The state of the UK's bats

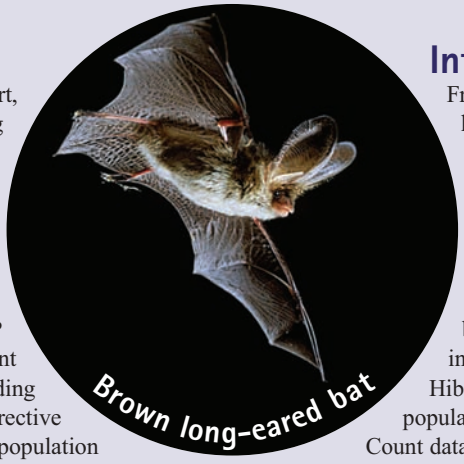
National Bat Monitoring Programme Population Trends 2011

Introduction

This is the fifth 'The state of the UK's bats' report, summarising the results of the National Bat Monitoring Programme (NBMP) up to the end of 2010. The NBMP is a partnership between the Bat Conservation Trust (BCT) and the Joint Nature Conservation Committee (JNCC) which aims to deliver trends to assess the conservation status of the UK's bat species. It is the longest running, purpose-built, multi-species monitoring programme for mammals in the UK. NBMP surveys and data support and inform key government biodiversity monitoring and reporting obligations including UK and country biodiversity strategies, the Habitats Directive EUROBATS agreement. Currently, statistically robust population trends are produced for 11 of the UK's 17 breeding bat species. Three main survey methods are used to monitor the UK's bats:

- Field and Waterway Surveys using bat detectors
- Hibernation Surveys
- Colony Counts

As a general rule, trends calculated from the Field Survey and Waterway Survey are considered to be the most robust, followed by the Hibernation Survey and then the Colony Counts.



Trends in UK bat species

In 2010, five species showed statistically significant increases in at least one survey:

- Greater horseshoe bat* (Colony Count)
- Lesser horseshoe bat* (Hibernation Survey & Colony Count)
- Natterer's bat* (Hibernation Survey)
- Common pipistrelle (Field Survey)
- Soprano pipistrelle* (Field Survey)

The remaining species for which we have trend information are: Daubenton's bat, whiskered/ Brandt's bat, brown long-eared bat*, noctule* and serotine, all of which showed no significant trends in 2010.

Interpretation

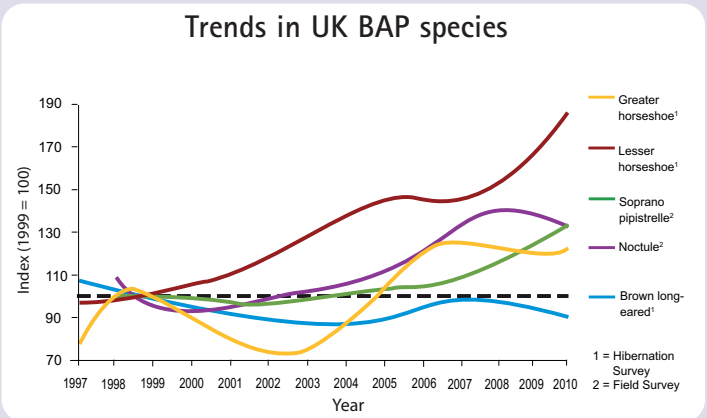
From these results we conclude that the lesser horseshoe bat population is increasing, as both sources of data are indicating the same trend. We also conclude that the common pipistrelle population is increasing, as although a contrasting significant decrease was reported for the Colony Count for this species, Field Survey data are considered to be the most robust. It is less clear whether the increasing trend seen in Natterer's bat from the Hibernation Survey is a real reflection of population increase or other factors as the Colony Count data do not support the increase. The picture is also less clear for soprano pipistrelle, as the Field Survey increase is of borderline significance for the first time in 2010 and the Colony Counts also indicate a significant decline for this species. Finally, the greater horseshoe bat trend should also be treated with some caution at present, mainly due to the relatively recent establishment of a consistent survey protocol for this species.

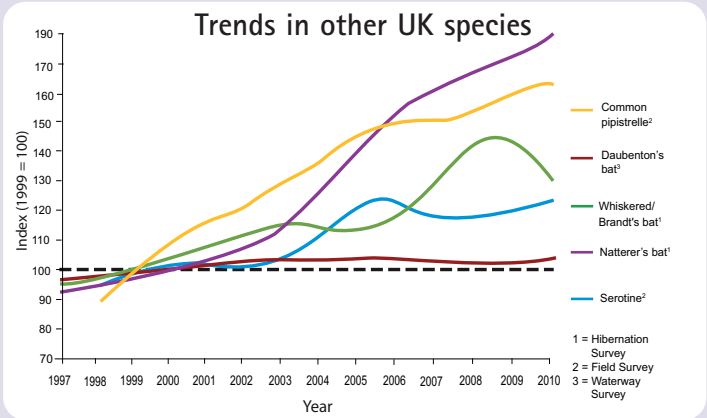
At present, there are insufficient data available for the remaining UK's breeding bat species (Bechstein's bat, Alcathoe bat, Leisler's bat, Nathusius' pipistrelle, barbastelle and grey long-eared bat) to allow calculation of population trends. Newer monitoring techniques being employed involve the use of broadband bat detectors to record bats along woodland transects (Woodland Survey for barbastelles) and around lakes (Nathusius' pipistrelle pilot survey). Currently these surveys provide information on presence of species at sites.

Conclusions

Although all the species monitored appear to be either stable or increasing, these positive results should be considered in the context of reported historical severe declines in bat populations, particularly in the second half of the twentieth century. More extensive population increases would be needed to indicate recovery from this extended period of decline.

* UK Biodiversity Action Plan (BAP) priority species





JNCC
Joint Nature Conservation Committee

Bat Conservation Trust

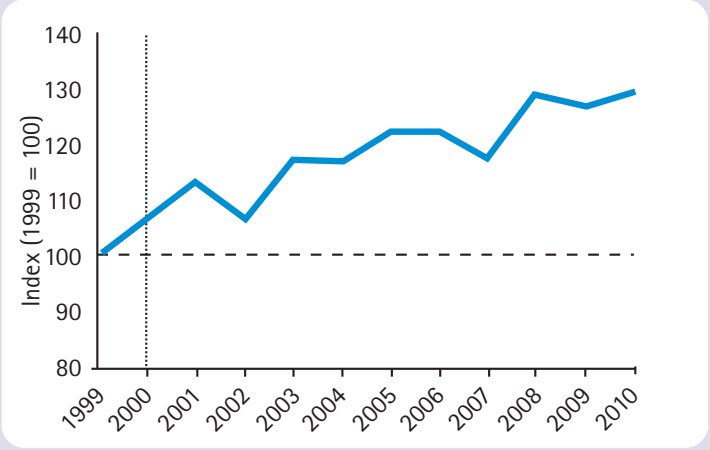
UK long-term bat population trends to 2010 and average annual percentage change

Species	Status	Survey	Trend time period	Sample size 2010	Long-term trend %	Average annual change %
Greater horseshoe bat*	Very rare, largely confined to southwest England and south Wales	Hibernation	1997-2010	71	22.0	1.8
		Colony	1997-2010	**24**	**89.9**	**6.0**
Lesser horseshoe bat*	Rare, largely confined to southwest England and Wales	Hibernation	1997-2010	**152**	**86.5**	**5.8**
		Colony	1997-2010	**223**	**56.1**	**4.8**
Whiskered/Brandt's bat	Common in north and west England, rare elsewhere	Hibernation	1997-2010	**132**	**31.3**	**2.5**
Natterer's bat	Common	Hibernation	1997-2010	318	90.0	6.0
		Colony	2000-2010	68	-15.9	-1.7
Daubenton's bat	Common	Hibernation	1997-2010	246	7.7	0.7
		Waterway	1997-2010	749	4.2	0.4
Serotine	Uncommon, restricted to south	Field	1998-2010	345	23.5	1.9
		Colony	1998-2010	86	-6.9	-0.6
Noctule*	Uncommon, absent from Northern Ireland	Field	1998-2010	471	33.0	2.6
Common pipistrelle	Common	Field	1998-2010	**473**	**63.2**	**4.6**
		Colony	1998-2010	**390**	**-46.6**	**-5.6**
Soprano pipistrelle*	Common	Field	1998-2010	**473**	**34.1**	**2.7**
		Colony	1998-2010	**305**	**-36.1**	**-4.0**
Brown long-eared bat*	Common	Hibernation	1997-2010	294	-9.4	-0.9
		Colony	2001-2010	135	-3.3	-0.4
Bechstein's bat*	Very rare	No trend data available; baseline distribution survey in progress				
Leisler's bat	Scarce in GB, common in Ireland	Recorded on Roadside Survey but more data needed to detect trends				
Nathusius' pipistrelle	Rare	Recorded on Roadside Survey but more data needed to detect trends; pilot distribution survey in progress				
Barbastelle*	Rare	Presence recorded on Woodland Survey but more data needed to detect trends				
Grey long-eared bat	Very rare	No trend data available				
Alcathoe bat	Status unconfirmed	Presence in UK confirmed in 2010, distribution unknown				
(Greater mouse-eared bat)	Status unconfirmed	Only one individual known in UK at present				

* UK BAP priority species

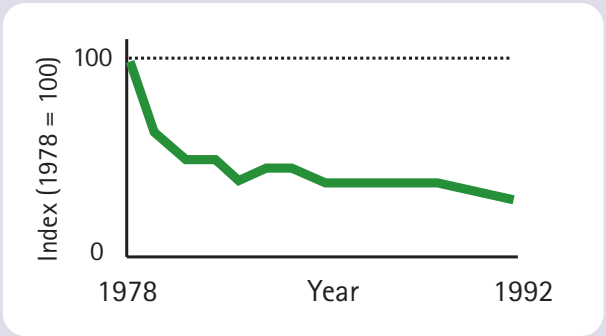
UK bat indicator

Since 2008, bats have been included as one of the UK Biodiversity Indicators, (**http://jncc.defra.gov.uk/page-4271**), which aim to show changes in the status of species, the level of pressure or threat to biodiversity and the scale of the response to these pressures. It is encouraging that the indicator shows an overall increase in bat populations (20% since 2000), although this must be seen in the context of previous declines.



Notes: The headline measure is a composite index of six species: Daubenton's bat, noctule, serotine, lesser horseshoe, common pipistrelle and the soprano pipistrelle.

Source: Bat Conservation Trust



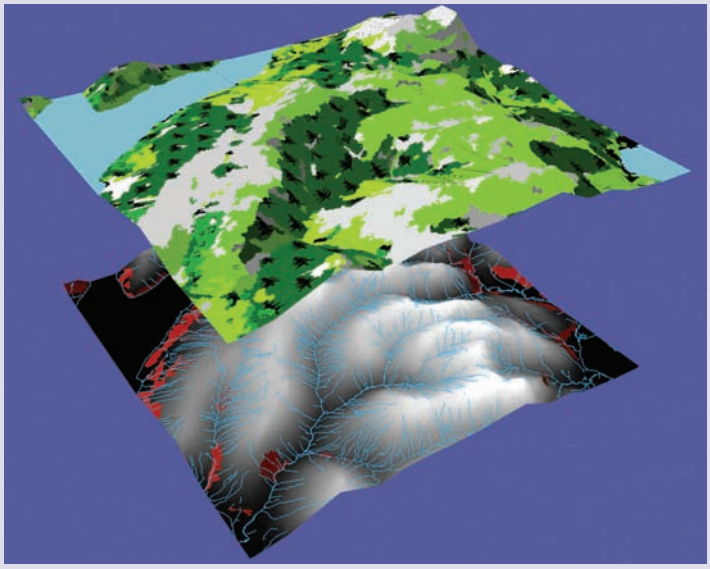
Notes: Estimate for combined (common and soprano) pipistrelle, 1978-1992. Although based on limited data, this places the more recent trends in a longer-term context.

Source: Bat Conservation Trust (data from Harris, S., Morris, P., Wray, S., & Yalden, D. (1995). *A review of British mammals: population estimates and conservation status of British mammals other than cetaceans. JNCC, Peterborough.*

Wider applications of NBMP data

In recent years a number of collaborative projects and partnerships have been developed which utilise NBMP data and survey techniques. These include monitoring the impacts of agri-environment schemes in Wales, assessing the impacts of climate change on UK biodiversity (**http://bicco-net.org/**), studying the ecology of urban bat populations and improving our understanding of how bats use the landscape. For example, a collaborative study between the University of East Anglia and BCT has been looking for associations between bat observations from NBMP Field Survey and Colony Count data and landscape variables around the points surveyed using Geographic Information Systems (GIS).

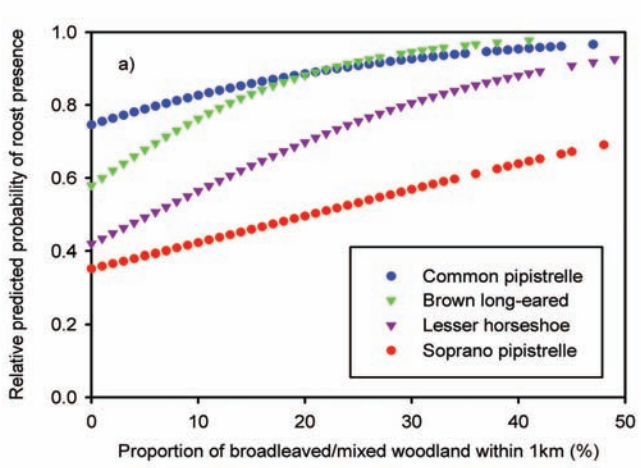
Example GIS data used to investigate associations between the landscape and bat roosts or activity recorded during NBMP surveys

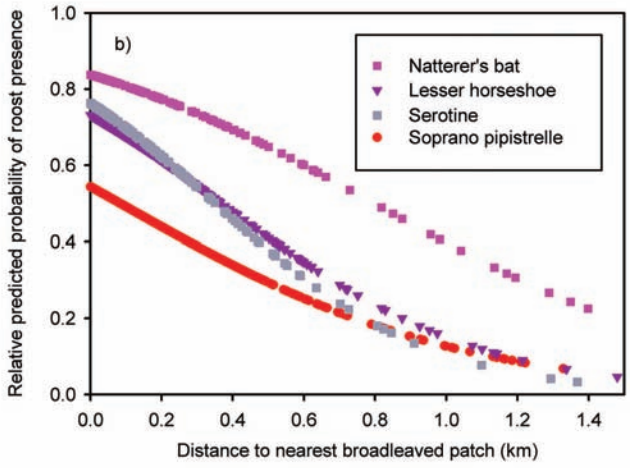


Bat roosts[1]:

Part of the study showed a positive association between the extent or proximity of broadleaved woodland and roost locations of all six species monitored by Colony Counts (common and soprano pipistrelle, lesser horseshoe bat, serotine, Natterer's bat and brown long-eared bat). The biggest increase in presence of roosts was observed when the amount of broadleaved woodland increased from zero to 20% of the available landscape, and the roost location was not dependent on the size of the nearest patch of woodland. For all species except brown long-eared bat, which was more likely to be found in areas with more broadleaved woodland, bat roosts were also found closer to areas of woodland than would be expected by chance. Overall, 90% of roosts were found less than 440m from a woodland patch.

The relative probability of roost presence for six species of bat in relation to extent and proximity of broadleaved woodland



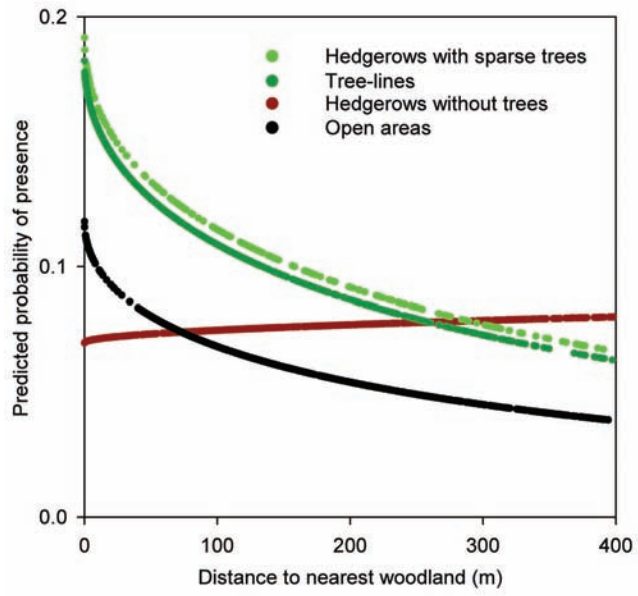


The findings suggest that creating a network of new patches of broadleaved woodland in landscapes with little existing woodland will benefit these six bat species. These could include small patches of woodland, but distances between patches should be no more than approximately 500m.

Bat activity[2]:

The study also used data from Field Survey transects to show that activity of both pipistrelle species was associated with hedgerows, whereas that of noctule and serotine was not. However, the pattern of activity of the two pipistrelle species differed: the presence of all types of hedgerow were associated with higher levels of activity of common pipistrelle. In contrast, consistently higher soprano pipistrelle activity was found only along hedgerows with trees or tree lines. Higher activity was only found along hedgerows without trees where the hedgerow was located more than 300m from woodland. These findings suggest that agri-environment scheme measures which encourage the provision or retention of hedgerows trees would benefit bats.

The probability of encountering soprano pipistrelle along different types of linear features and in open areas



1. Boughey K.L., Lake I.R., Haysom K.A. & Dolman P.M. 2011. Effects of landscape-scale broadleaved woodland configuration and extent on roost location for six bat species across the UK. Biological Conservation 144: 2300-2310.

2. Boughey K.L., Lake I.R., Haysom K.A. & Dolman P.M. 2011 Improving the biodiversity benefits of hedgerows: How physical characteristics and the proximity of foraging habitat affect the use of linear features by bats. Biological Conservation 144: 1790-1798.

The future

Looking ahead, the NBMP will continue to build on its strong foundation of reporting on population change. In the longer-term aspirations for the programme's improvement and expansion include:

- Enhancement of the quality of information available on species distribution and delivery of data on additional species where required.
- Development of online data entry systems to improve efficiency and reduce delays in annual reporting of trends.
- Further enhancement of dissemination of information online.
- Increasing survey coverage, for example, to aim towards delivering country level trends, including developing our network of Regional Bat Detector Workshop Leaders for 2012.
- Assessing the needs, interests and motivations of our NBMP volunteers through a questionnaire in 2011.
- Work to improve our understanding of the drivers of population trends.


Training volunteers

© Shirley Thompson


Serotine bat

© Hugh Clark

Further reading (available at www.bats.org.uk)

- Bat Conservation Trust. 2001. *The UK's National Bat Monitoring Programme – Final report 2001*. Bat Conservation Trust, London. DEFRA Publications, PB 5958A
- For the full 2010 NBMP report, visit **http://www.bats.org.uk/pages/national_bat_monitoring_programme_annual_report_2010.html**

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Call the Bat Helpline today on 0845 1300 228 or visit www.bats.org.uk

TRACKING Mammals PARTNERSHIP

JNCC Joint Nature Conservation Committee

NATURAL ENGLAND

Bat monitoring in the UK is led by the Bat Conservation Trust in partnership with UK Government agencies. However, its success is due to the volunteers who take part in surveys every year. A very big thank you must go out to all of our dedicated volunteers who take part in the NBMP. To date over 2000 volunteers have undertaken surveys at almost 5000 sites. In 2010, 1015 volunteers carried out surveys at nearly 2000 sites. Of these sites, 83% were repeat sites which are important for measuring change.

We still need more volunteers to take part in our surveys and help us monitor bat populations in the UK. For more information on the NBMP and how to get involved, visit **http://www.bats.org.uk/pages/take_part_in_surveys.html**

The National Bat Monitoring Programme is a partnership between the Bat Conservation Trust and **Joint Nature Conservation Committee** and is part of the **Tracking Mammals Partnership**. Additional funding is provided by **Natural England**.

Bat Conservation Trust, August 2011