

BCT Special Edition Bat Group Bulletin No. 1: Research Projects 28th July 2011

This is a special edition of the Bat Group Bulletin to share information with you about three research projects that the Bat Conservation Trust is supporting. It is rather longer than a normal bulletin but we wanted to share as much information as possible about the projects, their value to conservation and enable you to understand why and how BCT is involved.

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1. Introduction

Three new applied research studies are beginning at the University of Bristol, supported by the Bat Conservation Trust as part of BCT's strategy to ensure bat conservation is underpinned by sound evidence. Each of the projects aims to understand better the ecology of the species concerned with a particular focus on improving the practices used when people consider bats to be a problem. The projects are aimed at two areas where there can be substantial issues: (i) when large maternity roosts of bats occur in dwellings, and house owners or tenants are affected severely by their presence (e.g. by phobias) and (ii) in churches, where for example bat droppings and urine from large maternity roosts causes damage to artefacts of historic and cultural significance and imposes significant practical and financial burdens on congregations.

2. Impact of exclusion of bats from roosts in houses

In some circumstances, roost owners are affected severely by the presence of a bat roost, e.g. in the case of genuine phobias. In exceptional circumstances, exclusion of bats from domestic properties can be licensed without provision of alternative roosting sites. More than 50 such exclusions are licensed by Natural England each year, with additional exclusions conducted in Wales, Scotland and NI. Aside from domestic dwellings many other bat roosts are legally altered or even destroyed each year under derogation licences issued for the purposes of development under the Conservation of Habitats and Species Regulations 2010. However, in cases of derogation there are strict guidelines helping to ensure that lost roosting habitat is replaced. A key requirement of current legislation is that licensed activities will not be detrimental to the population concerned, but in reality very little is known about the actual impact of exclusions on bat colonies and the effect it has on local population status. Understanding how bats are affected by exclusions is therefore extremely important for bat conservation.

About the study

Defra has commissioned the University of Bristol to undertake this project, with BCT and the British Trust for Ornithology as subcontractors. The research focuses on the soprano pipistrelle, a species that is commonly the subject of domestic exclusion requests. The work will attempt to assess the impact of roost exclusion, where alternative roosts are not provided, on subsequent roosting and foraging behaviour and model the likely impact on local population status. Specifically the study will seek to determine if excluded colonies

relocate to sub-optimal roosts e.g. those with differing thermal properties, light levels etc, whether the bats maintain the same foraging areas and remain in the same locality, and whether excluded colonies have poorer breeding success. The study aims to provide evidence that will lead to improvements in the implementation of the Habitats Directive, in particular the procedures and guidance associated with requests for domestic exclusions. Natural England considers the research to be vital for determining whether their current licensing procedures are having a detrimental impact on bat conservation.

Studies to assess how soprano pipistrelles respond to exclusion will take place in 2012 and 2013 at three roost sites in each year (a total of six sites). This year there will be extensive planning of the study methods, overseen by a Project Advisory Group (PAG), which includes BCT, Defra and Natural England, along with the University of Bristol. This group will consider aspects such as the criteria for site selection, ethics, welfare, and conservation relevance. The study methodology will also be scrutinised by the University of Bristol Ethical Review Panel.

Choice of roosts and timing of exclusions

It is intended that the exclusions will take place at roosts that are occupied by maternity colonies in the spring. Although it is unusual for exclusions to be licensed at that time of year by Natural England, it is not unknown, and is sometimes the approach used if bats stay in the building throughout the winter. The timing of the exclusions for this project is necessary to balance the need to begin studying bats when they are active, with the need to minimise the risk of disturbing pups or heavily pregnant females. The only known suitable method to find bats at alternative roosts is radio-tracking. Radio-tag batteries are short lived so the best time to conduct the study is early spring, soon after bats return to maternity roosts, and before they are heavily pregnant or have young. BCT acknowledges that conducting research on exclusion raises ethical and practical questions and that it is paramount to ensure all relevant bat conservation and welfare issues are addressed:

1. **Choice of roosts** – It is the position of BCT and the PAG that every reasonable endeavour must be taken to ensure that the research is conducted at sites where exclusions would be carried out regardless of the study. Given the number of domestic exclusions that occur each year, this is believed to be realistic. Throughout summer 2011 and 2012 the research team will be liaising with Natural England and BCT to recruit into the study sites where exclusions are already planned. In the event of an unexpected lack of availability of planned domestic exclusions of soprano pipistrelles in either year, contingency arrangements would be evaluated, in discussion with the PAG and BCT. In exceptional circumstances, exclusions for the sole purpose of this research might be considered if agreed by the PAG and the University of Bristol Ethical Review Panel. It is BCT and the PAG's position that the use of any roost where an exclusion was not already planned should only happen as a last resort, where there is no other practical alternative and should take account of species ecology, the impact on roost owners and volunteer bat workers, and should involve temporary exclusion measures which are removed at the end of the study.
2. **Timing of exclusions for this study** – BCT acknowledges this methodology is likely to involve excluding roosts with pregnant females, just as unfortunately occurs

sometimes under the current licensing system. The University of Bristol researchers will check roosts for the presence of pups or heavily pregnant female bats, before fitting bats with radio-tags and excluding the roost and will stop the study at any site where pups or heavily pregnant bats are found. This will be done at the appropriate times for the species' ecology, taking into account the location and climate. The roost owner, bat worker and Natural England Helpline contractors' needs, with respect to the exclusion, will be taken into account in the planning and delivery of the project.

BCT's role in the project

To support this research and ensure that bat welfare and conservation needs are met, BCT will be liaising with roost visitors, roost owners and Natural England in relation to requests for exclusion received by the National Bat Helpline and other Natural England helpline contractors, and will be helping to identify exclusion applications of potential use for the study. BCT will be working with Natural England and the University of Bristol to ensure research on exclusions minimises the impact on bats and bat roost owners and takes account of the interests of the wider community of bat workers, roost visitors and owners whilst generating the information and understanding of exclusions needed to improve future bat conservation practices. We would welcome approaches from any bat workers who are aware of soprano pipistrelle roosts that are to be excluded and may be suitable for this study.

Why is BCT supporting this research?

The study was commissioned by Defra because every domestic roost exclusion carried out in England is licensed by Natural England on the assumption that the colony will move to an alternative roost elsewhere, so there is no requirement to provide a suitable alternative roost. However, very little is known about the real impact of exclusion as it has rarely been studied. If bats do find alternative roosts it is possible these may be suboptimal, resulting in knock-on effects on the local population on aspects such as survival and reproductive rates. BCT thus sees a clear need to determine whether bats excluded from houses are able to find suitable alternative roosts and to determine the impacts on local populations in terms of their integrity and dynamics. This evidence would enable Natural England to adopt robust procedures when requests for exclusion are received, and Natural England and BCT guidance to be updated.

Contacts for this research

See Section 4. below for details of how to keep up to date with this project. If you have specific questions about the research or know of roosts that are to be excluded and could be incorporated into this study please contact karen.haysom@bats.org.uk.

3. Bats and Churches

Parish churches are treasured and enduring features of the English landscape. BCT's original Bats in Churches project (Sargent 1995) estimated that 60% of pre-16th Century churches contain bat roosts, with a number providing valuable roosting sites over many generations. BCT's Helpline receives more than 300 requests for advice from churches annually; in eastern counties these represent a high proportion of enquiries. In some cases, the

presence of bats can be problematic for those who maintain or make use of church buildings. The range of issues includes maintaining historic buildings and their contents, cleaning and protecting heritage objects, and congregations and the public being discouraged or prevented from using and enjoying the church for worship or community activities because of an unpleasant or dirty environment. For example at some churches bat maternity roosts can produce large quantities of bat droppings and urine which causes damage to historic artefacts, furniture and fittings. Cleaning and protecting these churches is often very expensive and can convey a significant burden onto the congregation and church officials. Some cases have been widely publicised in the media and through Parliament. The continued high profile of the problem and the lack of acceptable effective solutions is a threat to wider bat conservation. Two new research projects in eastern England are investigating strategies to reduce the impact of bats on church users while providing for the needs of the bats:

i. Bats, churches and the landscape: sustainable conservation of bats in the East of England

SITA Trust and Natural England are funding BCT and University of Bristol for three years to study soprano pipistrelles in East Anglian churches. PhD student Madeleine Ryan will undertake a regional survey of churches and model the occurrence of bats in relation to church and habitat data. The project will also involve radio-tracking and microclimate studies of roost location and, in a limited number of selected churches, manipulation of the microclimate to encourage bats to roost in alternative locations within or outside church buildings, to reduce impacts and safeguard long-term conservation.

We thank the bat workers whose advice was helpful in developing this study, and those who have offered data. If you are able to suggest a church in Norfolk, Suffolk, Cambridgeshire or Essex which has a pipistrelle maternity colony and might be suitable as a survey site please contact Madeleine.Ryan@bristol.ac.uk.

ii. Mitigation of the impacts of Natterer's bats in churches

Natterer's bats sometimes form large maternity colonies in churches, especially in East Anglia where they can cause severe problems for church users. Defra is funding research to address the issue, led by the University of Bristol, with BCT and Philip Parker Associates as sub-contractors.

This three year research project will investigate the properties of churches and their immediate surrounding landscapes that attract bats, drawing on GIS, radio-tracking and data on surrounding habitat quality and microclimate characteristics of roosts. A key aspect of the project will involve manipulation of environmental conditions to encourage bats to relocate to alternative, less sensitive areas of churches and will involve the provision of alternative roosting areas both within and outside of churches.

The project will draw on advice from a broad range of statutory bodies including Natural England and Defra, as well as English Heritage and the National Trust, to ensure the work is in the interests of both nature and heritage, addresses the concerns of all stakeholders, and is undertaken with the highest regard for both bat welfare and ecological requirements and the needs of church users and heritage. BCT's role will be to organise focus group

consultations of key stakeholders to understand attitudes to bats in churches, to consult on options for mitigation studies, to help locate study sites, and develop guidance materials. If you know of any church sites which you think may be of use to the study or have any questions about the work please contact Emma.Stone@bristol.ac.uk .

Why is BCT supporting this research?

Churches are very important for bats and have provided a sanctuary for bats for centuries. At least eight species are known to use churches for roosting, including less common species, such as Natterer's bat, serotine and lesser horseshoe bats. Although church users may be unaware of the presence of a bat colony, during building or restoration works bats can be an additional complication and expense. In a small proportion of cases bats the damage and impact of bats is obvious and not straightforwardly mitigated. Church communities need support to reduce these impacts so that the protection of heritage, the needs of people, and the conservation of bats are addressed. These two projects will help Natural England, BCT and English Heritage to provide better advice to churches, and establish deeper understanding and closer partnership between nature and heritage sectors, leading to a securer future for bats and for the church buildings that they roost in.

4. Keeping up to date

Periodic updates on all three of these projects will be linked to the conservation science area of the BCT website (www.bats.org.uk/pages/research.html) and the University of Bristol website (www.bristol.ac.uk/biology/research/behaviour/batlab/). There will be opportunities to discuss the research projects at the Bat Conference in September, where members of the research team will be hosting question and answer sessions.

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