

EXAMPLES OF SPECIES

Myotis mystacinus - Whiskered bat

The whiskered bat is widely distributed throughout Ireland but it is not common and the Irish population is estimated to comprise in the order of 5,000 mature individuals. It is known to be a woodland species but tree lines, river corridors and farmland are also used for foraging. Summer roosts are normally in buildings, but it will also use cracks and holes in trees and sometimes bat boxes. Their hibernation sites are not well known but a small number have been recorded in caves.



This species has bristles on its lips, chin and forehead, which give it its name. It has a rapid, fluttering flight and flies along a regular 'beat' over and over again. It sometimes glides as it hunts and may glean spiders from the foliage of trees.

Myotis nattereri - Natterer's bat

Natterer's bat is widespread in Ireland but seldom recorded and there are no records from the western seaboard. The population in Ireland is thought to be stable and in the order of 5,000 mature individuals. Summer roosts are normally in buildings with small numbers of bats present. In winter individuals have been observed in bridges, mines and caves.

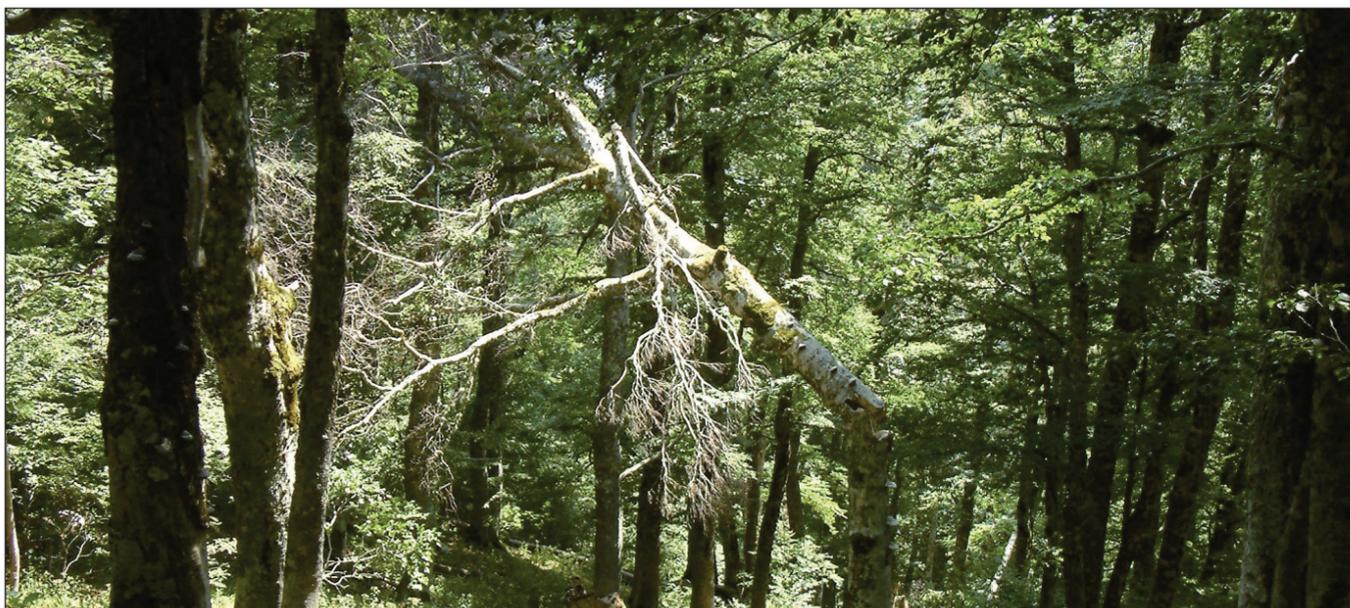
This species specialises in hunting in confined spaces and is skilled at making very narrow turns. It gleans most of its prey from foliage, rather than catching it in the air, and has the ability to take spiders from their webs. This species has a fringe of stiff bristles along the trailing edge of its tail membrane, which may help to hold or trap prey. It may eat larger prey at a feeding perch. Woodland habitats and river corridors appear to be favoured for foraging.



Rhinolophus hipposideros - Lesser horseshoe bat

Lesser horseshoe bats, the only member of the Family Rhinolophidae in Ireland, are confined to six counties, namely Cork, Kerry, Limerick, Clare, Galway and Mayo. The population in Ireland is thought to be stable and may even be increasing, with current estimates of 12,500 mature individuals. Summer roosting sites are often in the attics of old or derelict buildings and the species is faithful to a roosting site, returning each year. Hibernation sites are typically caves, souterrains, cellars and ice houses.

This species is reluctant to fly out in the open so linear landscape features (e.g. treelines, hedgerows) and forest edges are crucial for them to navigate and commute from roosts to feeding sites. Lesser horseshoe bats predominantly forage in deciduous woodland and riparian vegetation, normally within a few kilometres of their roosts.



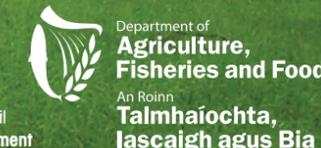
BATS & FORESTRY



Leaflet is based on EUROBATS publication Bats and Forestry. For further information see www.eurobats.org

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Picture of bat on front of leaflet - *Plecotus auritus* © NABU
P. pygmaeus & *P. nathusii* © P.Kanuch
Brown long-eared bat - Frank Greenaway © NPWS
Whiskered bat - Frank Greenaway © NPWS
Natterer's bat - Frank Greenaway © NPWS
Lesser horseshoe bat - Frank Greenaway © NPWS
Mature beech forest © L.Cistrone
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ABOUT BATS

Bats are the only true flying mammals. Their wings are made of skin stretched over elongated fingers. They are warm-blooded and give birth to live young, which they suckle with milk.

There are more than 1,000 species of bats world-wide and they can be found from the tropics to the edges of the polar regions. Ireland has ten bat species - nine vesper (evening) bats and the lesser horseshoe bat. All European species eat insects and spiders, which they catch in the air or pick off foliage or the ground. Ireland's smallest bat, the soprano pipistrelle (*Pipistrellus pygmaeus*), can eat between 3,000 and 4,000 insects in a night. Bats can see perfectly well, but they also use a sophisticated echolocation system to navigate



and find their prey in the dark. This system, where the bat emits high-pitched sounds and analyses the returning echoes, is so sensitive that bats can catch small insects in flight. Although they are warm-blooded like us, bats have great control of their body temperature and can allow their temperature to drop so they become cold and torpid, thus saving energy. In cooler climates like Ireland, many species

hibernate for long periods when prey is not available.

Bats have complex social lives and all are colonial for at least part of the year. Most commonly, they form colonies during the breeding season, when females gather to have their babies. Depending on the species, these colonies can range in size from just a few bats to several thousand, with the biggest colonies being found in caves or similar places. At other times of the year, bats may live singly or in small groups. During the breeding season, bats seek out warm places or gather in large clusters to keep themselves warm. At other times, they may seek out cooler places, so they can allow their body temperature to drop and save energy.

Bats can roost in a wide variety of places, but the most important are trees, buildings and underground places, such as caves and abandoned mines. Some species use mainly trees, others prefer underground places and some

move between trees and underground places, depending on climate and season. Many now roost in buildings, as these can provide similar conditions to both trees and underground places.



Tree-roosting bats use cracks, crevices, rot-holes and woodpecker holes, as well as areas of loose bark for roosting. Some species like to squeeze into small crevices, whilst others prefer to gather in cavities, such as those made by woodpeckers. However, woodpeckers have only recently arrived in Ireland so woodpecker holes are not as important for bats in Ireland as they are elsewhere in Europe. Most bats that roost in trees will move between several trees over a period of time, so they need to have a supply of trees with suitable roosting places within a small area and also a continuous supply of new roosts, as old trees decay or are removed.



All European bats are nocturnal, usually emerging from their roosts at dusk and returning at dawn or earlier. They will hunt wherever there is a good concentration of their insect prey, with different species specialising on different types of insect or different ways of hunting. For example, some species specialise in catching moths resting on foliage, while others hunt small

insects out in the open or over water. Some even flycatch, hanging from a branch until they detect a suitable insect within range. Most bats hunt within just a few kilometres of their roosts, so forests need to provide both roosting places and hunting places within this flying distance. In addition, most Irish species avoid flying out in the open, so suitable connections to allow bats to move between areas of forest and other foraging areas can be very important.

BATS AND FORESTRY

Forests of all types, ranging from the semi-natural forests to broadleaf and conifer plantations, and all ages from newly established to closed canopy forests, are used by bats. In many cases, bats will seek out particular features, such as ponds or streams, hedgerows, clearings, aquatic buffer zones, archaeological exclusion zones or forest edges, where insects tend to be most abundant. Other features within forests such as derelict buildings or underground structures may be important roosting sites. Exactly which features are most important will depend on the forest type and the species of bats present.



Although forests/woodlands are used in some way by all ten Irish bat species, three species are considered to be woodland specialists, namely whiskered, Natterer's and Brandt's. Bat

distribution, diversity and density in managed forests may be affected by competition for limited roosting places. Managing forests to maintain or improve bat populations needs a good understanding of the bat species present and their roosting, hunting and commuting needs. It is also important to understand the effects of forest management on the bats.

Although Ireland has a diversity of forest types and landscapes in which they are located, there are several important general principles that apply to the management of all forest types and bats.

PROTECTION

Irish bats are protected under the Wildlife Act 1976, as amended by the Wildlife (Amendment) Act 2000, making it illegal to capture or kill any bat except under licence (e.g. for scientific research). Under European legislation, the lesser horseshoe bat is the only Irish bat species listed on Annex II of the EU Habitats Directive (92/43/EEC). Special Areas of Conservation (SACs) are required for species listed on this Annex. However, all Irish bats are Annex IV species, hence they are strictly protected (i.e. protected wherever they

occur) and the deliberate disturbance and the destruction of their resting and breeding places is an offence.

GOOD PRACTICE GUIDANCE FOR BAT-FRIENDLY FORESTRY IN IRELAND

Landscape Planning

- A strategy for the whole landscape would benefit bats. In order to be able to combine conservation with timber production it is important to do the right thing in the right place. Integrate advice from bat specialists at an early stage in forest planning.
- In general lowland areas have more bats.
- Some bat species are affected by fragmentation - avoid creating isolated forest stands.
- Corridors along streams, forest rides and forest edges are used by bats as foraging sites and for commuting.
- Connectivity is important - hedgerows and tree-lines connecting forests or areas of woodland will benefit bats; forest rides connecting open habitats within and outside the forest will also benefit bats.

Forest Operations

- Cavities in oak and beech trees are commonly used as roosting sites. Preserve and increase roosting sites by conserving standing dead trees, old and big trees and trees with holes in all forestry operations (clearfelling, thinning and cleaning). Groups of old trees are particularly valuable.
- Wherever possible try to increase variation in tree species and forest structure. Use native species wherever possible.
- Conserve broadleaf trees, especially native species, in coniferous forests. More insects are associated with native species.
- Increase food production for bats by conserving some important habitats. This includes wet forests, riparian habitats, gaps and forest edge zones.
- Create new small wetlands and ponds within the forest. New ponds / waterbodies of varying depth with shelter on at least one side would benefit bats.
- Plant broadleaves beside existing watercourses, where appropriate.

- Limit the use of pesticides in forests.
- A mosaic of habitats incorporating open and forest areas is important. Open areas have a different floristic and insect fauna and will increase the availability of prey for bats.
- Vary the width of forest edges, rides and clearings. Avoid straight lines as they act as wind tunnels (less chance of swarming insects) and maybe patrolled by predators.
- Avoid creating large clearfell areas.
- Identify the next generation of trees for bats and leave these during harvesting.
- Avoid cutting through any trees close to holes; there may be bats roosting inside.
- Bat boxes are beneficial to bats but they need maintenance and should be used in conjunction with other measures/management for bats.

Other

- Old buildings and underground places such as souterrains, caves and mines can provide important roosting places for bats. Ensure these are not affected by forestry operations. Putting grills over windows and doors to stop human access will also benefit bats.

