Technical Guidance Note on Biodiversity for Development Management in Dublin City

November 2021

Prepared as an action of the

Dublin City Biodiversity Action Plan 2021-2025

Parks, Biodiversity and Landscape Services

Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

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This document is provided for guidance only and does not replace any requirements of applicants to consult with Dublin City Council during the planning process or purport to be legal advice or direction on the validity of a planning application. Applicants are encouraged to contact Dublin City Council Planning Department concerning questions about the planning process. Dublin City Council reserves the right to require additional conditions to be met for protection of biodiversity on individual applications and to update this Technical Guidance Note in accordance with future legislative and policy changes.

Contents

INTRODUCTION

Purpose of this document

This Technical Guidance Note outlines Dublin City Council's requirements for information on biodiversity to be supplied in support of planning applications and to promote measures for biodiversity at every stage of the development process.

This guidance has been prepared under the *Dublin City Biodiversity Action Plan 2021-2025*:

Objective 11: Ensure that measures for biodiversity and nature-based solutions are incorporated into new building projects, retrofit and maintenance works.

- *Action 11.1: Develop a Technical Guidance Document containing a set of standard conditions for biodiversity conservation in Dublin City to inform planning and development.*
- *Action 11.2: Disseminate best practice guidance on mitigating impacts for biodiversity in new and existing building projects*

It is a policy of Dublin City Council under the Dublin City Development Plan: "To support the implementation of the 'Dublin City Biodiversity Action Plan', including inter alia (a) the conservation of priority species, habitats and natural heritage features, and (b) the protection of designated sites". This Technical Guidance Note has been produced to support the delivery of the Dublin City Development Plan and to summarise the approach that developers should take in avoiding, mitigating and compensating for biodiversity impacts. It also provides guidance for developers and planners on how to enhance and make space for nature within new developments.

Under the National Biodiversity Action Plan 2017-2021, public authorities are required to ensure no net loss of biodiversity through plans or projects that they carry out or consent to.

What is Biodiversity?

Biological Diversity or 'Biodiversity' is the variety and variability of all life on Earth - from the smallest microscopic organisms - right up to the giant mammals. Biodiversity includes the diversity within species, between species, and of ecosystems[i]. It includes all aspects of nature, including us, and how everything is interdependent.

Why is Biodiversity important?

Biodiversity is recognised as vital to life. Healthy biodiversity and ecosystems provide us with vital ecosystem services and help to mitigate against the impacts of climate change. There is also research that supports the benefits to physical health and mental wellbeing that being out in nature provides.

The ICLEI World Secretariat has highlighted the following 10 reasons to preserve biodiversity in cities (ICLEI 2021)[ii]:

1. Ensure the quality of ecologically relevant areas.
2. Improve air quality.
3. Ensure higher quality and availability of water in aquifers and reservoirs.
4. Reduce the risk of erosion and protection from landslides.
5. Minimize the risk of extreme events.
6. Promote sustainable urban food systems.[1]
7. Greater vector control of zoonoses and poisonous animals.
8. Promote thermal comfort.
9. Promote quality of life and wellness.
10. Raise awareness about coexistence with other living beings.

Building for Biodiversity

Development can be seen as a threat to, or as an opportunity for, biodiversity. A key theme of the Dublin City Biodiversity Action Plan 2021-2025 is Building for Biodiversity to promote net biodiversity gain and ensure there is no net loss of biodiversity through strategies, planning, mitigation measures, appropriate offsetting and/or investment in Blue-Green infrastructure.

This will necessitate that biodiversity is not perceived as a constraint to a project but rather as an opportunity. This approach promotes innovation and use of best practice in Ireland's capital, showcasing the creativity and problem-solving expertise of its people and encouraging integration of projects, their phasing and their management which can be cost-effective and time efficient. The results are projects that deliver a greater range of ecosystem services, which preserve vital ecosystem functions, and which increase resilience of Dublin in terms of climate change and biodiversity loss. Projects which employ nature-based solutions will reduce the burden on the taxpayer and will ensure Dublin grows sustainably.

LEGISLATION

For a fuller analysis of the legislation to protect wildlife, please refer to Section 4 in the Dublin City Biodiversity Action Plan 2021-2025.

European Union Nature Legislation

European Union Habitats Directive and Birds Directive

The EU nature legislation refers to the EU Habitats Directive (1992) and the EU Birds Directive (codified version, 2009). These are the cornerstones of nature conservation across the EU, and the two main pillars of these Directives are the management of the 'Natura 2000 Network' and the protection of 'Annex Habitats (Annex I) and Species' (Annex II, IV, and V).

The Habitats and Birds Directives are transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011-2021, the Wildlife Acts (1976 to 2021) and, in part, by the Planning and Development Act 2000, as amended.

The European Communities (Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011) transpose the European Union Birds and Habitats Directive – known collectively as the Nature Directives. The 2011 Regulations were amended by:

- S.I. No. 290 of 2013
- S.I. No. 499 of 2013
- S.I. No. 355 of 2015
- Planning, Heritage and Broadcasting (Amendment) Act 2021 (no.11 of 2021), Chapter 4
- S.I. No. 293 of 2021

A key protection mechanism in the 2011 Regulations is the requirement (Regulation 42) for all public authorities to conduct a screening for Appropriate Assessment and, if necessary, an Appropriate Assessment on any plan or project for which it receives an application for consent, or which the local authority itself wishes to undertake or adopt. This implements Article 6(3) and 6(4) of the EU Habitats Directive. The 2011 Regulations apply to other activities, plans or projects affecting European sites that do not fall under the planning system. These Regulations address the requirement for Ireland to establish systems of strict protection for animal and plant species which are particularly threatened, and which are listed in Annex IV of the EU Habitats Directive. As an Annex IV species may be found throughout the country, the protection of these species is not restricted in geographical terms and is not necessarily associated with areas subject to a specific nature designation. The Third Schedule of these Regulations lists the designated invasive alien species in Ireland. Activities requiring consent (ARCs) are specific activities which have the potential to damage a SAC or a SPA. These Regulations define 38 ARCs, the procedures to follow to apply for consent and for derogations.

Irish Legislation

Wildlife Acts

The Wildlife Acts (1976 to 2021) provide the mechanisms to give statutory protection to Natural Heritage Areas, the protection of wild fauna and flora, the conservation of a representative sample of important ecosystems, and the services necessary to accomplish such aims.

The Wildlife Acts 1976 to 2021 is a collective citation for the following (NPWS, 2021):

- Wildlife Act 1976 (no. 39 of 1976)
- Wildlife (Amendment) Act 2000 (no. 38 of 2000)
- Wildlife (Amendment) Act 2010 (no. 19 of 2010)
- Wildlife (Amendment) Act 2012 (no. 29 of 2012)
- Heritage Act 2018 (no. 15 of 2018), Part 3
- Planning, Heritage and Broadcasting (Amendment) Act 2021 (no.11 of 2021), Chapter 3

Natural Heritage Areas are those considered important for the habitats present, or which hold species of plants and animals whose habitat needs protection. Dublin City Council has five proposed Natural Heritage Areas within its administrative area, eight legally-protected animal species (in addition to those legally protected under the Habitats Directive), and ten legally-protected plant species (under the Flora Protection Order, 2015). Almost all bird species found within Dublin City are also legally protected under this legislation.

A full breakdown of the species protected within Dublin City can also be found in Section 2.6.1 in the Dublin City Biodiversity Action Plan 2021-2025.

Invasive Species

An outline of the regulations of invasive species is outlined below. For a fuller analysis of invasive species within Dublin City, please also refer to the Dublin City Biodiversity Action Plan 2016-2020.

Irish Regulations

The Irish Regulations European Communities (Birds and Natural Habitats) Regulations (S.I. No. 477 of 2011) establish the principle of prevention and also provide for penalties for those found in breach. The key aspects of the Regulations for Dublin City are:

- To strengthen and clarify the obligations of public authorities to protect designated sites of European importance for nature conservation. These are Special Protection Areas (SPA) and Special Areas of Conservation (SAC) designated under the EU Birds and Habitats Directives.
- To complement the Irish Planning and Development Act of 2010. Local authorities now have legal responsibilities and powers under this Act to ensure that the requirements of the above Directives are adhered to in development plans and development consents.
- All other statutory authorities must adhere to them in their planning consent and operational functions. Furthermore, all public authorities are now obligated to ensure compliance with the EU Birds and Habitats Directives and to uphold and enforce the requirements of the Regulations.
- To give powers to the Minister to identify activities requiring his/her consent. These are activities likely to harm an SAC or SPA or their habitats or species. An important point to note

is that this includes activities outside a protected area but that could have an impact on that protected area.

- To make specific provisions for IAS under Regulation 49 which is concerned with the prohibition on the introduction and dispersal of certain species and Regulation 50 which is concerned with the dealing in and keeping of certain species. It is now illegal to release non-native animals into the wild. Any person, who plants, causes or allows the dispersal, or causes the spread and growth of a listed plant, is guilty of an offence.
- To provide for inspection of property to ensure compliance. It is an offence to distribute or spread a vector material. A vector material is a biological pathway through which an IAS may spread and may include soil or seed.

European Union IAS Regulations

The EU IAS Regulations sets down a comprehensive list of regulations that member states must comply with. The main points include:

- The establishment of a list of IAS of Union concern, against which member states need to take action. Member states have provision to establish their own lists.
- Risk assessments must be carried out on IAS, to include pathways of introduction and spread.
- A list of restrictions to be complied with.
- Provisions for member states to take emergency measures in the presence of or risk of introduction of an IAS to their territory.
- Member states must establish and implement Action Plans to address priority pathways for the introduction and spread of IAS.
- Surveillance and monitoring systems must be established.
- By January 2016 structures will be in place for member states to carry out official controls at their borders to prevent introduction of IAS.
- The EU Commission must be notified of the detection of a new IAS or re-establishment of an eradicated one. Eradication measures must then take place.
- A range of management measures are to be brought into place to deal with IAS, to include restoration of damaged ecosystems.
- The "polluter pays principle" will be applied to recover costs. Member states can take all necessary measures to ensure penalties are applied.
- Member states have provision to adopt more stringent rules if deemed necessary.
- By June 1st 2019 member states must submit a report to the Commission detailing their actions in compliance with these Regulations

European Union Directives

The protection of ecosystems from IAS is included in several EU Directives.

IAS can spread through and impact heavily upon waterways. The **EU Water Framework Directive (2000/60/EC),** which came into law in Ireland in 2003, requires that member states, "maintain the status of waters that are already of high or good quality, prevent any further deterioration in water

quality and ensure that all waters achieve at least good status by 2015." Controlling IAS is included in the Programme of Measures for Dublin City for ensuring good ecological status of waterbodies. This Directive provides for the management of water resources on a catchment basis within River Basin Districts, which ties in practically with how IAS need to be managed. Local authorities are obliged to work together on a catchment basis and may be liable if they allow IAS to spread to other administrative areas. The recent Regulations add certainty and clarity as to how we can achieve the requirements of the Water Framework Directive.

Requirements by Dublin City Council for assessment of impacts of any projects or plans on European nature conservation sites are set out in the **EU Habitats Directive (92/34/EEC)** in Article 6.3. This includes the designated SAC and SPA sites referred to above.

The Environmental Impact Directive (85/337/ EEC) requires assessment of impacts of certain projects on all flora, fauna, soils, landscapes and human beings. This can include how projects may result in spread of IAS and cause impacts to biodiversity and humans.

The **Environmental Liabilities Directive (2004/35/ EEC)** requires the prevention and remedying of environmental damage in terms of impacts on ecology. The Directive defines "environmental damage" as damage to protected species and natural habitats, damage to water and damage to soil.

PLANNING POLICY AND GUIDANCE

Planning and Development Act and Regulations

The planning framework in Ireland is comprised of the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001-2021.

The Planning Act provides for local authorities to make development plans for their administrative areas and the purpose for this is to ensure sustainable development. This is a key piece of legislation to protect biodiversity from threats of land use change. Through the provisions for the zoning of lands within Dublin City, Dublin City Council can also potentially address the need under the EU Habitats Directive to ensure connectivity of habitats for protected species. The Planning Act provides for the making of Local Area Plans and these include green infrastructure strategies which are an important tool for the protection and management of local biodiversity.

The Appropriate Assessment provision of the Habitats Directive is also transposed in Ireland by Part XAB of the Planning and Development Act 2000 (as amended) in respect of land use plans and proposed developments requiring development consent.

The Planning and Development Regulations 2001-2020 underpin the Planning and Development Acts 2000-2018 and outline the processes and procedures of the planning code. The regulations specify the classes of exempted development and outline the steps when making a planning application.

Regional Spatial and Economic Strategy

The Regional Spatial and Economic Strategy (RSES) includes specific policies for biodiversity and green infrastructure. Regional or transboundary projects must ensure compliance and demonstrate that these have informed the proposed development.

Dublin City Development Plan and Local Area Plans

The *Dublin City Development Plan* includes specific policies and objectives for biodiversity. Planning permission is granted if an applicant has demonstrated compliance with the City Development. Applicants should refer to the Written Statement (Volume 1) and Development Standards (Volume 2). It is a policy of the *Dublin City Development Plan* to ensure the implementation of the *Dublin City Biodiversity Action Plan*. Applicants are expected to consult both documents in preparation of an application and to ensure compliance of the proposed development. It may also be necessary to consult the development plans and biodiversity action plans of other local authorities where there are possible transboundary effects of a proposed development. The ecosystem unit should be considered, rather than administrative boundaries, when analysing impacts on biodiversity.

Local Area Plans (LAPs) prepared by Dublin City Council include measures for biodiversity and green infrastructure that are informed by ecological baseline studies and environmental assessments. Applicants should ensure compliance of the proposed development with the policies and objectives for LAPs for the area, if one exists. Current LAPs may be obtained from the Dublin City Council Planning Department webpage.

BIODIVERSITY IN DUBLIN CITY

An overview of the Biodiversity in Dublin City is outlined in the Dublin City Biodiversity Action Plan 2021-2025, which includes lists of protected species. found in Dublin The Natura 2000 Network is an EU wide network of areas designated for nature conservation and includes Special Areas of Conservation (for Annex I habitats and Annex II species, referred to as Qualifying Interests), and Special Protection Areas (for birds and wetlands, referred to as Special Conservation Interests). Annex IV species are legally protected wherever they occur. Dublin City Council has:

Natura 2000 sites

The Natura 2000 Network is an EU wide network of areas designated for nature conservation and includes Special Areas of Conservation (for Annex I habitats and Annex II species, referred to as Qualifying Interests), and Special Protection Areas (for birds and wetlands, referred to as Special Conservation Interests). Annex IV species are legally protected wherever they occur. Dublin City Council has:

- Two Special Areas of Conservation
- Two Special Protection Areas
- Seven Annex II species (not protected by the Natura 2000 Network)
- Nine Annex IV Species occurring within its administrative area.

The following are the sites were nominated by Ireland to the European Commission to be designated as part of the EU protected areas network in the year 2000.

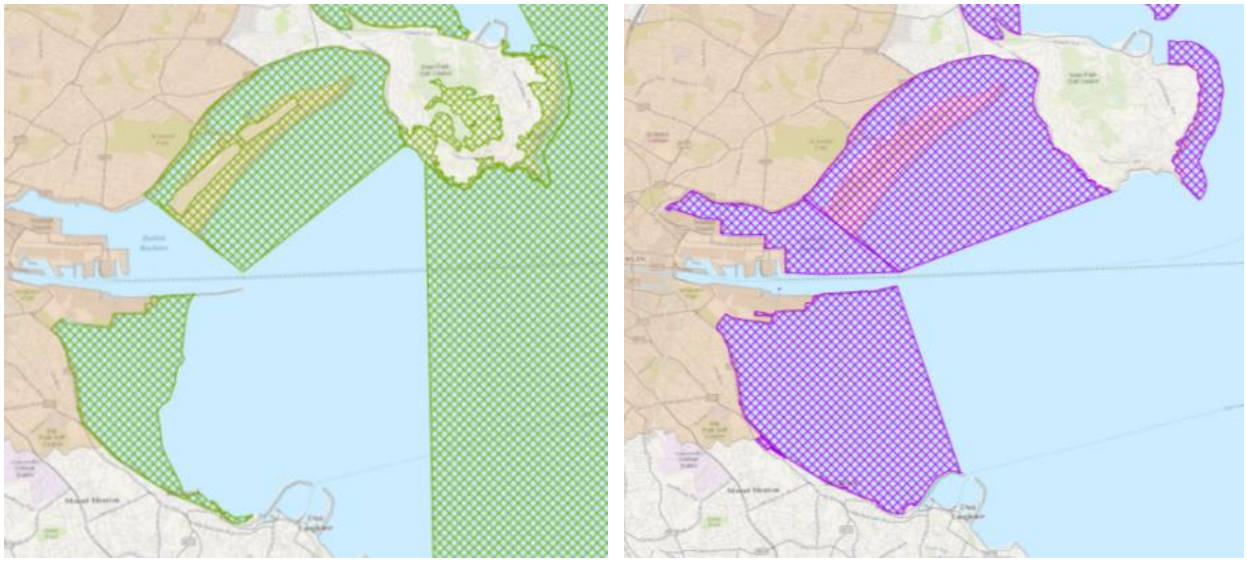


Figure 4. Left: Sites designated as Special Areas of Conservation (hatched in green) and Right: Sites designated as Special Protection Areas (hatched in purple).

There are species in Dublin City for which there are not any specifically designated geographical areas or sites, but which are protected at European and national levels (Tables 2-7). Under Article 10 of the EU Habitats Directive, it is a legal requirement to protect the habitats for these species, wherever they may occur, in Dublin City. Article 10 states that:

"Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with the view to improving ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as steppingstones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species."

Article 10 promotes managing for connectivity of habitats. This is necessary to avoid habitat fragmentation and areas of habitat becoming too small, which can lead to the species dispersing to somewhere else (if they can) or becoming locally extinct. If ecosystems are managed in a network, then the small habitat areas support each other, and wildlife can move freely. An example of this is the corridors that residential gardens can provide if there are trees, hedges and shrubs planted along their boundaries.

GUIDANCE FOR APPLICANTS

Key principles

There are several key principles to address biodiversity loss in Dublin City through proper development management:

1. **Biodiversity should be considered at the earliest possible stage of the development process.** By doing this, possible direct and indirect impacts of a scheme on biodiversity can be understood, gaps in understanding can be identified and resolved in a timely way and project risks and delays can be reduced.

2. **Biodiversity should be managed as an asset rather than a constraint**. Sound biodiversity management can add value to a development and improve the quality of place-making for people as well as ensure wildlife protection. Designing for biodiversity net gain, as opposed to just ensuring no net loss, should be the goal for developments in Dublin City.

3. **Make space for biodiversity that is functional, sizeable and connected.** It is more efficient and effective to create areas for biodiversity that are sufficiently large enough to provide meaningful outcomes and that are tapping into connections with the wider landscape. Dublin City has retained some wildlife corridors, but these are vulnerable to pressures and broken in places, requiring restoration and strengthening. More cross-corridor links are needed for Dublin City, and applicants should ensure that habitats do not become fragmented.

4. **Use the mitigation hierarchy[2] for addressing impacts on biodiversity in a sequential approach**.
    1. Avoid – choose solutions that do not harm biodiversity. Measures are taken to anticipate and prevent adverse impacts on biodiversity before actions or decisions are taken that could lead to such impacts[3].
    2. Minimise – Measures are taken to reduce the duration, intensity, significance and/or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible[4].
    3. Restore - Measures are taken to repair degradation or damage to specific biodiversity features of concern—which might include species, ecosystems/habitats or priority ecosystem services—following project impacts that cannot be completely avoided and/or minimised.
    4. Offset – Only as a last resort, and in agreement with Dublin City Council and relevant authorities, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.

[2] Cross-Sector Biodiversity Initiative (2015) A cross-sector guide for implementing the Mitigation Hierarchy. Cambridge: The Biodiversity Consultancy Ltd.
[3] Ibid.
[4] Ibid.

There are changing risks as one proceeds through the sequence of this hierarchy[5]:

- Increasing risk of time lag between loss and compensation.
- Increasing uncertainty about the costs of mitigation options.
- Decreasing trust and faith among stakeholders in the likelihood of success.
- Decreasing probability of mitigation success.
- Decreasing options for mitigation.
- Decreasing opportunity to correct mistakes.

Applicants must provide demonstrate that the mitigation hierarchy has been followed and support this with evidence that accurate ecological survey information has been obtained. Failure to do so may result in refusal of consent or delays to an application as Dublin City Council may require additional information in support of an application. The types of information which may be needed are provided within this document.

[Please refer to guidance by the Chartered Institute of Ecology and Environmental Management (CIEEM)]

5. **Apply like for like – or better**. This principle is applied with reference to the conservation value of existing habitats and climate change resilience. For demonstration of biodiversity net gain, a better outcome than like for like (no net loss) is required to be measurable.

Conservation value/policy importance of habitat(s) in DCC or national policy or legislation	Targets of measures
High	Same specific habitat(s)
Medium	Same specific habitat(s) or of higher conservation priority
Low/widespread	Same specific habitat(s) or of higher conservation priority

[5] Ibid.

ECOLOGICAL SURVEYS AND ASSESSMENT OF IMPACTS

Ecological Surveys

The survey and assessment of habitats in Ireland is carried out in accordance with guidance from the Heritage Council and the classification of habitats (Fossitt 2000) based on three levels of complexity. For guidance on best practice for surveying habitats, consult the Heritage Council guidelines (Smith et al. 2011). Urban habitats are usually more challenging to classify and will require methods of survey to ensure survey and mapping to an appropriate scale and resolution. For urban and suburban areas, it is usually recommended that surveys be carried out to Fossitt Level 3 and a scale of 1:1000 or 1:2500 may be useful using Ordnance Survey baseline vector maps and aerial photography (Smith et al 2011). The minimum mappable unit should be considered (Smith et al 2011) and the use of Corine biotope mapping alone to describe habitats is insufficient for an EcIA or EIAR report on biodiversity in Dublin City for this reason.

Phase 1 Habitat Survey is normally the first stage in assessing a site for the actual presence of, or its potential to support, protected species or habitats and to evaluate other potential impacts of a proposed development, for example on nearby statutory or non-statutory designated sites.

Ecological Advice

All ecological assessments must be undertaken by an appropriately qualified ecologist. Reports should provide details of the ecologist undertaking the work, including relevant qualifications, professional membership and any relevant wildlife licences. Certain species surveys may require specialised ecological expertise. The level of experience and qualifications of the surveyors should be made explicit in any reports. Surveyors should have a track record in surveying for the specific receptors and should preferably be a member of an accredited institution such as the Chartered Institute for Ecology and Environmental Management (CIEEM) or a similar professional body.

Certain species can only be surveyed and handled by licenced personnel, therefore it is important that the ecologist is suitably qualified. Species licences are granted by the National Parks and Wildlife Service and it is the responsibility of the developer to ensure that any personnel employed to handle wildlife is compliant with licensing requirements and that sufficient time is given in project planning to obtain such licenses. Derogations from legislation are also subject to licences granted by the National Parks and Wildlife Service. Further information may be obtained from NPWS.

Survey Timings

When appropriate ecological surveys haven't been undertaken, or when seasonal constraints of species surveys are not followed, delays are commonly experienced by applicants. Sufficient time must be factored into the development timetable to ensure surveys can be undertaken prior to submission of an application. Early engagement with an ecological consultant is recommended to inform project planning and management.

There is no optimum time of year for surveys to cover all potential ecological receptors that occur within Dublin City. In some cases, it will be necessary to provide data collected over several months to ensure that all relevant species or habitats are addressed. Habitats can be surveyed at any time of year but classification to Fossitt Level 3 can only be determined accurately from May-September

(climate-dependent). Surveys carried out outside of the optimum time may still be regarded to be valid (for some species/habitats) if there is evidence to show that weather conditions were suitable (Scott Cawley 2013). Any survey data collected outside of this time should be interpreted with caution and developers should ensure that the limitations of such data are made clear in the documentation. In cases where the level of uncertainty over the usefulness of the data is integral to the processing of the proposed development application, applicants may be requested to collect additional data at the appropriate time of year.

It is important to remember that sites and biodiversity interest will change over time. Many ecological surveys will remain valid for no more than 1-2 years. Therefore, applicants are expected to ensure surveys submitted are current and adequate to enable assessment of their application.

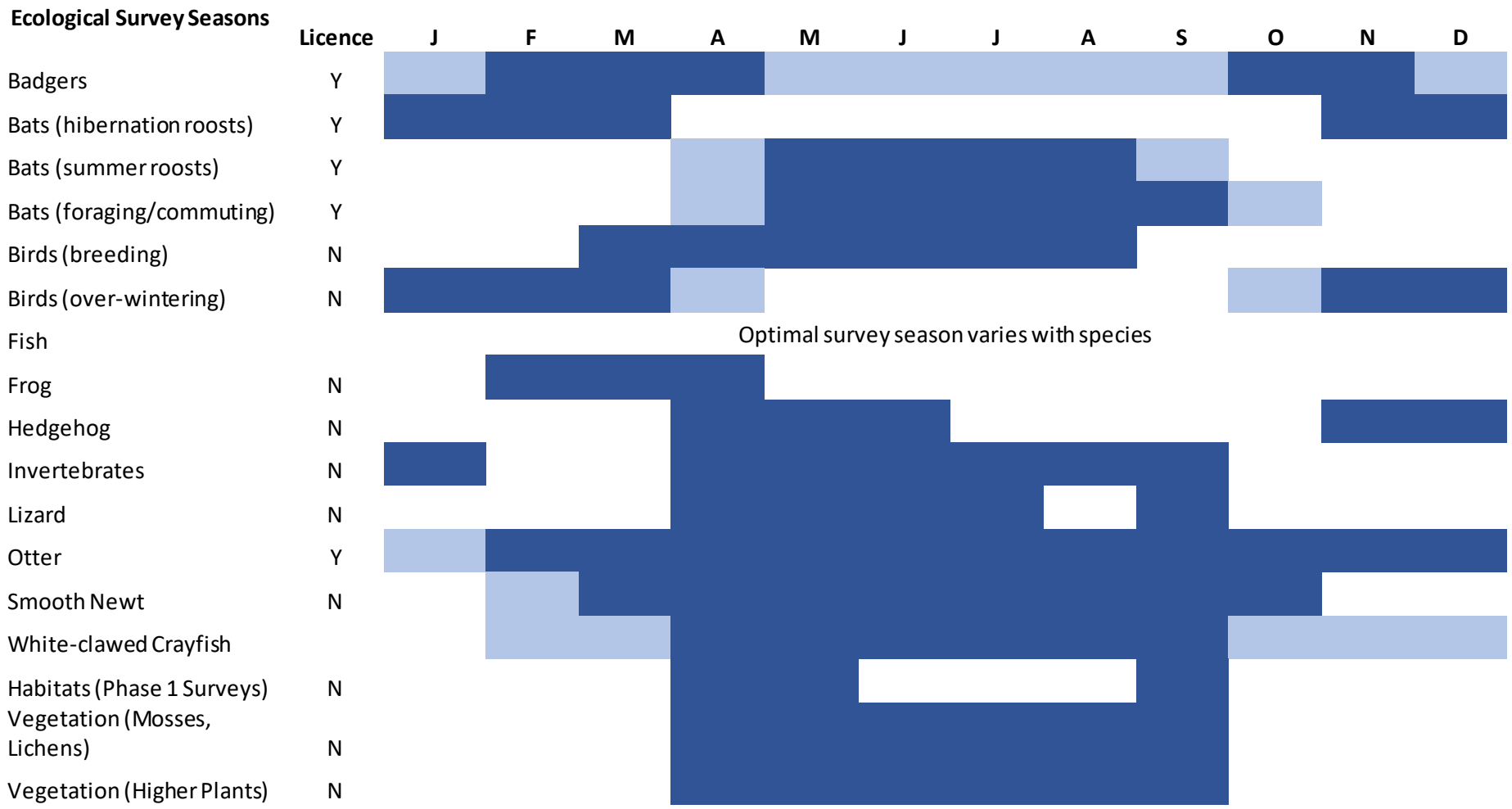
Desktop surveys cannot be accepted in lieu of field verification surveys. Applicants should ensure proper and safe site access is provided to facilitate ecological consultants to conduct the surveys, as required, on a timely basis. Lack of access to a development site cannot be accepted as a valid reason for incompleteness of surveys.

Dublin City Council may require pre-demolition or pre-construction repeat surveys to ensure biodiversity protection and account for possible changes in conditions during time lags between consent and project commencement.

A number of survey calendars are readily available online and from your ecological consultant; a general example is also provided overleaf. Species- specific requirements are further provided in the Appendices. Applicants are expected to refer to the Dublin City Biodiversity Action Plan to consider what species and habitats may be relevant to the context of a development site.

Survey Timings

Table 1: Recommended timings of ecological surveys for Dublin City.



Common Problems for Planning

The following list describes the most frequently-occurring problems that arise for planners and developers during the planning process when dealing with ecological issues.

- **Surveying at the wrong time of year**. The report should provide information on the survey dates and weather conditions and give assurance that the conditions were suitable.
- **Level of effort on surveys**. Survey effort should be appropriate to the size and complexity of a site. For example: one person can adequately survey 1km^2 for badgers per day but adding habitat surveys into this will reduce the rate of survey. Reports should give assurance that the level of survey effort is appropriate.
- **Conclusions on presence/absence.** Some reports may conclude that species are "absent" on the basis of a single survey. This is particularly common with bats, breeding birds, amphibians and other mobile species that can occur infrequently and unpredictably in an area. Again, reports should give assurance that the level of survey effort is appropriate to determine presence/ absence.
- **Level of detail on mitigation measures**. Whilst there may be considerable effort spent on collecting data there is often less experience in proposed appropriate mitigation to address significant impacts. Mitigation measures should show how they are appropriate to the receptor and the nature of the impact. Confidence in the success of the mitigation should also be made clear.
- **Lack of appreciation of ecological connectivity.** Often there is insufficient focus on how species permeate through the site. Access to the surrounding lands may not be possible but this should not prevent comment being made on the impacts on ecological corridors and impacts on lands surrounding the site.
- **Lack of appreciation of cumulative impacts.** The cumulative impacts of other developments in the same area should be made clear in planning applications and considered during the rest of the process. It is often difficult for developers to be aware of proposals for development that could affect the same habitats/species. Planning authorities are often better placed to make judgements on how impacts of developments may be combining in their area to affect certain habitats or populations of species. Such information can be passed on to developers in pre-planning meetings. The use of GIS databases is helpful in this task.
- **Lack of detail provided on construction phase impacts**. Many developments can be designed and located to avoid or minimise impacts on habitats and species once they are complete. In some cases, the construction phase can give rise to a wider range and higher magnitude of impacts than the completed development. Developers should provide details of construction methods, e.g. piling of foundations, and also drawings of construction site layouts and temporary site compounds or hoardings in some cases.
- **Poor teamwork**. Project teams are expected to communicate with one another and to be incorporating the information and recommendations of a consultant ecologist's report into the proposed design at the earliest stages. Consultant ecologists should be attending at pre-planning discussions where ecological issues arise on applications.

SITE DESIGN

Landscape-Scale Design Considerations

When designing larger scale developments, applicants should consider the landscape context of the site and the opportunities that this may present for habitat restoration and new habitat creation. Applicants should consult the Dublin City Habitat Map (2020) for information on the types of habitats present within Dublin City to identify opportunities for enhancement of biodiversity. Where connectivity of a site of proposed development is evident from ecological baseline surveys, Dublin City Council requires that such connectivity is retained and encourages applicants to provide measures for its enhancement. Many species, including those of highest conservation importance in the European Union, require connectivity for breeding and feeding.

Landscape Report

A Landscape Report or statement concerning the landscape design for a submission should clearly state how biodiversity has been considered and how ecological baseline information has informed the landscape design. Landscape architects are expected to refer to the specific objectives and actions of the Dublin City Biodiversity Action Plan which are being implemented in the landscape design and also to specific measures for biodiversity that are proposed. Statements concerning Biodiversity Net Gain of proposed green space should be supported by evidence in the Landscape Report and references to any recommendations of the consultant ecologist. Quantification of green spaces should be with reference to net changes in habitats of a proposed scheme. References to the All-Ireland Pollinator Plan and associated guidance documents should be made for schemes where appropriate. Proposed drainage should be prepared with reference to the DCC SUDS Strategy.

Landscape Maintenance

Landscape design strategies should be prepared with an accompanying Maintenance and Management Plan that ensures viability of measures for biodiversity. The impacts on biodiversity of maintenance techniques should also be assessed. For example, reliance upon plastic membranes which cause harm to the environment as they degrade, use of pesticides and herbicides and introduction of seeds of unknown origin are discouraged. Pesticide reduction is particularly important near watercourses and Dublin City Council has embarked on a programme of reduction and cessation of use of chemical treatments to control vegetation.

PLANNING CONDITIONS

Biodiversity assessment, mitigation and enhancement will be addressed during the application stage and through the detailed design of the development. Planning conditions are used to address impacts which, if not mitigated against, could otherwise result in the refusal of an application. Conditions must be necessary, relevant to the development and also enforceable. For most applications, there may only be a small number of biodiversity related conditions. However, more complex sites or proposals for development in zones of high ecological sensitivity will likely require more detailed assessment, such as a condition for a Construction Environmental Management Plan (CEMP), an invasive alien species management plan, or a detailed lighting scheme to ensure no light-sensitive wildlife are harmed as a result of the development.

Surveys for certain species or habitats cannot be requested as a planning condition when the proposal is undergoing an Environmental Impact Assessment. All surveys must be completed prior to the planning decision being made.

In accordance with national legislation and guidance[6], under no circumstances will Dublin City Council use compliance conditions to:

- Complete an inadequate Environmental Impact Assessment Report (EIAR);
- Ensure the adequacy of information supplied by a developer in an application for development having a potential impact on a site of international importance for nature conservation in the Natura 2000 network, i.e., Special Area of Conservation (SAC) or Special Protection Area (SPA); or
- In either of the above cases, to request the development of appropriate mitigation measures.

For non-EIA projects and local authority projects, refer to national guidance[7] to ensure that the Dublin City Council has all the necessary information regarding impacts on ecological receptors to make an informed planning decision.

Species Surveys

Baseline protected species surveys will not normally be conditioned by Dublin City Council. The use of planning conditions to request ecological surveys after planning has been granted, will only be applied in exceptional circumstances, such as:

- Where ecological surveys may be out of date at the time of commencement of development, but where they were in date at the time of application.
- Where development is phased, therefore updated ecological surveys are required for later stages of the development.
- Where sufficient information has been provided such that additional information would not make a material difference to the decision maker, however further surveys will be required, for example, to secure a licence.

It must be noted that conditioning surveys because the schedule of the proposed development has not taken into account the seasonality of surveys will not be accepted by Dublin City Council.

[6] Circular Letter PD 2/07 and NPWS 1/07 on Compliance Conditions in respect of Developments requiring (1) Environmental Impact Assessment (EIA); or (2) having potential impacts on Natura 2000 sites.

[7] Ibid. and Department of the Environment, Heritage and Local Government (2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Dublin: DEHLG.

Furthermore, for projects which are subject to the Environmental Impact Assessment Directive, it is not permissible under Irish and European Union legislation to carry out baseline surveys which are required to conduct the assessment on a post-assessment basis by the consent authority.

Where there are deficiencies in the ecological baseline information provided, an applicant may be requested to provide additional information to enable Dublin City Council to complete the process of Environmental Impact Assessment/Appropriate Assessment. A development may be refused on the grounds of inadequate information supplied for Dublin City Council to complete such assessments. Ecological surveys which are required to conduct an Appropriate Assessment cannot be carried out for applications of retention permission.

Proposed Conditions

A sample of proposed conditions follow. These are provided for guidance only and Dublin City Council reserves the right to require additional conditions to be met for protection of biodiversity on individual applications and to update these conditions.

Site clearance works and demolition

Site clearance works, including removal of existing vegetation and buildings, are not permitted during the nesting season (1 March to 1 September). Where this is not possible, such works can only proceed if it has been verified in writing by a qualified ecologist that no nest is present. If a nest is present, then works can only proceed under licence from the National Parks and Wildlife Service. All records of breeding birds are to be submitted to the National Biodiversity Data Centre.

Reason: To ensure compliance in accordance with the Wildlife Act and with the City Biodiversity Action Plan and City Development Plan.

Bats

The applicant is required to commission a qualified ecologist who is an NPWS-licensed bat worker to survey the site for bats prior to commencement of site clearance works and, if there is bat usage of the existing vegetation or buildings of the site found, the applicant is required to ensure that: a) a licensed bat worker is present on site prior to and during removal of any existing trees planned for removal; b) all necessary licenses for relocation of bats are obtained in advance from the National Parks and Wildlife Service and c) works do not occur during hibernation or maternal roosting periods; d) the proposed lighting design is to be revised in consultation with the ecologist if any bats shall be found. The bat survey is to be provided to DCC Parks, Biodiversity and Landscape Services at least 6 weeks prior to commencement of site clearance works by the applicant and the completion of items a)-d), if necessary, are to be certified in writing by a qualified ecologist to the local authority. All records of bats are to be submitted to the National Biodiversity Data Centre.

Invasive alien species

The applicant is requested to commission a qualified ecologist who is a member of the Chartered Institute of Ecology and Environmental Management (or equivalent) to survey the site for invasive alien species designated under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations (2011) to produce a verification report prior to commencement of construction to Dublin

City Council. Should any IAS be found, an IAS Management Plan is also to be provided to Dublin City Council, in accordance with the species-specific guidance for contractors working in the DCC administrative area in the Dublin City Council Invasive Alien Species Action Plan (2016-2020). Implementation of any IAS Management Plan must be monitored and signed off by the project ecologist in agreement with Dublin City Council. No works are to take place until actions of an IAS Management Plan are completed. Depending on the IAS in question, post-construction monitoring may be required to ensure controls have been successfully carried out. Any records of IAS found on the site are to be submitted to Dublin City Council and the National Biodiversity Data Centre (NBDC) using the NBDC standard reporting form to inform future planning and ensure monitoring.

Reason: To prevent the spread of invasive alien species in accordance with EU Regulation 1143/2014, the European Communities (Birds and Natural Habitats) Regulations (S.I. No. 477 of 2011) Dublin City Council Invasive Alien Species Action Plan (2016-2020); and to protect biodiversity in accordance with the Dublin City Development Plan and Dublin City Biodiversity Action Plan.

Swifts

The applicant is requested to incorporate specific designed measures to be agreed with DCC Parks, Biodiversity and Landscape Services for provision of nesting for swifts, through the use of 'swift bricks' into the normal courses of facades, 'swift boxes' under eaves, or 'swift towers' in courtyards. These are to be located and installed in consultation with a qualified ecologist and with reference to the specific design requirements for the targeted species and the 'Saving Swifts' national guidance booklet (2019). Evidence of proper installation will be certified in writing by a suitably qualified ecologist to Dublin City Council.

Reason: To provide for maintenance of local breeding populations of swift, in accordance with the City Biodiversity Action Plan.

WILDLIFE LICENCING

Some species of flora and fauna are protected either under the Wildlife Acts (1976 – 2000) or the European Communities (Birds and Natural Habitats) Regulations 2011, or both. Licences are required to carry out certain types of intrusive surveys or to allow certain mitigation measures to take place. Derogation licences allow "offences" in exceptional circumstances to be committed without penalisation. These may be issued provided there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status. Note that if the proposed activity can be timed, organised and carried out so as to avoid committing offences under Irish wildlife legislation and the EU Habitats Regulations, then no derogation is required.

With regard to derogations from Regulations 51 and 52 of the European Communities (Birds and Natural Habitats) Regulations 2011, note that the existence of any other statutory consent (such as planning permission) to undertake works, or the existence of a statutory power or authority for a local authority to do so, does not remove its obligations under Regulations 27, 51 and 52 of the 2011 Regulations or the need, where applicable, for it to obtain a derogation licence under Regulation 54 of those Regulations. This means that an application for a derogation licence may have to be made as well as an application for planning permission. The grounds on which the Minister may grant a derogation licence, which are prescribed in Regulation 54 of the 2011 Regulations, are quite restricted.

Dublin City Council has no authority to issue derogations but will take into account whether a derogation has been successfully acquired or is feasible to obtain in making a decision on planning consent. Regulation 27 of the 2011 Regulations provides that all public authorities have a responsibility to avoid the deterioration of natural habitats and species protected under the Birds and Habitats Directives, and to exercise their functions and statutory powers in compliance with the Directives' requirements.

Licences for mitigation for protected species[8] should be applied for and preferably acquired, *prior* to the local authority making their decision on the planning application. This is to prevent a planning application being granted and then a developer being refused a licence to undertake the relevant mitigation. This approach is recommended within national legislation and guidance[9] which reflects the judgments made in European Court of Justice Case C-183/05 (the "Lough Rynn Judgement"). Applicants should ensure enough time is allowed for licence processing by the NPWS to avoid project and planning delays.

It should be noted that works that may not normally require planning consent may still require a wildlife licence. A particular concern arises from works carried out by Dublin City Council or other state bodies with regard to maintenance or repair or which may be exempted development. Examples can include removal of trees or habitats for road construction, modifications of watercourses, drainage and discharge of waters, re-pointing or replacement of masonry in bridges, walls and other structures.

[8] Case law dictates that this applies to species protected under Annex II of the EU Habitats Directive – only, but NPWS advice is that all licencing issues (e.g. badgers and other species protected under the Wildlife Acts) are to be resolved prior to planning decisions being made.

[9] Department of the Environment, Heritage and Local Government (2007). Circular Letter NPWS 02/07. Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 – strict protection of certain species/applications for derogation licences.

European Protected Species

Dublin City Council is obliged under Article 27(1)(n) of the Planning and Development Regulations 2001 (as amended) to notify the Minister (Development Applications Unit) in any case where it appears that a proposed development may pose a risk to any species designated under Annex IV of the European Union Habitats Directive[10]. If, during the course of works on any project, a problem has been identified regarding an Annex IV species, the operator/applicant should cease such works which may cause impacts on the species until a derogation licence has been granted and immediately report the problem to the NPWS. The responsibility of avoiding damage to Annex IV species or obtaining a derogation licence always rests with the applicant.

Applicants should refer to Species Action Plans for Annex IV species prepared by the NPWS and to species-specific guidance from the NPWS and others (see Sources of Information below). Information on European Protected Species can be found in the Dublin City Biodiversity Action Plan and from the NPWS. These include: all bat species, all cetaceans and the Otter.

ECOLOGICAL MITIGATION

Mitigation measures are actions that are taken to avoid or reduce the risk of negative impacts on species or habitats. It will not always be necessary to obtain a licence for works to proceed and there may be many mitigation options are available to applicants. Suitability of mitigation measures may vary depending on the species and habitats found. Mitigation may be required not just with respect to the development site, but also in relation to the wider landscape, where indirect impacts may result. Mitigation measures may be simply the careful location of working areas, timing of works to avoid harming sensitive wildlife or creation of wildlife buffer zones. Consideration must be given to immediate impacts, such as habitat clearance, and longer term effects, such as the loss of a foraging or breeding habitat. Full details of how these impacts have been considered will be expected. Details of all potential mitigation measures are not provided within this document, however examples of common mitigation options are discussed below.

Ecological Clerk of Works (ECoW)

An ECoW provides on-site ecological supervision during the required phase(s) of a development. In most projects, the ECoW will ensure that attention is paid during construction works to ecological matters, especially where there is the potential for protected species to be present. The presence of an ECoW on site may be a requirement of a planning condition, and is often delivered through a Construction Environmental Management Plan (CEMP). It is expected that the ECoW will provide advice to site personnel on the potential presence of protected species, typically in the form of a 'toolbox talk'. The ECoW may undertake the following tasks:

- Pre-construction checks of sensitive habitats for protected species;
- Implementing CEMPs and other ecological management plans;
- Providing training and advice to site personnel;
- Supervising works such as soil and vegetation removal or building demolition;
- Verifying satisfactory completion of mitigation measures;

[10] Ibid.

- Monitoring post-construction; and
- Implementing species translocations.

Species and Habitats-specific Measures and Mitigation Plans

The purpose of these measures is to prevent harm to protected species and their associated habitats, both within the development and outside its boundary. These may include method statements to explain how the impacts from development will be minimised, for example avoidance of disturbance to a breeding site in the locality, or prevention of pollution events on a neighbouring watercourse. For species where it is not necessary to obtain a licence in order for works to proceed, a mitigation strategy will be submitted to Dublin City Council with clear details of how harm to species will be avoided. It is recommended that the use of mitigation strategies is discussed with the Dublin City Council Parks, Biodiversity and Landscape Services at the earliest opportunity to ensure viability and to avoid unnecessary delays.

Construction and Environmental Management Plans

Construction and Environmental Management Plans (CEMPs) should include any recommendations of the EcIA report or the EIAR with respect to impacts on biodiversity, habitats, soils, land, geology and water. It is expected that an applicant ensures that all consultants of various disciplines on a project are aware of all ecological reports and that there is alignment of recommendations of an ecologist with the project design and construction. There should be a review mechanism in a CEMP to ensure that mitigation plans and measures are successful and to adapt if required to ensure this. The CEMP should address the timing of works to meet requirements of biodiversity protection and the mitigation plans of a project.

Invasive Alien Species Management Plans

Invasive alien species (IAS) are found throughout Dublin City in terrestrial, freshwater and marine/estuarine habitats. Therefore, it is essential to conduct site surveys for IAS as part of the preparation of a planning application in Dublin City. IAS can be both flora and fauna. Applicants are expected to consult the Dublin City Council Invasive Alien Species Action Plan (and updates) for information and protocols on how to manage IAS. This document contains a list of known species in Dublin City and their threat levels. As new species may emerge, it is advisable to check with Dublin City Council during the pre-planning consultation for what may be arising in the locality of a proposed development. The National Biodiversity Data Centre provides records for IAS in Dublin City and surrounding areas. Dublin City Council requires the submission of an Invasive Alien Species Management Plan as part of the planning application for any proposed development where IAS are recorded. This should be linked to a CEMP, if one is submitted. An application may be refused if it is found to pose a risk of spread of IAS due to inadequate information or proper mitigation measures. Given the presence of IAS on waterways and potential downstream effects on Natura 2000 sites in Dublin Bay, the may be delays to project commencement if IAS are found and must be eradicated in a proposed works zone. If IAS are encountered during the works, it is required to stop such works until IAS control measures have been successfully implemented and this should be notified to Dublin City Council and recorded in the CEMP.

Monitoring

The importance of a Management and Monitoring Plan (MMP) is central to demonstrating the effectiveness of proposed mitigations measures and for successful projects. Monitoring is also necessary to demonstrate compliance with planning conditions and can be useful to support evidence that an applicant is not responsible if environmental issues arise outside of their control. The results obtained from monitoring should be clearly conveyed by the ECoW to the rest of the project team and to inform updates to live documents such as the CEMP. DCC may request copies of monitoring reports or verification of their completion by an ECoW.

Wild Birds and Development

All wild birds, their eggs and their young are protected by the Wildlife Act (and Amendments). It is an offence intentionally to take, injure or kill a wild bird or to destroy its nest while it is in use or being built. Where Dublin City Council is minded to grant planning permission but considers there is a significant risk that breeding birds are present and may be harmed as a result of the works, we may impose a condition specifying that all works can only begin outside a defined period (generally, 1 March to 1 September) or after a qualified ecologist has made a thorough visual inspection of all likely nest sites and confirmed there are no nesting birds present. Demolition of built structures is included in this, as many protected species of birds in Dublin City rely upon breeding in them. Vegetation clearance is not permitted during this timeframe. It should be noted that ignorance of nesting locations is not a legal justification under the Wildlife Act.

ECOLOGICAL ENHANCEMENT

Measures for Biodiversity Net Gain

Under the Dublin City Biodiversity Action Plan (2021-2025), Dublin City Council will promote biodiversity net gain measures to be included in proposed developments. There are many ways to design and plan for enhancement of biodiversity, and applicants should consult at the earliest stages of project planning with Dublin City Council Parks, Biodiversity and Landscape Services on potential design solutions. It is recommended that applicants engage a consultant ecologist at the initial design stages so as to identify such opportunities to optimise solutions and maximise positive outcomes for biodiversity on projects and plans.

There is no Irish governmental guidance on promotion of biodiversity net gain. Dublin City Council is therefore recommending that applicants refer to BS 8683 (BSI 2021), the new British Standard for Biodiversity Net Gain, which is a voluntary standard for best practice used through Northern Ireland, Scotland, Wales and England and is not related to any British legislation.

Steps to Achieve Ecological Enhancement

Several steps can be taken when developing a proposal:

Examine site context. Through site analysis by a landscape architect and habitat surveys by an ecologist, identify the existing natural assets of the site and its surrounding context, opportunities to

strengthen connectivity for wildlife from the site to the wider landscape through green infrastructure and optimise site planning.

Avoid site clearance prior to planning and development. It is poor land management practice to clear a site of vegetation and soil to make it "development-ready". This destroys habitats of ecological value, release carbon into the atmosphere, degrades soil structure and potentially increases erosion, flooding and pollution of nearby watercourses. It is much more environmentally-friendly and cost-efficient for applicants to retain habitats rather than to go to the expense of removing and then creating new ones. Furthermore, such practices may result in fines for applicants for breaches of the Wildlife Act and other legislation for environmental damage and biodiversity losses.

Identify species relevant to the development site and their specific needs. Consult information available through state bodies, Dublin City Council and the National Biodiversity Data Centre to explore what species and habitats may exist within the site or its surrounding area and what their requirements may be (see also Sources of Information).

Ensure that sufficient size and scale of habitat is provided. Avoid fragmentation of habitats and designs that are overly complex and create spaces which are too small and disturbed to be of any functional value for biodiversity.

Where possible, minimise soil sealing. By keeping paved surfaces to a minimum, natural soil processes can take place and greater biodiversity can be achieved. This can also assist in reducing stormwater flows and improving resilience overall. The project landscape architect should ensure proper soil management during construction to prevent soil compaction and potential spread of invasive alien species.

Allow natural succession to progress on site. Avoid designing a scheme that is limited to an artificially 'finished' state. Provide planting that is of different stages of maturity to ensure phases of growth.

Ensure detailed attention to planting schemes for biodiversity. A minimum of 30% of native species is required for proposed planting schemes in Dublin City Council. Only native species should be selected for sites which are in locations of ecological sensitivity, i.e. adjoining Natura 2000 sites, nature reserves, river valleys and watercourses. Avoid plants which are toxic to wildlife (and humans). Where non-native species are used, they should have attributes which are beneficial to wildlife, e.g. provision of fruits for birds, nectar for pollinators or habitats that are of value for breeding. Avoid selecting species which are invasive, even though they may not be designated as legally invasive, they may become locally invasive and can out-compete native species.

Retain natural habitats on the site as a priority over creation of new or artificial habitats. Even if a habitat is less than optimum, for example, a mature hedgerow that is only 50% native species, it will have the advantages of being already used by wildlife and of time. Time is critical in the current biodiversity and climate crisis – we cannot afford to wait for decades of ecological succession and to lose our existing habitats. In particular, retain wetland habitats such as old drainage ditches and wet grasslands, as they are of importance for nature-based solutions.

Where possible, design built structures as potential habitats. There are many ways to incorporate measures for wildlife into the fabric of built structures such as facades, roofs, boundary and retaining walls and bridges. This is necessary as many species are increasingly reliant on artificial habitats due to the loss of their natural habitats, such as sandy river banks and shorelines, due to urban development.

Consider the potential to design for multi-functional features. Consult Dublin City Council and other resources on how to design for Sustainable Urban Drainage Systems that support biodiversity and include habitat corridors in proposed developments.

Prepare a management plan to ensure the long-term sustainability of habitats for wildlife. If a scheme is too demanding to manage or if there is no long-term strategy, then it may not endure for wildlife. Monitoring of a site post-construction can ensure that measures will succeed. Leaving areas of a site managed less intensively can be a simple means to improve biodiversity.

Artificial habitats and breeding sites

Increasingly, many species in Dublin City Council are dependent upon artificial sites and built structures for their habitats and breeding sites due to loss of natural habitats. This includes protected species of national and international concern. Some species have adapted to urban living as a survival strategy. To counter biodiversity loss, applicants should install artificial nesting and roosting sites for birds and bats as good practice as part of any development and such provision will be expected unless there are good reasons why such features cannot be accommodated in the design. Many older buildings, including Protected Structures, due to the nature of their construction and materials, provide important habitats for wildlife. If you consider your proposals should be exempt for any reason, or if the building(s) involved are Protected Structures or in a Conservation Area, seek advice from Dublin City Council at the earliest opportunity. Conservation grant schemes should also ensure that biodiversity is protected and enhanced. Examples of measures for species of conservation importance in Dublin City Council are provided below.

Badger

Badgers are found across Dublin City and rely upon connectivity of green spaces – public and private – to maintain sufficient territory for their survival. Some of our public parks are key sites for several groups of badgers, but they are also found in institutional lands and residential gardens. Applicants and property owners should avoid clearance of sites and ground disturbance prior to project planning and development and should retain existing scrub and hedgerow habitats. Applicants are required to ensure that site layouts should be planned to retain badger setts that are both currently and formerly used. Applicants are encouraged to provide artificial setts where suitable sites exist. Translocation of badger setts can only be considered where no other options exist and with the consent of the NPWS. The use of public open spaces for mitigation measures to translocate badgers or to construct artificial setts to ensure no net loss or to facilitate private development will not be permitted by Dublin City Council. Refer to Appendix 4 for detailed guidance.

Bats

Bats are found throughout Dublin City and all species and their roosts are protected under the EU Habitats Directive and the Wildlife Act. Applicants are obliged legally to ensure that no impacts on bats arise from construction or maintenance operations. There are 10 known species of bats in Ireland, each with its own lifestyle and habitat requirements (Kelleher and Marnell 2006). They use a wide variety of roosts, including buildings of all sorts, trees and underground places.

Dublin City Council will encourage provision of new roost sites for bats through the development process, not only to mitigate any potential loss of roosts but to strengthen connectivity for bats. Such new features may include bat boxes in/on buildings or trees or for example creating bat lofts within new properties, to be determined on a case-by-case basis.

Building-dependent Birds

Many species of birds in Dublin City are wholly reliant upon built structures for breeding due to loss of their natural habitats. Wherever practicable, applicants should retain existing nest sites, especially where minor works of renovation or refurbishment are being undertaken. Where any known nest sites may be lost as a result of development, such as through demolition, any losses must be compensated on a minimum 1:1 ratio basis. Renovation or demolition works must be timed to ensure that they do not coincide with the nesting season of any relevant species.

Artificial structures which closely compensate for those lost should be preferred. In line with best practice, all bird boxes should be oriented in a north, east or west direction, where they are not exposed to prolonged summer sun to avoid overheating. Site design should include for provision of eaves, overhangs and trees to provide shade to bird boxes. All artificial nesting structures should be sited to minimise risk of predation at least 2 metres above ground. As there is no Irish national standard, applicants should consult the British Standard*: BS 42021. Integral nest boxes - Design and installation for new developments* (BSI 2020). Detailed guidance on breeding times and nesting requirements for each species is provided in the publication from Birdwatch Ireland, *Wildlife and Buildings – Linking our Built and Natural Heritage*[11] (Sullivan and Lusby 2021).

Barn Owl

Barn Owl has been recorded in the outer suburbs of Dublin City Council nesting in old and disused buildings. Barn Owl is on the IUCN Red List of species of conservation concern for Ireland[12] which is defined by the IUCN as: "Red-list species are those that are Globally Threatened according to the IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery". Their breeding season is February-October.

Black Guillemot

Black Guillemot is an Amber list species (medium conservation concern) (Colhoun and Cummins 2013). It is found nesting in the built structures, bridges and walls along the River Liffey within Dublin Port environs. Where works are proposed to such structures – including maintenance – they should be timed to avoid the nesting season (May-August). Artificial nest boxes have been trialled by Dublin Port Company with some success and there is potential to support their expansion in Dublin City.

Gulls

Roof-nesting gulls are now a common occurrence in Dublin City and several species are protected under the EU Birds Directive. Black-headed gull and Herring gull are both listed as Birds of conservation concern in Ireland (2014–2019) as Red list species (high conservation concern) (Colhoun and Cummins 2013). Common Gull is an Amber list species (medium conservation concern). Where buildings are proposed to be altered or demolished, they should be surveyed for nesting gulls. It is not permissible

[11] https://birdwatchireland.ie/wildlife-in-buildings/

[12] https://www.bto.org/our-science/projects/birdtrack/bird-recording/birds-conservation-concern/red-list-ireland

to disturb breeding gulls without a licence from the NPWS. Dublin City Council encourages applicants to retain nesting sites on roofs for gulls due to their conservation status. Use of bird deterrents to prevent nesting gulls is contrary to policies to support protected species in the Dublin City Development Plan and the Biodiversity Action Plan.

House Martins

The House Martin is found in Dublin in mid-March to late-September and winters in tropical Africa. House Martins are in decline across Europe and is an Amber list species (medium conservation concern) (Colhoun and Cummins 2013). As it breeds in Ireland, it is an Irish bird. It usually raises between two or three broods every year, with some fledging as late as October (Birdwatch Ireland 2021). It is found building nesting sites for breeding in many of the older houses in Dublin City, including within the medieval core of Dublin city centre and the suburbs. Similar to Swallow, the House Martin constructs a nest out of damp mud. It is usually sited underneath the eaves of a house. They may re-use a nesting site from the previous year.

House Martins are vulnerable to the impacts of climate change, as drier springs and summers and evaporating puddles that provide vital mud for house martins to build or repair their nests, is a major problem. In addition, lengthy dry summers can also cause house martin nests to break up or even fall from a house, which is a devastating occurrence when eggs or young chicks are inside. Urban development has resulted in loss of natural river banks, bare soil and habitats that supply mud for nest-building. It is possible to install nest cups at a height of 2 metres or more on buildings (not over doorways). For information on this, consult the House Martin Conservation Society of UK and Ireland[13]. Nest cups can be purchased or, can be made using cement as advised by the RSPB[14].

House martins collecting mud for building nests at Clontarf (Photo: Eleanor Mayes, 2021)

To minimise the mess from their droppings, one can prepare for their return by securing a length of board about 250mm wide to the wall about 60cm below the House Martin nest or colony using L-shaped shelf brackets screwed to the wall above the board. The board and brackets can be decorated

[13] https://housemartinconservation.com/artificial-nests

[14] https://www.rspb.org.uk/birds-and-wildlife/advice/how-you-can-help-birds/nestboxes/how-to-attract-house-martins/

to match the colour of the wall (Hurley 2018[15]). The correct positioning of a droppings board is at least 2m below the nest or nest cups. Positioning planting or plants in containers below the nests can minimise mess and the droppings are a fertiliser for plants. Avoiding sealing soil is important to ensure a supply of material for their nests is available.

If nests must be removed to do renovation works, this must be done outside of their nesting season (it is illegal to remove or disturb an active nest of any bird in Ireland). Replacing the removed nests with artificial ones will encourage returning birds to stay and continue to breed.

House Sparrows

House Sparrow is an Amber listed species (medium conservation concern) (Colhoun and Cummins 2013). House Sparrows will nest in the same kinds of locations as Swifts and use Swift bricks and external boxes. Dublin City Council has successfully used Sparrow boxes or 'Sparrow Terraces'. These should have a minimum hole diameter of 32mm and can also be used in buildings that Swifts are less likely to occupy, such as single-storey structures. House Sparrow boxes should be located at least 2m above ground level.

Peregrine

Peregrine falcons have begun to recover their populations and have been found nesting in Dublin city centre, using features of older buildings that mimic their natural cliff habitats. It is an action of the Dublin City Biodiversity Action Plan to survey for Peregrine. They are protected in the XXx

Swallows

The Swallow is an Amber list species (medium conservation concern) (Colhoun and Cummins 2013). Swallows are found in the outer suburbs of Dublin City Council, where they nest in the eaves of older buildings and feed in meadows and along river valleys. Like House Martins, they build their nests from mud and are vulnerable to climate change and loss of habitats and soils.

Swifts

Swifts are in decline across Europe and are amber-listed species. Dublin City Council initiated surveys of swifts in the city centre in 2013 and was the first local authority to develop monitoring programmes with Birdwatch Ireland. In 2021, a systematic survey has been carried out to inform future planning and development. Applicants should consult Dublin City Council and Birdwatch Ireland to identify if there are swift sightings in the locality of the site of a proposed development. Applicants should refer to *Saving Swifts*[16] (Birdwatch Ireland 2020) for guidance. The Dublin Swift Conservation Group is also actively promoting ways to protect swifts in Dublin City.

Marine mammals

Cetaceans (whales and dolphins)

Irish waters were declared a whale and dolphin sanctuary in 1991 by the then Irish government (see www.iwdg.ie for further information). Within Dublin Bay, the most frequently observed cetacean species is the Harbour Porpoise (*Phocoena phocoena*) and there is a Special Area of Conservation designated in the Irish Sea for harbour porpoise (Rockabill to Dalkey SAC, 003000). Harbour porpoise can be observed within the tidal extent of the River Liffey right up to Dublin Port. Other cetacean

[15] https://www.independent.ie/regionals/goreyguardian/lifestyle/house-martins-like-swallows-are-african-visitors-37024693.html

[16] https://birdwatchireland.ie/publications/saving-swifts-guide/

species recorded include: Bottlenose dolphins (*Tursiops truncatus*) that have been seen feeding and traversing Dublin Bay; Minke whale (*Balaenoptera acutorostrata*) that are mainly observed offshore in the Irish Sea; and also rarer sightings of Common Dolphin (Delphinus delphis) and juvenile Humpback whale (*Megaptera novaeangliae*).

Measures to support fish (including in inshore waters) and protect aquatic environments are beneficial to cetaceans but proposed piling and dredging works in areas frequented by cetaceans will require monitoring and mitigation measures to ensure their protection. Dublin Port Company contract the Irish Whale and Dolphin Group to conduct cetacean surveys through a combination of acoustic monitoring (PAM and SAM) and visual monitoring, and there is also data collected for the National Parks and Wildlife Service and Marine Institute. These data sources provide a good reference point for information on cetaceans within Dublin Bay.

Seals

- Grey seal
- Common seal

There are two species of seals in Dublin – the Grey seal (*Halichoerus grypus*) and the Harbour or Common seal (*Phoca vitulina*). Seals haul out and breed at North Bull Island and can be found throughout the Bay, including the tidal extent of the River Liffey and the River Liffey itself.

Hedgehogs

The main impact to hedgehogs from development includes the removal of hedgerows and hedges that provide habitat and the fragmentation of areas caused by new development or upgrades to fencing. Hedgehogs can forage up to three kilometres during the night and require easy access from one area to the next. Fencing, particularly which has a concrete base, prevents hedgehogs from roaming between garden spaces. Preserving hedgerows and hedging and the provision of wildlife corridors I developments and hedgehog friendly holes in fencing can be included in mitigation to allow free passage between spaces.

Any steep-sided water feature can also be a trap and sides should be sloped or stepped to allow hedgehogs and other animals to climb out. If space allows, providing log piles or hedgehog houses may be helpful and any garden or landscape planting with low-growing plants will provide cover and somewhere to forage.

Herpetofauna

As stated above, retention of any wetland features on site is a critical step and these can be expanded and connected to provide habitats for breeding herpetofauna native to Dublin City Council (common frog, common lizard and smooth newt). Applicants are encouraged to consider measures such as integrated constructed wetlands, ponds and sustainable urban drainage systems to provide for enhancement of sites for herpetofauna. Protection of watercourses and management of drainage on site are essential to avoid negative impacts to these species.

Invertebrates

The All-Ireland Pollinator Plan and associated guidance provides advice for enhancing potential for certain invertebrates. Pollinating insects are declining in numbers and distribution globally, with habitat loss a primary cause. Therefore, applicants are expected to provide as much nectar-rich habitat as possible. Night-flowering plant species should be encouraged. Retention and provision of natural

and semi-natural habitats are preferable to artificial structures such as "bug hotels". Provision of measures for honeybees are not considered by Dublin City Council to be measures for biodiversity. Applicants are encouraged to focus on planting of native species, using seed stocks of local or national provenance, and to avoid "wildflower" seed mixes of imported origin which may comprise non-native or even invasive species.

Irish Hare

Irish Hare were found in the north-eastern suburbs of Dublin City Council from North Bull Island through Donaghmede to the Fingal County Council regions of Portmarnock to Dublin Airport. Dublin City Council has recorded the steady decline of this population over the past twenty years and it is now extinct locally at North Bull Island since the last Dublin City Biodiversity Action Plan (2015) - and perhaps in Dublin City altogether - due to recreational disturbance by humans and their dogs, loss of habitats through urban development and poaching/predation. They may still be found within the River Mayne catchment, which straddles the boundary of Dublin City Council and Fingal County Council. Measures to provide for Irish hare include retention and promoting connectivity of hedgerow and scrub habitats which provide cover for them to escape from disturbance by dogs and humans and breed safely. It is required to ensure the protection of their breeding sites under the EU Habitats Directive. Through targeted efforts for providing sufficient habitats and areas to feed, and through control of disturbance by recreational users and their dogs, it would be possible to restore areas for Irish hare to again return to Dublin City by way of connectivity to remaining habitats in Fingal County Council.

Kingfisher

The Kingfisher is of global conservation concern and are protected across the European Union under Annex I of the Birds Directive. They are scarcely found in Dublin City on the main rivers. They are very territorial and installation of numerous sites for Kingfishers will not necessarily result in increases to their populations. However, there are ways to provide for enhancement of their populations. For certain sites, it may be important to provide for breeding either by installation of artificial kingfisher nesting tunnels or through enhancement of hydromorphology of river banks and measures to enhance fisheries potential. A key measure is provide for open watercourses, avoiding any encroachment of development along rivers and the riparian zone, including the overhanging by buildings, through adequate setbacks for development. A further important measure is to provide continuous planting of trees along rivers to provide cover and perching for fishing.

Otters

Otters require protection from disturbance of their breeding sites and access to clean running water for feeding. Applicants are expected to maintain and enhance access to water from their sites and to provide for habitat connectivity in line with Article 10 of the EU Habitats Directive. Measures to enhance sites for otter may include: artificial holts, ledges, slides, protection and provision of riparian woodland and planting, enhancement of hydromorphology of river banks and measures to enhance fisheries potential. Dublin City Council has successfully installed artificial otter holts. All rivers in Dublin City Council are habitats for breeding otters, with at least 1-2 breeding pairs on each river recorded in

2018-2019 for Dublin City Council[17]. However, these populations are vulnerable to local extinction and there should be a minimum setback of development of 15 metres along all rivers to prevent disturbance of otter and ensure conditions to sustain breeding populations. Barriers to otter and fish movement along rivers are to be avoided.

Sand Martins

Sand martins were once widespread breeding throughout the rivers and coastline in Dublin City but are now scarcely found in any substantial numbers. However, they are just about surviving on the Rivers Dodder, Tolka and Santry by nesting in walls and bridges. This illustrates the necessity of sensitive design but also the potential to be realised through informed and purposeful design and site planning. For sites in such localities, applicants are requested to consult Dublin City Council Parks, Biodiversity and Landscape Services at the earliest stages of project planning to check if there are sand martins breeding in the locality and how to provide for them in a proposed development. In addition, it is important to ensure before moving stores of sand and gravel on site that sand martins are not nesting in them to avoid breaches of the Wildlife Act. Applicants proposing any alterations to existing, or any construction of new bridges or waterside structures are expected to provide measures for sand martins. Refer to Appendix 5 for details.

Summering and Wintering Migratory Birds

Dublin Bay is a key roosting area of global importance for migratory birds and includes two Special Protection Areas for Birds under the EU Birds Directive.

Summering Birds

Through efforts by Dublin Port Company, the ESB and Birdwatch Ireland, artificial nesting sites have been successfully created and maintained within Dublin Port for breeding Arctic and Common Tern, which are Species of Conservation Interest of European importance. These have been mainly by way of floating pontoons which are safe from predators. Measures to enhance coastal sites for these species may be possible and applicants should consult with Dublin City Council and the NPWS at the earliest stages of project planning.

Wintering Birds

Preserve uninterrupted areas of amenity grasslands, particularly along coastal and riparian zones, for inland feeding by Species of Conservation Interest including: Brent goose, oystercatcher, curlew, bar-tailed godwit and black-headed gull. Avoid planting of trees and shrubs which provide cover for predators through such green areas. Ensure that building heights and surfaces do not present hazards or obstruct flight paths for such species. Ensure that lighting and floodlighting structures do not present hazards or obstruct flight paths for such species. Ensure that goal posts and nets do not present hazards or obstruct flight paths for such species. Prepare long-term management strategies that provide for maintenance of amenity grasslands so as to maximise feeding potential for such species. Design paths, cycle paths and other circulation routes to minimise fragmentation and disturbance of green spaces to maximise feeding potential for such species. Design green space to be multi-functional to provide additional winter feeding grounds. Avoid construction of paving or artificial

[17] Macklin, R., Brazier, B. & Sleeman, P. (2019). *Dublin City otter survey*. Report prepared by Triturus Environmental Ltd. for Dublin City Council as an action of the Dublin City Biodiversity Action Plan 2015 - 2020.

surfaces and water features in areas that have feeding potential. Consult with Dublin City Council and the NPWS at the earliest stages of project planning.

SOURCES FOR INFORMATION

The Dublin City Biodiversity Action Plan 2021-2025 is a key reference. Records of biodiversity for Dublin City may be obtained from the National Biodiversity Data Centre and from various non-governmental organisations. Mapping and data for the Natura 2000 sites of Dublin City and County Dublin may be obtained by application to the National Parks and Wildlife Service and also from the European Commission.

In addition to these national datasets, there are publications and guidance documents to assist in planning for biodiversity in Dublin City. The following list is not exhaustive but includes some standard reference sources which are useful to consult at the earliest stages of a project or plan.

Bats:

Bat Conservation Ireland

Kelleher, C. & Marnell, F. (2006) *Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25*. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland. ISSN 1393 – 6670.

Biodiversity Net Gain:

British Standards Institution (2021) BS 8683. Process for designing and implementing Biodiversity Net Gain. Specification. Standard No. 20/30381787 DC. London: BSI.

Bees and Pollinators:

All-Ireland Pollinator Plan guides: https://pollinators.ie/resources/

Birds:

Birdwatch Ireland. I-WEBS Dataset for Dublin Bay.

House Martin Conservation UK and Ireland: https://housemartinconservation.com/

Saving Swifts guide: https://birdwatchireland.ie/publications/saving-swifts-guide/

Colhoun and Cummins (2013). Birds of Conservation Concern Ireland (BoCCI) 2014-2019 list: https://birdwatchireland.ie/publications/birds-of-conservation-concern-in-ireland-bocci-red-amber-lists-2014-2019/

Butterflies:

Nash, D. Butterflies of Ireland.

Cetaceans (whales and dolphins)

Irish Whale and Doiphin Group, www.iwdg.ie

Flora:

Doogue, D. Flora of County Dublin.

Lockhart, N. et al Bryophytes of Ireland.

Green Cities Guidelines

Habitats:

CIEEM

Fossitt, J. (2000) Habitats Classification Ireland.

Smith, G.F., O'Donoghue, P., O'Hora K and Delaney, E. (2011) Best Practice Guidance for Habitat Survey and Mapping. Kilkenny: Heritage Council.

Otter:

NPWS Species Action Plan for Otter.

Triturus Ltd. (2019) Otter Survey of Dublin City. Dublin: Dublin City Council.

NIEA (2014). Otters and Development. Northern Ireland Environment Agency.

Wildlife and Buildings:

Sullivan, I. & Lusby, J. (2021). Wildlife in Buildings: Linking our built and natural heritage. BirdWatch Ireland. https://birdwatchireland.ie/wildlife-in-buildings/

National Parks and Wildlife Service:

Wildlife legislation: https://www.npws.ie/legislation

Derogation licences: https://www.npws.ie/licences/disturbance

Contact NPWS or your local ranger: https://www.npws.ie/contact-us or LoCall 1890 383 000 (from Republic of Ireland only)

Information on birds in buildings and bird boxes

BirdWatch Ireland: https://birdwatchireland.ie/

Barn Owls: https://www.dublinzoo.ie/wp-content/uploads/2020/01/Barn-Owlinformation-and-conservation-advice-booklet-_For-Web.pdf

Barn Owl video: https://www.youtube.com/watch?v=YESLEPyNPK8&t=251s

The Barn Owl Trust (UK): https://www.barnowltrust.org.uk/

Swifts:

Saving Swifts Guide: http://www.swiftconservation.ie/wp-content/uploads/2019/06/SavingSwifts-Guide-by-BWI-2019.pdf

Swift video: https://www.youtube.com/watch?v=Z5YzYJcJWfM

Information on bats in buildings and bat boxes:

Bat Mitigation Guidelines (NPWS): https://www.npws.ie/sites/default/files/publications/pdf/IWM25.pdf

Bat Conservation Ireland: https://www.batconservationireland.org/

Vincent Wildlife Trust: https://www.vincentwildlife.ie/download_category/bats

The Heritage Council: https://www.heritagecouncil.ie/publications?q=bat

Information on Pine Marten in buildings and den boxes:

Vincent Wildlife Trust & NPWS: https://pinemarten.ie/ ADVICE AND ASSISTANCE FOR EXCLUDING WILDLIFE FROM BUILDINGS: Wildlife Management Services: http://www.wildlifemanagement.ie/ TRADITIONAL FARM BUILDINGS GRANT SCHEME: Heritage Council: https://www.heritagecouncil.ie/projects/traditional-farmbuildings-grant-scheme

Recording Wildlife Sightings:

National Biodiversity Data Centre: http://www.biodiversityireland.ie/

Report Wildlife Crime:

National Parks and Wildlife Service: www.npws.ie/contact-us

Wildlife Crime Ireland: http://www.wildlifecrime.ie/

Report injured and sick wildlife:

Irish Wildlife Matters: http://www.irishwildlifematters.ie/animals/contacts.html

APPENDICES

Appendix 1 – Badger

Advice Note: Badgers

Prepared by Scott Cawley (2013) for Dublin City Council

1. Overview of badger

The Eurasian badger (*Meles meles*) is one of Ireland's most common large mammals and the largest of its terrestrial carnivores. They live in social groups underground in a tunnel system called setts. In Ireland, the main constituent of the badger's diet is the earthworm, but they will forage in urban areas and eat fruit and household scraps. Badgers are nocturnal animals with an elusive nature adapted for life underground. Badgers are territorial and can live in the same sett for generations. Often human interference or disturbance can be problematic to badgers with badgers abandoning setts in extreme circumstances.

Badgers can be found in a variety of habitat types including arable and pasture farmland, woodland, scrub, waste ground, heaths and are also becoming increasingly adapted to urban landscapes due to fragmentation of their foraging areas. It is important to undertake a badger survey and consider the potential for impacts on badgers whenever suitable habitat is present. If badgers are not considered at the onset of a project this can lead to lengthy delays in programmes and increased costs.

2. Protected status

Badgers and their setts are protected in Ireland under Schedule 5 of the Irish Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000). It is considered an offence to:

- Deliberately or intentionally kill, injure or capture a badger;
- Interfere with or destroy the breeding or resting place of a badger; and
- Take or make photograph, video or other pictures of badgers near the breeding place.

The grant of planning permission does not authorise any of these activities listed above. A separate derogation licence is required from the National Parks and Wildlife Service (NPWS). This derogation should be applied for and preferably acquired in advance of a decision on planning permission being made. This is due to the fact that NPWS may decide that a licence cannot be granted. The local planning authority is obliged to consider impacts on protected species during the planning process.

3. Key guidelines on badger surveys and mitigation

National Roads Authority: *Guidelines for the Treatment of Badgers Prior to the Construction of a National Road Scheme*.

Chartered Institute of Ecology and Environmental Management. *Competencies for Species Survey: Badger*

4. Badger surveys

Seasonality: Surveys aimed at identifying the presence of setts and evidence of badger presence should be undertaken between November and April. Surveys outside of this season may provide inaccurate data due to the difficulty in identifying badgers signs due to vegetation growth.

Territory identification: Bait marking surveys may be required in certain circumstances where it is useful to establish the limits of badger social group territories. Bait marking is best undertaken between February and April, although it can be done between September and mid-October, as this corresponds with peaks in badger territorial marking.

Survey area: This is dependent on the type of development or project and its potential zone of influence. As a minimum lands within 50m of any disturbing works needs to be surveyed. Major physical boundaries, such as rivers, should be considered when assessing distances between setts.

Competency: The level of surveyor experience should be clearly stated in any reports.

Information to be provided in planning applications: Information on survey methods, a map of the survey area and the results (including grid-references) should also be included within the report. Any alterations to methodologies should be stated with reasons provided. Badger surveys should not be requested as part of a planning condition when the proposal is undergoing an Environmental Impact Assessment. All surveys must be completed prior to the planning decision being made. For non-EIA projects and local authority projects the same advice should be followed to ensure that the competent authority has all the necessary information regarding impacts on badgers to make an informed planning decision.

5. Key threats to badgers posed by development

- Loss or damage to badgers and setts from excavation. This includes blocking of entrances with soil heaps and subterranean tunnel/chamber collapse.
- Disturbance to setts from noise and vibration due to blasting, rock-breaking and drilling.
- Fragmentation of corridors regularly used by badgers. Depending on severity this can result in a reduction in feeding habitat and a loss of connectivity between setts within the same territory.
- Increased collisions on roads due to road widening or new road construction (badgers are territorial and will try and reuse pathways historically used).
- Loss of feeding areas caused by loss of open grassland, woodland, hedgerows and treelines. This can lead to changes in population viability and in worst cases abandonment of sett or territory.

6. Good practice in mitigation of impacts on badgers

Avoidance by design: Avoiding impacts on badger setts and their habitats by design layout is the most preferable form of mitigation. ·

Landscape connectivity: It is important to ensure that badgers can continue to use the wider landscape including woodland, treelines and hedgerow and grassland habitats in any mitigation strategy. Badger passes should be installed where road widening and/or new road alignments are being undertaken to reduce chances of collision.

Seasonality of works: The optimum time of year to carry out exclusion works and to minimise disturbance to retaining setts is to undertake works outside of the birthing season for badgers. This

normally runs from December to June when young cubs are dependent on their parents and remain underground.

Artificial sett creation: Where setts cannot be retained and protected from impacts then it may be necessary to create artificial setts for badgers. The location and the design of the sett is crucial to maximise the success and such artificial setts need to be in place several months in advance of loss of existing setts.

Badger fencing: To reduce the risk of road fatalities, badger fencing must be used in conjunction with badger underpasses where known badger crosses are located. It is important that entrance/exit areas provide adequate cover to encourage usage.

7. Derogations and when are they needed

Derogation licences allows allow activities that would normally constitute an offence under the law to take place. These may be issued provided there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status.

Derogation licences may be required where there are anticipated disturbance to setts (works within 50m) that may require temporary closure of setts or permanent exclusion and/or removal of the sett.

8. Common pitfalls and how to avoid them

Surveying during the wrong season: Badger surveys should be undertaken between November and April to ensure setts and signs of badger activity are not missed due to high vegetation cover.

Inappropriate level of competency: Badger surveyors must be able to demonstrate an appropriate level of experience.

Inappropriate survey effort: Survey effort must be appropriate to the task i.e. large and complex sites may need more than one surveyor over a prolonged period.

Appropriate mitigation: The results of the survey work should be used to inform the site design and any necessary mitigation measures. Mitigation should be proportional and appropriate to the nature of the significant impact.

9. Key sources of information

CIEEM (2011), Competencies for Species Survey: Badgers. Chartered Institute of Ecological and Environmental Management.

National Biodiversity Data Centre (2012), Online Map Viewer Datasets. http://maps.biodiversityireland.ie/#/Map

National Roads Authority (2008), Ecological Surveying Techniques for Protected Flora & Fauna during the Planning of National Road Schemes. Dublin: National Roads Authority. National Roads Authority (2005), Guidelines for the Treatments of Badgers Prior to the Construction of National Road Schemes. National Roads Authority, Dublin

Smal. C. (1995), The badger and habitat survey of Ireland ; Summary report / report. Dublin: Stationery Office.

Whelan, P. (2012) Roadkill Database. http://www.biology.ie/mapv.php?m=npws

Appendix 2 – Bats

Advice Note: Bats

Prepared by Scott Cawley (2013) for Dublin City Council; Revised by Dublin City Council (2021)

1. Overview of bat species

There are ten species of bats known to reside in Ireland, of which eight occur in the Dublin Region. These include the Common, Soprano and Nathusius Pipistrelle bats, the Whiskered bat, Natterer's bat, Daubenton's bat, Leisler's bat and Brown Long-Eared bat. All are well distributed across the area but are most frequently encountered wherever their prey is also found. It is important to consider the potential for impacts on bats in almost all development scenarios as bats forage in a range of habitats including upland heaths, woodland, rivers, lakes, parkland, agricultural land, gardens and coastlines. Bat roosts commonly occur in built structures (e.g. houses and bridges) and in trees and caves. If suitable foraging habitat and/ or roosting sites, which might be impacted by a project or de velopment proposal, are present then a bat survey should be carried out. If the potential presence of bats is not considered at the onset of a project this can lead to lengthy delays in programmes and increased costs.

2. Protected status

Bats are heavily reliant on man-made structure for roost sites and are very slow to repopulate after significant mortalities since the majority of females only give birth to one pup per year. Bat populations are therefore subject to drastic declines due to loss of roosts in buildings and mortality during building works. All bats in Ireland are protected under national and international law. · Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000) · European Communities (Birds and Natural Habitats) Regulations, 2011.

It is considered an offence to:

- Deliberately or intentionally kill, injure or capture a bat;
- Deliberately disturb a bat;
- Possess or control any live or dead specimen or anything derived from a bat;
- Wilfully interfere with any structure or place used for breeding or resting by a bat;
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose; and
- Damage or destroy a breeding site or resting place of a bat, whether accidental or deliberate.

The grant of planning permission does not authorise any of these activities listed above. A separate derogation licence is required from the National Parks and Wildlife Service (NPWS). This derogation should be applied for and preferably acquired in advance of a decision on planning permission being made. The National Parks and Wildlife Service may decide that a licence cannot be granted and the planning authority is obliged to consider impacts on protected species during the planning process.

3. Key guidelines on bat surveys and mitigation

- UK Bat Conservation Trust Bat Surveys: Good Practice Guidelines (2nd edition)
- CIEEM Competency for Species Surveys: Bats
- National Parks and Wildlife Service Bat Mitigation Guidelines for Ireland.

- National Roads Authority Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes and Guidelines for the Treatment of Bats during the Construction of National Road Schemes.

4. Bat surveys

Refer to the above guidelines for advice on how to carry out bat surveys of buildings, trees and other structures as well as sector specific guidelines for roads and wind energy developments.

Seasonality: Checks during daytime to look for suitable roost sites can be carried out at any time of year. Large roosts of bats will leave behind signs that are also detectable when they are not present (e.g. droppings). However, daytime inspections may not detect smaller roosts and should be accompanied by evening and dawn activity surveys during the optimum survey season (May-August). Bats use built structures and trees throughout the year and may move frequently between roosts in response to changes in the seasons. Where cellars, caves, stonework and tree crevices are concerned it may be prudent to survey for bats in torpor in cold weather from November to March.

Survey effort: This must be appropriate to the aim of the survey. The number of surveyors, survey frequency and timing also should be appropriate in respect to the complexity of the area being surveyed. One survey (dusk and dawn survey) may not be sufficient to establish roost numbers, species and access points except in all but the simplest of scenarios. Two or more surveys, each separated by several weeks may be required to gather reliable data and help to inform mitigation measures.

Competency: The level of surveyor experience and equipment used should be clearly stated in any reports. Surveys of certain species such as Whiskered and Natterer's bats may require a higher level of competency as these are hard to distinguish and require the use of specialist equipment. Catching and handling bats is not usually necessary in most scenarios but any such proposals can only be carried out by licenced persons.

Information to be provided in planning applications: Guidance contained in Bat Surveys: Good Practice Guidelines and Bat Mitigation Guidelines for Ireland should be referred to when including bat survey results in planning applications. Bat surveys must not be requested as a planning condition when the proposal is undergoing an Environmental Impact Assessment. All surveys must be completed prior to the planning decision being made. For non-EIA projects and local authority projects this same advice should be followed to ensure that the planning authority has all the necessary information regarding impacts on bats to make an informed planning decision.

5. Key threats to bats posed by development

- Loss of and damage to roosts in built structures and trees caused by direct demolition, alteration, felling etc.
- Fragmentation of flight paths caused by removal of hedgerows (even a few metres of hedgerow can cause impacts in some scenarios). This can lead to bats abandoning some areas.
- Loss of feeding areas caused by loss of woodland, hedgerows and wetlands. This can lead to changes in population viability. · Increased lighting levels during construction and operation near roosts and flight paths can lead to bats abandoning roosts and avoiding foraging areas.

6. Good practice in mitigation of impacts on bats

Avoidance by design: Where roosts can be retained within adapted structures or retained trees this is the first and most cost-effective measure. However evidence of how this will be ensured needs to be clearly stated. Different bat species have very different needs in terms of roost specifications.

Seasonality of mitigation: The optimum time of year to carry out works to buildings/trees that may affect bats is March-April (after cold weather has finished and before birthing commences) and October to mid-November (after birthing and mating before winter torpor). All proposals, regardless of timing should consider that bats may be found unexpectedly. "Summer roosts" may also contain bats at any time of year, in different parts of the same structure. Demolition in winter can be dangerous as bats in torpor cannot move away.

Roost creation: Where roosts cannot be retained and protected from impacts then it may be necessary to create man-made roosts for bats. This may range from a network of bat-boxes (suitable for loss of small roosts of only certain species) to the creation of purpose-built structures for large roosts or for rare bats.

Landscape connectivity: It is important to ensure that bats can continue to use the wider landscape in terms of interconnected habitats and feeding areas in any mitigation strategy. This is also a requirement under the EU Habitats Directive.

Lighting control: New advances in lighting technology have helped to create affordable, directional, bat-friendly lighting schemes. Use of bollard-mounted lighting should be considered but only in places where vandalism is not likely.

7. Derogations and when are they needed

Derogation licences allow activities that would normally constitute an offence under the law to take place. These may be issued provided there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species Dublin Local Authorities Ecological guidance for Local Authorities and Developers 27 concerned at a favourable conservation status (see Introductory Note for more details).

A pragmatic approach should be applied when deciding if a derogation licence is required: The NPWS advises that if works can be carried out when bats are not present and that the viability of the roost is not affected then derogation may not be necessary as no offence to the local population would be expected. However, for roof removal, major renovation works and public lighting schemes that may affect roosting areas or roost entry points then seeking derogation is advisable.

8. Common pitfalls and how to avoid them

Surveying during the wrong season: Timing of bat surveys must be relevant to the aim of the survey, e.g. bat activity surveys should only be carried out between May and August in good weather conditions.

Inappropriate level of competency: Bat surveyors should have received training in the use of detectors and be able to demonstrate an appropriate level of experience.

Inappropriate survey effort: Large or complex sites require more than one night's survey with several surveyors; the effort must be appropriate to the task.

Overambitious conclusions: Reports stating that bats are completely "absent" may indicate inexperience or insufficient survey effort as for most sites this claim can not be made. Bats may not be detected during a survey for a variety of reasons.

Bat identification: Identification of *Myotis* species using detectors is not conclusive and caution should be applied to making statements about presence/absence of these species without further evidence.

Appropriate mitigation: Mitigation should be proportional and appropriate to the nature of the significant impact. Bat boxes are not appropriate in many scenarios and for some species.

9. Key sources of information

- Bat Conservation Ireland website contains species distribution maps.
- Bats and Landscape data from the National Biodiversity Data Centre
- Aughney, T. (2008), An investigation of the impact of development projects on bat populations: Comparing pre- and post-development bat faunas. Irish Bat Monitoring Programme. Bat Conservation Ireland.
- Hundt L. (2012), Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust IEEM (2011), Competencies for Species Survey: Bats, Institute of Ecological and Environmental Management
- Kelleher, C. & Marnell, F. (2006), Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- National Roads Authority (2006), Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes, National Roads Authority, Dublin.
- National Roads Authority (2005), Guidelines for the Treatments of Bats Prior to the Construction of National Road Schemes. National Roads Authority, Dublin.
- BCI 2018
- UK

Appendix 3 – Herpetofauna

Advice Note: Amphibians – Common Frog and Smooth Newt

Prepared by Scott Cawley (2013) for Dublin City Council

1. Overview of frog and newt ecology

The Smooth or Common Newt (*Triturus vulgaris*) is the only newt species in the Republic of Ireland. The species is widespread but less common than the Common Frog due to more specific habitat requirements. However, they are found in urban areas, including the Dublin region. Adult newts mate in freshwater breeding sites in April-May. Females require broad-leaved aquatic vegetation in which to lay eggs. Adults disperse into surrounding vegetation in June where they later overwinter in sheltered refuges under dense vegetation, logs, or rocks. The larvae develop slowly and disperse later in the season between July and September. Some newts overwinter in water, but most hibernate in terrestrial refuges. Newts generally rely on a network of ponds and/ or ditches for the long-term survival of the population. This provides them with alternative breeding sites if certain ponds dry up or become unsuitable for breeding in any given year. Newts are primarily nocturnal, and feed on soft-bodied invertebrates.

The Common Frog (*Rana temporaria*) is the only frog species in Ireland (there are two species in the UK). Adult frogs mate and spawn in freshwater in late winter/spring (January-March). Males congregate to attract females by calling both day and night. After spawning, adults disperse into habitats surrounding the breeding site, spending the rest of the summer and/autumn primarily on land, in damp habitats. In contrast to the adults, tadpoles stay in their breeding sites, until metamorphosis in early summer. Young frogs ("froglets") require 2 or 3 years on land before reaching sexual maturity. Adults and froglets enter a sheltered refuge to hibernate for the winter, usually close to water, and often in mud at the bottom of a pond. Frogs are an important food source for many vertebrates (fish, mammals, birds), and populations are subject to significant fluctuations from predation intensity. They are found throughout urban and suburban areas in Ireland, but overall global populations are in decline. It is important to consider the potential for impacts on amphibians and undertake an amphibian survey and whenever freshwater water bodies are present on or adjacent to the site.

2. Protected status

The Common Frog is fully protected under national law, with some limited protection under European Law (EU Habitats Directive, Annex V) relating to sustainable capture:

- Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000), as amended
- European Communities (Birds and Natural Habitats) Regulations, 2011.

The Smooth Newt is fully protected under national law, with no protection under European Law. It is an offence to intentionally hunt, injure or wilfully interfere with or destroys the breeding or resting place of either species. The grant of planning permission does not authorise any of the activities above. A separate derogation licence is required from the National Parks and Wildlife Service (NPWS). This derogation should be applied for and preferably acquired in advance of a decision on planning permission being made (see Introductory Note for more details). This is due to the fact that NPWS

may decide that a licence cannot be granted. The local planning authority is obliged to consider impacts on protected species during the planning process. Note that the wetlands which provide habitat for these species may also be subject to legal protection under various legislation: e.g. EU Water Framework Directive, Environmental Liabilities Regulations, Water Pollution Acts, etc. Note that presence of such species on a site is an indicator of wetland habitats and should inform all proposals for sustainable urban drainage and environmental impact assessment (where applicable).

3. Key guidelines

National Road Authority Guidelines on Ecological Surveying Techniques for Protected Flora & Fauna in the Planning of National Road Schemes

UK Highways Agency Design Manual for Roads and Bridges Nature Conservation Advice in Relation to Amphibians

Northern Ireland Environment Agency Newt Surveys Specific Guidance

Natural England Great Crested Newt Mitigation Guidelines (elements of which are applicable

4. Frog and newt surveys

Seasonality: Frog surveys are undertaken under licence (if disturbance is involved) in January-February (calling males), or February (spawn clumps/mats). Newt surveys may also require a licence, and aim to record adults in breeding ponds. Newt surveys should be undertaken between 15th March and 15th June.

Survey methods, competencies and effort: Surveys should include all freshwater within 500m of the development boundary or at least within the potential zone of influence of surface water run-off. Frog surveys consist of listening for vocalizing males, and counting spawn clumps. Newt surveys involve a) egg-searches of aquatic vegetation; b) shining torches into water after nightfall to look for feeding or displaying adults; c) bottle trapping where the vegetation is dense and could conceal newts; d) dip-netting of ponds/ditches. Torching is best undertaken before any netting as sediment disturbed by dip nets may reduce visibility. Surveys should not be undertaken in temperatures below 5°C or heavy rain when newt activity will be reduced. Best-practice biosecurity measures require cleaning of all nets, bottle traps and waders between waterbodies.

Competency: Levels of experience should be clearly stated in reports. Species identification skills are not required as there is only one frog and newt species in Ireland. The NPWS may require that surveyors (who must be licenced) have demonstrated ecological competence.

Effort: There is no survey intensity specified for frogs in the NRA guidelines. Depending on the area of waterbodies requiring survey, a single visit in February may suffice, as calling males and spawn clump counts can be recorded at this time. For Newts, NRA guidelines specify up to four surveys at two week intervals, with at least two in April-May. At least 3 of the above survey techniques should be used on each occasion to ensure detection of newts at low densities or in difficult survey conditions.

Information to be provided in planning applications: The Northern Ireland Environment Agency Newt Surveys Specific Guidance is a useful standard for newts and has informed the parameters below. For frogs, the survey report should be accompanied by survey dates, survey weather conditions, scaled maps indicating spawning and calling male locations, and estimates of breeding males. Use of spawn clump number or mat area may be required to estimate the population in the absence of calling males. For newts, the survey report should be accompanied by survey dates, temperatures during survey, maps of surveyed waterbodies and locations of observed newts or eggs, and the following data on

each waterbody surveyed: shape (linear/non-linear), water clarity with respect to torching, abundance of aquatic vegetation, abundance of bankside refugia, fish presence/absence (newt predators), frog presence/absence (tadpoles are newt prey). Amphibian surveys should not be requested as a planning condition when the proposal is undergoing an Environmental Impact Assessment. For non-EIA projects and local authority projects, this advice should be followed to ensure that the competent authority has all the necessary information regarding impacts on amphibians to make an informed planning decision.

5. Key threats to amphibians posed by development

- Habitat loss through drainage, removal or pollution of wetlands.
- Deterioration of habitat by water pollution or changes to bank habitat.
- Introduction of predatory fish.

6. Good practice in mitigation of impacts on amphibians

See Natural England Great Crested Newt Mitigation Guidelines which applies due to the similar species ecology.

Avoidance by design: Siting the development away from amphibian sites is evidently preferential. Where indirect surface water run-off impacts are a risk, the creation of protective earth bunds is advisable. Where possible, bunds should be set 25m back from waterbodies to avoid potential refuge habitat.

Seasonality of mitigation: Newts can be captured for translocation from February September, but are best captured in spring when newts migrate towards waterbodies. Frogs are best captured for translocation in January-February.

Newt/frog translocation, and exclusion fencing: See Natural England Great Crested Newt Mitigation Guidelines and National Road Authority Guidelines on Ecological Surveying Techniques for Protected Flora & Fauna in the Planning of National Road Schemes.

Creation of breeding sites: This is rarely required, but UK guidance on pond creation is readily available from UK Froglife's Pond Creation Schemes. Dublin Local Authorities Ecological guidance for Local Authorities and Developers 417.

7. Derogations and when are they needed

- Derogation licences allow "offences" listed above to be committed without penalisation, in exceptional cases. These may be issued provided there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status.
- A pragmatic approach should be applied to deciding if a derogation licence is required for frogs and newts in cases where capture may not be feasible. Both species are extremely widespread, and may occur in any wet grassland, or wooded habitat during the hibernation period.

8. Common pitfalls and how to avoid them

Surveying outside of season: Surveys should be undertaken in the correct season (January-February for Frogs; March-June for Newts). Good weather conditions are particularly important for newt surveys.

Inappropriate level of competency: Surveyors should be qualified ecologists with relevant expertise and have the appropriate survey licence where necessary.

Inappropriate survey effort: Surveyors should be mindful of the need to survey all suitable waterbodies within the zone of influence of a development, including waterbodies outside the development boundary. Surface water run-off can impact amphibian breeding sites at signficant distance from a site.

Overambitious conclusions: Reports stating that amphibians are "absent" should be treated with caution, as amphibian hibernation or refuge sites can be located at significant distance from a waterbody, and are likely to go undetected.

9. Key sources of information

Quercus National Frog Survey of Ireland

Dublin City Biodiversity Action Plan

English Nature (2001), Great Crested Newt Mitigation Guidelines. English Nature.

Flood, K.W. (2010), IWT Smooth Newt Survey Completion report of the 2010 Pilot Survey, Irish Wildlife Trust, Dublin, Ireland.

Flood, K.W. (2012), National Newt Survey Completion Report 2011. The Irish Wildlife Trust, Dublin, Ireland

Appendix 4 – Otter

Advice Note: Otters

Prepared by Scott Cawley (2013) for Dublin City Council

1. Overview of otters

Otters (*Lutra lutra*) are well distributed across the Dublin Region and are found in all the river systems from their upper reaches in the Dublin mountains down to the coast. They are most frequently recorded as being present wherever their prey is also found. Their prey includes fish, frogs, crayfish and occasionally nestlings and small mammals. Otters rest and breed in concealed chambers called "holts" and also rest above ground in sheltered areas in reed beds and scrub often referred to as "couches" or "hovers". It is important to undertake an otter survey and consider the potential for impacts on otters whenever there is development proposed within the proximity of a watercourse and the coastline (i.e. within 150m), or if a development could affect water quality or cause changes to the prey distribution. The presence of otters can lead to lengthy delays if not surveyed for well in advance of applying for planning permission.

2. Protected status

Otters are susceptible to human disturbance, loss of habitat and degradation of water quality and bankside habitat and are slow to repopulate an area once they have been displaced. Otters and their breeding and resting sites are protected under national and international law, namely:

- Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000)
- European Communities (Birds and Natural Habitats) Regulations, 2011.

It is considered an offence to:

- Deliberately or Intentionally kill, injure or capture an otter;
- Deliberately disturb an otter;
- Possess or control any live or dead specimen or anything derived from an otter;
- Wilfully interfere with any structure or place used for breeding or resting by an otter;
- Damage or destroy a breeding site or resting place of an otter, whether accidental or deliberate.

The grant of planning permission does not authorise any of these activities listed above. A separate derogation licence is required from the National Parks and Wildlife Service (NPWS). This derogation should be applied for and preferably acquired in advance of a decision on planning permission being made. NPWS may decide that a licence cannot be granted and the planning authority is obliged to consider impacts on protected species during the planning process. Note that the wetlands and rivers which provide habitat for this species may also be subject to legal protection under various legislation: Water Framework Directive, Environmental Liabilities Regulations, Water Pollution Acts, etc.

3. Key guidelines on otter surveys and mitigation

IEEM Competency for Species Surveys: Eurasian Otter

National Parks and Wildlife Service Otter Survey of Ireland 2004-5

National Parks and Wildlife Service Otter Threat Response Plan

National Roads Authority Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes and Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes.

4. Otter surveys

Refer to the above guidelines for advice on how to carry out otter surveys as well as sector specific guidelines for road developments. The UK also has issued guidance that may be relevant in other scenarios.

Seasonality: Otters are generally active all year round but periods of low water may be better for detecting spraints and prints. Winter is often a suitable time to look for paths along river banks, and holt sites may be more visible when vegetation has died back. Where there has been rain in the last few days and sometimes weeks, this may reduce the visibility of spraints.

Survey methods: Surveys should include recording presence of otters in a specified area by looking for spraints (droppings) and prints. As with many timid mammals, proving absence is very difficult and spraints may be washed away by rain and high water. Detecting holt sites is very difficult and otters may use many different types of sites. Surveying in-stream is very effective, especially where banksides are overgrown but care should be taken to ensure that there is no damage or disturbance to other features of interest (e.g. salmonid spawning beds or Kingfisher nests). Such surveys would not be suitable for lone working and require safety equipment. Surveys may have to be repeated, especially if no spraints are found but the habitat is suitable for otters or if the aim of the surveys is other than looking for presence in an area. Holt searches have a low success rate and may require repeat checks on suitable sites. Use of static motion-activated cameras with night-vision capability allow nonintrusive surveillance of holt sites.

Survey area: Surveys should typically cover any footprint of the proposal and up to 200m upstream and downstream on both sides of the watercourse (or along the shoreline).

Competency: The surveyors' level of experience should be clearly stated in any reports. Surveys for holts may require a higher level of competency, as these are hard to distinguish.

Information to be provided in planning applications: This should include information on survey methods, maps of survey areas and results (including grid reference). Clear conclusions must be made about otter presence but caution applied to concluding absence. Otter surveys must not be requested as a planning condition when the proposal is undergoing an Environmental Impact Assessment. All surveys must be completed prior to the planning decision being made. For non-EIA projects and local authority projects this advice should be followed to ensure that the competent authority have all the necessary information regarding impacts on otters to make an informed planning decision.

5. Key threats to otters posed by development

- Loss of and damage to bankside, coastal and in-stream habitats causing loss of shelter and holt sites by drainage, removal of wet areas, removal of vegetation or landscape features and pollution of waterbodies.
- Fragmentation of commuting routes between feeding areas caused by bridge works, roads, weirs and culverts.
- Loss of feeding areas caused by infilling of wetlands or depreciation of water quality.
- Effects of lighting, noise, vibration and human activity during construction and operation near areas used by otters.

6. Good practice in mitigation of impacts on otters

Avoidance by design: Where otter activity can be accommodated within construction and operational phases then this is the most cost-effective measure. However evidence of how this will be ensured needs to be clearly stated.

Landscape connectivity: It is important to ensure that otters can continue to use the wider landscape in terms of interconnected habitats and feeding areas in any mitigation strategy. This is also a requirement under the EU Habitats Directive.

Seasonality of mitigation: There is no optimum time of year for mitigation measures to be applied. This will depend on the nature of the impact. Any impacts to potential holts must be avoided where possible and exclusion of any suspected holt site is the last resort. Otters do not have a "breeding season" and cubs may be present at any time. Monitoring may therefore be required during works.

Holt creation: Where holts cannot be retained and protected from impacts then it may be necessary to create man-made holts. Exclusion of, or disturbance to, holts require a derogation licence from NPWS. Conditions may be applied to the licence that may restrict timing or require reporting and monitoring. These measures are considered as a last resort.

7. Derogations and when are they needed

Derogation licences allow activities that would normally constitute an offence under the law to take place. These may be issued provided there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the otter population concerned at a favourable conservation status.

Derogation licences may be required where there are anticipated disturbance to active holts (works within 150m) that may require temporary closure of holts or permanent exclusion and/or removal of the holt.

A pragmatic approach should be applied when deciding if a derogation licence is required. The NPWS advises that if works can be carried out in a manner that avoids conflict with otters and that the viability of the local population is not threatened then derogation may not be necessary.

8. Common pitfalls and how to avoid them

Inappropriate level of competency: Otter surveyors should have received training in the identification of field signs and be able to demonstrate an appropriate level of experience.

Inappropriate survey effort or technique: Large or complex areas take time to survey. Surveys within the watercourse are preferential unless there is unrestricted bankside access. Weather conditions on the day and days preceding the survey should be reported as heavy rain and high water levels within a month of surveys can remove evidence of otters.

Overambitious conclusions: Reports stating that otters are "absent" may indicate inexperience or insufficient survey effort as for most wetland sites this claim cannot be made. Otters are already known to be present in most urban rivers, streams, drains and canals in Dublin. Note that otters can have an extensive range. Otters may not be detected during a survey for a variety of reasons E.g. surveyor inexperience, floods etc.

Appropriate mitigation: Mitigation should be proportional and appropriate to the nature of the significant impact.

9. Key sources of information

Otter Survey data from the National Biodiversity Data Centre.

Natural England Publications on Otters including Otter Breeding Sites - Conservation and management (IN129) and Ecology of the European Otter - Information sheet (IN111).

Dublin City Biodiversity Action Plan.

Bailey, M. and Rochford J. (2006). *Otter Survey of Ireland 2004/2005*. Irish Wildlife Manuals, No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Chanin P. (2003), Ecology of the European otter. *Conserving Natura 2000 Rivers Ecology Series No. 10*. English Nature, Peterborough,

Chanin P. (2003), Monitoring the otter Lutra lutra. *Conserving Natura 2000 Rivers Monitoring Series No. 10*. English Nature, Peterborough.

CIEEM (2011), Competencies for Species Survey: Eurasian Otter, Institute of Ecological and Environmental Management.

National Roads Authority (2008) *Ecological Surveying Techniques for Protected Flora & Fauna during the Planning of National Road Schemes*. Dublin. National Roads Authority.

National Roads Authority (2005) *Guidelines for the Treatments of Otters Prior to the Construction of National Road Schemes.* National Roads Authority, Dublin NPWS (2009).

NPWS (2009) *Threat Response Plan: Otter (2009-2011)*. National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government, Dublin.

Appendix 5 – Sand Martin

Strategy for protection and enhancement of sand martin habitat and nesting sites in Dublin City

Prepared by Maryann Harris, Senior Executive Parks and Landscape Officer (Biodiversity), Dublin City Council (2018)

Conservation Status

Sand Martins (*Riparia riparia*) are part of a group of summer migrants which includes swifts, swallows, martins, cuckoos and corncrakes that breed in Ireland but return to regions in Africa. All these species are declining globally and are susceptible to climate change impacts. Sand Martins are only here March-September to breed and then they fly to regions south of the Sahara Desert. Due in part to increasing desertification and expansion of the Sahara Desert and intensification of farming in Africa, Sand Martins are decreasing globally. According to European Nature Information System (EUNIS,) the Sand Martin within the EU is "Depleted = Near Threatened, declining or depleted", because populations have dropped by 20% since 1980. Eionet data (based on Article 12 reporting) shows that the long-term population trend for Sand Martins within the EU-27 is decreasing but the short-term trend is stable. Data timeframes are variable (10-20 year period) but the populations are decreasing in the majority of EU-27. Ireland, the UK and the Netherlands are the only countries where populations are increasing.

(Photo: Courtesy of Birdwatch Ireland, 2018)

Threats to breeding sites to be managed

Threats within the EU, as reported by member states under the Birds Directive, are listed on Eionet as:

- Changes in water bodies conditions
- Other changes to ecosystems
- Outdoor sports, leisure and recreational activities
- Abiotic changes (climate change)

All of these threats are relevant to Sand Martin habitats in Dublin City.

Sand Martins breed in burrows dug into river banks or quarries. These can be up to a meter long. In Ireland, these breeding sites are vulnerable to predation by Mink and Red Fox (Birdwatch Ireland 2018). Both have been present and breeding in Dublin City. Mink is an invasive alien species listed in Annex III of the European Communities (Birds and Habitats) Regulations (2011) and the Dublin City Council Invasive Alien Species Action Plan (2016-2020). Dublin City Council has been controlling mink on its lands since 2015.

Sand Martin breeding sites in Dublin City

It is evident that Sand Martin is going extinct in Dublin City Council administrative area. Based on records of DCC staff and also NPWS fieldwork, there are only five known remaining sites, with only one site per river on the Rivers Dodder, Camac, Tolka and Santry and also at North Bull Island, where they are vulnerable to coastal storms and erosion as well as recreational disturbance.

It is clear that the Sand Martins are under pressure, as the few remaining sites are using built structures which are high above predators and away from human disturbance. The population counts are low and their viability is limited without active management for them. There is an opportunity to provide additional habitat resources for Sand Martins to improve breeding success and restore the populations over time.

Legal protection for Sand Martins in Ireland

- The species is protected under Article 1 of the EU Birds Directive but is not specifically listed in the Annexes. There are only 3 no. Natura 2000 sites in Ireland which include Sand Martin as a Species of Conservation Interest: Bray Head SAC, Bannow Bay SPA/SAC and River Shannon and River Fergus Estuaries SPA/Lower River Shannon SAC.
- It is protected under Annex II of the Bern Convention.
- European Communities (Birds and Natural Habitats) Regulations 2011
- Wildlife Act (and Amendments) 1976-2000 provides protection for all wild birds.

Sand Martin habitat requirements

Sand Martin's natural habitats are sandy banks along rivers and in coastal areas. Increasingly, they are nesting in man made habitats such as: quarries, sand and gravel pits and even in heaps of sawdust, in rotten brickwork and down drainage pipes in hard masonry walls. (Holmes Nigel, 1985). In Ireland, Sand Martins are not restricted to riparian habitat and there are many colonies in old sand and gravel pits, often far from water, and even in abandoned face banks of turf. They can return to favourable nest sites for years. Sites are abandoned once the face slumps, becomes overgrown with vegetation or accessible to predators. (Andrews and Kinsman 1990).

The height of banks used for nesting also ranges widely, from < 2m along some rivers to 4-5m or more in sandpits. The nest hole is usually 35cm-1m long and is excavated over a period of two weeks by both parents. Two broods may be raised each year.

Sand Martin feeding requirements

Like Swifts, the Sand Martin almost exclusively feeds on insects caught in flight. Management of habitats for insects will also supply food resources for other EU-protected species of birds and also bats. In late summer reedbeds may be used at dusk by large flocks of roosting sand martins and gravel pits or reservoirs may be especially important as feeding areas for early returning migrants in spring. (Andrews and Kinsman 1990). Although they will feed on airborne insects over water or reed beds close to the colony, sand martins tend to roam very widely to exploit abundant insects wherever they may be available. Their presence as breeding birds at a particular site is most likely to be determined by the presence of a suitable nest bank. (Andrews and Kinsman 1990).

Specific measures for Sand Martins:

- Retain existing vegetation and open water in the riparian zone to provide feeding areas.
- Incorporate nesting structures into re-graded banks, platform structures and new or widened bridges for all new projects in the catchment, in agreement with DCC Parks and Landscape Services. These may include:

  - Barrels – raised on poles to prevent predators; located in close proximity to Nine Arches Bridge
  - Artificial Banks – structures incorporated to any newly-built or re-built banks to mimic natural nesting structures, to include skirts to prevent predators, built so that the face is a sheer drop to water. Bedding 1m lengths of 10cm-polythene pipe into a bank constructed from sand and gravel can create safe and long lasting artificial sites. A sheer front face can be created with a weak or dry mix of concrete built up against shuttering, which should then be removed. The face should drop into fairly deep water both to prevent colonisation by tall, emergent vegetation that would obstruct the birds flight paths and also to restrict access by predators and humans. The lowest row of pipes should be 1m above summer water level, sloping slightly down towards the entrance, with rows 0.3m apart and pipes at 0.2m spacings. Each pipe should be filled with sand and the entrance half blocked with a cement filler. The birds will then excavate their typical oval tunnel along the top half of each pipe. (Andrews and Kinsman 1990).
  - Bridge holes – to incorporate nesting holes into new or widened bridges
- New planting to include reedbeds and other wetland planting for filtration of stormwater to protect water quality (see above – Threats to breeding sites) and to provide feeding areas.
- All drains to be designed to provide deterrence of mink, a species of highest priority in the DCC Invasive Alien Species Action Plan (2016-2020) and listed in the European Communities (Birds and Natural Habitats) Regulations 2011.
- Ensure that any sand or gravel deposits – including stockpiled in site compounds - are checked for presence of Sand Martins prior to disturbance or excavation during the breeding season (March-September). If any doubt, contact the NPWS Ranger/DCC Biodiversity Officer.

Appendix 6 – Survey Methodology for Hedgerows

Recommended scoring system for all hedgerows

Prepared by Dr Mary Tubridy (2021)

Background

This method of survey can be used throughout the year for all types of hedgerows. It is based on a classification developed in the UK which has been adapted for Ireland by Mary Tubridy and Associates. It has been used in various counties for surveys and to inform planning applications over the last ten years. It does not require expert identification of all species, but covers all the important characteristics which are relevant to hedgerow biodiversity.

Scoring of characteristics of hedgerows

All hedgerows are examined for the characteristics below and assigned a score (listed to the left). The scores for characteristics are then added together to give an overall score. In general, hedgerows scoring 30 and over are assessed as of the highest quality and merit protection. Those that score under 20 do not merit protection, but enhancement measures are recommended to be carried out to improve their status.

Description of characteristics used in hedgerow scoring system

Characteristic	Ranking Method	Set Value	Score
Structure			
	No bank/ditch	0	
	Bank only	1	
	Bank + ditch	2	
	Bank, ditch, stagnant water	3	
	Bank, ditch, flowing water	4	
Diversity of (terrestrial) hedgerow type vegetation			
	Shrub layer only	1	
	Shrub + herbs	2	
	Tree, shrub + herbs, open base	3	
	Tree, shrub + herbs, dense base	4	
Height of hedgerow			
	<1.5m	1	
	1.5-2.5m	2	
	2.5-4m	3	
	>4m	4	
Width of hedgerow			
	<1m	1	
	1-2m	2	
	2-3	3	
	<3m	4	
Percentage of gaps in hedgerow			

Characteristic	Ranking Method	Set Value	Score
	>50%	0	
	25-50%	1	
	10-25%	2	
	5-10%	3	
	<5%	4	
	No gaps	5	
Native trees and shrubs			
	1-3	1	
	4-6	2	
	6-8	3	
	>8	4	
Bird Habitat Value			
	Roosting habitat only	1	
	Roosting, feeding habitat	2	
	Roosting, feeding, nesting habitat	3	
Connectivity to other hedgerows			
	No direct connections	0	
	Connection by water (ditch only)	1	
	1 connection (to another hedgerow)	2	
	2 connections (to two hedgerows)	3	
	3 connections (to three hedgerows)	4	
	4 or more connections (to four or more hedgerows)	5	
Cultural Value			
	Not on 1st ed OS map	1	
	On 1st ed map (but not townland boundary)	2	
	Townland boundary	4	
	Barony boundary	6	
Total Score			

[i] [i] Why do we need to protect biodiversity? - Environment - European Commission (europa.eu) https://ec.europa.eu/environment/nature/biodiversity/intro/index_en.htm

[ii] ICLEI World Secretariat (2021) *10 reasons to promote urban biodiversity*. Downloaded from: https://talkofthecities.iclei.org/10-reasons-to-promote-urban-biodiversity/