

## **BCT Special Edition Bat Group Bulletin No. 4: Research Projects 4th August 2014**

### **Managing Bats in Churches Pilot**

This is a special edition of the Bat Group Bulletin to provide information on the most recent phase of government funded work to address issues caused by bats in churches. The Defra funded research contract WMO322 *Improving mitigation success where bats occupy houses and historic buildings, particularly churches* was completed earlier this year. The final report can be downloaded here: [http://randd.defra.gov.uk/Document.aspx?Document=11961\\_WM0322FinalReport.pdf](http://randd.defra.gov.uk/Document.aspx?Document=11961_WM0322FinalReport.pdf) Summary results were reported in BCT Special Edition Research Bulletin 27<sup>th</sup> March 2014 (see the BCT website at: [http://www.bats.org.uk/pages/back\\_issues\\_of\\_special\\_research\\_bulletins.html](http://www.bats.org.uk/pages/back_issues_of_special_research_bulletins.html) ) and on the project website <http://www.batsandchurches.org.uk>.

Following on from this work, English Heritage are funding a further project *Management of Bats in Churches: a pilot* (see <http://www.english-heritage.org.uk/professional/advice/advice-by-topic/places-of-worship/bats/batsliving/>). This began on 28th March 2014, runs until 31<sup>st</sup> January 2015, and has the overall aim of enabling churches that are severely affected by bats to use cost-effective measures to protect their heritage and facilitate the use of the buildings by people, while also maintaining the Favourable Conservation Status of the bat colonies that reside in these buildings.

Specifically this latest project seeks to:

1. Adapt and apply the findings of the Defra research at five churches during spring and summer 2014 to alleviate the problems they are experiencing;
2. Address research gaps that could not be covered in the Defra research by
  - i. evaluating the impacts and effectiveness of the deterrents when applied in the spring/early summer before the bats breed (at this time the bats are pregnant and more vulnerable to disturbance);
  - ii. testing the use of the deterrent approaches on soprano pipistrelles (the trials in the Defra research were focused on Natterer's bats).
3. Develop a policy and licensing framework with which to manage the subsequent use of such approaches at other churches in the future. This part of the work is being led by Defra and Natural England.
4. Develop a "toolkit" covering practical guidance aimed at churches, bat workers, environmental consultants and licensing authorities on (i) safe and effective operation of the techniques, (ii) training and standards requirements, (iii) policy and (iv) licensing to inform case by case future decisions regarding use at other sites.

The team undertaking this contract is again led by the University of Bristol, and is supported by Philip Parker Associates, Bat Conservation Trust, Natural England and Defra. The post doctoral research assistant appointed to manage the project is Dr Lotty Packman (Dr Matt Zeale, the researcher on the previous Defra project, is now undertaking other research at University of Bristol, but has contributed to the design of this project and is providing guidance on the work).

The project is overseen by a steering group which brings expertise from the church, heritage and nature conservation sectors. The role of the steering group is to ensure that the work is in the

interests of both churches and bat conservation; addresses the concerns of all stakeholders; and is undertaken with the highest regard for the needs of church users and heritage and the welfare and ecological requirements of bats. BCT's role is to provide advice on the development of the toolkit and licensing policy, to communicate the aims, progress and outcome of the project, to organise a meeting to discuss the outcomes of the work with the church communities participating in the pilot, and to attend project advisory group meetings. The project will report in March 2015.

## **Background**

Most mediaeval churches are home to bats, particularly in rural areas. Although roosts are often small, and may even go unnoticed by worshippers, some church communities experience serious difficulties because of the presence of a large roost inside the body of the church. For example, Natterer's bats sometimes form large maternity colonies in churches, especially in East Anglia where they can cause severe problems for church users as well as damaging the historic fabric and artefacts. In recent years, bats and churches issues have been covered frequently by the press. There has also been debate in Parliament, including in Westminster Hall in 2013 and in the House of Lords this spring. In 2011 Defra began funding research to develop new options for resolving difficult situations. The Bat Conservation Trust supported that research as part of our strategy to ensure that bat conservation is underpinned by sound scientific evidence and through a belief that the solutions for this challenging issue lie in achieving a better understanding of the ecology of the species concerned and in engaging directly with the communities affected. Much has been learned from the initial Defra-funded research. We also consider that the close cooperation that developed among the different project advisory group members has been beneficial and will continue to be important in the future as we work together to resolve conflicts.

## **What is happening?**

The Defra research project concluded that Natterer's bats were very dependent on the churches that they were present in. The bats did not use any other sites away from the church as maternity roosts, suggesting that total exclusion from a church could harm the conservation status of a colony. Each colony used a number of roosts within each church. Both deterrents (acoustic and lighting areas of the church where the bats were not roosting to create "no-fly zones") showed promise as means to encourage bats to move away from the most sensitive locations to alternative roosts in the building.

Four of the churches that took part in the Defra research in Norfolk, have been selected to participate in the pilot project, and together these represent a range of building sizes and situations. At each church the project team has discussed with the Churchwardens which areas are most in need of protection, and these discussions have informed the development of plans to progressively move the resident Natterer's bat colonies away from the sensitive locations to the agreed less sensitive areas. To do this the project team will be using deterrent approaches that are considered suitable for each individual building and colony (e.g. acoustic deterrent alone, acoustic deterrent and lighting etc.). Lighting will be used to light areas of a church where bats are not roosting to create "no-fly zones". As bats relocate to alternative locations within the church, the points from which they emerge from their previous roosts into the church interior will be sealed provisionally after all young are flying, and where necessary the process repeated to gradually move bats toward the new target location.

All work is licensed and the impacts on the bats and on droppings and urine deposition is being monitored. The project team is performing weekly counts of bats emerging from the churches in

order to determine if the colonies using the them has maintained its original size, undertake standardised counts of bat droppings and, record their distribution. If the pilot is deemed successful and the change in roosting location appears not to have had a negative impact on the favourable conservation status of the populations, the churches may be authorised to seal these emergence points permanently at a later date, subject to Natural England licensing and church Faculty permissions. Although the conditions of licensing such operations are yet to be decided (and will be developed during this project), it is anticipated that any licence issued would incorporate a longer term monitoring obligation to ensure that colony size was maintained in future years, as is typical for all licenses issued which have a potentially high impact on the target species . The project team will also monitor whether bat boxes that were installed inside and outside the churches during the Defra project are being used.

The project has assessed the impact of the deterrents on Natterer's bat populations in spring/early summer on bats during the early stages of pregnancy using a similar design to the short-term trials that were used in the Defra research project. This research gap exists because the Defra study trialed the deterrent approaches only in late summer after young were flying and most females had finished lactation. In order to ensure that the operation of these approaches is both safe and effective at other times it is necessary to ensure that there is no negative impact on the bats earlier in the year. This research has taken place at three of the four participating churches. Radio-tracking and emergence counts were used to investigate roosting behaviour of up to 20 tagged bats at each church before the deterrents were applied, during their operation and after they have been switched off.

The Defra research investigated the impact of the acoustic deterrents solely on Natterer's bats. The English Heritage pilot is also testing the impact of acoustic deterrents and directed lighting on soprano pipistrelle bat behaviour at a fifth church in Northamptonshire, where there has been a long-standing problem due to a large roost, and much previous work to resolve issues. At this church mediaeval tombs have been damaged by large accumulations of droppings. Radio-tracking was used to determine the roosting behaviour of 20 adult bats before, during and after the application of the deterrents. Infrared video recording will observe bat activity when deterrents are activated. As per the work being undertaken in Norfolk, weekly exit counts are being undertaken to confirm whether the colony maintains its size, and the distribution and quantity of bat droppings deposited inside the church will be assessed.

#### ***What will happen after the fieldwork ends?***

After the fieldwork has been completed all data will be analysed and used to inform the production of a guidance document on the operation of the techniques. This will include information on the type of data required to understand the use an individual bat colony makes of a church before attempting to manipulate its behaviour to mitigate impact on a church community. Defra and Natural England will develop a policy and licensing framework for the use of these techniques and together this will comprise a "toolkit" to support future decisions and planning of the management of bats in churches.

#### ***What will happen after the project ends?***

The 'toolkit' developed during the pilot project will include guidance on the tailored use of deterrents in order to change the behaviour of bats inside the worst affected churches, thus reducing their impact upon these buildings. The policy framework will provide guidance on when

and how it will be appropriate to implement these techniques and each church will be considered on a case by case basis.

### **Keeping up to date**

When further information on the outcomes of the work is available, towards the end of the project, we expect to provide another update via the Bat Group Bulletin and the English Heritage website. We will also share details of papers that are published in peer reviewed journals based on the Defra research or this latest English Heritage funded project as they arise. Dr. Matt Zeale will be presenting the results of the initial Defra funded research at the National Bat Conference in September. BCT continues to regard the support of churches to ensure the long-term conservation of church bat populations as a priority. In case of further queries please contact [lotty.packman@bristol.ac.uk](mailto:lotty.packman@bristol.ac.uk) or [churches@bats.org.uk](mailto:churches@bats.org.uk).