



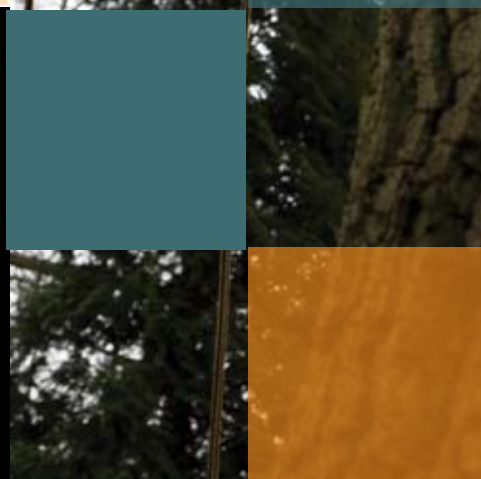
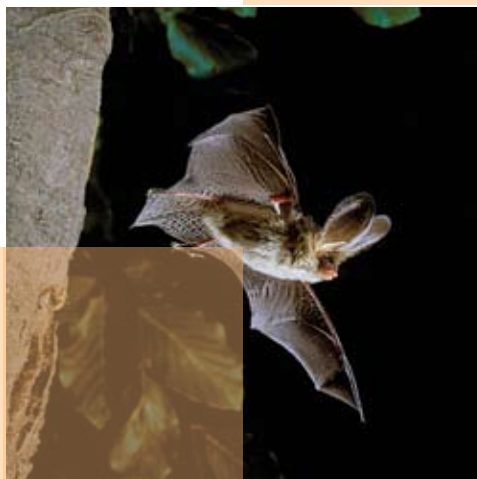
In an article that appeared in the March 2010 edition of the IEEM publication *In Practice*, Jess Colebrook and Bob Edmonds discussed the merits of different survey techniques to identify presence and/or absence of roosting bats in trees.

The authors used survey data to identify the usefulness of three survey techniques to identify tree roosts, as follows: (i) daytime inspections for roosts, (ii) climb and inspect surveys and (iii) bat activity surveys. Their conclusions (based on limited data) identify climb-and-inspect surveys as the most successful technique though the authors go on to say that the other techniques mentioned are also suitable, in certain circumstances. It should also be noted that more specialised techniques, for example radio-tracking or catching surveys using harp or mist nets may also be used.

The techniques are largely dictated by the objectives of the survey and, to a certain extent, the nature of the site. All techniques can be labour intensive and may require data to be gathered over a long period; this is to account for the fact that bat activity and behaviour changes throughout the year and often between years.

Daytime inspections of trees are usually the initial step in assessing their potential to support roosting bats and to enable a search for evidence of use, past or present. A walkover of the site will also help establish the likely importance of the area for foraging and commuting bats. Depending on the potential importance of the site for bats, further targeted surveys may be recommended.

These might include dawn re-entry (or swarming) and dusk emergence surveys. These types of survey are useful in confirming the nature, size and status of roosts found or suspected to be present and in identifying the location of access points used by bats. Due to the difficulty of detecting small numbers or individual bats, particularly of crevice-dwelling species such as the tiny pipistrelle which will roost in inaccessible places, such surveys also allow the surveyor to be more confident in their assessment of presence/absence. Night vision equipment and infra-red camera technology can further facilitate the location of precise roost sites and access points and also to observe bat behaviour in and around the roost with minimal disturbance.



## Techniques to identify tree roosts – in the spotlight

Activity transect surveys, where the surveyors move or drive around a site, or where remote detectors are strategically located along potentially important features such as hedgerows or tree-lines, are the best method for determining the likely importance of the site for foraging and commuting bats and the range of species present. They may also be useful for indicating whether roosts are likely to be present on large sites where there are too many trees to realistically individually assess. Specific trees can then be targeted for climb-and-inspect or emergence/re-entry surveys.

Climb-and-inspect can be used to rule out the need for further survey or for precautionary working practices when felling; it often happens that trees assessed from ground level can appear to exhibit features of value to roosting bats (e.g. deep, sheltered cavities or fissures). On this basis alone, targeted emergence or re-entry surveys may be recommended. A climb-and-inspect survey might reveal that the features are not suitable, e.g. they are shallow and exposed, or full of water. In this way, the presence of bats can often be ruled out without the need for subsequent surveys. That said, should a roost be located, the tree cannot be felled before a European Protected Species Mitigation (EPSM) licence has been procured from Natural England. This allows derogation from the relevant legislation and enables the most appropriate form of mitigation or compensation to be put in place, possibly involving timing of the works and relocation of the roost site.



Aerial pictures by Andy Wright; Brown long-eared bat by Hugh Clark



The Ecology Consultancy employs staff experienced in all of the survey methods mentioned and our staff regularly assist local Bat Groups, running events and providing training and equipment. For example, The Ecology Consultancy has supported the Norwich Bat Group by donating money towards bat detectors and providing the facilities for workshops to members of the group aiming to support and raise awareness of bat conservation in the local area.



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