

Nottinghamshire Bat Group has recently been undertaking research on the rare barbastelle bat to understand more about the distribution and status of this elusive species within and bordering the county. In particular, as part of our 'Nottinghamshire Barbastelle Project' (click [here](#) for more info) we have just completed two weeks of intensive radio-tracking of barbastelle bats from a maternity colony along our eastern border with Lincolnshire. This is after an initial period of radio-tracking bats from this colony in late May and early June.

Overall, we have now successfully radio-tracked six female barbastelle bats in this area in the summer of 2016, each for a minimum of four full nights from 'dusk 'til dawn'. We therefore have a very good understanding of where these bats go, when, and what they're likely to be doing. In addition, we have also identified seven trees used by the maternity colony of these bats, along with finding Nottinghamshire's first roosts for this species. This information will be provided to landowners, managers and biological recorders in the hope that we can better conserve the habitats that are important to this unique mammal.

The radio-tracking study has been completed by a very dedicated team entirely consisting of bat conservation volunteers. Primarily, these volunteers are from Nottinghamshire Bat Group; however, several volunteers have also assisted from Lincolnshire Bat Group, Derbyshire Bat Conservation Group, and Warwickshire Bat Group. The equipment used for the radio-tracking has primarily been funded by the Heritage Lottery Fund via our 'Echolocation Location' project (click [here](#) for more info) with additional equipment also loaned to us by specialist ecological consultancy [Baker Consultants Ltd](#) - we would like to extend a huge thank you to everyone that has helped on and supported this project, in particular the owners and managers of [Hill Holt Wood](#) and Norton Big Wood.



One of the teams of volunteers at the start of a night of radio-tracking
(photo: Matt Cook)

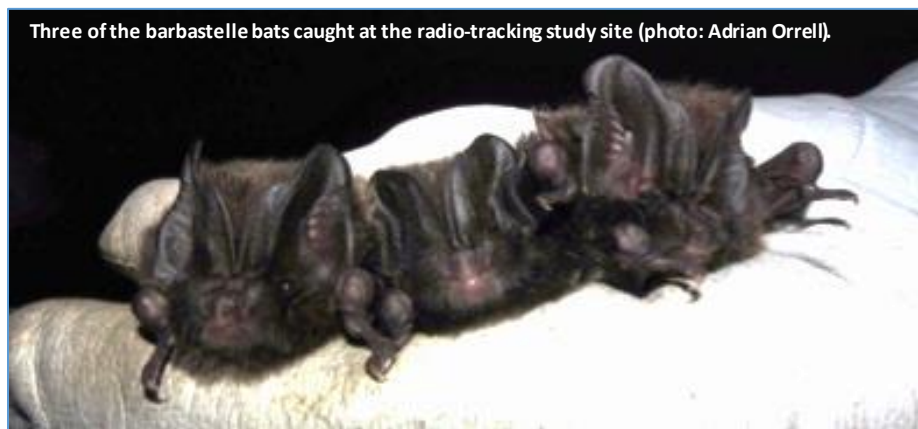
In addition to the successful radio-tracking study, we have also now identified the likely location of a maternity colony of barbastelle bats within *central* Nottinghamshire via a number of walked transects with bat detectors and the strategic deployment of automated units. This equipment was also purchased with money awarded by the Heritage Lottery Fund. We hope to investigate these initial findings in more detail later this summer and in 2017, and a report on the Barbastelle Project will be produced in due course.

Finally, we were also joined last week on our barbastelle fieldwork by Dr Orly Razgour, a leading molecular ecologist and conservation biologist from Southampton University. Formerly of Bristol University's 'Bat Lab', Orly's primary research interests are to examine

evolutionary and ecological responses to global change, particularly with regard to bats as they are regarded as excellent 'bio-indicators' due to their high diversity, wide habitat use, role as top predators and sensitivity to land use changes (click [here](#) for more info). Orly is currently using ecological modelling approaches to study how climate change and habitat loss will interact to affect the future distribution of all European forest bats.

The genetic study within this research focuses on barbastelle bat populations from Morocco to the UK (as well as *Myotis escalerai*, an endemic Iberian bat) to understand what drives evolutionary responses to global change. Orly uses next generation sequencing to study the genes involved in adaptations of populations to current environmental conditions, which will allow an assessment of the likelihood of long-term population survival and to identify adequate conservation measures. Orly was particularly keen to study barbastelle bats in the East Midlands because we are currently at the northern extent of their UK range.

Orly therefore arranged to attend our radio-tracking study site near Lincolnshire with us over three nights, with the intention of taking discrete biopsy samples from at least six barbastelle bats; we



Three of the barbastelle bats caught at the radio-tracking study site (photo: Adrian Orrell).

successfully managed to catch nine barbastelles in the first two nights and Orly acquired all the genetic samples she needed before the bats were released.

For the 'spare' third night, we therefore headed further 'up-county' to the location of our most northerly barbastelle bat detector record, at [Creswell Crag](#) on the border with Derbyshire – in fact the border delineating Nottinghamshire and Derbyshire runs down the centre of the gorge at the Crag.

By kind arrangement with the Creswell Heritage Trust, Creswell Crag has a long-standing association with bat conservation, particularly in Nottinghamshire as the founding members of North Nottinghamshire Bat Group – Derrick and Janet Eames - began surveying the bats here with Dr Bob Stebbings in the early 1980's. However, it wasn't until 2013 when the first confirmed recording of a barbastelle bat was made here by a member of Lincolnshire Bat Group - Dave Hughes - whilst working nearby. There have been several detector records of barbastelle since then, including the first *confirmed* record from a detector on the Derbyshire side of the gorge in September 2015, which represented the first



Dr Orly Razgour and her field assistant Adam in their 'field lab' (photo: Matt Cook).

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confirmed record of this species anywhere in Derbyshire, albeit it was actually recorded during a survey for the 'Nottinghamshire Barbastelle Project'!

However, despite the detector records the extent of the usage of the site by barbastelle bats is unknown, and it is of particular interest because it may represent a north-westerly movement and colonisation by this species and / or a possible swarming (mating) site. We're therefore pleased to say that the third and final night of Orly's stay was also successful at Creswell Crag, with two adult male barbastelles captured by the team and sampled by Orly - we understand that these two barbastelle bats are the most northerly 'in-the-hand' records in the UK, and as they were caught on the 'Derbyshire side' of the gorge they also represent the first records of this type for this county.

We hope to undertake more research into the value of Creswell Crag for barbastelle bats and other bat species in due course. In addition, once she has completed her research, Orly will also be able to tell us whether, and by how much, the barbastelle bats captured at both our study sites are related.

All of the invasive surveys carried out above have been undertaken under licence from Natural England and / or the Home Office, and all bats are released at the site of capture.

Matt Cook
Barbastelle Project Lead

