

Bats & Development

NIEA Northern Ireland
Environment
Agency
www.ni-environment.gov.uk



'This booklet aims to provide basic advice for developers, planning officers and others that may come across bat issues relating to planning. It provides information on bat species in Northern Ireland, the likely pitfalls of unconsidered development and current associated mandatory protective legislation. It provides a framework for providing adequate measures to protect all bat species from the possible negative consequences of development. As every case is different this information is not considered to be a substitute for expert advice which should always be sought from a bat expert as early as possible in the planning process, especially if it is suspected that a bat roost may be present.'

Front Cover: Brown Long-eared Bat

CONTENTS

Introduction	2
Bat Biology	3
Distribution and Status	7
Bat Roosts	10
Bats and Human Health	19
Bats and the Law	20
Bats and Development	21
Mitigation	25
Useful Information Sources	27
References and Further Reading	28



Leisler's Bat

INTRODUCTION

There are currently eight species of bats in Northern Ireland, and ten in the Republic of Ireland. A ninth has been reported recently in the north, but not yet been confirmed. It is possible that global climate change may bring conditions which make habitats in Northern Ireland more attractive to the two species so far found only in the Republic.

Bats have long been distrusted by the public in Britain and Ireland with many believing that they can cause damage to buildings, houses in particular or that they can cause personal injury to humans, for example getting tangled up in hair. Although several species live in close quarters with humans, bats rarely cause damage to houses: they don't construct nests like birds, nor do they chew cables or gnaw wood like mice. They use very highly-developed ultra-sonic echolocation systems to navigate in the dark avoiding collisions in complicated surroundings such as tree foliage, narrow caves and tight spaces in buildings.

British and Irish bats carry few diseases that can infect humans: very few problems arise in this area (see Bats and Human Health).

Bats are not actively persecuted in Britain and Ireland like some other mammals, largely because they are nocturnal. However, they have been severely neglected in terms of loss of habitat over many decades and centuries. Bat habitat is threatened by legitimate human activities such as road construction, development, forestry and agricultural practices. These threats can be much reduced by incorporating mitigation measures into planning proposals allowing development to continue whilst protecting and conserving suitable habitat into the future.

BAT BIOLOGY

Identification

There are nearly 1000 species of bats around the world. They are the only true flying mammal species. All bat species are members of the Order Chiroptera, which is composed of two suborders: Megachiroptera and Microchiroptera. Chiroptera is made up of two Greek words meaning, 'hand' (cheiros) and 'wing' (pteros). All species in the British Isles are members of the second group with most British species including all eight species found in Northern Ireland, are members of a single family, the Vespertilionidae. The family name suggests evening time, which is characteristic of the time of day when they are most likely to be seen.

Species	Latin Name	Size	Preffered Roost Site
Whiskered Bat	<i>Myotis mystacinus</i>	Small	BCT
Natterer's Bat	<i>Myotis nattereri</i>	Medium	BCT
Daubenton's Bat	<i>Myotis daubentoni</i>	Small	BCT
Leisler's Bat	<i>Nyctalus leisleri</i>	Medium	BT
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	Small	BT
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	Small	BT
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>	Small	BT
Brown long-eared Bat	<i>Plecotus auritus</i>	Medium	BT



B = Buildings

C = Caves, mines, tunnels, bridges

T = Trees

Northern Irish bats are grey/brown in colour and are small or medium sized.



Leisler's species

Unlike most mammals bats do not have a steady body temperature. In flight their body temperature can rise to 42°C and their pulse rate to 1000 beats per minute. After landing, their temperature drops by 10°C during digestion, and later drops to the ambient temperature which helps to conserve energy. Bat species in Northern Ireland feed predominantly on insects caught in flight or picked up from the surface of water, the ground or from foliage. During summer they consume huge numbers of insects, many of which are crop pests or biting midges. A single pipistrelle is capable of consuming up to 3,000 insects each night.

Bats are very long-lived compared with other small mammals such as shrews and mice, which often live for less than a year. Bats can live for over 25 years in the wild; a remarkable feat for an animal weighing less than 10 grams.

Bats have good eyesight which they use mostly for navigation if they are out in daylight. However, their main mode of navigation is by echo location. The bat emits a

stream of high frequency signals and interprets the reflected sounds that it hears. This enables the bat to avoid obstacles in the dark and locate its prey, allowing them to 'see' or discern fine detail in their surroundings even in complete darkness, but only up to a few metres in range. This is partly why bats have a twisting, turning flight as they only notice prey or obstacles when close to them.



REPRODUCTION

Bats in Northern Ireland combine their breeding cycle with hibernation. Mating takes place during the autumn just before hibernation. The female stores the sperm in her body throughout the winter and only becomes pregnant the following spring. Pregnancy lasts between six and nine weeks varying in length depending on the weather and food availability. Usually bats have only one baby each year, unlike mice with which they are often incorrectly compared. The baby is cared for very carefully and is fed solely on its mothers milk for four to five weeks until it can fly and hunt for itself. Generally the baby stays in the roost site (nursery) whilst the mother goes out to feed but occasionally a mother may fly to another roost site and carry her baby with her. Bats don't bring food back to the roost to feed their young.

DO BATS HIBERNATE IN WINTER?

Bats do hibernate in Winter, one reason being there are few insects available. Bats put on about one third extra weight during autumn prior to hibernation and then hibernate from the end of October to the end of March. During this period body temperatures are close to ambient, which may be as low as 0°C at times. Occasionally, a warm spell in winter may bring some bats out of hibernation, but unless there are sufficient insects they may lose more weight than they can replace by feeding. During very cold weather bats may move to alternative hibernation sites with more suitable temperatures. Bats should **never** be disturbed during hibernation because this can cause them to use up vital energy reserves and consequently may not survive hibernation.

DISTRIBUTION AND STATUS

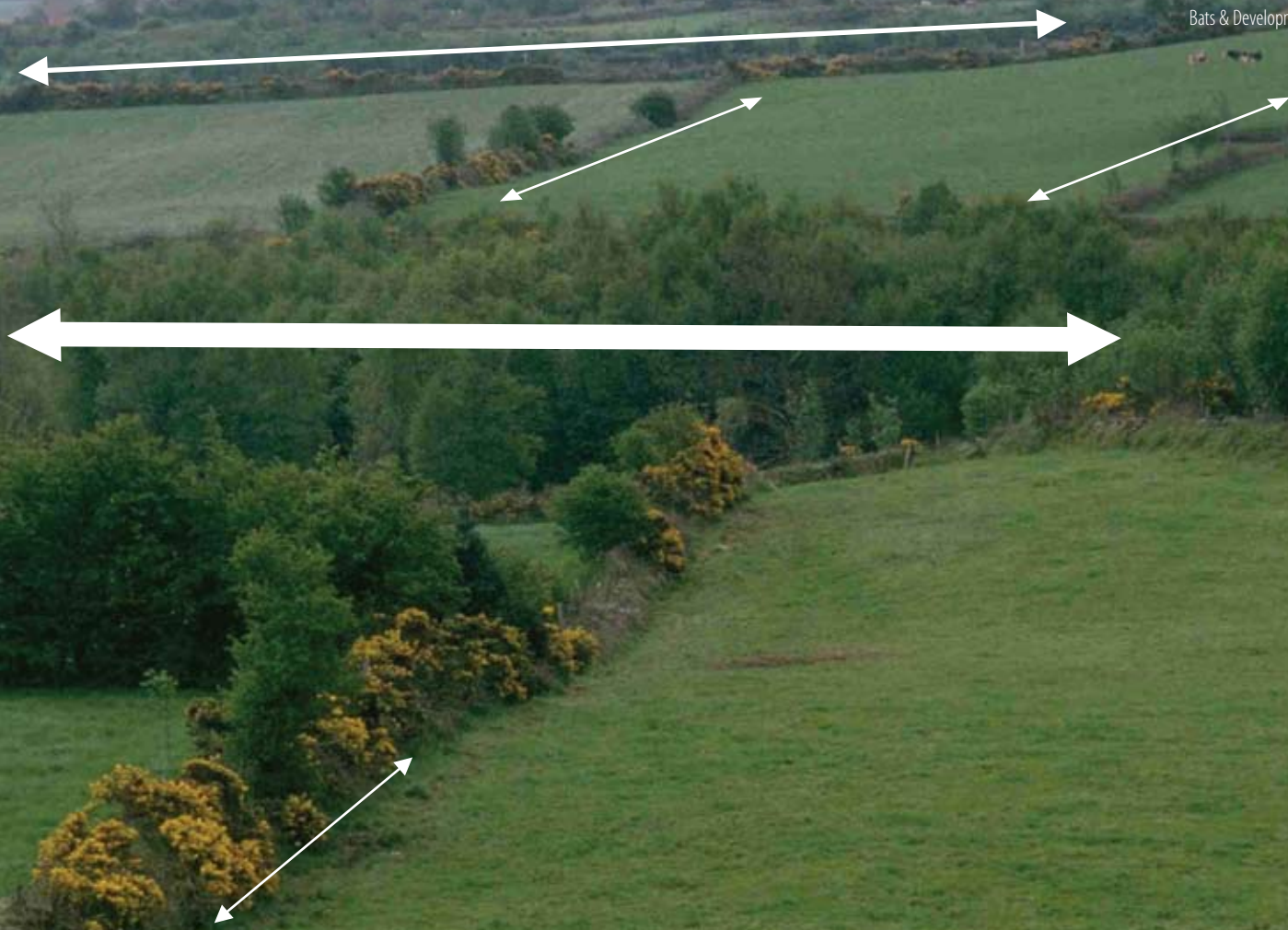
Of the 19 terrestrial mammals considered native in Northern Ireland, eight are bats. Anecdotal evidence suggests a general decline in population numbers, especially since the end of the Second World War and with the advent of large-scale industrialization, housing expansion and mono-agriculture. Bats are particularly vulnerable to environmental changes which lead to reduced longevity or reproductive success. Most bat species in Northern Ireland have strong associations with broadleaf or mixed woodland and freshwater bodies with bankside vegetation. By the end of the 18th century Ireland had lost most of its natural broadleaf woodland. The planting of many hectares of coniferous woodland since the 1920s brought little benefit to bats as these woodlands contain a less abundant and diverse insect fauna and lack suitable roost sites. This has forced bats, which were once primarily forest-dwelling species living in caves and tree holes, to adapt to roosting within buildings.

The main factors causing loss or decline of species are:

- Loss or degradation of habitat, eg woodland, river corridors, water bodies
- Loss, disturbance and destruction of roosts
- Loss and disruption of flight line features (linear landscape elements) such as hedgerows and treelines
- Reduction in insect prey numbers due to lack of crops diversity and the use of chemicals on farmland.
- Ignorance or deliberate avoidance of consultation procedures legally required to protect bats, resulting in the loss of many roosts through demolition, inappropriate building practices, use of toxic timber treatment chemicals, intolerance by roost owners and tree felling.

The last of these items may be the most important as the others can be avoided if the appropriate legal requirements are fully met by the construction and house-building industries (see Mitigation).





Linear features for bat flight paths and woodland habitat in which to feed

DIET AND FEEDING BEHAVIOUR

The diet of all bat species in Northern Ireland is predominantly insects, most of which are caught on the wing in darkness after leaving the roost at dusk. Although an individual may leave and return to their roost several times during the night, and even utilize several different types of roost along the way, most individuals will return to their roost to sleep before dawn.



Brown Long Eared in flight



Common Pipistrelle in flight

BAT ROOSTS

Dependence on roost sites varies seasonally. Adult females gather together in maternity roosts in late May to early June to give birth and rear their young. As soon as the young start to fly these maternity colonies begin to break up and the bats move to other roosts. Bats may congregate from a large area to form these colonies, so any major disruption at the summer breeding site could potentially wipe out all the females from this area. In contrast, male bats typically prefer to live alone or in small groups in cooler sites. During late summer male bats set up territories around a mating roost to which they attract females.

Generally, in Northern Ireland, the focus of attention has been on summer **maternity roosts** as these contain the largest numbers of active bats and are more frequently brought to the attention of bat workers by members of the public, usually house-owners with roosting bats. Other important roosting sites include **spring gathering roosts** where some species gather in late spring before separating into smaller maternity groups, **mating roosts** from which individual males defend mating territories, **night roosts and feeding perches**, which may be used temporarily during the night to rest or consume food. **Pre-hibernal roosts** are cooler sites used just before hibernation, and **hibernation roosts** in which the bats hibernate for the winter.

Although bats have **three main types of roost**, they can be found roosting in any well protected location:

1. BUILDINGS

- dwelling houses, farms, barns, ancient monuments, churches, fortifications and industrial buildings are potential summer roosts. Almost any roof or building is a potential bat roost.



Typical barn for bat roosting



Typical barn for bat roosting

2. CAVE-LIKE PLACES

- natural caves, mines, cellars, lime-kilns, ice-houses, tunnels of all kinds (railway, canal and service) and under bridges. Masonry with eroded pointing or missing stones probably has the greatest potential for bat roosting sites.

Any crevices deeper than a few centimetres in the masonry of a bridge could provide roosting sites for bats.



Typical bridge for bat roosting



Typical bridge for bat roosting

3. HOLLOW IN TREES

- in hedgerows and woodlands
- are used throughout the year.

As bats cannot always rouse themselves quickly to escape from danger the roost must be safe and free from disturbance. Summer roosts are generally close to good feeding habitats which are rich in insects.

For any work being planned on bridges, historic or other types of buildings and/or felling or trimming of mature trees which may have potential to be used by bats you should contact the NIEA Wildlife Inspector. (See Bat and the Law section)



Typical tree for bat roosting



Bat roosting in a tree



Brown Long Eared resting on a tree

FIELD SIGNS

Each of the eight bat species resident in Northern Ireland has its own preferred types of roost. The species most likely to be found in houses are the **common and soprano pipistrelles**.

Although they often roost in large numbers there may be few signs of their presence other than piles of droppings at the gable walls and along the eaves. They roost in the barge board/soffit area, utilising small nooks and crannies in roof spaces. However, the droppings themselves may be hidden in the same tight space containing the roost and there may be more than one roost in any given space. A characteristic smell of ammonia or the presence of large numbers of moth wings discarded by feeding bats are two important clues to the presence of bats. Rats and mice rarely produce large accumulations of droppings. To tell mouse and bat droppings apart, press one between your fingers. Bat droppings crumble to a fine powder because they are composed of insect fragments whereas mouse droppings are pasty when fresh and increasingly hard as they dry. (Wash your hands after using this test!)

In Northern Ireland, the **Leisler's Bat** is the next most commonly found species in buildings. They also roost in barge boards/soffit areas and also within roof space.

Brown Long-eared bats prefer the open roof areas of older buildings such as barn and outhouses. They often fly around in open roof spaces so droppings can be found scattered over the floor as well as being concentrated in piles beneath roosting areas, typically beneath the ridge beam.



Common Pipistrelle



Soprano Pipistrelle

Whiskered and **Natterer's bats** are occasionally found in house roofs but more often in the stonework of bridges, tunnels, castles and other buildings.

Daubentons bats are almost always found in the masonry of bridges. It should be noted that there is always at least one entrance hole to any roost which may be many metres from where the bats actually roost during the day.

Any given roost is not usually occupied throughout the year as bat colonies frequently move. However the same site tends to be occupied by the same colony at the same season each year. Distances between roosts may be only a few metres or many kilometres. All roosts are protected by law whether actually occupied by bats or not (see Bats and the Law).



Whiskered Bat



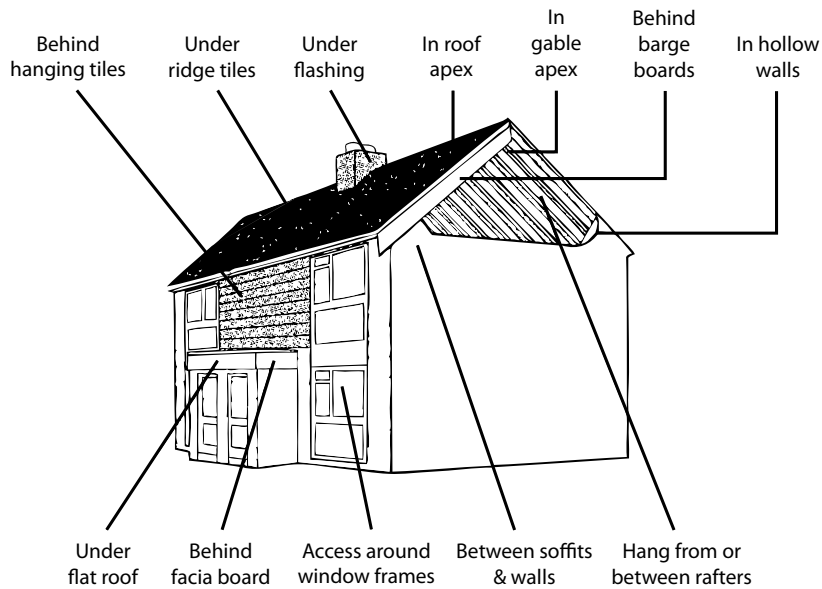
Natterer's Bat



Daubentons Bat

A SUGGESTED SEARCH TECHNIQUE FOR HOUSES

1. Ask the occupiers if they are aware of any bats, or if bats have ever been found in the house.
2. Check for the presence of bats by listening for their 'chittering' noises in warm weather and by shining a light along the roof ridge beams and over stone and brick-work. It's important to remember that bats are rarely seen during the day even when present.
3. Examine the loft for droppings, concentrating on the area beneath the ridge, the junction between two ridges, down hips and over bays, around chimneys and gables and all around the eaves.
4. In the summer months, check for droppings sticking to window panes and the outside walls of the building, on window ledges and on the ground beneath the gable apex.
5. Use a bat detector after dark, during the months of May to September only.



Possible locations of bat roosts in houses

WHAT TO DO IF YOU FIND A BAT ROOST

Bat colonies usually live happily with their human landlords, but occasionally problems or concerns arise. If a bat roost is found in a dwelling house and work is proposed which might affect the roost or the bats, you should contact the Natural Heritage Wildlife Officer. Dwelling house can mean any building which people occupy more or less permanently, so can include private homes, nursing homes, holiday homes and other places. There is only The Northern Ireland Bat Group (www.bat-ni.org.uk) who can provide information and may make an initial inspection for you (see Useful Information Sources). A professional bat consultant may be required for more complex proposed works. The final statutory advice for any case affecting bats or bat roosts must come from the Northern Ireland Environment Agency, Natural Heritage section.

If you find a bat roost it should be reported to the Centre for Environmental Data and Recording (CEDaR).

The Vertebrate Officer based at the Ulster Museum can provide advice to the public on bats and also liaises with the Northern Ireland Bat Group which carries out the associated practical work, deals with the practical aspects of public enquiries and promotes awareness of bats and carries out bat survey work.

Bats generally come and go from their roosts without any trouble, but occasionally they appear inside the house. This is most common when baby bats, which are tiny and often grey, crawl out of their roost and accidentally find a way into rooms of the house. Also, some young, inexperienced bats fly in through open windows by mistake. If you find a bat flying inside a room, open doors or windows to allow it to escape. Bear in mind that you should not touch bats and contact your nearest Country Park, Countryside Centre, or contact the Natural Heritage Wildlife Officer directly. The law does allow you to remove a bat from a room out of immediate necessity, so only if it has settled place a small box or other container over it and, sliding a piece of cardboard underneath, trap it. Alternatively, cover the bat with a



Bat in the home



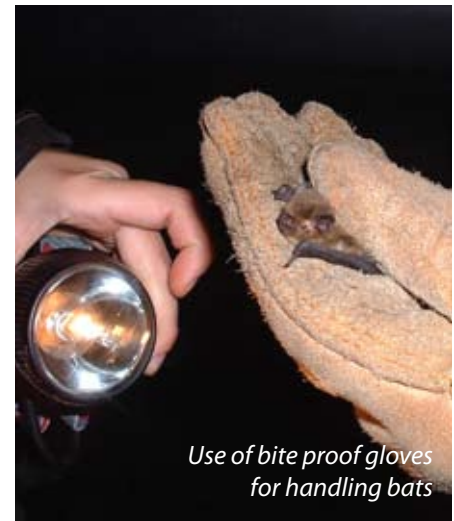
Bat in the home

soft cloth or towel and gather it up carefully. Always wear protective gloves when handling bats, even if the animal is inside a box or cloth. Carry the box or cloth outside and release the bat onto a wall or tree preferably at head height and ideally at dusk.

BATS AND HUMAN HEALTH

Bats in Northern Ireland carry very few diseases that constitute any risk to humans. However, in recent years there have been a few cases where bats have been found to carry a form of rabies. Provided precautions are taken the risk of being bitten by an infected bat are remote. As the disease is almost always fatal you should treat this risk seriously. The disease is transmitted by a bite or a scratch, or through contact between human mucous membranes, such as eye, nose or mouth, and an infected bat's saliva. The risk can be minimised by avoiding direct contact with bats. Wear bite-proof gloves to move a bat, (see picture) and use a cloth, or a box and card, to pick one up. Any bite or scratch from a bat should be washed immediately and thoroughly with soap and water and you should contact your doctor. An effective post-exposure treatment and a pre-exposure vaccine for bat workers is available. If possible, if you are bitten or scratched, the bat should be kept so that it can be examined by an expert.

There is no rabies risk from contact with bat droppings or urine, but you should still wash your hands before eating, drinking or smoking.



BATS AND THE LAW

All bats in Northern Ireland are European Protected species and are protected under the Conservation (Natural Habitats etc.) (Amendment) Regulations (Northern Ireland) 2007, (also known as the Habitat Regulations), which transposes the Habitats Directive.

It is therefore illegal for anyone without a licence, **intentionally** to kill, injure or handle a bat of any species, to possess a bat, whether alive or dead (unless obtained legally) or to disturb a bat when roosting. Ringing or marking bats or photographing them (except when they are flying outdoors) thus requires a licence from the NIEA Wildlife Inspector. It is also an offence to sell or offer for sale any bat, whether alive or dead, without a licence. But the law does allow anyone to tend a disabled bat in order to release it when it recovers, to take it to a licensed bat worker, or to kill a seriously disabled bat which has no reasonable chance of recovery.

It is also an offence to damage, destroy or obstruct access to any place that bats use for shelter or protection, whether bats are present or not, or to disturb a bat while it is occupying such a place; this applies even in houses and outbuildings. The only exception is for bats in the living area of a house.

BATS AND MAINTENANCE WORKS

Any development or maintenance works to buildings that may affect bats and/or their roosts for e.g. demolition, timber treatment, loft conversions, re-roofing and alterations, barn conversions or bridge or tree maintenance please contact NIEA Natural Heritage for advice before starting the work. In Northern Ireland before any works affecting bats and the roosts can take place a licence must be applied for and obtained from NIEA Natural Heritage Wildlife Inspector. (See Licensing).

This explanation should be regarded only as a guide to the law. In case of doubt, reference should be made to **The Conservation (Natural Habitats etc.) (Amendment) Regulations (Northern Ireland) 2007. (also known as the Habitat Regulations).**

LICENSING

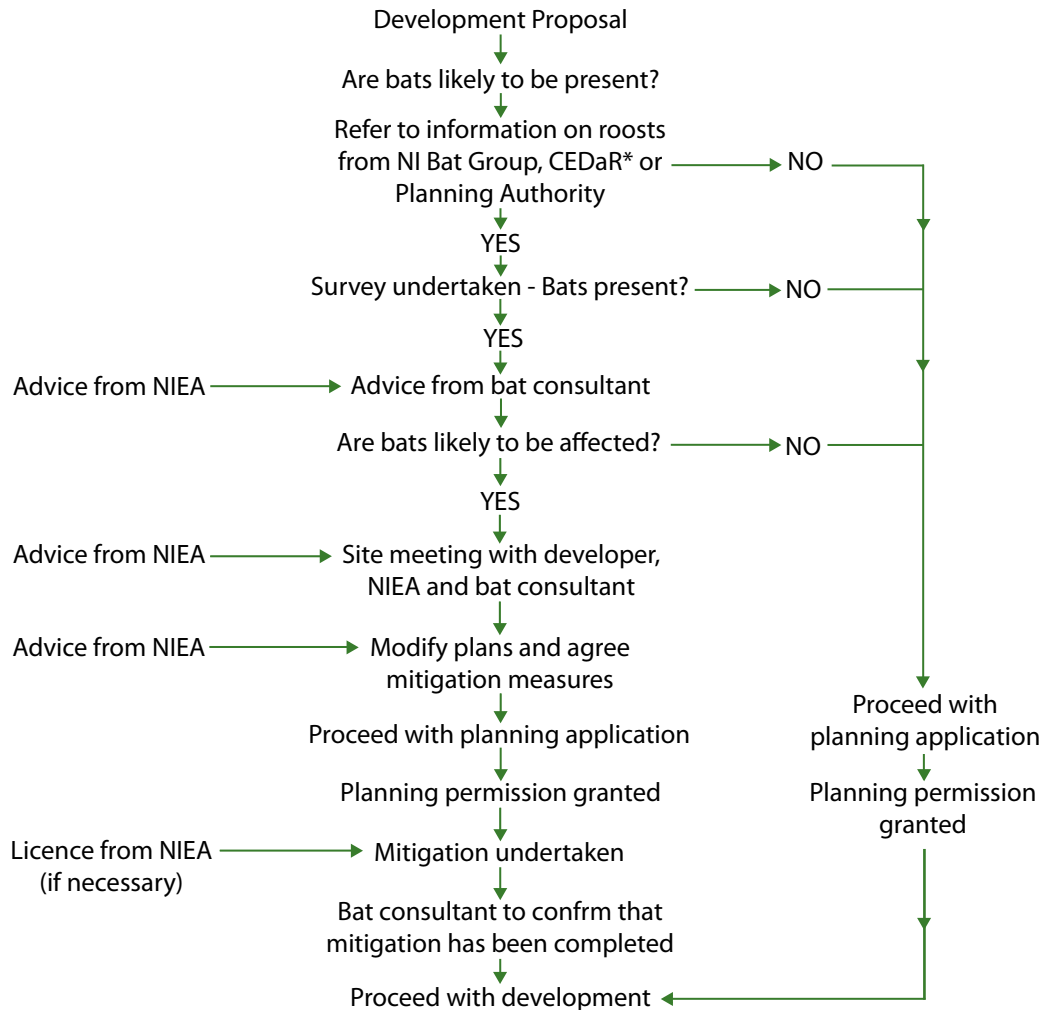
A licence must be obtained from the Natural Heritage Wildlife Officer for any work that may cause disturbance to bats and/or their roosts sites. Licences for development are only issued to recognised Bat experts, whose role is to provide on-site advice and, where necessary, supervise all the licensed work. All applications for licensing of removal of roosts, handling of bats or of anything else covered by the Habitat Regulations should be sent to Natural Heritage Wildlife Inspector.

BATS AND DEVELOPMENT - THE PLANNING SYSTEM

Developers should be aware that Planning Authorities are required to take account of protected species and habitat conservation when they consider planning applications. **Planning Policy Statement 2 (PPS2) – Planning and Nature Conservation** outlines the criteria which Planning Service will employ when processing planning applications which might affect nature conservation interests and to which developers should have regard when preparing proposals.

Where protected species are present, Planning Service will consult NIEA at the earliest possible stage. Where bats are present or are likely to be present, Planning Service may require a survey to be undertaken, paid for by the developer. Bats are protected under **The Conservation (Natural Habitats etc.) (Amendment) Regulations (Northern Ireland) 2007** and are now subject to a system of strict protection, refer to the **Guidance Document on the Strict Protection of Animal Species of Community Interest under the Habitats Directive 92/43/EEC (2007)**. The presence of a species protected under the Habitat Regulations is material to the consideration of a development proposal, which if carried out would be likely to result in harm to the species or its habitat and, to places used for shelter or breeding. Where necessary, conditions may be stipulated in a planning permission to secure the protection of the species. Developers may also be advised that they must conform to any statutory species protection measures affecting the site concerned.

THE VARIOUS STAGES INVOLVED IN DEVELOPING LAND WHICH CONTAINS BAT ROOSTS



* Centre for Environmental Data and Recording

POTENTIAL IMPACTS ON BATS FROM DEVELOPMENT

Each of the 8 species of bats in Northern Ireland have their own lifestyle and habitat requirements, this list below shows the general impacts on all the bat species although as every bat species is different the potential impacts can be species specific:

- Loss of roost sites
- Loss of habitats
- Loss of Linear features
- Loss of foraging areas
- Impacts from Lighting
- Impacts from Turbines



Whiskered Bat

SUMMARY OF KNOWN IMPACTS AT PRESENT

Impacts on bats from development	Common Pipistrelle	Daubentons	Whiskered	Natterer's	Leisler's	Nathusius'	Soprano Pipistrelle	Brown Long Eared
Loss of roost site	***	***	***	***	***	***	***	***
Loss of insect rich habitat/ foraging areas	**	**	**	**	**	**	**	**
Loss of linear features	***	**	***	***	*	*	***	**
Impact from lighting e.g. on roosts	*	***	***	**	***	*	*	***
Impact from turbines	*	*	*	*	*	*	*	*
Water pollution	*	***	*	*	*	***	*	***
Loss of water features	*	***	*	*	*	***	*	***

*** Very significant impact

** Significant Impact

* No significant impact known at present

MINIMISING DISTURBANCE TO BATS

If you are going to carry out repairs, alterations or re-roofing to a building or if you are going to fell a mature tree or trees or alter or repair a bridge that you suspect may have bats roosting in it you need to contact the Natural Heritage Wildlife Inspector for advice before starting any works. If there is a bat roost found depending on what works you wish to carry out it may be a case of timing the works to help minimise the disturbance to any breeding bats. It is while the bats are breeding and in maternity roosts that they are at their most vulnerable.

MITIGATION

Refers to all works required to comply with legislation when developing sites occupied by protected species.

It is the responsibility of the applicant/developer to demonstrate that their proposals will not have a detrimental impact on Bats. This is likely to involve the implementation of appropriate mitigation measures to safeguard the animals, their roosts and their foraging habitat. Advice should be sought from Natural Heritage Wildlife Inspector and/or our website www.ni-environment.gov.uk under Landscape section/Working with Planners for current advice and possible mitigation measures.

REMEDIAL TIMBER TREATMENT

If you are going to carry out any timber treatment works you will need to check first whether bats are present and try and use modern chemicals *Permethrin or *borax based treatments which are regarded as less toxic to bats. Treatment should not be carried out if bats are present.

* brand names



Bat box on a building



Schwegler Bat boxes on a tree

THINGS TO CONSIDER

When putting in a planning application the following may indicate a higher likelihood that foraging bats and/or a bat roosts may be present and you may wish to undertake a bat survey and submit this with your application. A trigger list is under development at present contact Natural Heritage for advice or refer to the published Bat Mitigation guidelines document by English Nature at the website below for reference purposes only, further advice should always be sought from Natural Heritage. (<http://www.english-nature.org.uk/pubs/publication/PDF/Batmitigationguide2.pdf>)

When developing a proposal, retain lines of mature vegetation, water features and areas of woodland and if using lighting during construction or placing street lights or lighting within the development as permanent fixtures ensure that this lighting does not illuminate these features or any bat roosts in the area. When planning replanting or supplementary planting schemes on a site consider planting native species of trees and shrubs to help connect in with the existing lines of trees and hedgerows in the surrounding area, a helpful tool in achieving connectivity is to look at aerial photographs of the area. When creating grassland areas within a site include native wild flower seed mix within the grass mixes where possible this will provide a flower rich habitat that attracts insects and in turn provides feeding areas for bats.

If there is a river or stream within the site or on the boundary of the site consider planting native trees along the river or stream to provide a wildlife corridor and create dark area for feeding bats.



A bat tube on a bridge supplies a breeding/resting site

USEFUL INFORMATION SOURCES

Northern Ireland Bat Group - www.bats-ni.org.uk

The Mammal Society

3 The Carronades,
New Road,
Southampton.
SO14 0AA
Tel: 02380 237874
Fax: 02380 634726
Email: enquiries@mammal.org.uk

Bat Conservation Trust

The Bat Conservation Trust
Unit 2, 15 Cloisters House
8 Battersea Park Road
London SW8 4BG
Tel: 020 7627 2629
Fax: 020 7627 2628

Bat Conservation Ireland - www.batconservationireland.org

Ulster Wildlife Trust

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BT30 9EP
Tel: 028 44830282
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LICENSING

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REFERENCES AND FURTHER READING

Conservation (Natural Habitats etc.) (Amendment) Regulations (Northern Ireland) 2007

Guidance Document on the Strict Protection of Animal Species of Community Interest Under the Habitats Directive 92/43/EEC. (Final Version February 2007)

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Our aim is to protect, conserve and promote the natural and built environment for the benefit of present and future generations.



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