

**European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)**

Supporting documentation for the
Third Report by the United Kingdom under
Article 17

on the implementation of the Directive
from January 2007 to December 2012
Conservation status assessment for

Species:

S1320 - Brandt's bat (*Myotis brandtii*)

IMPORTANT NOTE – PLEASE READ

- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Natural Resources Wales** and refers only to the state of the habitat/species in **Wales** - it does not constitute an assessment for the whole of the UK.
- The Article 17 UK Approach document provides details on how this information has been used and, combined with information supplied by other Statutory Nature Conservation Bodies
- The format of the document is closely aligned to that set out by the European Commission for Member State reporting – as a result, some of the fields are not applicable at a country-level and have deliberately been left blank – in addition, the content of most fields is constrained by the EC reporting categories.

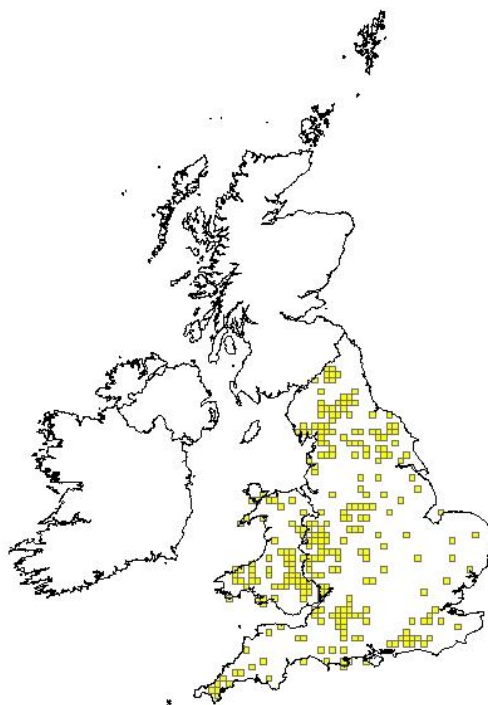
As of 1 April 2013, the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales became Natural Resources Wales/Cyfoeth Naturiol Cymru

Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

| <i>Field name</i> | <i>Brief explanations</i> | |
|--------------------|--|-------------------------------|
| 0.2 Species | 0.2.1 Species code | S1320 |
| | 0.2.2 Species scientific name | <i>Myotis brandtii</i> |
| | 0.2.3 Alternative species scientific name Optional | |
| | 0.2.4 Common name Optional | Brandt's bat |

1.1 Maps

| 1.1.1 Distribution map | Sensitive | False |
|---|------------------|--------------|
| M. brandtii is widely distributed across England and Wales, though probably less common in eastern England. It may be present in southern Scotland. | | |



| 1.1.2 Method used - map | Estimate based on partial data with some extrapolation and/or modelling |
|--------------------------------|---|
| | Distribution map based entirely on verified records, with no extrapolation or monitoring. There have been no structured distribution surveys for this species and records are based on ad-hoc recording in the field, bat roost visits following enquiries to the statutory nature conservation agencies (SNCOs) and data from structured surveillance schemes and more recently surveys for development proposals. M brandtii is very difficult to distinguish from its sister species M. mystacinus. Its echolocation calls |

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| | are also difficult to identify unambiguously. Current monitoring is by counting <i>M. mystacinus</i> / <i>M. brandtii</i> in hibernation sites, but this may not give an unbiased trend estimate. Trends are not available for the two species separately. The species is often found in buildings, so its presence may be noted, however it is difficult to observe within the roost and to confirm identification, so may be overlooked if present with other species or misidentified as one of the more commonly found species (common or soprano pipistrelle). |
| 1.1.3 Year or period | 1980-2012 |
| | The date range indicated has been selected to reflect current range/surface area for the species for the following reasons: There are limitations in the quality of the data available. The largest dataset (Richardson 2000) has data ranging from 1980-1999 but the date of individual records within this dataset is not known. Deviating from this time period would mean having to exclude these records. The greatest level of change affecting populations of this species probably occurred prior to 1980, and so 1980 to the present is likely to reflect current distribution and range. |
| 1.1.4 Additional distribution map | False |
| 1.1.5 Range map | |

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| 2.1 Biogeographical region & marine regions | ATL |
| 2.2 Published sources | <p>"BAT CONSERVATION TRUST, 2012. The National Bat Monitoring Programme. Annual Report 2011. Bat Conservation Trust, London. (www.bats.org.uk)</p> <p>BATTERSBY, J (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership.</p> <p>BERGE, L. 2007. The effects of phylogenetic differences on resource partitioning between the cryptic species whiskered bat (<i>Myotis mystacinus</i>) and Brandt's bat (<i>M. brandtii</i>). Unpublished Thesis, University of Bristol, School of Biological Sciences, Bristol, UK, 162 pp.</p> <p>BERGE, L & JONES, G. 2008. Brandt's bat <i>Myotis brandtii</i>. Pp 315-319 in HARRIS, S. & YALDEN, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton. 799pp.</p> <p>BOYE, P. & DIETZ, M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough.</p> <p>GLOVER, A.M. & ALTRINGHAM, J.D. 2008. Cave selection and use by swarming bat species. Biological Conservation 141(6):1493-1504.</p> <p>HARRIS, S., MORRIS, P., WRAY, S. and YALDEN, D. 1995. A review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. JNCC, Peterborough.</p> <p>CAREY, P.D., WALLIS, S.M., EMMETT, B.E., MASKELL, L.C., MURPHY, J., NORTON, L.R., SIMPSON, I.C., SMART, S.S. 2008.</p> |

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|--|---|
| | <p>Countryside Survey: UK headline messages from 2007. Centre for Ecology & Hydrology, Wallingford.</p> <p>JOHANSSON, M. & DE JONG, J. 1996. Bat species diversity in a lake archipelago in central Sweden. Biodiversity & Conservation, 5, 1221-1229.</p> <p>JONES, K.E., ALTRINGHAM, J.D. & DEATON, R. 1996. Distribution and population densities of seven species of bat in northern England Journal of Zoology, 240, 788-798</p> <p>NORBERG, U.M. & RAYNER, J.M.V. 1987. Ecological morphology and flight in bats (Mammalia: Chiroptera): Wing adaptations, flight performance, foraging strategy and echolocation. Philosophical Transactions of the Royal Society, London B, 316, 335-427.</p> <p>PARSONS, K.N, JONES,G., DAVIDSON-WATTS, I. GREENAWAY, F. 2003. Swarming of bats at underground sites in Britain—implications for conservation, Biological Conservation 111(1): 63-70.</p> <p>RICHARDSON, P. 2000. Distribution atlas of bats in Britain and Ireland 1980-1999. Bat Conservation Trust, London.</p> <p>SPEAKMAN, J.R. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review, 21, 123-142.</p> <p>VON HELVERSEN, O., HELLER, K.G., NEMETH. A., VOLLETH, M. & GOMBKÖTÖ, P. 2001. Cryptic mammalian species: a new species of whiskered bat (<i>Myotis alcathoe</i> n sp) in Europe. Naturwissenschaften 88: 5, 217 – 223"</p> |
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| 2.3 Range | |
| 2.3.1 Surface area Range | |
| 2.3.2 Method used Surface area of Range | <p>Estimate based on partial data with some extrapolation and/or modelling</p> <p>See Note 1.1.2. Probably underrecorded and more widely distributed than records indicate.</p> |
| 2.3.3 Short-term trend Period | <p>2001-2012</p> <p>See Note 1.1.3</p> |
| 2.3.4 Short term trend Trend direction | <p>unknown</p> <p>See Note 2.3.10b</p> |
| 2.3.5 Short-term trend Magnitude | <p>a) Minimum</p> <p>See Note 1.1.2</p> |
| | <p>b) Maximum</p> <p>See Note 1.1.2</p> |
| | |
| 2.3.6 Long-term trend | 1989-2012 |

| | | |
|--|---|--------------|
| Period | See note 1.1.2 | |
| 2.3.7 Long-term trend Trend direction | unknown | |
| | See Notes 1.1.2 and 2.3.10b | |
| 2.3.8 Long-term trend Magnitude Optional | a) Minimum | |
| | | |
| | b) Maximum | |
| | | |
| 2.3.9 Favourable reference range | a) Value in km² | |
| | | |
| | b) Operator for FRR | |
| | | |
| | c) FRR is unknown (indicated by "true") | False |
| | | |
| 2.3.10 Reason for change Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to... | a) Genuine change? | False |
| | | |
| | b) Improved knowledge/more accurate data? | True |
| | Although <i>M. brandtii</i> is very difficult to distinguish from its sister species <i>M. mystacinus</i> , there has been increased survey effort due to surveys for developments and more systematic survey methodology using time expansion / frequency division bat detectors and recording of bat calls. | |
| | c) Use of different method (e.g. "Range tool")? | False |
| | | |

2.4 Population

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|--|--|------------------------------|
| 2.4.1 Population size estimation (using individuals or agreed exceptions where possible) | a) Unit | number of individuals |
| | b) Minimum | 7000 |
| | The estimates for England and Wales were based on expert judgement and extrapolation from limited field surveys. The 1995 population estimate was based on very limited information, extrapolating from known size of <i>Pipistrellus pipistrellus</i> colonies in relation to size of <i>M. brandtii</i> colonies following the methods described by Speakman (1991) and Harris et al (1995). Harris et al's (1995) reliability rating of the estimate was 5, indicating that little confidence can be placed on the estimate. Although the estimate dates from 1995, NBMP data indicate that the population trend for this species (1997-2012) is stable, so there is no justification for updating the estimate. Better data are needed. | |
| | c) Maximum | 7000 |
| See note 2.3.1b | | |
| 2.4.2 Population size estimation (using population unit other than individuals) Optional (<i>if 2.4.1 filled in</i>) | a) Unit | |
| | b) Minimum | |
| | c) Maximum | |
| | | |
| 2.4.3 Additional information on population estimates / conversion Optional | a) Definition of "locality" | |
| | b) Method to convert data | |
| | c) Problems encountered to provide population size estimation | |
| | | |
| 2.4.4 Year or period | 1995- | |
| | See Note 2.4.1b | |
| 2.4.5 Method used Population size | Estimate based on expert opinion with no or minimal sampling | |
| | See Note 2.4.1b | |
| 2.4.6 Short-term trend Period | 2001-2012 | |
| 2.4.7 Short-term trend Trend direction | unknown | |
| | The only information on current trends suggests stable populations at present, but the time series is very short and the data are not robust because of potential confusion with the closely related <i>M. mystacinus</i> . More data are required to assess population trends and absolute abundance. | |
| 2.4.8 Short-term trend Magnitude | | |

| | | |
|---|---|--------------|
| | a) Minimum | |
| | | |
| | b) Maximum | |
| | | |
| | c) Confidence interval | |
| 2.4.9 Short-term trend Method used | Absent data See Note 2.4.7 | |
| 2.4.10 Long-term trend – Period | 1989-2012 | |
| 2.4.11 Long-term trend Trend direction | unknown See Note 2.4.7. | |
| 2.4.12 Long-term trend Magnitude Optional | a) Minimum | |
| | | |
| | b) Maximum | |
| | | |
| | c) Confidence interval | |
| 2.4.13 Long term trend Method used | 0 See Note 2.4.7 | |
| 2.4.14 Favourable reference population | a) Number of individuals/agreed exceptions/other units | |
| | | |
| | b) Operator | |
| | c) FRP is unknown indicated by "true" | False |

| | | |
|---|--|--------------|
| | | |
| | d) Method used to set FRP | |
| | | |
| 2.4.15 Reason for change Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to: | a) Genuine change? | False |
| | b) Improved knowledge/more accurate data? | False |
| | See Notes 2.3.10b and 2.4.7 | |
| | c) Use of different method (e.g. "Range tool")? | False |
| | | |

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| 2.5 Habitat for the species | | |
| 2.5.1 Area estimation | 5479 <p>M. brandtii requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. The species has wing morphology and echolocation calls which indicate that they forage in edge or cluttered habitats (Norberg & Rayner 1987) and in broadleaf forest with particularly damp areas, close to water. Coniferous woodland, forest edges and clearings also frequently used (Boye & Dietz 2005). The species is negatively affected by habitat isolation and may be particularly vulnerable to increased forest patchiness (Ekman & DeJong 1996). In England, a radiotracking study found the species had a maximum foraging distance of 2.3 km from the roost (Berge, 2007). The species also swarms at underground sites August - October, with a peak in early August (Parsons et al. 2003). These sites should also be considered important habitat features for the species. Loose bark and large holes in tree trunks are the original roost sites of M. brandtii, but tree holes and bat boxes are also used, especially by males during mating time. Maternity colonies are more commonly found in buildings in wall crevices or roof lofts, and more rarely in trees, bridges and bat boxes. Winter roosts are commonly in disused mines and caves, occasionally in cellars (Berge & Jones, 2008).</p> <p>There is thought to be a sufficient amount of habitat in the UK to support a viable population of the species.</p> | |
| 2.5.2 Year or period | 2012- | |
| 2.5.3 Method used Habitat for the species | Estimate based on expert opinion with no or minimal sampling | |
| 2.5.4 Quality of the | a) Habitat quality | Unknown |

| | | |
|---|---|--|
| habitat | No or insufficient information available. In order to obtain this estimate, it would be necessary to first identify all of the foraging and roosting habitat located within the current range boundary; determine whether or not each of these features were being used; and subsequently calculate the combined area of all currently used habitats. This process would require very detailed habitat information at a fine scale across the UK. We do not currently have this level of information. | |
| | As this is a generalist species, using a mosaic of habitats, the area of distribution is used as an estimate of habitat area. This is calculated from the area of the filled 10km squares in the distribution map. | |
| | b) Assessment method | No or insufficient information to assess quality. The area of occupied habitat has been used as a proxy for the area of suitable habitat in the absence of other information. |
| | As a widespread species and common species, it has been assumed that the area of distribution can be used as a proxy for the area of suitable habitat in the absence of other information. The area of distribution was calculated from the area of the filled 10km squares in the distribution map. | |
| 2.5.5 Short-term trend Period | 2001-2012 | |
| 2.5.6 Short-term trend Trend direction | unknown | |
| 2.5.7 Long-term trend Period | 1989-2012 | |
| 2.5.8 Long-term trend Trend direction | unknown | |
| 2.5.9 Area of suitable habitat for the species | a) Value in km² | 5479 |
| | See Note 2.5.4b | |
| | b) Absence of data indicated as '0' | |
| 2.5.10 Reason for change Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to | a) Genuine change? | False |
| | b) Improved knowledge/more accurate data? | True |
| | See Note 2.3.10b | |
| | c) Use of different method (e.g. "Range tool")? | False |
| | | |

| 2.6 Main pressures | | |
|---|--|------------------------|
| a) Pressure | b) Ranking | c) Pollution qualifier |
| | H = high importance M = medium importance L = low importance | |
| A07: use of biocides, hormones and chemicals | H | |
| A10: Restructuring agricultural land holding | H | |
| G05: Other human intrusions and disturbances | H | |
| A04: grazing | M | |
| B02: Forest and Plantation management & use | M | |
| B03: forest exploitation without replanting or natural regrowth | M | |
| D01: Roads, paths and railroads | M | |
| E01: Urbanised areas, human habitation | M | |
| E06: Other urbanisation, industrial and similar activities | M | |
| J02: human induced changes in hydraulic conditions | M | |
| | | |

Pressures can generally be divided into those that affect roosts and those that affect commuting and foraging (including prey availability). Changes in building practices to improve energy efficiency mean that new buildings may offer fewer roosting opportunities (Mitchell-Jones, 2010). The species is vulnerable to loss of roosts through development, renovation or conversion of buildings. Brandt's bats forage over lowland farmland, woodland parkland and woodland edges. Agricultural and forestry practices that remove, modify or fragment these habitats, or affect the biomass of suitable insect prey ((including changes to water quality) could negatively affect populations.

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|--------------------------------------|--|
| 2.6.1 Method used – Pressures | mainly based on expert judgement and other data |
| | Expert judgement has been used based on studies of the ecology of the species and current and predicted land use changes, Berge (2007) Berge and Jones (2008). |

| 2.7 Threats | | |
|--|--|------------------------|
| a) Threat | b) Ranking | c) Pollution qualifier |
| | H = high importance M = medium importance L = low importance | |
| A04: grazing | H | |
| A10: Restructuring agricultural land holding | H | |
| B02: Forest and Plantation | H | |

| | | |
|---|---|--|
| management & use | | |
| A07: use of biocides, hormones and chemicals | M | |
| E06: Other urbanisation, industrial and similar activities | M | |
| J02: human induced changes in hydraulic conditions | M | |
| B03: forest exploitation without replanting or natural regrowth | L | |
| D01: Roads, paths and railroads | L | |
| E01: Urbanised areas, human habitation | L | |
| G01: Outdoor sports and leisure activities, recreational activities | L | |
| | | |

See also 2.6. This species is offered full protection under national and European legislation. However, the lack of information on distribution, abundance and habitat requirements and the inability at present to detect population trends separately from those of *M. mystacinus* means that it is difficult to plan conservation management action and to know if action planned for other species will be effective for this species. Roost sites are probably not a limiting factor, and being generalists, it is unlikely that diet is a limiting factor either. It is perhaps most important therefore to concentrate on the conservation of foraging habitats and swarming sites.

2.7.1 Method used – Threats**expert opinion**

See Note 2.6.1

2.8 Complementary information**2.8.1 Justification of % thresholds for trends****2.8.2 Other relevant information****2.8.3 Trans-boundary assessment****2.9 Conclusions (*assessment of conservation status at end of reporting period*)**

Please refer to the United Kingdom assessment for this species.

**3 Natura 2000 coverage & conservation measures - Annex II species
(only applies to species listed under Annex II of the Directive)**
3.1 Population

| | | |
|---|-------------------|--|
| 3.1.1 Population size Estimation of population size included in the SAC network | a) Unit | |
| | b) Minimum | |
| | c) Maximum | |
| | | |
| 3.1.2 Method used | | |
| 3.1.3 Trend of population size within the network (short-term trend) | | |
| | | |

3.2 Conservation measures

Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation.

| 3.2.1 Measure | 3.2.2 Type | | | | | 3.2.3 Ranking H = high importance M = medium importance L = low importance | 3.2.4 Location where the measure is PRIMARILY applied | | | 3.2.5 Broad evaluation of the measure | | | | | |
|---------------|--------------------|-------------------|----------------|--------------|------------|---|--|------------|--------------------------|---------------------------------------|------------|--------------|--------------|------------|------------------|
| | a) Legal/statutory | b) Administrative | c) Contractual | d) Recurrent | e) One-off | | a) Inside | b) Outside | c) Both inside & outside | a) Maintain | b) Enhance | c) Long term | d) No effect | e) Unknown | f) Not evaluated |
| | | | | | | | | | | | | | | | |

