



## Bats

### Ecology

As mammals, bats are warm blooded, give birth and suckle their young. They are also long-lived, intelligent and have a complex social life. There are 17 species of bat in the UK. Most weigh less than a £1 coin. All eat insects and the different species have specific food preferences. Consequently, bats tend to forage in habitats with a high abundance and diversity of insects such as woodland, hedgerows, lakes, ponds and rivers, species-rich grassland and grazed pasture.

Bats use echolocation to produce a picture of their surroundings using sound. They emit a stream of high-pitched calls and listen to the echoes from objects around them. Bats can avoid obstacles and catch insects in complete darkness.

Bats need to be able to move freely around the countryside between roosts and feeding areas. Many species follow linear features, such as hedges and tree lines, and are reluctant to cross wide open spaces. Certain species of bat (e.g. Brown Long-eared Bats) are very sensitive to light and will avoid linear features and foraging habitat that is lit.

Bats are very variable in the distances that they travel from their roosts to forage. For example at some maternity sites for Greater Horseshoe bats over 90% of the bats' activity takes place within 4 kilometres of the roost whereas at other roosts some individuals travel up to 22 kilometres to forage.

### The Bat Year

Bats hibernate over winter when insects are scarce. In autumn they put on weight and then as the weather gets colder, find sheltered roosts to hibernate in. However, they may wake up on mild evenings when some insects are about and go out to feed.

Bats fit their breeding cycle in with hibernation by mating during autumn and winter. The female then stores the sperm in her body, becoming pregnant in the spring. Pregnancy lasts for 6 to 9 weeks depending, on the weather. One baby is usually

born each year, it feeds only on its mothers milk until it is weaned at 4 to 5 weeks, when it flies and hunts for itself.

During the spring and summer period, female bats roost together in maternity colonies to give birth and rear their young. Once the babies are independent, the colony breaks up and the bats move to other roosts. Many of these maternity sites are used every summer by the same females, which may gather together from over a large area, so any negative change at a summer breeding site can affect all the females from the area.

### Roost Sites

Most bat species use a variety of roosts of different types throughout the year as their requirements vary. Most species use trees, buildings and underground sites, whilst some species use only tree roosts and others use only buildings and underground sites.

Many species use buildings both for breeding and hibernation, such as the Serotine. The majority of species form maternity roosts in the roofs of buildings to take advantage of the sun's warmth. In winter, bats of most species have been recorded hibernating in various parts of buildings, such as inside cavity walls, around window frames and under ridge-tiles.

Some species of bat (e.g. Pipistrelle bats) are crevice dwelling and tend to roost in small spaces out of sight e.g. between roof tiles and the felt beneath, behind barge boarding and in soffit boxes. Other bats (e.g. Brown Long-eared) are more easily visible in roof spaces but can also roost out of site in crevices.

### Conservation Status

The conservation status of UK bats varies from common to endangered depending on the species. Seven species have been identified by the UK Government as needing special conservation help because of their rarity or because their absolute numbers have declined significantly during the last



century. This has led to the production of Species Action Plans (SAPs) for all seven species. The overall objective of each plan is to promote the species and their habitats to maintain and enhance their existing population numbers. The seven species are: Barbastelle Bat, Bechstein's Bat, Noctule, Soprano Pipistrelle, Brown Long-eared Bat, Greater Horseshoe Bat and Lesser Horseshoe Bat.

## Legislation

All UK bat species are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (Conservation Regulations) and as such receive protection under Regulation 41 of these Regulations, which, among other things, makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat;
- Damage or destroy a breeding site or resting place of a bat.

Under the Conservation Regulations, disturbance of bats includes in particular any disturbance which is likely to:

- Impair their ability to survive, breed or reproduce, or to rear or nurture their young or to hibernate or migrate;
- Significantly affect the local distribution or abundance of the species in question.

In the case of *Vivienne Morge vs. Hampshire County Council* (2010), the Supreme Court has defined deliberate disturbance as 'an intentional act knowing that it will or may have a particular consequence, namely disturbance of the relevant protected species.'

Since 2007 it is no longer a valid defence to show that the killing, capture or disturbance of a species covered by the Conservation Regulations or the destruction or damage of their breeding sites or resting places was the incidental and unavoidable result of an otherwise lawful activity.

All UK bat species are also listed under Schedule 5 of The Wildlife and Countryside Act 1981 and therefore receive

protection under Section 9 of this Act (as amended by the Countryside and Rights of Way Act 2000). Among other things, this legislation makes it a criminal offence to:

- Intentionally kill, injure or take a wild bat;
- Intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection;
- Intentionally or recklessly disturb any wild bat whilst it is occupying a structure or place that it uses for shelter or protection.

## Licence Application

- The development is for reasons of overriding public interest;
- There is no satisfactory alternative; and
- The favourable conservation status of the species concerned will be maintained and/or enhanced.

## Planning Policy

Guidance on the consideration that local planning authorities should give to nature conservation interests is contained in Planning Policy Statement 9. Planning authorities may refuse planning permission on grounds of the predicted impact on protected species like bats. Areas known to be of significance for bats may be excluded from development by appropriate allocation in Local Plans. Designations of various kinds, both statutory and non-statutory, may further protect individual sites.

Although the presence of bats does not always preclude a land parcel from development, planning and licensing controls may limit the extent of disturbance, the timing of activities, and may well stipulate compensatory measures. Planning conditions and legally binding arrangements such as Section 106 agreements (Town and Country Planning Act 1990) are often used to this end.

Under Regulation 9(5) of the Conservation Regulations, Planning Authorities also have a legal duty to 'have regard to



the requirements of the Habitats Directive in the exercise of their functions'. As demonstrated by the case of Woolley vs. Cheshire East Borough Council and Millennium Estates Ltd (2009), this means that they must consider the 3 Habitats Directive tests (see Licence Application section above) when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations. As a consequence, Planning Applications for such developments must demonstrate that the 3 tests will be passed.

## Bat Surveys

### Roost Sites

Preliminary surveys of potential roost sites can be carried out at any time of year by a licensed ecologist and typically involve an internal and external inspection of the structure in question. However, due to the crevice dwelling nature of most bat species it is not always possible to confirm absence of bats. In situations such as these, emergence and/or dawn re-entry surveys of the potential roost using bat detecting equipment may be appropriate. To cover all identified access points several surveyors may be required. If a site contains many buildings or trees a labour intensive exercise should be anticipated.

Emergence/dawn re-entry surveys can only be carried out between April and September. Bat colonies may divide and use different roost sites throughout a season. This survey constraint must be countered where possible using repeat visits and it is strongly advised that sites with potential for roosting bats are surveyed at least one year in advance of any activity that could have an adverse impact on bats. Ignoring this advice can lead to costly programme delays.

### Flight Corridors and Foraging Habitat

A basic assessment to establish whether a site might be used by commuting or foraging bats can be carried out through the mapping of habitat types and the consideration of habitat quality. This information can then be used to design an effective bat activity survey, which would typically involve several surveyors equipped with bat detecting equipment covering line transects or static points.

Activity surveys can only be carried out between April and September, sometimes October, when bats are active. Bats may change their feeding behaviour as different insects emerge throughout the season. As for roost sites, this survey constraint must be countered where possible using repeat visits and it is strongly advised that sites are surveyed at least one year in advance of any activity that could have an adverse impact on bats. Ignoring this advice can lead to costly programme delays.

## Impacts

Impacts to bats can be summarised as:

- Loss of roost sites e.g. demolition, conversion, felling of trees, tree surgery work
- Obstruction of roost access points e.g. re-pointing walls and replacing loose fitting tiles with tight fitting tiles
- Disturbance of roost sites e.g. noise, light, the public
- Collision and barrotrauma
- Timber treatment and use of pesticides in roost sites
- Loss of foraging habitat
- Loss of flight corridors
- Severance of flight corridors e.g. by creation of gaps, introduction of light
- Habitat fragmentation
- Habitat degradation e.g. by adverse management techniques

## Mitigation

Adverse impacts must be mitigated and the strategy should be site and species dependent. In the first instance, attempts should be made to avoid the impact by design.

Impacts to roost sites can be mitigated by:

- Timing works to avoid the period when bats are most likely to be present
- Use of exclusion techniques, which permit bats to exit a roost but not re-enter
- Retention and enhancement of existing roost sites



- Creation of replacement roost sites
- Pre-works surveys
- Licensed supervision of works

It is important to note that Natural England would almost certainly refuse to licence the loss of a high status roost of an endangered bat species. Licenses to permit the loss of maternity sites will only usually be issued if a replacement roost is provided and survey evidence demonstrates that bats are using the roost.

Impacts to flight corridors and foraging habitat can be mitigated by the enhancement of retained habitat and by the creation of new flight corridors and foraging habitat.

Lighting is a particularly important consideration when designing schemes since lighting options that are suitable for bats are often not adoptable by the County Council Highways Department.

Overall, and most importantly, mitigation strategies must demonstrate that the bat population to be affected suffers no net loss of conservation status.

This information was accurate, to the best of our knowledge, at the time of publication (07/06/2011). These notes are intended as guidance only. Professional advice from an ecological consultant should be sought in relation to protected species and development. Surveys, impact assessment and the design of mitigation strategies must be considered on a site-specific basis.