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This is a special edition of the Bat Group Bulletin to provide an update on the three research projects that began in 2011, supported by the Bat Conservation Trust. The background to each of these projects was given previously in the BCT Special Edition Research Bulletin 28th July 2011.

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1. Introduction

The three applied research studies were established by University of Bristol, and 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.

2. Impact of exclusion of bats from roosts in houses

Roost owners are sometimes 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. 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. In 2011 Defra commissioned the University of Bristol, with BCT and the British Trust for Ornithology (for their population monitoring expertise) as subcontractors, to assess the impact of roost exclusion on soprano pipistrelles, when alternative roosts are not provided. Specifically the 32-month study seeks 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. BCT 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, as this evidence could enable Natural England and BCT guidance to be updated.

Update on the study

Studies to assess how soprano pipistrelles respond to exclusion were planned to take place in spring 2012 and 2013 at three roost sites in each year (a total of six sites). Throughout last summer, householder exclusion applications to the National Bat Helpline were scrutinised for potential participation in the study. BCT also liaised directly with other NE Helpline contractors, the NE licensing team and volunteer bat-workers. Thanks to the help of bat-workers who responded to our request for information on sites that might be suitable, three maternity roosts in northern England have been recruited. At each of these sites, the request to use the site in the exclusion research was made after it was certain that the householder had applied for, and that NE was expected to grant, an exclusion licence. Volunteer roost visitors played a key role in liaising with the roost owners. The three householders agreed to postpone the exclusions until April/May soon after the bats have returned, so that radio-tags can be fitted to a sample of bats from each roost to track foraging and roosting behaviour before and after each colony is excluded. The University of Bristol researchers will check roosts for the presence of pups or heavily pregnant female bats. At any site where pups

or heavily pregnant bats are found the study will stop and exclusion will not take place. We thank volunteers from the North Merseyside & West Lancashire, Cheshire, South Lancashire, North Lancashire and North Yorkshire bat groups who have offered help with radio-tracking and emergence counts. This summer, BCT will again be helping to identify exclusion applications of potential use for the study next spring (2013) and we ask bat workers who are aware of soprano pipistrelle roosts that are to be excluded and may be suitable for this study to get in touch. BCT will continue to work with Natural England and the University of Bristol to ensure the 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.

Contacts for this research

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

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

This project is funded by SITA Trust and Natural England for three years to study soprano pipistrelles in East Anglian churches. In 2011, PhD student Madeleine Ryan collated recent and historical regional records on bats in churches, undertook surveys at 17 churches in Norfolk, and radio-tracked bats from one north Norfolk church to understand use of alternative roosts, and local foraging behaviour. In 2012-13 Madeleine plans to extend the area of general surveys to encompass other eastern counties including Cambridgeshire, Suffolk and Essex. During 2012 she plans to undertake microclimate and activity studies at five churches and further radio-tracking. She is looking to identify a small number of churches where heated bat boxes can be installed as alternative roosts within or outside church buildings, so she can monitor bat response.

We thank the bat workers who have already helped Madeleine with data and other advice. 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 examine the issue, led by the University of Bristol, with BCT and Philip Parker Associates as sub-contractors. BCT's role is to collate NE helpline data on church enquiries, organise focus group consultations of key stakeholders to understand attitudes to bats in churches, help locate study sites, and develop guidance materials. 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.

Update on the study

In late summer 2011, the University of Bristol undertook radio-tracking studies at several churches in Norfolk, to determine where church colonies of Natterer's bats foraged and whether they also use alternative roosts. General radio-tracking studies are scheduled to be repeated in summer 2012. BCT hosted two discussion group meetings with Norfolk church communities in November and a project website www.batsandchurches.org.uk, targeted at a church user audience, is being used to communicate with and gather church user views from within and outside the immediate study area. The University of Bristol team has reviewed literature on potential mitigation approaches, focusing on alternative artificial roost provision and the use of deterrents, to inform

trials using combinations of these methods to move bats away from the most sensitive areas. The review of alternative roost provision has examined properties of heated bat boxes, to inform box design for trials, while the deterrents examined were the localised use of light, ultrasonic or radar deterrents. Bat Conservation International has supplied acoustic deterrents used in wind turbine studies to the UK so their effectiveness can be evaluated further.

The University of Bristol team is currently developing the methodology for short-term trials in late summer 2012. These will combine heated bat box provision and one or more of the above deterrents. Planning is ongoing and must be considered flexible at present. [The final deterrent methodology used in the trials will be selected following short outdoors tests at foraging sites in June 2012, and a short pilot study at up to 3 churches not in the main study in mid – late July once young are flying]. Researchers will check for the presence of lactating or post-lactating females and will not run the pilot while lactating females (and therefore dependent young) are present. Pilot studies will last one night only. After selecting a potential deterrent, 9-day trials will take place between late July and mid September at six study churches. At each church, a sample of bats will be fitted with radio-tags, to enable foraging behaviour and day-time roosting positions to be located and monitored. The trials Days 1-3 will be a control and provide information on bat movements and daytime roost location in the absence of a heated artificial roost or deterrent. Alternative roost sites already used by the bats will also be identified. On days 4-5 bats will be tracked following the introduction of two heated alternative roosts, which would be left in place for the whole trial. On days 6-9 a deterrent would be used near the existing bat roost to encourage the bats to relocate to a less sensitive area. Static detectors, dropping counts, and radio-tracking and possibly video recording will be used to document uptake of artificial roosts, changes to foraging behaviour and use of any existing alternative roosts. The study results are intended to lead to solutions that help users of churches and at the same time make sufficient provision for the ecological needs of bats. Bat welfare is paramount, and the University of Bristol team is putting in place safeguards for the welfare of bats during the trials. The study is planned for when young are independent, and if the welfare of bats is thought to be compromised during the course of these trials, the trials will be terminated before completion.

Changes to the study

The research contract scheduled manipulative trials in a total of six churches, three in late summer 2012, followed by a further three in late summer 2013. Project conclusions require the analysis of data collected from all six churches and the final report to Defra was scheduled for January 2014. The high profile of bats and churches issues in the media and in parliament has resulted in a direct request from Richard Benyon MP, Minister for the Natural Environment and Fisheries, to explore whether the research could be accelerated. Consideration of possible ways to accelerate the research by Defra officials resulted in a request to the researchers to draw up detailed proposals to undertake the trials at all six churches in summer 2012 and, dependent on the results from 2012, repeat them in 2013 to evaluate and refine the most promising management options. Conducting the trials at all six churches in one season is a huge logistical task, requiring considerable planning and organisation and double the resources in terms of staff and equipment. The Project Advisory Group (PAG), which brings together statutory and NGO stakeholders from conservation, heritage and ecclesiastical sectors, has met specifically to discuss whether the project could be rescheduled without undue risk of compromising the outcomes. The PAG accepted the research team's plans for trials in six churches this season. A revised contract with Defra has been negotiated, allowing for the recruitment of a second research team led by an experienced post-doctoral researcher (Dr Matt Zeale). Two of the six churches have been identified, and four more will be decided from a shortlist in summer 2012. Provision has been made for BCT to hold discussion meetings, similar to those run in winter 2011, with community representatives from the short-listed churches in June.

Heated bat boxes will be installed at the six churches in 2012 and pending discussions with individual churches, may be left in place to remain available for bats after the end of the trials. If the short-term trials of management options in 2012 suggest that bats are using alternative roosts that meet their conservation needs and that the management options do not immediately appear to cause welfare issues, these management options including heated artificial roosts and deterrents may be tested over longer timeframes at the same churches in 2013. The research team has emphasised to Defra and the Church of England bats and churches working group, that for the best chance of achieving a stable solution that continues to help both people and bats, it is necessary to take a measured approach in determining what the effects on bats are likely to be. A decision on whether to conduct longer-term (potentially over weeks or months) trials of mitigation and deterrence at the same 6 churches in 2013, will not be taken until early 2013, when data from 2012 have been analysed. Any longer term trial would be scheduled after the bats have finished breeding (so that disturbance to pregnant females or newborns is avoided).

BCT's position on the churches research

In a small proportion of cases the damage and impact of bats is obvious and not straightforwardly mitigated. Church communities need support to reduce these impacts so that the needs of people, the protection of heritage, and the conservation of bats are addressed. These two projects will help Natural England, BCT and English Heritage to provide better advice to those churches that are severely affected by the presence of bats. Participation in these studies is helping to 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.

BCT will continue to contribute to the Project Advisory Groups for these projects. These comprise 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.

At the same time, BCT recognises that other important options to support and work in partnership with churches are currently under funded. For example in some areas, there are few volunteer bat workers with the knowledge to provide local help, and we see many opportunities for providing improved resources and working directly with church communities. We are seeking funding for such work.

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 further opportunities to discuss the research projects at the Bat Conference in September. 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 or karen.haysom@bats.org.uk.

5. Consultation on CBC draft guidance on bats for DACs and parishes

The Church Buildings Council (CBC), assisted by Natural England, has been drafting guidance on bats and churches which is designed primarily to assist dioceses. This is currently going out to consultation. If you would like to comment on the draft guidance please email karen.haysom@bats.org.uk.