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Strict Protection of Animal Species

Guidance for Public Authorities on the Application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a Public Authority

Enda Mullen, Ferdia Marnell and Brian Nelson




National Parks and Wildlife Service Guidance Series 2

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An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta, 90 Sráid an Rí Thuaidh, Baile Átha Cliath 7, D07N7CV
Department of Housing, Local Government and Heritage, 90 North King Street, Dublin 7, D07 N7CV

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Executive Summary

This guidance is intended to assist and guide public authorities in the application of Article 12 and Article 16 of the Habitats Directive[1] to ensure that their own works are compliant with these articles. It will also be useful to anyone planning works which may impact on strictly protected species. It focuses on the main obligations resulting from Articles 12 and 16 of the Habitats Directive which require member states to establish a system of strict protection for the animal species listed in Annex IV(a), and allow derogation from these provisions under strictly defined conditions.

The animal species listed in Annex IV(a) which occur in Ireland are the otter, all bats, all cetaceans (whales and dolphins), marine turtles, the natterjack toad and the Kerry slug. Each of these species is strictly protected in Ireland and a person who deliberately captures, kills or disturbs a specimen in the wild, who deliberately destroys or takes their eggs from the wild, or who damages or destroys a breeding site or resting place of such an animal, is guilty of an offence.

The Irish species listed on Annex IV(a) of the Habitats Directive which are most likely to be encountered by public authorities during their works are:

The otter *Lutra lutra*

All bat species

The natterjack toad *Epidalea calamita*

The Kerry slug *Geomalacus maculosus*

Whales and dolphins are not covered in this guidance. Public authorities should consult the "Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters" which was published by the Department in January 2014 and is available on the National Parks and Wildlife Service website[2].

This document explains the legal background to the protection of these species. It contains up to date information on the habitat, distribution and ecology of Ireland's

[1] Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, as amended by Council Directive 97/62/EC. See http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

[2] www.npws.ie/sites/default/files/general/Underwater%20sound%20guidance_Jan%202014.pdf

terrestrial Annex IV species and identifies the main threats that these species face. It also includes a framework for decision making by public authorities which should ensure that in the carrying out of their own functions, including projects, developments, operations and activities, maintenance and restoration works, (referred to throughout this guidance as "works"), they will be in compliance with Articles 12 and 16 of the Habitats Directive, as transposed into Irish law. Finally, two case studies are provided to illustrate how projects should be screened for their impacts on Annex IV species and their compliance with Articles 12 and 16.

Throughout this guidance, the term "works" is to be understood as including all projects, developments, operations and activities, including maintenance and repair works, which a public authority undertakes or proposes to undertake or to have undertaken on its behalf. It includes preparatory, ancillary or enabling works associated with the principal works such as access, removal of vegetation, deposition of spoil, alteration of watercourses and suchlike.

Public authority has the same meaning as the interpretation in the EC (Birds and Natural Habitats) Regulations 2011.

Chapter 1
Introduction

The Habitats Directive

The EU introduced the Habitats Directive in 1992 to tackle the long-term decline in European biodiversity that was attributed to habitat destruction and degradation, the persecution of some species, and the unsustainable exploitation of wildlife resources. The essential aim of the Directive is to maintain, and where necessary restore, the favourable conservation status of natural habitats and species across Europe, thereby contributing to sustainable development and promoting the maintenance of Europe's biodiversity.

The establishment of Europe's most important wildlife sites as the 'Natura 2000' network of sites, known in Ireland as European sites, and strong measures to protect those sites is the best known aspect of the Habitats Directive. However, the Habitats Directive also contains obligations in relation to the protection of certain animal species and key habitats wherever they occur, which are set out in Article 12 of the Directive. These obligations require each country to establish a system of "Strict Protection" for the species listed in Annex IV of the Directive. Derogations from that strict protection can only occur in line with conditions set down in Article 16.

The Role of the EU Commission

As the Habitats Directive is a European Directive, the European Commission monitors its implementation by individual Member States. Where the Commission is not satisfied with progress or compliance, it is likely to initiate infringement proceedings against the Member State concerned; the main categories of concern are inadequate transposition of the Directive and breaches of its requirements, including failure to implement and enforce the Directive on the ground.

The progress of each Member State is monitored by:

- Examining the completeness of the transposition by each Member State of the Habitats Directive into national law, having regard to the case law of the Court of Justice of the European Union (CJEU).
- Monitoring progress made in the establishment and protection of the Natura 2000 network by each Member State.
- Examining the effectiveness of the enforcement policies implemented by each Member State.
- Examining the submissions of each Member State every six years under Article 17 of the Habitats Directive on the status of listed habitats and species.
- Pursuing complaints received by the Commission concerning failures to implement the provisions of Directives.

Areas of concern for the Commission are pursued actively with each Member State by direct communication, initially as a "pilot case" and if the Commission is not satisfied with the Member State's response, it may initiate a progression towards a full case in the CJEU. Persistent failure by a Member State to comply with the requirements of the Directive is likely to lead to substantial financial penalties being imposed on the Member State by the CJEU. Once fines have been imposed, daily fines are likely until the infringement is fully rectified. The potential fines are very substantial, running to tens of millions of Euro.

Articles 12 and 16 of the Habitats Directive

Articles 12-16 of the Habitats Directive are concerned with the protection of species. Within that, Article 13 concerns plant species, Article 14 deals with measures to ensure that the taking or exploitation of wild flora and fauna does not impact negatively on their Favourable Conservation Status, while Article 15 prohibits indiscriminate means of capturing or killing Annex IV species. These articles are not dealt with in this document which focuses on Articles 12 and 16 only. Further information on Articles 13-15 may be found in the EC's introductory brochure at

https://data.europa.eu/doi/10.2779/3123

Article 12 relates to the establishment of a system of strict protection for certain animal species (listed in Annex IV(a) of the Directive) including the prohibition of certain

actions, while Article 16 provides for derogations from these prohibitions under limited circumstances. The Commission has produced guidance documents on Articles 12 and 16[3], (updated October 2021). There is a short brochure which summarises the information and a longer, more detailed document which clarifies and interprets the terms and concepts used. According to the Commission, that longer document "is destined for national, regional and local authorities, conservation bodies and other organisations responsible for, or involved in, implementation of the Habitats Directive, and stakeholders. It aims to assist them in devising effective and pragmatic ways of applying the provisions, while fully respecting the legal frame."[4]

Article 12

Article 12 protects species listed in Annex IV(a) by prohibiting a number of actions which could cause those species to decline in the wild or which would impair their chances of successful breeding. It recognises that species need safe places to rest and to breed and rear young. Disturbance during breeding, migration or hibernation can have a detrimental effect on species survival. The measures taken to protect individual species must relate to the threats experienced by that species, within its natural range. The full text of Article 12 is below.

Text of Article 12

1. Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (a) in their natural range, prohibiting:

(a) all forms of deliberate capture or killing of specimens of these species in the wild;

(b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;

(c) deliberate destruction or taking of eggs from the wild;

(d) deterioration or destruction of breeding sites or resting places.

[3] http://ec.europa.eu/environment/nature/conservation/species/guidance/index_en.htm

[4] As above

2. For these species, Member States shall prohibit the keeping, transport and sale or exchange, and offering for sale or exchange, of specimens taken from the wild, except for those taken legally before this Directive is implemented.

3. The prohibition referred to in paragraph 1 (a) and (b) and paragraph 2 shall apply to all stages of life of the animals to which this Article applies.

4. Member States shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV (a). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned.

Important concepts from Article 12

Deliberate

Article 12 (1) (a)-(c) use the word "**deliberate**". Those clauses prohibit the deliberate capture/killing, deliberate disturbance and deliberate destruction or taking of eggs from the wild of protected species. The use of the word "deliberate" in (a), (b) and (c) above must be read in light of the relevant case law of the Court of Justice of the European Union (CJEU), namely cases C-103/00 and C-221/04. The Commission's Guidance, based on these cases, proposes the following definition and commentary:

> "Thus, 'deliberate' actions are to be understood as actions carried out by a person or body who knows that their action will most likely lead to an offence against a species, but choses to ignore the risks or consciously accepts the foreseeable results of his action. In other words, the provision applies not only to a person who intends to capture or kill a specimen of a protected species but also to a person who is sufficiently informed and aware of the likely consequences of his/her action but goes ahead anyway." [5]

This means that the carrying out of any work which has the potential to capture or kill any specimen of a Strictly Protected species, or to disturb these species, or to take or

[5] https://op.europa.eu/en/publication-detail/-/publication/bbc7ace0-27e2-11ec-bd8e-01aa75ed71a1/language-en

destroy eggs of such a species, and for which a derogation licence has not been granted, may constitute an offence.

Deterioration or destruction

It is of particular importance to note that, in accordance with Article 12 (1)(d) of the Directive the ***deterioration*** *or* ***destruction*** *of breeding sites or resting places* of Annex IV(a) species does not have to be deliberate. This means it is a strict liability offence; it is not required that the offender was aware that he or she was carrying out an action leading to the deterioration or destruction of such breeding sites or resting places. This imposes a duty of due diligence and care on public authorities to ensure that their works or works undertaken for them will not have such consequences, or where works likely to have such consequences are considered essential and there are no satisfactory alternatives, that they are covered by a derogation licence granted by the Minister for Housing, Local Government and Heritage.

The second point to note about breeding and resting places arises from the European hamster case C-357/20. The Court decided that even if the breeding and resting places are not currently in use by the Annex IV animals, they remain protected if there is a sufficiently high probability that the animals will return to those sites. This has implications for bat roosts which may be empty at certain periods of the year, natterjack toad breeding ponds outside the breeding season and otter holts/couches spread throughout the otter territory.

Article 16

Article 16 recognises that there may be circumstances when a derogation from the strict protection of the species in Annex IV(a) is necessary. Derogations, however, should only be used as a last resort and the provisions of the article need to be both interpreted and implemented restrictively.

A derogation licence may only be granted by the Minister if it meets the three specific conditions set out in Article 16.

- First, a derogation can only be issued for one of the reasons listed in Article 16(1)(a)-(e).
- Second, there can be no satisfactory alternative and

- Third, the derogation cannot be detrimental to the objective of maintaining the species at favourable conservation status.

These three conditions must be met if a public authority seeks a derogation for development or works. If the works do not meet these conditions, the Minister cannot issue a derogation licence and the works may not legally proceed. It is therefore extremely important that public authorities design works in such a way that they consider the strict protection of Annex IV(a) species from the very start and avoid the need to apply for a derogation.

Text of Article 16

1. Provided that 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 in their natural range, Member States may derogate from the provisions of Articles 12, 13, 14 and 15 (a) and (b):

(a) in the interest of protecting wild fauna and flora and conserving natural habitats;

(b) to prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property;

(c) in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;

(d) for the purpose of research and education, of repopulating and re-introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants;

(e) to allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species listed in Annex IV in limited numbers specified by the competent national authorities.

2. Member States shall forward to the Commission every two years a report in accordance with the format established by the Committee on the derogations applied under paragraph 1. The Commission shall give its opinion on these derogations within

a maximum time limit of 12 months following receipt of the report and shall give an account to the Committee.

Irish Legislation

The Habitats Directive is transposed into Irish law by the European Communities (Birds and Natural Habitats Regulations) 2011 (S.I. No.477 of 2011) which replaced earlier Regulations from 1997 to, amongst other things, take account of Case law in the interim. These 2011 Regulations have had a number of amendments (S.I. No. 290 of 2013; S.I. No. 499 of 2013, S.I. No. 355 of 2015 and S.I. No. 293 of 2021). The 2011 Regulations were also amended by the Planning, Heritage and Broadcasting (amendment) Act 2021 (No. 11 of 2021), Chapter 4.

Article 12 of the Habitats Directive is transposed into Irish law by Regulation 51 of the EC (Birds and Natural Habitats) Regulations of 2011 and Article 16 by Regulation 54.

Definition of public authorities

Public authorities are defined in Regulation 2 of the EC (Birds and Natural Habitats) Regulations 2011 as follows:

"public authority" means—

(a) a Minister of Government,

(b) a local authority,

(c) An Bord Pleanála,

(d) Environmental Protection Agency,

(e) the Commissioners of Public Works in Ireland,

(f) a harbour authority or a harbour company within the meaning of the Harbours Acts 1946 to 2009,

(g) Fáilte Ireland,

(h) Health Service Executive,

(i) a regional authority,

(j) Inland Fisheries Ireland,

(k) Geological Survey of Ireland,

(l) Teagasc,

(m) National Roads Authority,

(n) Radiological Protection Institute of Ireland,

(o) Electricity Supply Board,

(p) Commission for Energy Regulation,

(q) Port and Harbour Authorities including Port companies established under the Harbours Act 1996,

(r) Dublin Docklands Development Authority,

(s) Waterways Ireland,

(t) Bord Na Móna,

(u) Coillte,

(v) Health and Safety Authority,

(w) Bord Gáis,

(x) Marine Institute,

(y) Bord Iascaigh Mhara,

(z) Eirgrid,

(aa) a Board or other Body (but not including a company under the Companies Acts) established by or under statute,

(bb) a company under the Companies Acts, in which all the shares are held—

(i) by or on behalf of or jointly with a Minister of Government,

(ii) by directors appointed by a Minister of Government, or

(iii) by a board, company or other body referred to in *paragraph (f)* or *subparagraph (bb)(i)* or *(bb)(ii)*,

(cc) a planning authority."

Duties of public authorities

The duties of public authorities relating to nature conservation are described in Regulation 27. This means that the public authority must exercise its functions, including consent functions, in a way that ensures compliance with the strict protection of Annex IV species as well as all other aspects of the Birds and Habitats Directives and the EC (Birds and Natural Habitats) Regulations of 2011.

Transposition of the Directive's provisions as they relate to the functions of public authorities is also achieved through the Planning and Development Act 2000, as amended. The Planning and Development Act 2000 contains detailed provisions regarding the legal obligations of planning authorities and sets out the legal framework and processes within which the protection of European sites should be addressed.

Individual public authorities may also have specific legislation under which they operate and which has aligned their functions with the Habitats Directive.

Derogation licences and other consents

The need for or existence of any other statutory consent (such as planning consent, forestry licences, arterial drainage consents etc.) to undertake development or works, or the existence of a statutory power or authority for a public authority to do so, does not remove its obligations under Regulations 27 and 51 of the EC (Birds and Natural Habitats) Regulations of 2011 in relation to Article 12 of the Habitats Directive, or the need, where applicable, for it to obtain a derogation licence under Regulation 54 of those Regulations.

It is a basic responsibility of all public authorities of the State, including local authorities, to act diligently to ensure that in their actions, they comply fully with the obligations of the Habitats Directive as it is transposed into Irish law.

Contractors and Agents

Public authorities will need to ensure that contractors or agents that they engage to undertake development or works are fully informed and appropriately instructed and supervised regarding any derogation licences that exist and conditions that apply, as

the legal obligation to comply with all requirements arising from Articles 12 and 16 of the Directive and the corresponding provisions Regulations 51 and 54 of the EC (Birds and Natural Habitats) Regulations 2011, rests with the public authority which has been granted the licence. The public authority is responsible for any works or development carried out on its behalf, and for determining whether a licence is required. It is also responsible for securing any licences and ensuring that licence conditions are met in full and as required.

This guidance sets out a four stage process to guide decision making about works which may impact on the strict protection of Annex IV(a) species. The process should be undertaken by the public authority itself rather than the contractors or agents who are to be engaged to carry out the proposed works. However, contractors and agents need to be aware of all conditions attached to the licence including mitigation measures and should be required to ensure that work will stop and contact be made with the public authority and with NPWS if, in the course of works, the unanticipated discovery of an Annex IV species, its eggs or its breeding or resting place occurs.

Consideration by the Minister of applications for a derogation licence

Article 16 of the Habitats Directive sets out three conditions, all of which must be met before a derogation from the requirements of Article 12 or Article 13 of the Directive can be granted. These conditions are also set out in Regulation 54 of the Regulations. The conditions are:

1. A reason(s) listed in Regulation 54 (a)-(e) applies (see below)
2. No satisfactory alternatives exist
3. Derogation would not be detrimental to the maintenance of a population(s) at a favourable conservation status.

When assessing an application for derogation under Regulation 54 the Minister will apply three tests which are designed to ensure that the conditions set out above can be met. If these tests indicate that any of the conditions cannot be met the Minister is precluded from issuing a derogation licence. The Minister will state the reasons for

issuing or refusing to issue a derogation licence. Condition 1 must be met before the second and third conditions are examined. If it isn't the Minister cannot grant a derogation licence.

It is important that applicants for a derogation licence, including public authorities and others, provide sufficient information to enable the Minister decide if the conditions required to issue a derogation licence are met. Sufficient information which addresses the conditions set out above must be included in any application to the Minister for a derogation licence. Failure to provide sufficient information as part of an application for a derogation licence means that the Minister will not be in a position to grant a licence.

Test of Condition One – Reasons for seeking derogation

Has one of the reasons set out in Regulation 54(2) (a)–(e) been clearly demonstrated to apply? Regulation 54(2) (a)–(e) states that a derogation licence may be granted for any of the following reasons:

(a) In the interests of protecting wild flora and fauna and conserving natural habitats,
(b) To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property
(c) In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment,
(d) For the purpose of research and education, of re-populating and re-introducing these species and for the breeding operations necessary for these purposes, including artificial propagation of plants, or
(e) To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule.

If it cannot be clearly demonstrated by the applicant that one or more of the reasons set out above apply, a derogation licence cannot be granted by the Minister.

Test of Condition Two – There is no satisfactory alternative

Derogation from the Strict Protection provisions of the Directive must be seen as the last resort in any situation. It must therefore be clear that there is no other satisfactory solution to the situation presented by the proposal or project in question

Applicants for a derogation licence should include full details of the alternatives examined and should set out objective reasons demonstrating why these alternatives are not satisfactory. If there is a satisfactory alternative then the application has failed the second test and a derogation licence cannot be issued.

Test of Condition Three – Favourable Conservation Status

In each case, consideration must be given to whether granting a derogation licence would be detrimental to the maintenance of the populations of the species in question at a favourable conservation status in their natural range (Regulation 54(2)).

Annex IV species must be maintained at Favourable Conservation Status or restored to favourable status if this is not the case at present. The net result of granting a derogation licence must be neutral or positive for the species in question. If a derogation licence is likely to have a significant negative effect on the population concerned (or the prospects of this population) or is likely to have a significant negative effect at the biogeographical level within Ireland, then a derogation licence cannot be considered.

If a derogation is issued it may have conditions, restrictions, limitations or requirements attached. All derogation licences are also subject to the Animal Health and Welfare Act 2013.

Statement of Reasons for Derogation Decision

At the completion of the process the Minister will state reasons for issuing (or refusing to issue) the licence. This statement will include the reasons it was decided there was an absence of suitable alternatives and refer to any relevant technical, legal and scientific reports used in making the decision.

Relationship with Article 6(3) of the Habitats Directive

Annex IV(a) species are strictly protected wherever they occur within their natural range and the requirements to comply with the Regulations in this regard applies in all cases and at all times. These Guidelines focus specifically on Articles 12 & 16 (as transposed into Irish law) which establish this strict protection.

It is important to realise that works carried out by public authorities also fall under Article 6 of the Habitats Directive which safeguards the integrity of Special Areas of Conservation (SAC) and Special Protection Areas (SPA), known in Irish legislation as European sites. Regulation 42 provides the Irish legislative context for Article 6(3) and (4) of the Habitats Directive. Any public authority works (or project which they form a part of) will require screening for Appropriate Assessment (AA) as required by Regulation 42 of the Regulations. If the works are likely to have a significant effect on a Special Area of Conservation (SAC) or Special Protection Area (SPA), the works will also be subject to Appropriate Assessment.

The requirement for AA Screening or full AA is separate from the strict protection of Annex IV species but should be factored into public authority works. Further information may be found in Section 3.3.2 of the EC Guidance on Strict Protection of Animal Species October 2021.[6]

There is also a difference between the use of mitigation regarding Annex IV species and its consideration in the Article 6 AA Process. Mitigation may not be taken account of in screening for AA and may only be considered during the actual Appropriate Assessment itself.

On the other hand mitigation may be used in the decision making process regarding the possible impact of works on Annex IV species. See page 22 for further details.

[6] Commission notice Guidance document on the strict protection of animal species of Community interest under the Habitats Directive Brussels, 12.10.2021 C(2021) 7301 final https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=PI_COM:C(2021)7301&from=EN

Chapter 2

Decision-making process for public authority works and Annex IV species

The purpose of this guidance is to assist public authorities in making decisions about proposed works which might possibly impact on Annex IV(a) species. The outcome of the decision-making process, which should be documented and retained on file, will determine if the public authority is legally compliant with its obligations under Article 12/Regulation 51. To assist this four stages are proposed. The process is the same for each of the species although the habitats and species characteristics will vary.

It is important to remember that the first obligation for the strict protection of these species is to design works so that they avoid any impacts on the animals, their habitats, breeding or resting places. Derogations are a last resort and only for special cases.

Stage 1 Using existing information to determine the probability of the protected species being present in the area affected by the works

This is an information gathering stage about the likely presence or absence of an Annex IV(a) species at the location of the works. It may involve a site walkover as well as desktop studies. Some sources of information are:

- The National Biodiversity Data Centre mapping system https://maps.biodiversity.ie/
- The species and habitat information in this guidance document
- The National Parks and Wildlife Service www.npws.ie
- Bat Conservation Ireland www.batconservationireland.org
- County Biodiversity Plans and Biodiversity Maps
- Heritage and Biodiversity Officers

There are two possible outcomes to Stage 1. If it is highly unlikely that an Annex IV(a) species could be present on site or be affected by the works, then the works will be

compliant with Regulation 51 (Article 12) and may proceed. If, on the other hand, this information shows that an Annex IV(a) species is present, or is likely to be present or affected by the works, the decision-making must move on to Stage 2. The Precautionary Principle must be kept in mind here.

For instance, only works within the natural range of the Kerry slug in Kerry or West Cork need take that species into consideration. Similarly, for the natterjack toad which has its natural range restricted to sites in Kerry. (These animals are still protected by the Wildlife Act 1976-2021 in other locations). Otters and bats are widespread so all public authorities will have to consider whether the works might affect them. If the works are not close to or likely to impact on a coastline, lake or watercourse, then the otter could be ruled out, leaving the bat species for more in-depth examination. Using information from the sources listed above and the characteristics of the proposed works a Stage 1 decision can be made. If the works do not involve trees, hedges, buildings, bridges, caves, souterrains or changes in lighting, bats are not likely to be present or affected by the works and the works may be considered to be compliant with Regulation 51 (Article 12). If bats are likely to be present, the public authority should proceed to Stage 2

Stage 2 Ecological Survey

Stage 2 requires an ecological survey carried out by an ecologist who is competent in the species being surveyed. The survey must use suitable methods for the species being investigated, be of an adequate duration and must take place at an appropriate times of year. For example, there is no point surveying for commuting bats during the winter when they are hibernating.

As ecological surveys take time (tendering right through to receiving the report), public authorities are advised to keep this in mind when planning their schedule of works. In addition, consideration of alternative solutions arising from Stage 3 might involve time constraints.

Stage 2 of the decision making process has two possible outcomes. The survey may find that the Annex IV(a) species does not occur at or use this site. This means that the works are compliant with Regulation 51 (Article 12) and may be undertaken (once any other required permissions are in place).

If an Annex IV(a) species is found to be present (or to use the site at certain times of the year) during the ecological survey, the decision-making process moves to Stage 3.

Stage 3 Examination of Impacts and Satisfactory Alternatives

If ecological survey work has found that an Annex IV species is present, the likely impacts of the works need to be examined to see if those impacts can be avoided, through the design of the works. If avoidance is not possible the public authority must determine if there are any satisfactory alternatives to the works so that works will not occur in a place or fashion where they might impact on the Annex IV species.

A satisfactory solution is one which addresses the situation faced by the public authority while protecting the species at the same time. This may involve a change to the scale or design of the proposal, moving the proposal to a different location or using different processes or methods to carry out the proposal. It should be noted that an alternative solution cannot be deemed unsatisfactory merely because it would cause greater inconvenience or greater cost, or because it requires a change in approach by the public authority.

Use of Mitigation

There may be a role for mitigation when looking for alternative solutions. Mitigation is a way of reducing the impact of harmful effects. If mitigation is capable of reducing those impacts to the point where there will be no harmful effect, then a derogation will not be necessary. This is often important when deciding about impacts to breeding or resting places. If mitigation can ensure the continued ecological functioning of those sites then a derogation is not required. An example might be the construction of a greenway beside a canal where there is an otter holt in the bank. The increased human activity, lighting etc. would be a cause of disturbance to breeding otters and thus an offence under Article 12 (1) (b) / Regulation 51 (2) (b). Mitigation could involve moving the path further from the bank, accompanied by a thick screen of trees and shrubs and reduced lighting. These works could be carried out when the holt is not in use. These mitigation measures would ensure that the holt continued to maintain its ecological function as the breeding place of an Annex IV, strictly protected species. Mitigation will

always need to be monitored to ensure that it works and remedial action may be required if monitoring finds flaws in the mitigation. Further information on mitigation may be found in the EC Guidance Document, especially p 39-40.[7]

If a suitable alternative is found which ensures that the Annex IV animals are not captured/killed, that their eggs are not taken or destroyed and that that they are not disturbed in breeding, migration or hibernation and that there is no deterioration to the breeding or resting places, then the works are compliant with Regulation 51 and 52. An example of an alternative solution would be redesigning a civic plaza development to maintain an old coach house which has a bat roost in the attic. Instead of demolishing it to make a car park, the building could be used as a meeting place, retaining the roost in the attic space. Careful placement of external lighting and planting could ensure the bats continued to use it. Another example might be relocating the site for water abstraction away from a section of a river where there is an otter holt to a similar site without a holt.

If there is no satisfactory alternative, then the works cannot proceed unless the decision-making process moves to Stage 4. If an application is being made to the Minister for a derogation licence the documentation setting out the consideration of alternatives should be made available to the Minister, in the application documentation.

Stage 4 Application for Regulation 54 (Article 16) Derogation Licence

If the decision-making process has reached Stage 4 and there is no satisfactory alternative to proceeding with the works, the public authority can consider whether to apply to the Minister for a derogation licence under Regulation 54 of the Regulations. An application form for a derogation licence is available on https://npws.ie/licencesandconsents/

The Minister is empowered, within strict parameters, to grant a licence for derogation from complying with the requirements of Regulations 51 and 52 of the Regulations. The scope of the Minister's powers in this regard is set out in Regulation 54 and

[7] http://ec.europa.eu/environment/nature/conservation/species/guidance/index_en.htm

requires that a number of tests are applied before a derogation can be granted (see earlier section “Consideration by the Minister of Applications for a Derogation Licence”.

The Minister will either decide to grant a derogation licence or refuse to do so, and provide reasons for the decision. In cases where the Minister decides to grant a derogation licence; conditions, restrictions, limitations or requirements may be applied as considered appropriate. In these cases works may proceed in accordance with the requirements of the licence. If a licence is refused the works cannot proceed as they are not compliant with the Regulations. A public authority may review the reasons for refusal and reapply if the proposed works can be altered in a suitable fashion.

Applicants must include detailed information about the proposal and why they consider that it meets the pre-conditions for a derogation licence. The application should describe any likely impacts on the local population of the species in question. It should include the documentation regarding the decisions made about the alternative solutions examined. This information will be used to assess the application in light of the three tests described in Chapter 1. A licence granted by the Minister (as above) does not convey any rights to carry out development or works that would require its own development consent, or another ministerial consent (e.g. works to national monuments).

Figure 1 Flow chart to assist decision-making where work might affect Annex IV species

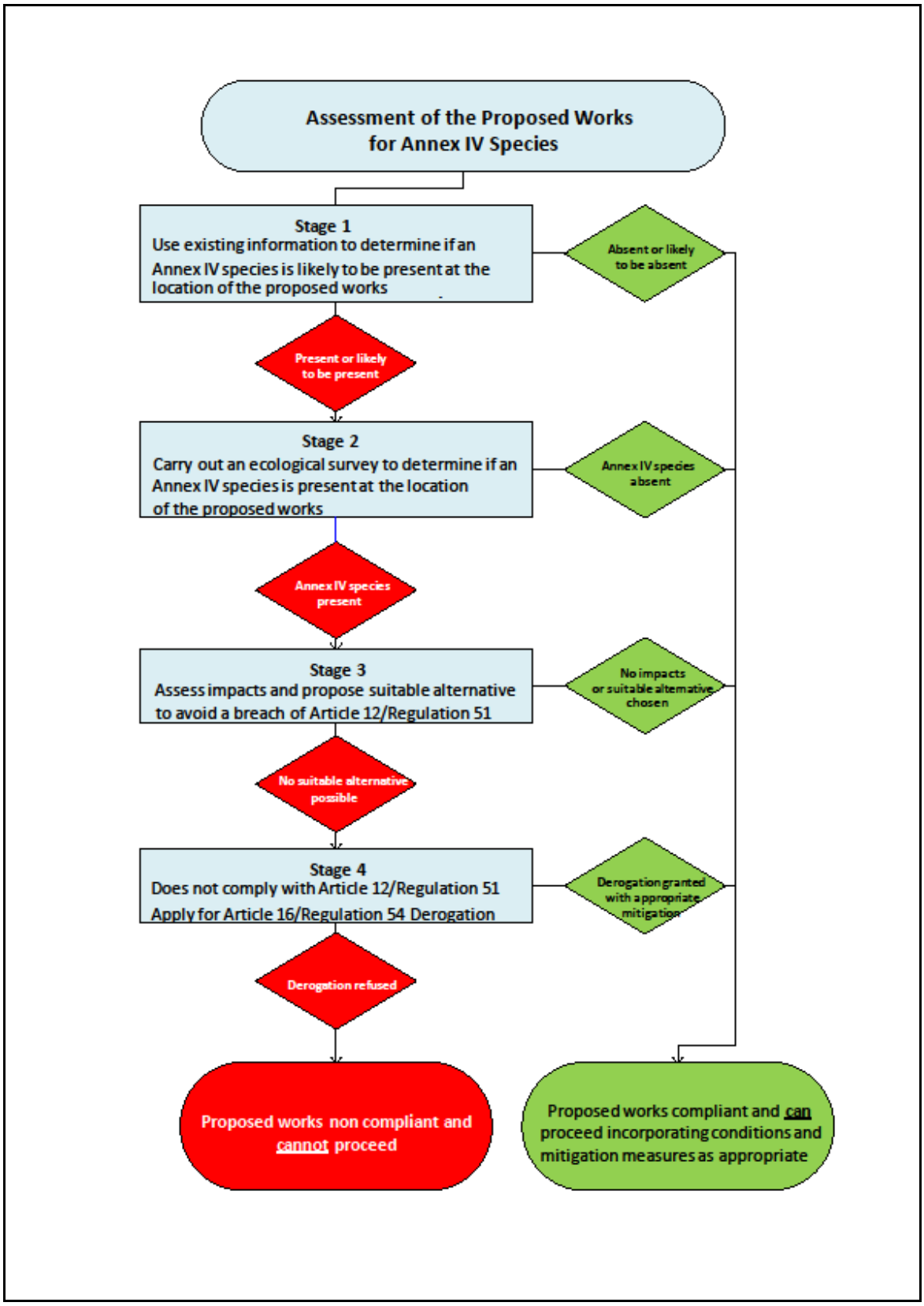

Figure 2 Leisler's bat *Nyctalus leisleri* (Photo Enda Mullen, NPWS)

Chapter Three

Individual Species Accounts

The otter, the bats, the natterjack toad and the Kerry slug are dealt with individually below. Each species account is provided as a stand-alone section. In each case a species dossier with details on the habitat, distribution and general ecology of the animal in question is provided. The data are designed to provide public authorities with information about the needs of these species in order that they can make informed decisions in relation to proposed works to ensure that they comply with Regulations 51 and 54 of the Birds and Habitats Regulations 2011.

Armed with information about the species the public authority can then refer to the decision-making tree on p 25 and the steps of the process found in Chapter 2. Each step is then expanded in the text to outline clearly what processes are required to ensure compliance with the legislation.

The Otter *Lutra lutra*

Introduction

The otter is listed on Annex II and Annex IV(a) of the EU Habitats Directive (92/43/EEC). The Annex II listing requires Member States to designate Special Areas of Conservation (SACs) for the protection of the species and 45 SACs in Ireland have been listed for this species, among other interests. Annex IV(a) protects the otter and its breeding sites and resting places throughout the country, inside and outside the SAC network.

The European population

The otter has declined over much of Europe and has even become extinct in some countries. In parts of Europe, costly reintroduction and habitat restoration programmes are underway to try and secure the survival of the otter.

The Irish population

Ireland remains a European stronghold for the otter and the species is widespread here in our rivers and streams and along our coastline and lakeshores. Although widespread in Ireland, the otter is not common. The population is estimated to be in the order of 12-15,000 adults. Four national surveys of otters have been conducted in Ireland. The first in 1980/81 found signs of otters throughout the country, at 88% of sites surveyed. A follow-up survey a decade later found a marked decrease in otter presence to 75%. The third otter survey, carried out in 2004/05, found that the species was still present in suitable freshwater and coastal habitats throughout the country. Nonetheless, otters had declined by a further 5% and were now only present at 70% of the sites surveyed. The most recent survey (2010) indicated recovery to 1980 levels. Overall, the otter is considered to be in favourable conservation status.

Habitat

Otters have two basic requirements: adequate prey and safe refuges where they can rest and breed. In general, healthy otter populations can be expected along clean rivers and lakes, and along the coast, where fish and other prey are abundant, and where the adjacent habitat offers plenty of cover.

Otters maintain territories and will defend their stretches of river bank, lake shore or coastline from other otters. In lowland rivers and fish-rich lakes, otters only need to maintain small territories (5-6km), but on smaller rivers and in upland areas, where food tends to be less abundant, otter territories can stretch to 15 or 20 km. Along coasts otters require sources of freshwater to wash their coats and their territories will always include a stream or spring. The point where freshwater enters a sheltered coastline is often a good place to look for otter signs.

The otter is an opportunistic predator with a broad and varied diet. In freshwater areas a variety of fish from sticklebacks to salmon and eels will be taken, while crayfish and frogs can be important locally or seasonally. Terrestrial prey is taken infrequently, with birds occurring in just 3% of spraints and mammals occurring even more rarely. In coastal areas rockling, wrasse, eel, sea scorpion, blenny and molluscs are known to be eaten.

An otter maintains numerous resting places, known as couches and holts, within its territory. Couches are above-ground resting places, often on islands, or hidden in extensive reed beds, or in dense scrub, brambles or nettles. Holts are underground and can take many forms – among falls of rocks, in caves, excavated tunnels in peat banks, or within root systems of mature bank-side trees.

Holts and couches may be found some distance from freshwater, but most are within the immediate area of riparian vegetation. Coastal holts are often found adjacent to freshwater streams or springs, as otters need to wash the salt from their fur. Given that an otter may have 10 or more resting places within its territory and that it may change these on a regular basis, it is not feasible to compile or maintain a complete database of otter resting places. However, it is possible, by engaging experienced otter surveyors and by following good practice, to identify areas being used by otters and their breeding/resting places and, with the implementation of appropriate mitigation, to ensure that potential developments have no significant impact on them.

Otters can occasionally be found some distance from a stream or lake. In certain areas the availability of frogs, particularly in springtime, will draw otters to marshes and ponds several hundred meters from their usual territory. Natal holts (i.e. where the cubs are born) may also be sited some distance from the normal areas of activity. In

general, however, otters exploit a narrow strip of habitat, about 10m wide, at the aquatic – terrestrial interface.

Breeding

Otter cubs may be born at any time of year. The natal holt is usually well hidden, far from other otter traffic to avoid potential aggression. The female lines the holt with grass and reeds before giving birth. 2-3 young is typical. At birth, cubs have short, pale grey fur and are about 12cm long. They open their eyes at around 30 days, but do not emerge from the natal holt for about 2 months. They will suckle for 14 weeks and remain with their mother for 7-12 months before dispersing to find their own territory. Mortality of 50% in the first year is normal, but otters surviving their first year may live for 8 years or more, although 3-4 years is typical.

Surveying for otters

The otter is a large carnivore with a long slim body, short legs and a tapered tail. Adult males can reach 1m in total length and 10kg in weight. The otter's feet are webbed and it swims low in the water with only its head showing. The otter is most active at night and you need to be lucky to see one during the day. The best way to discover whether otters frequent an area is by looking for tell-tale signs.

Spraints

Otters mark their territories with their droppings which are known as spraints. These spraints are normally left in prominent places such as on rocks and ledges under bridges. Large rocks and grassy knolls along river banks, lakeshores and coastlines, or where a stream enters a river or lake or the sea, are also good places to look. Spraints have a distinctive and fairly pleasant "sweet" smell (sometimes compared to mown hay or jasmine tea!) unlike mink scats which are often found in similar places but tend to have an unpleasant fishy smell.

By examining otter spraints you can determine what the animal was eating. Fish bones and scales are usually obvious. The distinctive remains of crayfish shells and claws, or at coastal sites crabs, may also be visible.

Footprints

Otter footprints are 6-7cm in diameter with five forward pointing toes. In soft mud, the webbing between the toes may be visible. Otter footprints often show up in mud or sand under bridges or other sheltered areas near water.

Other signs

A trained eye may recognise other signs that otters are present. Slides and couches may be obvious in some circumstances; detailed surveys may reveal holts, otter paths and prey remains.

Threats

Otters are subject to pressures on land and in water (freshwater and marine). Impacts that reduce the availability or quality of, or cause disturbance to, their terrestrial or aquatic habitats are likely to affect otters. This can include disturbance from human activity and lighting along waterways and the seashore. The following are considered to be the main threats to the otter in Ireland:

1. Direct and indirect habitat destruction, including river drainage and the clearance of bank-side vegetation. Otter breeding and resting places may be damaged or destroyed in the process.

2. Pollution, particularly organic pollution resulting in fish kills.

3. Accidental deaths (road traffic and fish traps) and

4. Persecution.

The National Roads Authority has published guidelines which aim to minimize the number of otters killed on our roads. Recommended measures include constructing special otter ledges at bridges where rivers and streams flow under new roadways. The full TII guidelines can be viewed or downloaded here: http://www.tii.ie/tii-library/environment/

Figure 3 Otter *Lutra lutra* (Photo Mike Brown, NPWS Image Library)

Bats

Introduction to bats

There are 9 species of bat recorded as resident in Ireland. All are listed on Annex IV of the EU Habitats Directive; one of them, the lesser horseshoe bat *Rhinolophus hipposideros*, is also listed on Annex II and 41 SACs have been designated for the protection of this species. In addition to the nine resident species, two vagrant species have been discovered in recent years, in Wicklow and Wexford. These are the Brandt's bat *Myotis brandtii* and the greater horseshoe bat *Rhinolophus ferrumequinum*. These bats are also on Annex IV and are strictly protected in Ireland. Internationally, many bat populations are in decline, hence their listing in the Habitats Directive.

Flying mammals

Bats are the only true flying mammals. Like us, they are warm-blooded, give birth and suckle their young. They are also long-lived, intelligent and have a complex social life. Although they're often thought of as flying mice, they're not closely related to mice but form a special group of their own: the Chiroptera. World-wide, there are over 1,100 different sorts of bat, ranging from the tropical flying foxes, with a wing-span of almost 2m, down to the hog-nosed bat of south-east Asia, which is little bigger than a large bumble-bee.

Bats have evolved a number of unusual features, mainly connected with their ability to fly. Their wings are formed from a web of highly elastic skin stretched over greatly elongated finger bones, the legs and tail, though their thumbs remain free to help them cling on when roosting. Bats have also developed a highly sophisticated echolocation system that allows them to avoid obstacles and catch tiny insects, even in complete darkness. When they are flying, bats produce a stream of high-pitched calls and listen to the echoes to produce a sound picture of their surroundings. Most of these echolocation calls are too high-pitched for us to hear, but electronic bat-detectors that pick up these calls and turn them into sounds that we can hear are now widely available. In most cases, it is possible to identify the bat species from the type of sounds produced.

Habitat associations

In cool climates such as Ireland, bats eat only insects and other invertebrates such as spiders, which they catch in flight or pick off water, the ground or foliage. Some bats specialise in catching large insects such as beetles or moths but others eat large numbers of very small insects, such as gnats, midges and mosquitoes, every night. Bats gather to feed wherever there are lots of insects, so the best places for them include traditional pasture, woodland, marshes, ponds and slow moving rivers.

Bats need to be able to move freely around the countryside between roosts and feeding areas. Research has shown that many species, particularly the smaller ones, follow linear features, such as hedges, tree-lines or waterways, and are reluctant to cross wide open spaces. This behaviour means that works which sever these sorts of connections are likely to have consequences for bats.

During the winter there are relatively few insects available, so bats hibernate. In September and October they put on weight and then, as the weather gets colder, they seek out appropriate sheltered roosts, let their body temperature drop to close to that of their surroundings and slow their heart rate to only a few beats per minute. This greatly reduces their energy requirements so that their food reserves last as long as possible. Bats don not hibernate right through the winter but may wake up and go out to feed and drink on mild evenings when some insects are about. Even on very cold nights, bats may be seen on the wing as they move to more sheltered roosts. Waking up and flying in winter uses up a lot of energy which the bats can't easily replace, so hibernating bats should not be disturbed as this might reduce their chances of surviving the winter.

Seasonal activity

Bats have a unique way of fitting their breeding cycle in with hibernation. They mate during the autumn and winter, but the female stores the sperm alive in her body and only becomes pregnant the following spring. Pregnancy lasts for six to nine weeks and can vary in length depending on the weather. Usually only one pup is born each year. This is looked after carefully and suckled for between four and five weeks until it is old enough to fly out and hunt for itself. Bats don not build nests and don't bring food back to the roost to feed their young, so the pup lives on its mother's milk alone until it is old enough to fly.

During this spring and summer period female bats gather together into maternity colonies for a few weeks to give birth and rear their babies. Once the pup is independent, the colony breaks up and the bats generally move to other roosts. Bats may gather together from over a large area to form these colonies, so any disaster at this summer breeding site can affect all the females from this area. Many of these maternity sites are used every summer and bats have a strong tradition of returning to the same site year after year.

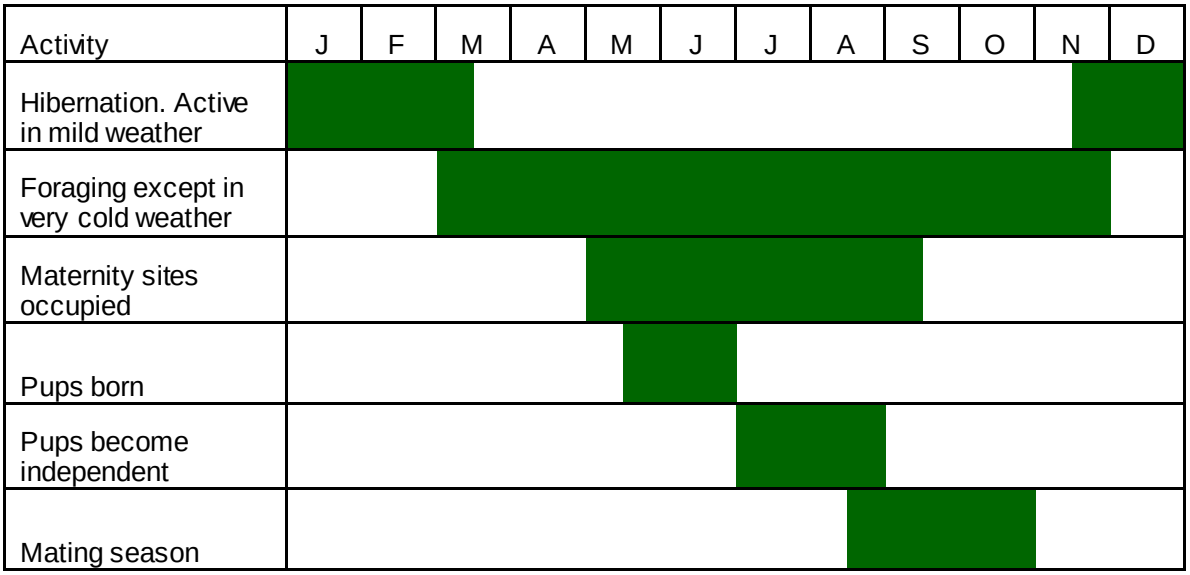

Figure 4 The bat year. Although there are species-specific differences, the bat year can be divided into the two major phases of breeding and hibernation, with other activities interspersed.

Roost requirements

While bats may be most obvious when they are foraging at dusk and during the night, they are most vulnerable when they are roosting. Bats roost during the day and will also rest in temporary roosts during foraging forays at night. They also change roosts seasonally. In summer, females come together, sometimes in large numbers, to form maternity roosts where they bear and suckle their young. Autumn is mating time and swarming roosts, often in cave systems, form the focus for activities for bats from the surrounding landscape. In winter they hibernate in caves, cellars, disused chimneys and other places where they are free from disturbance and where temperature fluctuations are minimal.

Given the number of bats in Ireland and the variety and number of roosts even a single individual bat can use in a year, it is not possible to compile or maintain a complete

dataset of all the bats roosts in Ireland. However, it is possible, by engaging experienced bat surveyors and by following good practice, to identify roosts and, with the implementation of appropriate mitigation, to ensure that potential developments have no significant impact on them.

Different species have different roosting preferences and hence bats may turn up in old derelict buildings, in the attics of modern houses, in trees, bridges, in underground caves and cellars.

Because their metabolic and social requirements vary throughout the year, most bats will use a variety of roosts of different types. While some species are particularly closely associated with tree roosts, the majority uses a range of roosts which includes trees, buildings and underground sites and some species primarily use buildings and underground places. Classifying such sites can be difficult because of the varying conditions they provide and the way in which bats select sites. For example, Natterer's bat has frequently been recorded in mortise joints in churches, old barns and similar buildings. From the bats' perspective, such sites must appear very similar to crevices in trees underneath a thick tree canopy. Other species too, show a similar tendency to roost in contact with timber rather than stone or brick.

Some species, such as the brown long-eared bat, are frequently recorded in underground sites during the winter, but the small number of individuals recorded at any one site suggests that this common species does not depend heavily on underground sites. Rather few trees are ever searched for bats and it seems likely that many species hibernate in tree cavities or under bark and so are significantly under-recorded.

The lesser horseshoe bat clearly has the strongest affinity with underground sites. In winter, it is rarely found in any other type of site and the species has even been recorded breeding underground, though the great majority of maternity sites are now in the roof voids of buildings. Other species which are considered typical hibernators in underground sites are Natterer's bat, Daubenton's bat, whiskered bat, and brown-long-eared bat. The two vagrant bats, Brandt's bat and the greater horseshoe bat, which have been found in Ireland also hibernate in underground sites (Table 1).

Many species of bats are closely associated with the built environment, both for breeding and hibernation and some species have rarely been recorded anywhere else. The majority of species form maternity roosts in the roofs of buildings to take advantage of the heat provided by the sun, as during this phase of their life-cycle breeding females are seeking areas with high temperatures to minimise the energy cost of maintaining a high body temperature. Some species, such as the common pipistrelle, show a clear preference for confined roost sites, such as soffit-boxes, eaves or under hanging tiles, whereas others, such as the lesser horseshoe and long-eared bats are more typically associated with open roof voids that they can fly in. There are many exceptions and many species have been recorded from a wide range of situations. In winter, bats of most species have been recorded hibernating in various parts of buildings, such as cellars and basements.

It is important to bear in mind that even when the bats themselves are not present, their roosts are protected. (See the recent European Court of Justice case on this issue regarding the European hamster C-357/20).

Table 1 Species associations with roost types.

Species	Trees		Buildings		Underground	
	Maternity	Hibernation	Maternity	Hibernation	Maternity	Hibernation
Lesser horseshoe bat	L	L	H	M	L	H
Daubenton's bat	M?	L?	M	L	M?	H
Whiskered bat	M?	M?	H	L	N	H
Natterer's bat	M?	M?	H	L	L	H
Nathusius' pipistrelle			H?			
Common pipistrelle	M	M	H	H	N	L
Soprano pipistrelle	M	M	H	H	N	L
Leisler's bat	M	M	H	L	N	N
Brown long-eared bat	H	H	H	H	N	M

Trees – includes all types of crevice and hollow as well as bat-boxes attached to trees

Buildings – above-ground areas, with an emphasis on roof voids and other areas warmed by the sun.

Underground – anywhere that provides cool humid conditions buffered against rapid temperature change, including caves, mines, tunnels, souterrains, fortifications, cellars, ice-houses, lime kilns etc.

N – not recorded in recent times

L – low dependence; unusual, but has been recorded

M – some usage recorded, though perhaps not the most important type of site

H – the most frequently recorded type of site for this species/activity

Description of Irish bat species

The purpose of this section is to give more detailed information about each of Ireland's resident bat species. The nine bat species resident in Ireland are:

Common pipistrelle *Pipistrellus pipistrellus*

Soprano pipistrelle *Pipistrellus pygmaeus*

Nathusius' pipistrelle *Pipistrellus nathusii*

Leisler's bat *Nyctalus leisleri*

Natterer's bat *Myotis nattereri*

Whiskered bat *Myotis mystacinus*

Daubenton's bat *Myotis daubentonii*

Brown long-eared bat *Plecotus auritus*

Lesser horseshoe bat *Rhinolophus hipposideros*

Common pipistrelle *Pipistrellus pipistrellus*

This species was only recently separated from its sibling species, the soprano pipistrelle *Pipistrellus pygmaeus*. The common pipistrelle's echolocation calls peak at 45 kHz. The species forages along linear landscape features such as hedgerows and tree lines as well as within woodland. This species is widespread across the country and common even in built up areas. It often roosts in buildings, including modern houses.

Soprano pipistrelle *Pipistrellus pygmaeus*

The soprano pipistrelle's echolocation calls peak at 55 kHz, which allows it to be readily distinguished from the common pipistrelle with a bat detector. These pipistrelles are the smallest and most often seen of our bats, flying at head height and taking small prey such as midges and small moths. This species is widespread across the country and common even in built up areas. Summer roost sites are usually in buildings, including modern houses, but tree holes and heavy ivy are also used. Roosts can be large; numbers can exceed 1,500 animals in mid-summer.

Nathusius' pipistrelle *Pipistrellus nathusii*

Nathusius's pipistrelle is a recent addition to the Irish fauna and its only known maternity roosts are in the north-east. However, the species has been recorded throughout the country and indications are that it is spreading, with recent records from Kerry, Cork, Sligo and Wexford. The resident population may be enhanced in the

autumn months by an influx of animals from Scandinavian countries. Known roosts are in old buildings, but few roosts have been found to date.

Leisler's bat *Nyctalus leisleri*

This species is Ireland's largest bat, with a wingspan of up to 320mm. It is also our third most common bat. It prefers to roost in buildings, although it is sometimes found in trees and bat boxes. It is the earliest bat to emerge in the evening, flying fast and high with occasional steep dives to ground level, feeding on moths, caddis-flies and beetles. The echolocation calls are sometimes audible to the human ear being around 15 kHz at their lowest. The audible chatter from their roost on hot summer days is sometimes an aid to location. This species is uncommon in Europe and Ireland is considered the European stronghold of the species.

Natterer's bat *Myotis nattereri*

This species has a slow to medium flight, usually over trees but sometimes over water. It generally follows hedges and tree lines to its feeding sites, consuming flies, moths, caddis-flies and spiders. Known roosts are usually in old stone buildings but they have been found in bridges, trees, caves and bat boxes. The Natterer's bat is one of our least common species and tends to roost in small numbers.

Whiskered bat *Myotis mystacinus*

This species, although widely distributed, has been rarely recorded in Ireland. It is typically found in woodland, frequently near water. Flying high, near the canopy, it maintains a steady beat and sometimes glides as it hunts. It also gleans spiders from the foliage of trees. Whiskered bats prefer to roost in buildings, under slates, lead flashing or exposed beneath the ridge beam within attics. However, they also use cracks and holes in trees and sometimes bat boxes. Animals may move between several roosts during the summer. The whiskered bat is one of our least common species.

Daubenton's bat *Myotis daubentonii*

This bat species feeds close to the surface of water, either over rivers, canals, ponds, lakes or reservoirs, but it can also be found foraging in woodlands. Flying at 15 km per hour, it catches insects with its over-sized feet as they emerge from the surface of the

water - feeding on caddis flies, moths, mosquitoes, midges etc. It is widespread throughout the country but tends to roost in small numbers. These roosts are often beneath bridges or in tunnels or old buildings near water. It also makes use of hollows in trees.

Brown long-eared bat *Plecotus auritus*

This species of bat is a 'gleaner', hunting amongst the foliage of trees and shrubs, and hovering briefly to pick a moth or spider off a leaf, which it then takes to a sheltered perch to consume. This bat often lands on the ground to capture its prey. Using its nose to emit its echolocation, the long-eared bat 'whispers' its calls so that the insects, upon which it preys, cannot hear its approach (and hence, it needs oversize ears to hear the returning echoes). As this is a whispering species, it is extremely difficult to monitor in the field as it is seldom heard on a bat detector. Furthermore, keeping within the foliage, as it does, it is easily overlooked. The species is widespread and often roosts in buildings, in particular buildings with large attics, such as churches and mansions.

Lesser horseshoe bat *Rhinolophus hipposideros*

This species differs from our other species in both habits and looks, having a unique nose leaf with which it projects its echolocation calls. It is also quite small and, at rest, wraps its wings around its body. Lesser horseshoe bats feed close to the ground, gleaning their prey from branches and stones. They often carry their prey to a perch to consume it, leaving the remains beneath as an indication of their presence.

The echolocation call of this species is of constant frequency and, on a heterodyne bat detector, sounds like a melodious warble. The species is confined to six counties along the Atlantic seaboard: Mayo, Galway, Clare, Limerick, Kerry and Cork – see Figure 5. The current Irish national population is estimated at 12,700 animals. This species is listed on Annex II of the EC Habitats Directive and 41 SACs have been designated in Ireland for its protection.

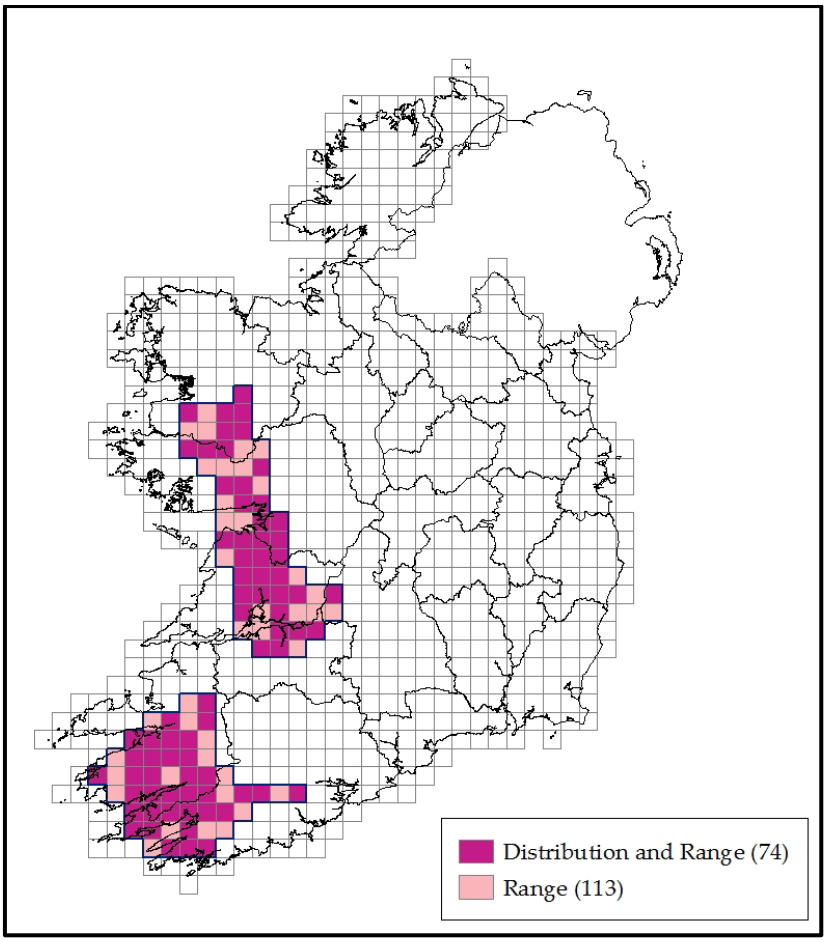

Figure 5 Lesser horseshoe bat distribution in Ireland (source: The Status of EU Protected Habitats and Species in Ireland 2019 Vol. 1)

Useful resources for works which might impact on bats

Check the Bat Mitigation Guidelines (Kelleher & Marnell, 2006) for advice on survey design and other detailed information before commencing the study. The Bat Mitigation Guidelines document is available on https://npws.ie/publications and a revised version is due in 2022.

TII has published detailed guidelines on bat mitigation during road developments[8]. Many of the measures included are also relevant to other forms of development and will be useful for the consideration of suitable alternatives.

[7] https://www.tii.ie/tii-library/environment/construction-guidelines/Guidelines-for-the-Treatment-of-Bats-during-the-Construction-of-National-Road-Schemes.pdf

Figure 6 Lesser Horseshoe Bat *Rhinolophus hipposideros* (Photo Mike Brown, NPWS Image Library)

The Natterjack Toad *Epidalea calamita*

(Previously known as *Bufo calamita*)

The natterjack toad is listed on Annex IV(a) of the EU Habitats Directive (92/43/EEC) and requires strict protection wherever it occurs. It is listed as Endangered in the most recent Red Data List (King *et al*., 2011). The species is fully protected under Irish law as outlined in Regulation 51 of the European Communities (Birds and Natural Habitats) Regulations, 2011. Where it is likely to be present, therefore, this species has to be considered in deciding whether to proceed with any works.

Figure 7 Natterjack toad *Epidalea calamita* (Photo Brian Nelson, NPWS)

The natterjack toad is one of only three amphibians native to Ireland – the other two are the common frog and the smooth newt. Adult toads may grow to 80mm and although colour varies from pale green to black above there is always a yellow stripe down the middle of the back. Natterjacks are nocturnal and during the day they hide under logs and stones. Over winter, natterjacks hibernate in burrows that they dig themselves in sandy soils, or in piles of rocks or dry-stone walls. The toad breeds in shallow ponds and forages in the areas around those ponds at these locations. It is normally early April before the natterjacks become active and the distinctive croaking of the male is heard at the breeding ponds.

Range in Ireland

The natural range of the natterjack toad in Ireland is confined to a small number of coastal sites on the Dingle and Iveragh peninsulas in Co. Kerry (see Fig 8). There is also a small translocated population on the Raven Nature Reserve in Co. Wexford. The toad was once more widespread in Kerry. There is evidence that during the period 1800-1970, the range of natterjack toads in Ireland decreased substantially (perhaps by half) due to habitat loss. The most significant loss in range occurred around Castlemaine Harbour. It seems clear from historic records that the species has previously been found right around this coastal strip.

The toad's range has not changed much since the 1970s. But despite the present stability in range, the toad's numbers continue to decline and some individual populations are now isolated. Such isolation can lead to reduced genetic diversity, local inbreeding and, eventually, population extinctions. This can be avoided by establishing new networks of ponds in strategic areas to allow for migration between breeding sites. The National Parks and Wildlife Service has been working with local farmers around Castlemaine Harbour and along the coastal strip west of Castlegregory to create new ponds for toads in an attempt to recreate the full historical range of the species.

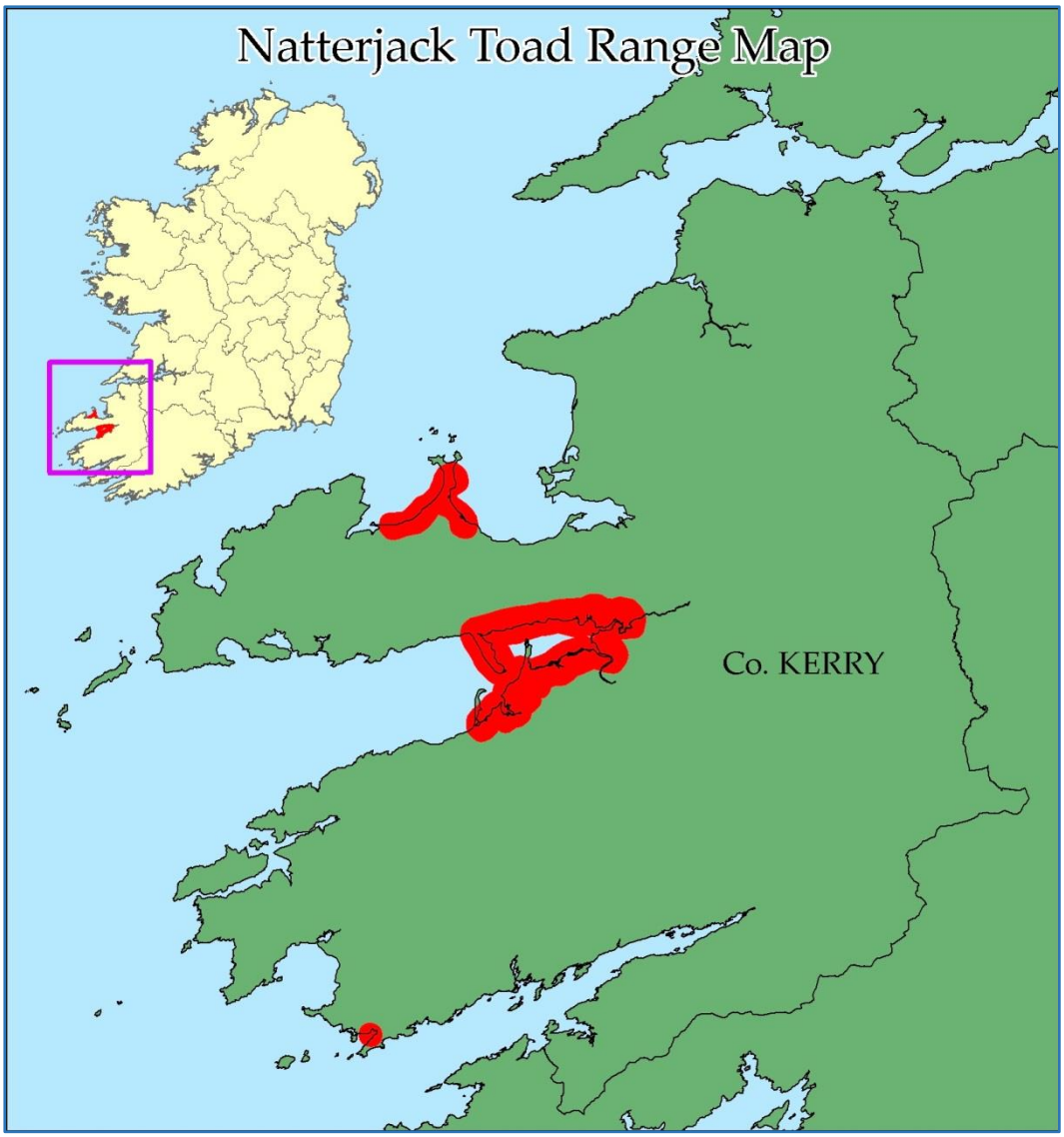

Figure 8 Range of the natterjack toad in Ireland

Breeding

Toad spawn is laid as an egg string approximately 1.5m long; it may contain 2-3,000 eggs (see Figure 9). This is wound around the aquatic vegetation in the shallows of the pond. The black embryos look like beads in a necklace. In warm weather, natterjack spawn hatches within a week and the tadpoles develop and metamorphose within two months. In good years, huge numbers of juveniles may emerge successfully. However, in dry years, water levels can drop rapidly resulting in mass mortality of the tadpoles. One successful year every two or three years is usually enough to maintain a population.

Figure 9 Pair of natterjacks laying an egg-string (Photo Ferdia Marnell, NPWS)

The young toadlets are only 10mm long when they first venture onto land, although the distinctive yellow stripe along the back is already visible. The juveniles grow rapidly, feeding on small insects, snails and spiders and are usually ready to breed after two or three years. Natterjack's eggs and tadpoles contain a noxious chemical that largely protects them from predation, but dragonfly and beetle larvae will eat them. Foxes, otters and herons occasionally eat adults, but if they escape predation, natterjacks can live to 6 or 7 years in the wild.

Young natterjacks can spend two to three years on land before reaching maturity and settling on a pond in which to breed. During this time they move up to 1km from the pond in which they were born. New ponds, when carefully located and suitably designed, can be rapidly colonised by these young natterjacks. Already 25 of the 100 new ponds dug since 2008 have been colonised by toads.

Habitat

Natterjacks breed in warm, shallow ponds that are relatively free of vegetation. Ponds that dry out in hot, dry summers are ideal as they tend to support fewer predators (e.g. dragonfly and beetle larvae) of toad eggs and tadpoles.

The habitat around the pond is also important. Dense scrub or rank vegetation is not suitable; open areas of low sward provide ideal foraging areas for adult toads. Adults usually stay within 200m of breeding ponds, but are known to occasionally undertake migrations of 1km or more. Stone walls, old logs and piles of stones adjacent to ponds can provide valuable hiding and hibernating places for toads.

Surveying for toads

Because toads are inactive for much of the year, the only time to survey for them is in late spring and summer [April – July]. During this period spawn and tadpoles can be located at breeding sites. Although toad spawn strings are quite distinctive from frog spawn clumps, some expertise is required to distinguish toad tadpoles from frog tadpoles. Adult toads may also be found in refuges around the ponds during day time surveys. Evening and night-time surveys in suitable warm, damp weather may locate calling males and breeding pairs in the ponds.

It should always be borne in mind that breeding in any particular year is largely dictated by weather conditions. Warm spring weather can accelerate spawning and tadpole development so that breeding may be complete by early summer with no further evidence of natterjacks at a breeding site for the rest of the year. By contrast, cold weather can delay breeding with no evidence of toads until mid-summer in some years. Dry weather may lead to early pond desiccation resulting in complete breeding failure although late spawning or second spawning may be prompted if the pond refills again later in the summer. Several surveys over the course of the spring and summer are required to get a full assessment of the status of toads at a particular site. Local NPWS staff are familiar with most natterjack toad breeding sites and it is recommended that they be contacted before surveying begins.

Further information on the ecology and biology of natterjack toads, together with data on their historical and recent distribution, are available in these publications:

T.J.C. Beebee (2002) The Natterjack toad *Bufo calamita* in Ireland: current status and conservation requirements *Irish Wildlife Manuals* No. 10. National Parks and Wildlife Service. http://www.npws.ie/publications/archive/IWM10.pdf

Bécart, Aubry & Emmerson (2007) Monitoring the conservation status of natterjack toad (*Bufo calamita*) in Ireland, 2004 - 2006. *Irish Wildlife Manuals*, No. 31. National Parks and Wildlife Service. http://www.npws.ie/publications/archive/IWM31.pdf

Reyne, M., Aubry, A., Martin, Y., Helyar, S. Emmerson, M. & Reid, N. (2019) Natterjack Toad (*Epidalea calamita*) Monitoring and Conservation Status 2016-2018 *Irish Wildlife Manuals*, No. 107. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

https://www.npws.ie/sites/default/files/publications/pdf/IWM107.pdf

Figure 10 Natterjack toad (Photo John Scary, NPWS)

Kerry slug *Geomalacus maculosus*

The Kerry slug is listed on Annex II and Annex IV of the EU Habitats Directive (92/43/EEC). The Annex II listing requires Member States to designate Special Areas of Conservation (SACs) for the protection of the species. The Kerry slug is listed as a selection feature for seven SACs. These are set out in Table 2 below.

Table 2 cSACs which list Kerry slug as a selection feature.

Site number	Site name	County
000090	Glengarriff Harbour and Woodland	Cork
000093	Caha Mountains	Cork/Kerry
000102	Sheep's Head	Cork
000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River catchment	Cork/Kerry
000370	Lough Yganavan and Lough Nambrackdarrig	Kerry
001342	Cloonee and Inchiquin Loughs, Uragh Wood	Kerry
002173	Blackwater River (Kerry)	Kerry

In addition, the Kerry slug is listed on Annex IV of the Habitats Directive and requires strict protection wherever it occurs within its natural range. The species is fully protected under Irish law as outlined in Regulation 51 of the European Communities (Birds and Natural Habitats) Regulations, 2011. Where it is likely to be present, therefore, this species has to be considered in deciding whether to proceed with any works.

Figure 11 Kerry slug *Geomalacus maculosus* (Photo Daniel Buckley, NPWS)

The Kerry slug *Geomalacus maculosus* is one of a few species of slug classified in the genus *Geomalacus* which is endemic to Western Europe. *Geomalacus maculosus* is found in Ireland, Portugal and Spain whilst the others are restricted to Spain. Genetic evidence suggests that the species is an ancient introduction to Ireland but for the purposes of the Habitats Directive is considered a native species through most of its range.

Range in Ireland

In Ireland the Kerry slug is found in Kerry, west Cork and Galway with recent additional occurrences in Limerick and Tipperary. The Kerry and Cork population is contiguous in suitable habitat and this area constitutes its natural range. The Galway population was only discovered in 2010 (Kearney, 2010) and the species is locally abundant in this area. It has not been found in other sites between north Kerry and Connemara

(Reich *et. al.* 2012) and the Connemara population is considered to have been introduced. This and other introduced populations are therefore not covered by the provisions of the Habitats Directive but the species is still protected by the Wildlife Act. Figure 12 shows the distribution in SW Ireland based on the most recent information.

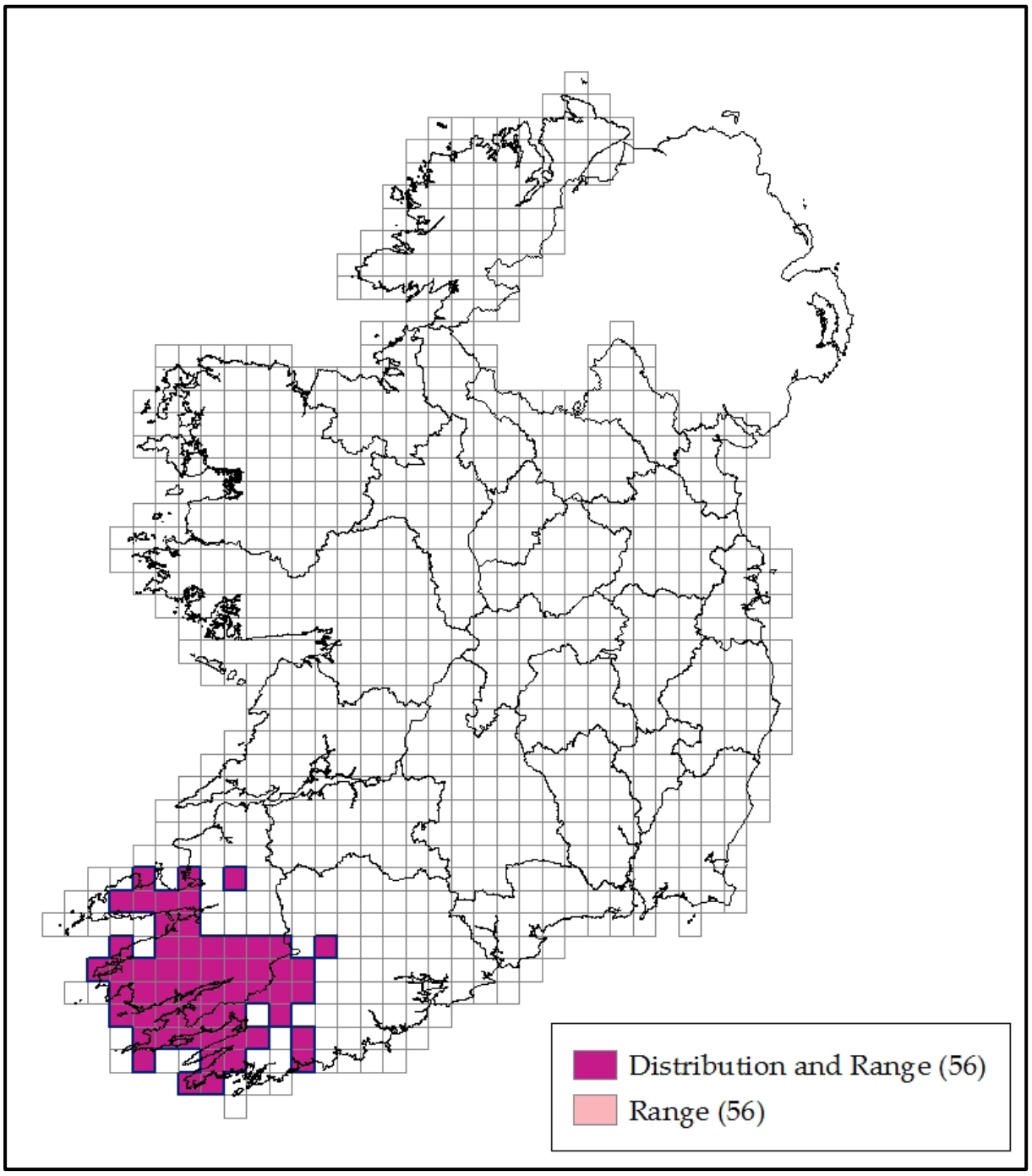

Figure 12 The natural distribution of Kerry slug in SW Ireland (from The Status of EU Protected Habitats and Species in Ireland 2019 Vol.1)

Habitat

Correlating the habitat of the Kerry slug directly with plant-based habitat types is difficult. It has to be recognised that the species depends on the presence of structural features rather than purely on particular species of plant. NPWS has funded two research projects (Reich *et al*., 2012; McDonnell *et al*., 2013; Johnston *et al*., 2017; Reich *et al*., 2017) which have helped clarify the habitat requirements of the species and provide additional information on the species. The habitat associations referred to in an earlier publication (Platts & Speight, 1988) have therefore been modified to take account of this information. In broad terms the species is found in two habitats types, woodland and blanket bog/wet heath.

Woodland habitat

The recent research has expanded the types of woodland in which the Kerry slug has been found, and has also removed the association with water. The species is not restricted to the proximity of rivers and lakes as previously stated.

Suitable woodland habitat must have large trees with abundant cover of foliose lichens, a supply of suitable cracks and crevices and relatively well-lit conditions with open understoreys. Negative features in woodlands will include Rhododendron and similar species that cast a heavy shade, and a lack of mature trees. Suitable woods would generally be considered humid and are often found on rocky, sloping ground. This however is perhaps related more to the distribution of suitable woodland rather than a habitat preference for woodlands on slope by the Kerry slug. The tree species is important as the greatest numbers of slugs are found on oak. Slugs can also be found on birch and rowan in small numbers, but holly seems to be avoided. Recent surveys have found it is also abundant on species of planted, non-native conifers including Sitka spruce, and Lodgepole pine, both of which are extensively planted throughout Ireland. The species appears to avoid the densest plantings and centre of plantations, presumably due to lack of food availability.

In terms of the Fossitt (2000) classification of Irish habitats, the species is associated with several woodland habitat types including:

- WNI Oak-birch-holly woodland – This is the main type of natural woodland the species is associated with. It is equivalent to the Annex I habitat *Old sessile oak woods with Ilex and Blechnum in the British Isles* [91A0].
- WN4 Wet pedunculate oak-ash woodland. This is equivalent to the Annex I habitat *Alluvial forests with Alnus glutinosa and Fraxinus excelsior* [91E0]. The association with this habitat-type is not clear and based on current evidence it is not considered an important habitat for the species.

The Kerry slug has also been recorded from the following types of modified/non-native woodland and these may harbour sizeable populations if the structure of the woodland is suitable:

- WD1 Mixed broad leaved woodland
- WD2 Mixed broad-leaved/conifer woodland
- WD3 Mixed conifer woodland
- WD4 Conifer plantation

In summary, Kerry slug should be looked for in any woodland, within its natural range, that meets the general description below:

- large trees especially oak and similar rough barked and creviced trunks
- open understoreys with humid conditions
- abundant growths of foliose lichens
- absence of dense shade-forming species such as Rhododendron

Open habitat

The second broad habitat for the Kerry slug is rock outcrops and boulders. The rock type must be acidic (old red sandstone or granite). It is important to stress that the habitat of the slug is the bare, lichen covered rock and not the surrounding habitat. These rocks, boulders and outcrops are large fixed features, usually described as being in wet heaths and blankets bogs. However they may be associated with other habitats. Slugs have been found on boulders in clear-felled conifer plantations, on lake shores and in wet grassland. Heavy modification of the surrounding habitat appears to reduce the population size. This may be due to the reduction in the food of the slug or the removal of access to bare ground. It is thought slugs seek refuge off the rock

by going underground and the presence of dense vegetation may prevent this. Kerry Slug has also been reported from stone walls.

Behaviour

The Kerry slug is a terrestrial species that is active mostly at night but it can also be seen during the day in warm, cloudy weather and especially damp weather. The current evidence indicates that it is not a very mobile species and its resting places and breeding sites are close together and probably overlap extensively.

There is no evidence that the Kerry slug hibernates, and so long as the temperature is not abnormally cold, individuals remains active throughout the winter. In summer activity levels will be dictated by temperature and dampness. Prolonged spells of sunny, warm and dry weather appear to reduce activity and adults are less inclined to appear from resting places. This reduction in activity appears to be most pronounced in open heathland sites, but may also affect woodland populations.

Dispersal and Migration

The Kerry slug is a most likely a sedentary species and there is no evidence it undertakes any seasonal movements. Given the nature of the species, colonisation and recolonisation of new habitats is likely to be slow. However the species has certainly been moved by human activity. There is a presumption that populations could become isolated by areas of unsuitable habitat and infrastructure such as roads, but this has not been studied.

Breeding sites

Breeding sites for Kerry Slug cannot be defined and so for the purposes of interpreting Regulation 51(2)(d) (Article 12(1)(d)), breeding sites for Kerry Slug should be assumed to be the same as the occupied habitat. It is a reasonable presumption given the sedentary nature of the species that all parts of the breeding cycle take place within a small area of habitat and the breeding sites are close to the resting places. Very young slugs have been observed on the same trees as adults and it is probable that the ranges and habitats of the adults and juveniles completely overlap.

The species is hermaphroditic *i.e.* a single individual slug is both male and female as with most species of snail and slug. The species however still mates with another

individual but both adults can lay eggs. Eggs are laid into crevices but are not cared for by an adult. Similarly the juvenile slugs are totally independent from birth and no parental care happens in this species.

Resting places

Resting places are defined as the areas essential to sustain an animal or group of animals when they are not active. For species that have a sessile stage, a resting place is defined as the site of attachment. Resting places will include structures created by animals to function as resting places. Resting places that are used regularly, either within or between years, must be protected even when not occupied.

Resting places essential for survival may include one or more structures and habitat features required for:

1. Thermoregulatory behaviour

2. Resting, sleeping or recuperation

3. Hiding, protection or refuge

4. Hibernation

There is no evidence that the Kerry slug requires any special structure or site for resting and the places it uses are small and not likely in short supply. The adults of Kerry slug are considered to be largely nocturnal but they can also appear during and after rain in daylight hours. Juveniles appear less restricted and may be observed feeding on exposed rocks during daylight hours unless conditions are particularly sunny or dry. Resting places used by Kerry slug are various, natural features and include under moss on trees; beneath loose bark; under loose stones; tree holes and crevices in bark. There is no evidence that the Kerry slug hibernates, nor does it appear to require any thermoregulatory sites. Rather the opposite, as it avoids being active in warm, sunny and dry conditions.

Range and geology check for Kerry slug surveys

The information needed to determine whether the survey area is within the Kerry slug's natural range is available through the National Biodiversity Data Centre online mapping system (maps.biodiversityireland.ie). Range should be assessed at the 10km

square level. Comprehensive distribution data at a finer resolution is not available and absence should not be implied from the lack of records in the area of the proposed development. Any queries over interpretation of the range data should be directed to NPWS. Contact details may be found at www.npws.ie

Geological information can be determined from geological maps. Habitat information may be determined from aerial photographs but this may require verification by a site visit.

Survey and monitoring

Surveys for Kerry slug have generally been done by opportunistic searching of suitable habitat in suitable weather. Nocturnal searches have often been recommended, but daytime searches can also produce records. Slugs are most active and likely to be found in damp humid weather. They can be seen throughout the year, but are most difficult to find in spells of cold and dry weather. Surveys should therefore be planned and scheduled to avoid these conditions. It is recommended that at each site, outcrops or tree trunks should be scanned or searched for approximately 45 minutes. Searching for the species in woodlands involves checking under 'carpets' of epiphytic bryophytes growing on tree trunks while on blanket bogs and heaths, specimens were often found by searching between the vegetation and the base of sandstone outcrops.

A more reliable survey method is to use baited refuge traps. These are described in McDonnell and Gormally (2011a, b), but essentially comprise squares of material fixed to the trunk of a tree or rock outcrop. They are typically baited with a piece of organic carrot. The traps can be left for an appropriate length of time and checked periodically for slugs. The use of these traps is recommended both for survey and post-development monitoring for the species.

Figure 13 Survey traps for Kerry slug *Geomalacus maculosus* in Uragh Wood. (Photo Brian Nelson, NPWS).

Mitigation measures for the Kerry slug

Effective mitigation measures for the Kerry slug are still under development and the advice given here may require further updating. The most effective alternative solutions are likely to involve the protection and retention of the habitat features for the species. The measure of effectiveness should be judged on the following factors:

- How much habitat (and as a result what proportion of the population) will be adversely affected by the works?
- Will the adverse effects be reversible and the species recover?
- Will the works cause isolation of a significant population?
- Is there scope for creating compensatory habitat and can it be done in a way that does not harm other interests?

Mitigation measures, which are attached as conditions on a derogation licence, may include creation of compensatory habitat or the removal and translocation of the species (which falls under Regulation 51(2)(a) and requires a derogation licence). However translocation for this species is untested and the likelihood of success is

unknown. Trapping individuals from the site and removal to compensatory habitat is one option, but again the likelihood of success is unknown currently. There may also be the question of where the animals can be placed, as nearby habitat may already be or have become occupied to capacity.

Please note that, if the works are likely to impact on a SAC listed for the Kerry slug (or any European site), they must be dealt with through the Appropriate Assessment process. A derogation may still be required.

Chapter 4
Case studies

Case 1: Repairs to a bridge over a river in Co. Meath

Scenario: Road-bridge over a river requires structural repairs

Location: Co. Meath

Stage 1: Determining the likelihood of presence of Annex IV species using existing information

Outcome for otters: Otters can be found on river corridors, so the presence of this species on site is likely. Otter must be progressed to Stage 2.

Outcome for bats: Bats can occur in bridges, so the presence of one or more of these species on site is likely. Bats must be progressed to Stage 2.

Outcome for natterjack toad: Known range information indicates that the natterjack toad does not occur in Co. Meath, so works can be deemed compliant for this species.

Outcome for Kerry slug: Known range information indicates that the Kerry slug does not occur in Co. Meath, so works can be deemed compliant for this species.

Stage 2: Ecological survey

For otter, this assessment will require a field survey by a suitably qualified person. The study should be able to demonstrate that the following have been appropriately investigated and determined:

- Presence or likely absence of the otter.

- If the otter is confirmed as present, the distribution of the species within the area affected by the works should be determined at a scale appropriate for the works.

- Identification and mapping of the principal habitat and habitat features for the species within the area affected by the works at a scale appropriate for the works.

For bats, this will require field survey at an appropriate time of year by a suitably qualified person. The study should be able to demonstrate that the following have been appropriately investigated and determined:

- Presence or likely absence of the bats.

- If one of more species of bats is confirmed as present, the distribution and in particular the roosting locations of the species within the area affected by the works should be determined at a scale appropriate for the development

- Identification and mapping of the principal habitat and habitat features for the species on the site at a scale appropriate for the development

Outcome for otter: the otter survey shows that otters are using the river corridor, in particular one wooded bank where habitat is most suitable, but finds no evidence of holts or couches within the area to be impacted by the works. Otter must be progressed to Stage 3.

Outcome for bats: evidence of a maternity colony of Daubenton's bats and a small number of Natterer's bats roosting in crevices under the bridge. Bats must be progressed to Stage 3.

Stage 3: Examination of impacts and alternative solutions

Otter expert works with bridge repair engineers to develop mitigation. With the implementation of pollution prevention measures and by confining site access to the non-wooded bank side, no impact on otter population in the area is anticipated. These measures were discussed with local NPWS staff and the works, with otter mitigation incorporated, are deemed Regulation 51 (Article 12) compliant for the otter. There is no requirement for a derogation licence for otter in this case.

It is clear that the project in its current form will impact on the breeding places of two species of bat. Alternative solutions must be carefully examined. The first is a "do nothing" scenario, where the bridge would not be repaired. This would cause extreme

hardship for the social and economic life of the area as the bridge carries an important transport route. In addition, the bridge would eventually collapse causing the loss of the bat roosts as well as the road.

A second solution would be the construction of a new bridge and the avoidance of the old one. Although the cost of this would be exorbitant, this option must be judged on its scientific merits. While the construction of the new bridge would provide a solution to the problem of the road it would not address the loss of the bat roosts if the old bridge collapsed.

The third solution is to carry out the repairs to the bridge as planned, whilst incorporating mitigation measures to eliminate or reduce the impacts on the bats. If the mitigation can eliminate impacts on bats no derogation will be required. If the mitigation only reduces the impacts, a derogation will be necessary.

Bat expert works with bridge repair engineers to develop mitigation. The following measures are agreed: works will only take place from October – March, outside the bat breeding period; the crevice identified as the roosting location for Daubenton's within the bridge will be clearly marked in advance of the works and will not be filled in so as to be available again to bats post works; the crevice being used by the Natterer's bats must be filled in for structural reasons; other potentially suitable crevices are available within the same archway and it is agreed that three of these will be left unfilled as alternative roosts; a suitable bat box will also be affixed to the bridge post works; a further bat survey will be commissioned immediately in advance of the works commencing to ensure no bats are present in the bridge. Given that impacts to the Natterer's roost are unavoidable the works must be progressed to Stage 4.

Stage 4: Derogation Licence

A derogation licence in relation to bats must be sought from the Minister under Regulation 54(2)(c) of the EC (Birds and Natural Habitats) Regulations 2011 before any works may proceed. The application should be accompanied by the bat survey report, detailing the proposed mitigation measures, and providing evidence that a) there is no satisfactory alternative to the works proceeding and b) that the derogation is not detrimental to the population of the species.

The Minister will apply the three tests to the application. If the reason for the application fits into one of the permitted categories, there is no suitable alternative, and the works will not negatively impact on the conservation status of the bats, the Minister should be able to issue a Derogation licence. This licence will contain conditions incorporating the appropriate mitigation measures amongst others. The works are Regulation 54 (Article 16) compliant and can proceed, in line with the licence and its conditions.

Case 2: Creation of lay-by/viewpoint in Co. Kerry

Scenario: A lay-by is proposed beside a small area of conifer woodland that will require removal of a small number of trees to create a viewpoint. Some planting is proposed around the edge of the lay-by.

Location: Co. Kerry

Stage 1: Determining the likelihood of presence of Annex IV species using existing information

Outcome for otters: There are no water bodies, streams or ponds within the area of the proposed works and so suitable habitat for otter is not present, therefore works can be deemed compliant for this species.

Outcome for bats: Bats can occur within woodland, so the presence of one of more of these species on site is likely. Bats must be progressed to Stage 2.

Outcome for natterjack toad: The proposed works are in Co Kerry but not within the range of the toad, so works can be deemed compliant for this species.

Outcome for Kerry slug: It is determined that the proposed works are within the natural range of Kerry slug and that the site is also within the area of sandstone geology (as determined from geological map) and there is some woodland within the area of the proposed works. This means that it is very likely that the Kerry slug is present on site. Kerry slug must be progressed to Stage 2.

Stage 2: Ecological survey

For bats, this will require field survey at an appropriate time of year by a suitably qualified person. The study should be able to demonstrate that the following have been appropriately investigated and determined:

- Presence or likely absence of the bats.

- If one of more species of bats are confirmed as present, the distribution and in particular the roosting locations (if any) of the species within the area affected by the works should be determined at a scale appropriate for the development

- Identification and mapping of the principal habitat and habitat features for the species on the site at a scale appropriate for the development.

Outcome for bats: the bat survey shows that bats are using the site for feeding only. No evidence of any roosts is found within the area of the proposed works. None of the trees scheduled for removal are suitable roost sites and all are non-native conifers. Bats will not need a derogation for this particular site and do not need to progress to Stage 3.

For Kerry slug this will require field survey at an appropriate time of year by a suitably qualified person. The study should be able to demonstrate that the presence of the Kerry slug has been appropriately investigated and determined. Outcome for Kerry slug: the survey shows that slugs are present on the trees that are scheduled for felling. Kerry Slug must be progressed to Stage 3.

Stage 3: Examination of impacts and alternative solutions

Kerry slugs have been found on the trees which are earmarked for felling. As the slugs have very small home ranges it is impossible to avoid impacting their breeding or resting places when felling the trees. Alternative solutions must now be carefully examined.

The first is a “do nothing” scenario, which means that the layby will not be built. The provision of a layby has been deemed important for the local tourism industry and has been included in the County Development Plan.

A second alternative would be to site the layby elsewhere. The chosen location is the only place along that road where there currently is sufficient line-of-sight to permit vehicles to safely enter and leave the parking zone. A second location is chosen which will require extra engineering work to make the entrance safe for traffic. The soil at this site is calcareous and not suitable for the Kerry slug.

Both the Kerry slug and bat experts work with the Council to survey this alternative site. No slugs are found. A bat roost is found in an old oak tree but it is possible to construct the layby without impacting on that tree. The proposed work is now deemed compliant for both the bats and the Kerry slug. Although this alternative will cost more than the original proposal, due to the extra engineering work required, it is now compliant with Regulation 51 (Article 12) and can proceed without the requirement for a derogation licence.

References and further reading

Aughney, T., Langton, S. & Roche, N. (2011) Brown long-eared bat roost monitoring scheme for the Republic of Ireland: synthesis report 2007-2010. *Irish Wildlife Manuals*, No. 56. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland. http://www.npws.ie/publications/irishwildlifemanuals/

Aughney, T., Langton, S. and Roche, N. (2012) All Ireland Daubenton's Bat Waterway Monitoring Scheme 2006-2011. *Irish Wildlife Manuals*, No. 61. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland. http://www.npws.ie/publications/irishwildlifemanuals/

Aughney, T., Roche, N. & Langton, S. (2018) The Irish Bat Monitoring Programme 2015-2017. *Irish Wildlife Manuals*, No. 103. National Parks and Wildlife Service, Department of Culture Heritage and the Gaeltacht, Ireland

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. http://www.npws.ie/publications/irishwildlifemanuals/

Bécart E., Aubry A. and Emmerson M. (2007) Monitoring the conservation status of natterjack toad (Bufo calamita) in Ireland, 2004 - 2006. *Irish Wildlife Manuals*, No. 31. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland. http://www.npws.ie/publications/irishwildlifemanuals/

Byrne, A., Moorkens, E.A., Anderson, R., Killeen, I.J. & Regan, E.C. (2009) *Ireland Red List No. 2: Non- Marine Molluscs*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland. http://www.npws.ie/publications/redlists/

European Commission (2021) Guidance document on the strict protection of animal species of Community interest under the Habitats Directive http://ec.europa.eu/environment/nature/conservation/species/guidance/index_en.htm

Fossitt, J. (2000) A Guide to Habitats in Ireland. Heritage Council

Kearney, J. (2010) Kerry slug (*Geomalacus maculosus* Allman 1843) recorded at Lettercraffroe, Co. Galway. *Irish Naturalists' Journal* 31: 68-69.

Johnston, E., Kindermann, G., O'Callaghan, J., Burke, D., McLaughlin, C., Horgan, S., Mc Donnell, R., Williams, C. and Gormally, M., 2017. Monitoring the EU protected

Geomalacus maculosus (Kerry Slug): what are the factors affecting catch returns in open and forested habitats? *Ecological research*, *32*(1), pp.95-104.

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. http://www.npws.ie/publications/irishwildlifemanuals/

King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., Fitzpatrick, Ú., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. & Cassidy, D. (2011) *Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Lynn, Deirdre & O'Neill, Fionnuala Eds. (2019). *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview*. Unpublished NPWS report.

Marnell, F., Looney, D. & Lawton, C. (2019) *Ireland Red List No. 12: Terrestrial Mammals.* National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland. http://www.npws.ie/publications/redlists/

McAney, K. (2006) A conservation plan for Irish vesper bats. *Irish Wildlife Manuals*, No. 20. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland. http://www.npws.ie/publications/irishwildlifemanuals/

Mc Donnell, R.J. and Gormally, M.J. (2011a). Distribution and population dynamics of the Kerry Slug, *Geomalacus maculosus* (Arionidae). *Irish Wildlife Manuals*, No. 54. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland. http://www.npws.ie/publications/irishwildlifemanuals/

Mc Donnell, R.J. & Gormally, M.J. (2011b) Identification of a live trapping method for the protected European slug, *Geomalacus maculosus* Allman 1843 (Arionidae). *Journal of Conchology* 40: 483-485.

Mc Donnell, R., O'Meara, K., Nelson, B., Marnell, F. and Gormally, M., 2013. Revised distribution and habitat associations for the protected slug *Geomalacus maculosus* (Gastropoda, Arionidae) in Ireland. *Basteria*, *77*, 33-37.

Moorkens, E. A. & Killeen, I. J. (2009) Database of association with habitat and environmental variables for non-shelled slugs and bivalves of Britain and Ireland. Irish Wildlife Manuals, No. 41. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

NPWS (2021) Guidance on the strict protection of certain animal and plant species under the Habitats Directive in Ireland
. https://www.npws.ie/licencesandconsents/disturbance/bats-or-otters

Platts, E., & Speight, M. (1988). The Taxonomy and Distribution of the Kerry Slug Geomalacus maculosus Allman, 1843 (Mollusca: Arionidae) with a Discussion of Its Status as a Threatened Species. The Irish Naturalists' Journal, 22(10), 417-430)

Reich, I., O'Meara, K., Mc Donnell, R.J. and Gormally, M.J. (2012) An assessment of the use of conifer plantations by the Kerry Slug (*Geomalacus maculosus)* with reference to the impact of forestry operations. *Irish Wildlife Manual*s, No. 64. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland.

Reich, I., O'Meara, K., Nelson, B., Mc Donnell, R.J. and Gormally, M.J. 2017 Absence of *Geomalacus maculosus* (Kerry slug) from parts of Western Ireland suggests human mediated transposal of species to its most northerly location. *Biology and Environment: Proceedings*

Roche, N., Langton, S. and Aughney T. (2012) Car-based bat monitoring in Ireland 2003-2011. *Irish Wildlife Manuals*, No. 60. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland. http://www.npws.ie/publications/irishwildlifemanuals

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