

Hibernacula for bats

What bats require for winter roost sites (hibernation). Countryside staff, Property Managers, Building Managers, Regional/Country Nature Conservation Advisers.

Key points

- The National Trust has many bats, some nationally rare, roosting and foraging on its properties.
- Bats require cool, buffered conditions for winter when insect prey is scarce.
- A number of structures and trees on NT properties are used by bats as hibernation sites and others could be easily modified to make them more suitable.
- Bats in hibernation should not be disturbed: they are protected by law.

1. BACKGROUND

- The National Trust owns many sites where bats spend the winter. These tend to be underground or deep inside hollow trees.
- Underground sites may be cellars, ice houses, mines, caves, tunnels, grottoes, war-time bunkers and bridges.
- Such sites are vital for the future of some species such as horseshoe bats and need to be available and close to their summer roosting places.
- Species other than horseshoe bats are not always obvious when present in such sites – trained and licensed bat workers are needed to locate and monitor their numbers. Recent studies have showed that some hibernacula are also important in late summer and autumn when bats (mostly males) aggregate around and in these sites for as yet unknown purposes (“swarming”).
- At some National Trust sites there are underground places that presently bats do not use. These could be made more suitable.

All bat species are sensitive to any disturbance when hibernating – noise, lights, temperature changes of less than 1°C. Disturbance causes them to arouse and this depletes some of their limited stored fat that keeps them alive during the winter, so can lead to their premature deaths by starvation (they only eat insects and these are in short supply in winter).

All hibernation places are protected by law.

2. POSITION

The National Trust realises that it has control of a significant number of important hibernation places nationally. It is committed to sound environmental policies and will protect bats and their hibernacula.

3. ACTIONS

It may be necessary to carry out bat surveys of underground sites first to see if bats are already using them, and how many. This is a specialist task, so seek help from the local bat group or the Conservation Directorate. Measuring the present microclimate can provide a good indication of potential use such as a humidity of >75%, air flow and a stable temperature of

around 5°C (or up to 11°C for horseshoe bats). A standard hibernation survey method has been designed by the Bat Conservation Trust.

Underground sites presently used by bats

- Improvements can often be made to increase the numbers of bats, but first seek expert advice. Any work can only be carried out under licence.
- Disturbance can be prevented by fixing a grille of horizontal bars or keeping access doors locked. Those needing to enter for official business should not be entering in winter unless they have a special licence for disturbing bats.
- At other times of the year such sites are not likely to have bats present so other uses can often be made of the sites (such as access for cavers, storage in cellars, public tours).
- Temperatures and humidity inside can be improved by changing the airflow through the site (partly blocking an entrance, inserting a chimney).
- Hibernating places inside the site can be increased by attaching wooden boards, bat bricks and similar crevices to the ceiling.

Underground sites not used by bats

Usually this is because the bats cannot gain entrance or the conditions inside are unsuitable.

- Access for bats can be made by cutting a wide slot over a door. Human access which can disturb the bats can be reduced by installing a grille.
- Temperatures inside should be stable and less than 7°C for most species, and have high humidity. The former can be achieved by ensuring cold air from outside can sink down into the site, pushing out warmer air through a chimney or another entrance. The latter requires water in the site.
- Low temperatures can be maintained by ensuring adequate insulating earth covering the site. Suitable crevices for the bats must be available such as mortar joints between bricks or stones or those described above.

Trees.

- Old trees with deep crevices and rot holes in the main trunk or large branches may have bats hibernating inside. It is very difficult, often impossible, to detect them.
- Any trees with such holes should not be felled or holed branches taken off until a specialist check has been made, and usually a licence been applied for.
- Artificial provision can be made by erecting insulated bat boxes on sound trees. Woodcrete designs are maintenance-free. Fallen trees may have suitable crevices in part of their structure that could be sawn out and re-erected on a sound tree.

The National Trust (Conservation Directorate) now has Bat Roost signs that should be fixed near to any entrances to hibernacula to warn people that they should not enter.

Further information

Health and Safety Risk Assessment for Bat Survey in Caves and Mines
Health and Safety Risk Assessment for Bat Survey in Wooded areas and roosts
Bat Conservation Trust hibernation monitoring survey – www.bats.org.uk
Guidance notes: Bats and Trees, Bats and the Law.

Conservation Directorate Guidance Note Information

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