



Arboriculture Research Note

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BATS AND TREES by B A Mayle, Wildlife Scientist, Forestry Commission.

Abstract

Most British bats depend to some extent upon woodland habitats and trees for foraging and roosting. All species are highly sensitive to disturbance and habitat change. Bats and their roosts are protected by law. Methods of identifying and protecting natural roost sites and providing artificial sites are described. Bat habitats can be improved by increasing the structural and species diversity of woodland, by planting native broadleaved trees, by retention of old trees beyond rotation age, and by the sensitive management of waterside habitats, scrub and open grassland.

Introduction

1. There are 14* species of bats resident in Great Britain. Only 6 of these (Brown long-eared, Daubenton's, Natterer's, Noctule, Pipistrelle and Whiskered) occur in Scotland while the Lesser and Greater horseshoe bats are found only in the south-west of England and parts of Wales. Both species of Horseshoe bats are endangered; Barbastelle and Bechstein's bats (both woodland species) are very rare with only one or two individuals found each year. All species have declined over the past 50 years and as a result they are now fully protected under the Wildlife & Countryside Act 1981 Schedule 5. The Joint Nature Conservation Committee (QNCC) must be consulted before work commences on trees known to be used by bats.
2. Bats found in Britain are insectivorous and many are dependent upon woodlands, woodland edges and trees for foraging and roosting. All species are vulnerable to habitat disturbance and loss of roost sites. Operations which may damage bat habitats and roosts should be modified and consideration should be given to modifying woodland structure and composition to create suitable habitats. There is little point in providing roost sites if there is an absence of foraging habitat. It is therefore important to ensure that all the necessary resources are provided.

Identifying and Protecting Roost Sites

3. Bats use caves, mines, trees and buildings as roost sites but they are especially vulnerable to disturbance during hibernation (September to May). Potential roost sites such as old and hollow trees should be surveyed (preferably by people experienced in this work) for the presence of bats.
4. Tree hole roosts can sometimes be identified from droppings and urine stains on the tree or droppings on the ground below the entrance hole, and occasionally by smell, especially during the summer, but these signs are not always present. Bat droppings are similar in appearance to mouse droppings, but when rolled between the fingers will crumble into a fine powder. Any work on old trees should be preceded by inspections aimed at detecting roosts, paying especial attention to holes and pockets of decay. Holes can be inspected using a mirror on a long handle. Trees containing roosts should not be felled and where possible some adjacent trees should also be retained. The Wildlife and Countryside Act provides only limited exemptions to allow for work to be undertaken in the interest of safety of people and property. The minimum work necessary to make the tree safe should be undertaken e.g. dangerous trees should be made safe by pollarding or even fencing off to exclude the public rather than being felled. Felling should

* The Mouse-eared bat is now considered to be extinct in Britain

be a last resort. Any work on trees known to contain a bat roost should be undertaken only with the agreement of the joint Nature Conservation Committee. They may also be able to assist with grant-aid for projects on bat roosts.

5. Bats may continue to use both summer and winter roost sites for many years. Therefore their locations should be recorded on maps and conservation plans to ensure a secure roost for future years.

Artificial Roosts

6. Where natural roost sites are lacking artificial tree holes (Appendix Figure 1) can be provided. Winter roost boxes must have sufficient wall thickness to insulate bats from extremes of cold. They are probably of most use for the relocation of bats which have been disturbed during hibernation due to tree felling. Bat boxes should be fixed as high as practicable.

Improving Habitats & Foraging

7. Habitats for many insect prey species can be provided by increasing the species and structural diversity of an area (eg a woodland). Native broadleaved trees and shrubs such as *Betula spp.*, *Salix spp.* and *Prunus spp.* are especially valuable in providing habitats for moths.
8. Water and waterside habitats are very important as foraging areas for bats. Optimum conditions for bats will be provided if ponds are at least 0.5 hectare in size and irregular in shape. In areas where waterside habitats are lacking ponds should be constructed, ideally at approximately 2Km intervals throughout the habitat. Advice and designs are available from the Game Conservancy (Street, 1989). In urban situations any increase in the amount of water and waterside vegetation is likely to attract bats. Broadleaved trees and shrubs increase insect species diversity and numbers and they are especially useful in improving habitats particularly if planted along road and ride sides and by ponds and streamsides where natural vegetation is limited. Waterside, ride and road sides and open scrub habitats should be designed and managed to provide foraging areas sheltered from wind where insects will be constantly available. Grassy areas which are mown regularly and receive sunlight provide habitats for craneflies and ground beetles both of which are important for foraging bats at certain times of the year.
9. Many of these habitat improvements will generally add conservation interest to an area, benefiting many plant species and butterflies and birds as well as bats.

References

Stebbing, B & Walsh S (1988). *Bat boxes*. Fauna & Flora Preservation Society, London, 24 pp.

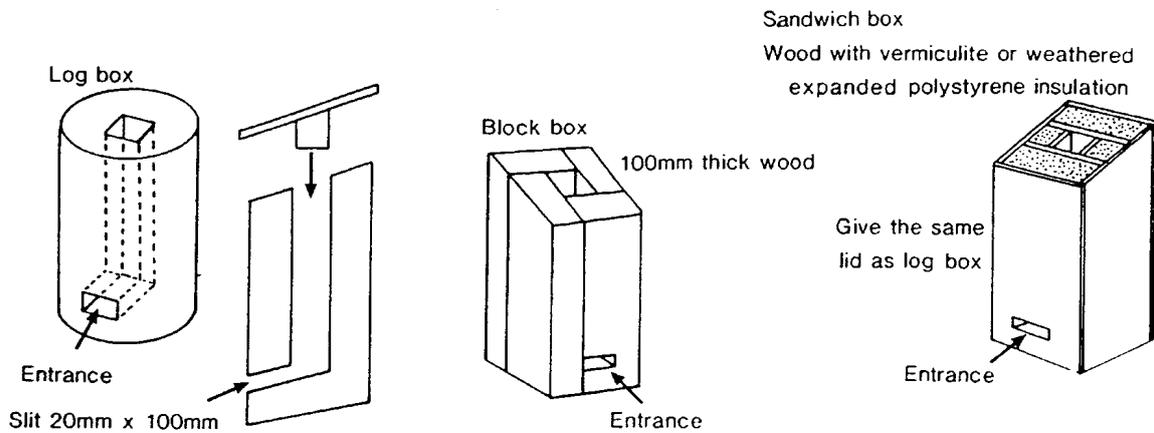
Street, M. (1989). *Ponds and Lakes for Wildfowl*. Game Conservancy Guide No. 3. Game Conservancy.

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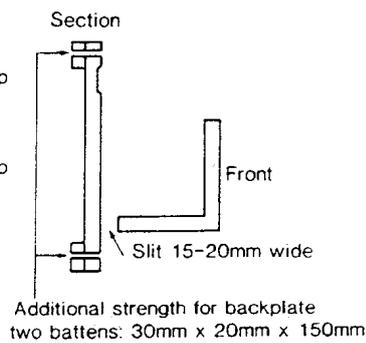
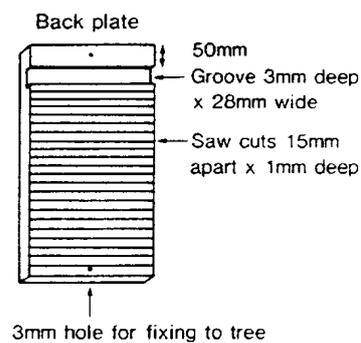
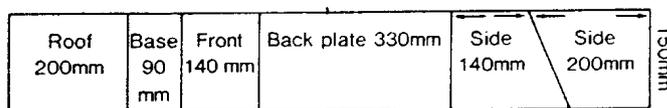
Figure 1: Hibernation box designs (after Stebbings and Walsh, 1988). All have a central hole about 100 mm square and 300 mm high (with the lid fitted) and not less than 100 mm thickness of material surrounding the cavity.



Exterior of all boxes especially around slits needs to be very rough

Figure 2: Cutting diagram for the construction of a standard summer roost box, from roughsawn softwood (after Stebbings and Walsh, 1988). The lid snaps into the groove in the backplate. Alternatively, a hinge may be made from car tyre inner tube and a hook fitted to the front to prevent the lid being lifted by animals or the wind.

Plank : 111cm x 15cm x 2.5cm (10mm allowed for marking and cutting)



Completed box without lid

