre-planning	25
3.2.4 Planning and design	25
3.2.5 The planning application process	26
3.2.6 Development, construction and post-development management	27
3.2.7 Monitoring and enforcement	27
3.3 Understanding the planning and development benefits of biodiversity	29
3.3.1 High density in the Irish planning environment	29
3.3.2 Why enhanced biodiversity means better development	30

4. Case studies	33
4.1 Methodology	34
4.2 Typology and case study	35
4.2.1 Selection of suitable case study sites	35
4.2.2 Analysing and describing urban typologies	36
4.2.3 Overview of the planning process	36
4.3 Biodiversity evaluation	36
Case Study 1: Monkstown	37
Case Study 2: Castleknock	40
Case Study 3: Dundrum	43
Case Study 4: Ongar	47
Case Study 5: Stepside	50
Case Study 6: Swords	55
Case Study 7: Lusk	60
4.4 Pilot biodiversity assessment: Old Connaught and environs	65
4.4.1 An overview of Old Connaught and its environs	65
4.4.2 Protecting and enhancing features of value within the landscape	67
4.4.3 Assessing the existing environment for a new development	69
5. Practical measures for incorporating biodiversity	71
5.1 Site preparation	72
5.1.1 Scoping and Constraints study	72
5.1.2 Basic Habitat Assessment	73
5.2 Pre-planning	75
5.3 Planning and design	75
5.3.1 Evaluation and assessment	75
5.3.2 Protecting and retaining features of value	78
5.3.3 Creating and enhancing biodiversity	79
5.3.4 Connecting to the wider landscape	85
5.4 Development, construction and post-development management	89
5.4.1 Mitigate against adverse impacts	89
5.4.2 Enhance existing habitats through good management	89
5.5 Monitoring and enforcement	90
6. References	91
7. Appendices	95
Appendix 1. Appropriate periods for field survey	95
Appendix 2. Site evaluation scheme	96
Appendix 3. Criteria for assessing impact significance: Terrestrial sites	97
Appendix 4. Criteria for assessing impact significance: Aquatic sites	98
Appendix 5. Appropriate trees and shrubs for planting schemes	99

The Green City Guidelines are designed to provide practical guidance for planners and developers on how to integrate biodiversity into new developments, specifically medium to high-density housing developments in urban areas. As we grow in awareness of how our activities affect the natural environment, we must rethink how our basic requirements of sanitation, transport and housing are provided. As a result, best practice measures are constantly evolving to better facilitate the incorporation of biodiversity into development.

Recent decades have seen record levels of housing development, much of which, in line with the 1999 Residential Density Guidelines, has been built at higher densities in urban areas. Even with a slowing in the pace of economic growth this is likely to continue with the number of households forecasted to grow from approximately 1.8m at present to 2.5m by 2020. Recent policy and guideline documents from the Department of the Environment, Heritage and Local Government emphasise strongly the need for an improved quality of housing within sustainable and well-planned neighbourhoods. The holistic and integrated approach to planning, which the Department is recommending, should incorporate biodiversity protection and enhancement as a core objective.

In response to the global decline in biodiversity, the 1992 Convention on Biological Diversity (Rio Convention) was dedicated to finding policies to halt the global decline in biodiversity. Ireland, as a signatory to the Convention, undertook to implement its principles at national and local levels by formulating a biodiversity strategy. The National Biodiversity Plan identifies 87 actions that are to be undertaken, including the integration of biodiversity into all sectors, including planning and development. Implementation of this plan requires the integration of policies at national and local level and cross-sectoral co-operation. This means that all sectors, directly or indirectly connected with biodiversity, must examine their activities and minimise any negative impacts they are likely to cause.

In Ireland, many sites and species of national and international biodiversity value are designated as Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Natural Heritage Areas (NHA). These are protected under law and through the planning system. However, they account for only a small amount of the country. Substantial areas with high biodiversity value remain unprotected, and frequently unrecorded. Frequently these areas are subject to pressure from development. The guidelines aim to provide practical examples of how semi-natural habitats such as woodlands, grasslands, treelines, hedgerows and watercourses can be successfully maintained, enhanced and created within new developments through appropriate planning and management. Local Biodiversity Action Plans (LBAP) set out the objectives for biodiversity conservation within a city or county. They bring together existing knowledge on the state of local habitats, flora and fauna and identify conservation needs. A vital component of every local biodiversity strategy is to identify gaps in knowledge and undertake initiatives to fill them. Many initiatives are ongoing around the country that will feed into and inform the planning process, helping to identify sensitive areas where development would be damaging and areas that are suitable for new development.

An outline of the individual chapters of the Green City Guidelines is provided below.

Chapter 1: Introduction to Green City Guidelines reviews the background to biodiversity; its value to humans and outlines how it is being protected in an Irish context. Considerable coverage has been given to the value of biodiversity in international publications. Maintaining our natural environment not only provides us with amenity and recreational benefits but many of nature's functions and services support our own existence. Basic requirements such as clean water, fresh air and food supply depend upon a functioning and balanced natural environment. We rely on nature to support many of our economic activities including agriculture and tourism. Greener cities provide more attractive centres for people to live and work, which indirectly supports our economic viability. The restorative effects of nature and psychological benefits are generally acknowledged. Beyond our own benefit, there is an intrinsic value to all life and we have an ethical obligation to respect the living organisms with which we share the planet.

Chapter 2: Making space for biodiversity in urban areas looks at where biodiversity is typically found in the urban environment. It considers the origin of the green city approach to planning and introduces the principles of ecological planning and design at the landscape and habitat scales. Urban biodiversity is often perceived as being less important than its rural counterpart. Urban habitats are assumed to be highly modified and lacking in the characteristics that define more natural systems. However, while this can be true, many modified habitats are not without biodiversity value and some can support a high number of plants and animals. Unique urban communities have evolved to adapt to the unusual

environmental conditions that urban locations can present. Urban biodiversity occurs in a variety of areas from private gardens and local parks to river corridors and large coastal zones.

Chapter 3: Overview of the planning and development process highlights the key instruments within the planning process that can be used to identify and incorporate biodiversity into new development and considers the inclusion of biodiversity within the development management process. Planning for biodiversity at the landscape-level means considering the overall connectivity of habitats within the wider landscape. The County Development Plan is one of the most influential instruments in the planning process. It has the capacity to provide a strategic and legal framework for ecological planning within the wider landscape. An ecological spatial strategy, informed by the Local Biodiversity Action Plan and based on the existing network of Natura 2000 designated sites, could be implemented through the County Development Plan. Strategic planning tools such as green belts, green wedges and green fingers can also be used to directly or indirectly protect biodiversity at the landscape-scale.

At the local area level, Local Area Plans can provide a framework for biodiversity conservation. Local Area Plans and similar statutory and non-statutory instruments provide a means for highlighting sites and species of high local ecological value that may not be subject to any form of formal protection.

Chapter 4: Case studies examines the biodiversity resources within a sample of eight case study urban sites. All sites were chosen from the administrative areas of Dún Laoghaire-Rathdown County Council and Fingal County Council. Four urban "sectors" were identified, radiating out from the core city area, that broadly reflected the differing urban environments across both areas: (i) Inner Urban; (ii) Inner Suburban; (iii) Outer Suburban; and (iv) Outer Town. A planning analysis and biodiversity evaluation of all study areas was undertaken. An additional site, Old Connaught and environs is used to illustrate and summarise the key biodiversity messages outlined in the Guidelines. This includes the identification of potential locations for development, identification of important landscape patches and the potential for enhancement of biodiversity on the site. This is a theoretical case study.

Chapter 5: Practical measures for incorporating biodiversity presents general recommendations with reference to practical case study examples where appropriate. Using a combined approach of field work, data analysis and literature review, practical guidelines have been prepared to address the main stages of planning and development from early site assessment through to the detailed design and monitoring stages. An outline of the essential points is as follows:

- Initiate early consultation between planners and developers
- Initiate early ecological surveys to assess the suitability of the site for development and identify considerations and opportunities at an early stage
- Design the development footprint to avoid habitats of high ecological value and maximise the area of open space
- Protect and incorporate semi-natural habitats, especially those of high ecological value and mature features
- Maintain and enhance retained habitats through sensitive management
- Reinstatement and create new habitats using native species that reflect the character of surrounding semi-natural habitats
- Incorporate or create a water feature using native species
- Prevent the introduction and spread of invasive species
- Use new technologies such as green roofs, green walls, permeable surfaces and SUDS
- Protect and create ecological links to the wider landscape
- Monitor the ecological effectiveness of prescribed measures and modify as needed and
- Get the community positively involved

Sustainability has become a core value in planning and decision-making. Defining sustainability and incorporating its principles into new development has presented many challenges to society. At its broadest definition, sustainable development includes three strands: economic, social and environmental. A key issue in achieving sustainable development is finding a balance between competing interests and giving the appropriate value or weighting to each strand. In the past, biodiversity interests have sometimes taken a back seat to other considerations. While biodiversity considerations are most closely associated with the environment, it is increasingly recognised that it plays a vital role in supporting all three strands. Biodiversity is a fundamental consideration that must be genuinely considered and effectively incorporated into any development for it to be truly considered sustainable.

Glossary and Abbreviations

AI	Additional Information
CAI	Clarification of Additional Information
CBD	Convention on Biological Diversity (signed at the United Nations Conference on Environment and Development (Rio 1992) (also Earth Summit)
cSAC	candidate Special Area of Conservation. Ecological network. The core natural habitats together with the elements of connectedness i.e. the major wildlife and water corridors, streams and wetlands, rare habitats and species, and topographic sites
DETR	Department of the Environment, Transport & the Regions (UK)
DoE	Department of the Environment (UK)
EC	European Commission
Ecosystem	An interacting community of independent organisms and their non-living environment
EIA	Environmental Impact Assessment: The process of defining, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components
EIS	Environmental Impact Statement: Report resulting from an EIA
EPA	Environmental Protection Agency
Fauna	A collective term for all kinds of animals
Flora	A collective term for all kinds of plants
FPO	Flora Protection Order: Statutory Instrument (SI) protecting Ireland's rarest flora species
Habitat	A place in which a particular plant or animal lives. Often used in the wider sense referring to major assemblages of plants and animals found together
IAP	Integrated Area Plan
Invertebrates	Animals without a backbone
IUCN	The World Conservation Union
LBAP	Local Biodiversity Action Plan
Mitigation	Measures taken to avoid, reduce or remedy adverse impacts
NGO	Non-Government Organisation
NPWS	National Parks and Wildlife Service
pNHA	proposed Natural Heritage Area
RDB	Red Data Book
Riparian	The edge of streams or rivers
Semi-natural	A habitat or ecosystem created or maintained with some human intervention but where plant regeneration is spontaneous
SUDS	Sustainable Urban Drainage Systems
TPO	Tree Preservation Order - designation under the Planning and Development Act 2000
UN	United Nations
UNEP	United Nations Environment Programme
WWF	World Wildlife Fund

