

Counting on Conservation

Phil Briggs, BCT's Monitoring Projects Manager explains how the work of volunteer bat surveyors is underpinning the latest scientific research and conservation policy through the National Bat Monitoring Programme.



Hedgerows with trees

Set up in 1996 the National Bat Monitoring Programme (NBMP) provides information on the conservation needs of our bat species. The NBMP has many uses: it identifies early warnings of rapid declines; informs conservation policy and ensures resources are targeted where they are most needed, and seeks to identify possible causes of population changes. Currently the NBMP provides population trends for 11 UK species. These trends are used to help inform which species need priority action to conserve them through the government's UK Biodiversity Action Plan. Since May 2008, NBMP data have enabled bats to be included in the government's UK Biodiversity Indicators which help to measure the overall health of our environment.

None of this would be possible without the continued support and hard work of all of our dedicated volunteers who carry out bat surveys annually. Since 1996 over 2,200 volunteers have contributed to the NBMP. As well as the core work on population trends, the NBMP team are involved in other 'spin-off' projects with the survey data collected by volunteers contributing to conservation action and the development of our understanding of bats and how they use the landscape.

The Waterway Survey is one of our most popular surveys. Since 1997, 1,032 volunteers have counted Daubenton's bats alongside their 1km stretch of river during August. A study analysing data collected from this survey and the Environment Agency's River Habitat Survey to investigate how river habitat features and measures of environmental quality affect Daubenton's bat activity was published in *Aquatic Conservation* in 2009. It showed that bat activity was higher on larger waterways with abundant woodland nearby. Activity was also significantly related to aquatic macroinvertebrate diversity, a good measure of biological water quality, demonstrating the potential use of Daubenton's bats as an indicator of environmental quality for rivers.

Identifying habitats vulnerable to climate change

We know that weather conditions can have an effect on bat activity and we ask volunteers to measure weather variables when carrying out surveys. On a larger scale, NBMP data are being used to look at the possible effects of climate change on bat populations. BCT is part of the BICCO-Net project, which is examining

datasets from a number of taxa, including bats, to identify species and habitats that are most likely to be affected by changes in our climate.

Showing the importance of trees and woodland

Katherine Boughey at the University of East Anglia has been analysing data from the NBMP Field Survey and Colony Counts to model the habitat associations of seven bat species at a national scale. Bat records were combined with digital habitat data to see what effect landscape composition has on the choice of roosting and foraging locations. The analysis highlighted the overwhelming importance of broadleaved woodland for all species studied. Katherine has also shown that hedgerows containing trees are important for both pipistrelle species, particularly the soprano pipistrelle which was especially associated with linear features that contained trees, and not with hedgerows without trees.

Bats exhibit a diverse range of social behaviours which suggests if individuals become too few to cooperate effectively they will be vulnerable to an Allee effect. In broad terms, an Allee effect is a decline in individual fitness at low population size or density. Allee effects can result in population thresholds below which a population comes under threat. Stephen Gregory at the Université Paris-Sud is looking for evidence of this in NBMP Colony Count data.

NBMP data enable us to do so much more than track changes in the UK's bat populations. The range of sites and habitats included in the surveys – including those which are less good for bats – allow us to use NBMP data for many different projects. We encourage volunteers to continue revisiting their sites annually, even those which you might think aren't very helpful because you only ever record that one pipistrelle bat!

If you would like to find out more or take part in the NBMP, full details and an online sign-up form can be found at www.bats.org.uk/nbmp or contact nbmp@bats.org.uk, tel: 020 7501 3628.



Sunrise survey



Daubenton's bat flying over water