

## The Barbastelle in Nottinghamshire

Natural England Science, Education and Conservation (Bat) Project, 2015-16

Licence Ref: 2015-7080-SCI-SCI / 2015-18282-SCI-SCI-4



### Project Summary

The purpose of this project, to be undertaken by research volunteers from local bat conservation groups, is to add to the existing limited knowledge of the distribution and conservation status of the barbastelle bat *Barbastella barbastellus* in Nottinghamshire and the surrounding area. The project is licensed by Natural England, the Statutory Nature Conservation Organisation (SNCO) for wildlife matters and legislation in this country under the above Science, Education and Conservation Project reference.

The barbastelle is one of Britain's rarest mammals (BCT, 2015[1]) classified as "near threatened" with a declining population by the International Union for Conservation of Nature (IUCN, 2015) and very few breeding sites are currently known in the UK (BCT, 2015[2]). It has a broadly southern distribution in Britain with the most northerly [current] colony records being from central Lincolnshire. However, this relatively wide distribution in England belies its status as a rare bat species as colonies are sparsely distributed within the landscape and absent from many areas of the country (VWT, 2015[3]).

All European bats are strictly protected under Annex IV of the European Union Habitats and Species Directive, transposed into UK law via the Conservation of Habitats and Species Regulations 2010 (as amended). The barbastelle is also included under Annex II of the above legislation, and the presence of an Annex II species in an area could result in its designation as a Special Area of Conservation (SAC) within the Natura 2000 European protected sites network. The barbastelle is also listed as a Natural Environment and Rural Communities (NERC) Act 2006 Species of Principal Importance (in England and Wales), a UK Biodiversity Action Plan Priority Species (UK BAP 1998)[1], and all bats are listed as Priority Species under the region's Local Biodiversity Action Plans (LBAP).

From 2011 to 2014 surveys using automated and manual bat detectors have identified the presence of the rare barbastelle in Nottinghamshire, at the northern extent of its current UK range. A small number of time expansion recordings and / or clear frequency division (zero crossing) recordings have confirmed the transitional presence of the barbastelle at several locations within the county. In addition, it is known from excellent relations between neighbouring bat groups that recent barbastelle records also exist for the Vale of Belvoir and the Leicestershire / Nottinghamshire Wolds immediately south / south-east of the county, and the border with Lincolnshire to the east.

The widespread distribution of these recent bat detector records indicated that the barbastelle, which is a 'moth specialist', is at least transiently resident within and immediately surrounding Nottinghamshire. However, detailed knowledge of its distribution and status as a resident bat species was significantly lacking prior to the inception of this project, and any information on its status as a breeding bat species within the county was entirely absent - the "accurate knowledge of a species' distribution is of prime interest for conservation management" (Rebello & Jones, 2010). Surveys as part of this project in 2015 have since confirmed the likely presence of at least three barbastelle colonies within or immediately bordering Nottinghamshire.

This project primarily intends to undertake the following:

- Further the existing limited knowledge of the distribution of the barbastelle in Nottinghamshire and the immediately surrounding area;
- Establish if a breeding colony of barbastelle is present within the county and / or its immediate environs, and approximately where, or whether it is only a transiently occurring species; and, in 2016,
- Provide spatial information on the location of roosts and key habitats for this species via radio-tracking to enable evidence-based conservation approaches to improved habitat management for this species.

We propose to undertake the above via the continued deployment of bat detectors, both automated and on transects, as well as the use of 'advanced' licensed survey techniques comprising harp traps, mist nets, ultrasonic acoustic lures, and radio-tagging / radio-tracking. Most of the equipment for this research has been funded by the Heritage Lottery Fund (HLF) via Nottinghamshire Bat Group's 'Echolocation Location' project.

It is necessary to supplement bat detector surveys with advanced techniques because the success of automated bat detector deployment alone can be somewhat unpredictable for rare or cryptic bat species such as the barbastelle. The typical echolocation calls of barbastelle bats can be diagnostic if clearly recorded (e.g. Denzinger *et al.* 2001; Russo & Jones 2002) but are emitted at much lower amplitudes than other bat species (up to 100 times quieter than some other aerial hawking bats i.e. Goerlitz *et al.* 2010), and the maximum detection range of a barbastelle bat with a time expansion bat detector is likely to be a maximum of only around 20 metres (i.e. Rebelo & Jones 2010). In addition, not only is it difficult to detect barbastelle bats via detectors but "to understand the significance of any record of barbastelles, it is essential to know the sex and sexual state of the individual bat concerned" (Greenaway, 2004).

Overall, prior to this project there were still very significant knowledge gaps within a regional context for the scarce and enigmatic barbastelle, and also potentially at the national level and beyond. This project aims to fill some of these gaps and enable a better understanding of this elusive mammal in and bordering Nottinghamshire. A report and presentation for the project will be produced in due course, in tandem with the 'Echolocation Location' project aim of creating a detailed bat atlas for Nottinghamshire. The findings from both these projects will then facilitate the engagement of landowners and other stakeholders in an attempt to enable landscape-scale conservation measures for habitats of importance for bats, particularly very rare and strictly protected bats such as the barbastelle.

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For more information on Nottinghamshire Bat Group or the HLF funded 'Echolocation Location' project, please visit [www.nottsbatgroup.org.uk](http://www.nottsbatgroup.org.uk) or <https://www.facebook.com/NottinghamshireBatGroup>

References:

- [1] <http://www.bats.org.uk/pages/barbastelle-1.html>
- [2] [www.bats.org.uk/publications\\_download.php/747/barbastelle.pdf](http://www.bats.org.uk/publications_download.php/747/barbastelle.pdf)
- [3] <http://www.vwt.org.uk/species/barbastelle-bat>
- [4] <http://jncc.defra.gov.uk/page-5717>.
- [5] <http://www.nottsbaq.org.uk/projects.htm#bap>

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