

**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:

S1330 - Whiskered bat (*Myotis mystacinus*)

IMPORTANT NOTE – PLEASE READ

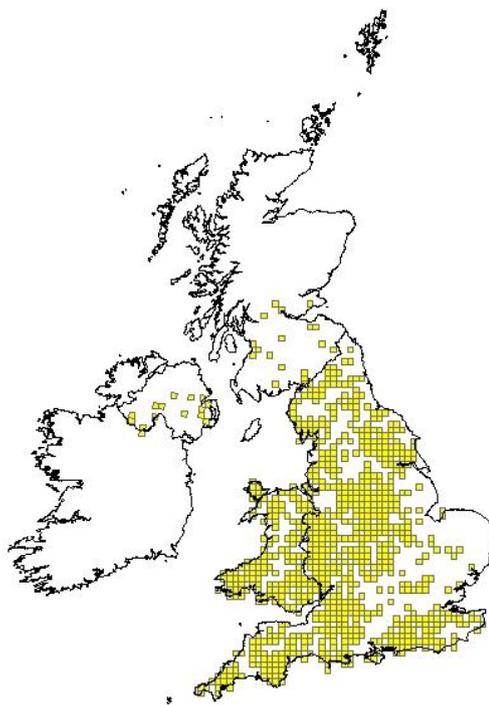
- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Scottish Natural Heritage** and refers only to the state of the habitat/species in **Scotland** - it does not constitute an 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.

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	S1330
	0.2.2 Species scientific name	<i>Myotis mystacinus</i>
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	Whiskered bat

1.1 Maps

1.1.1 Distribution map	Sensitive	False
<p>England and Wales: Whiskered bat is widespread in England and Wales, though less commonly recorded in eastern England. Scotland: the species is rare in Scotland and found only as far north as the central lowlands (with one or two vagrants).</p>		



1.1.2 Method used - map	Complete survey/Complete survey or a statistically robust estimate
	<p>Although there have been no structured distribution surveys, it has been reasonably well recorded by local bat groups and during monitoring surveys organised by the National Bat Monitoring Programme. The difficulty of separating this species from <i>M. brandtii</i> limits the availability of data.</p>

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: <ul style="list-style-type: none"> 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	

2.1 Biogeographical region & marine regions	ATL
2.2 Published sources	<p>"GB & Scotland</p> <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 http://jncc.defra.gov.uk/page-3311.</p> <p>BERGE, L & JONES, G. 2008. Whiskered bat <i>Myotis mystacinus</i>. Pp 310-315 in HARRIS, S. & YALDEN, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.</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>BOYE, P. & DIETZ, M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough http://publications.naturalengland.org.uk/publication/65012.</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 http://jncc.defra.gov.uk/page-2759.</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 http://onlinelibrary.wiley.com/doi/10.1111/j.1469-</p>

	<p>7998.1996.tb05325.x/abstract</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 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2907.1991.tb00114.x/abstract.</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> <p>NI</p> <p>RUSS, J.M. 1999. The Microchiroptera of Northern Ireland: community composition, habitat associations and ultrasound. Unpublished PhD thesis. Queen’s University, Belfast."</p>
	<p>GB & Scotland</p> <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 http://jncc.defra.gov.uk/page-3311.</p> <p>BERGE, L & JONES, G. 2008. Whiskered bat <i>Myotis mystacinus</i>. Pp 310-315 in HARRIS, S. & YALDEN, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.</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>BOYE, P. & DIETZ, M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough http://publications.naturalengland.org.uk/publication/65012.</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 http://jncc.defra.gov.uk/page-2759.</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</p>

	<p>of Zoology, 240, 788-798 http://onlinelibrary.wiley.com/doi/10.1111/j.1469-7998.1996.tb05325.x/abstract NORBERG, U.M. & RAYNER, J.M.V. 1987. Ecological morphology and flight in bats (Mammalia: Chiroptera): Wing adaptations, flight performance, foraging strategy and echolocation. <i>Philosophical Transactions of the Royal Society, London B</i>, 316, 335-427. PARSONS, K.N, JONES,G., DAVIDSON-WATTS, I. GREENAWAY, F. 2003. Swarming of bats at underground sites in Britain—implications for conservation, <i>Biological Conservation</i> 111(1): 63-70. RICHARDSON, P. 2000. Distribution atlas of bats in Britain and Ireland 1980-1999. Bat Conservation Trust, London. SPEAKMAN, J.R. 1991. The impact of predation by birds on bat populations in the British Isles. <i>Mammal Review</i>, 21, 123-142 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2907.1991.tb00114.x/abstract. 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. <i>Naturwissenschaften</i> 88: 5, 217 – 223</p> <p>NI RUSS, J.M. 1999. The Microchiroptera of Northern Ireland: community composition, habitat associations and ultrasound. Unpublished PhD thesis. Queen’s University, Belfast.</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>The date range indicated has been selected to reflect current range/surface area for the species for the following reasons:</p> <ul style="list-style-type: none"> • 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. <p>Although there have been no structured distribution surveys, it has been reasonably well recorded by local bat groups and during monitoring surveys organised by the National Bat Monitoring Programme. The difficulty of separating this species from <i>M. brandtii</i> limits the availability of data.</p> <p>England and Wales: Whiskered bat is widespread in England and Wales, though less commonly recorded in eastern England. Scotland: the species is rare in Scotland and found only as far north as the central lowlands (with one or two vagrants).</p>
2.3.3 Short-term trend Period	

2.3.4 Short term trend Trend direction	unknown	
2.3.5 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
2.3.6 Long-term trend Period		
2.3.7 Long-term trend Trend direction	unknown	
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")	True
	d) Method used to set FRR	
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?	False

	c) Use of different method (e.g. "Range tool")?	False

2.4 Population		
2.4.1 Population size estimation (using individuals or agreed exceptions where possible)	a) Unit	number of individuals
	b) Minimum	1500
	England: 30,500 Scotland: 1,500 Wales: 8,000	
	c) Maximum	
	England: 30,500 Scotland: 1,500 Wales: 8,000	
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	1995-1995	
2.4.5 Method used Population size	Estimate based on expert opinion with no or minimal sampling BAT CONSERVATION TRUST, 2012. The National Bat Monitoring Programme. Annual Report 2011. Bat Conservation Trust, London. (www.bats.org.uk) 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	

	http://jncc.defra.gov.uk/page-2759 . The estimates were based on expert judgement and extrapolation from limited field surveys. The 1995 population estimate for Great Britain (GB) was based on very limited information, extrapolating from known size of <i>Pipistrellus pipistrellus</i> colonies in relation to size of <i>M. mystacinus</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 4, meaning that it is "based on a very limited amount of information on the species". Although the estimates date 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.	
2.4.6 Short-term trend Period		
2.4.7 Short-term trend Trend direction	unknown	
2.4.8 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
2.4.9 Short-term trend Method used	Estimate based on expert opinion with no or minimal sampling	
2.4.10 Long-term trend – Period		
2.4.11 Long-term trend Trend direction	stable	
2.4.12 Long-term trend Magnitude Optional	a) Minimum	
	b) Maximum	
	c) Confidence interval	

2.4.13 Long term trend Method used	1										
2.4.14 Favourable reference population	<table border="1"> <tr> <td>a) Number of individuals/agreed exceptions/other units</td> <td></td> </tr> <tr> <td colspan="2">There is very little historic or current information to determine a favourable reference population for this species. 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. brandtii</i>. More data are required to assess population trends and absolute abundance. For this reason the favourable reference population is unknown at present.</td> </tr> <tr> <td>b) Operator</td> <td></td> </tr> <tr> <td>c) FRP is unknown indicated by "true"</td> <td>True</td> </tr> <tr> <td>d) Method used to set FRP</td> <td></td> </tr> </table>	a) Number of individuals/agreed exceptions/other units		There is very little historic or current information to determine a favourable reference population for this species. 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. brandtii</i> . More data are required to assess population trends and absolute abundance. For this reason the favourable reference population is unknown at present.		b) Operator		c) FRP is unknown indicated by "true"	True	d) Method used to set FRP	
a) Number of individuals/agreed exceptions/other units											
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b) Operator											
c) FRP is unknown indicated by "true"	True										
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:	<table border="1"> <tr> <td>a) Genuine change?</td> <td>False</td> </tr> <tr> <td>b) Improved knowledge/more accurate data?</td> <td>False</td> </tr> <tr> <td>c) Use of different method (e.g. "Range tool")?</td> <td>False</td> </tr> </table>	a) Genuine change?	False	b) Improved knowledge/more accurate data?	False	c) Use of different method (e.g. "Range tool")?	False				
a) Genuine change?	False										
b) Improved knowledge/more accurate data?	False										
c) Use of different method (e.g. "Range tool")?	False										

2.5 Habitat for the species	
2.5.1 Area estimation	1738 M. mystacinus requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. Boye & Dietz (2005) provides a good overview of this species' habitat requirements. Wing morphology and echolocation calls indicate that <i>M. mystacinus</i> forage in edge or cluttered habitats (Norberg & Rayner 1987), in dense woodlands, park-like forests, along forest edges, banks, hedges and in

	<p>gardens, often in close proximity to water (von Helversen et al. 2001). Maximum foraging distance is approximately 1,250 metres from the roost, but in most cases less than 700 metres. A minimum population density of about 1.5 individuals/ km² has been estimated in northern England, based on counts from maternity colonies (n=15) (Jones et al. 1996). The species is negatively affected by increased forest patchiness (Johansson & de Jong 1996). Summer roosts are mostly in buildings, in crevices and holes in buildings, more rarely in trees, in tree holes, and behind loose bark. In many cases the entrance to a roost is a very small opening. Bird or bat boxes are used by single individuals or as mating roosts, and only occasionally are boxes used by a maternity colony. In northern England, the mean size of maternity roosts was found to be 23.3 individuals (Jones et al. 1996). Caves, mines and cellars are used for hibernation. In most underground hibernation sites other bat species are also present, especially of the genus <i>Myotis</i> and <i>Plecotus</i>. The species can be found swarming at underground sites from August until October. The purpose is not fully understood, with mating or information transfer as possible explanations (Parsons et al. 2003).</p> <p>It is unknown whether the amount of habitat in the UK is sufficient to support a viable population of the species. England: 65,900 Scotland: 1,738 Wales: 13,058</p> <p>It is unknown whether the amount of habitat in the UK is sufficient to support a viable population of the species.</p>	
2.5.2 Year or period	2012-2012	
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 habitat	a) Habitat quality	Unknown
	<p><i>M. mystacinus</i> requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. In order to obtain an estimate of habitat extent, 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.</p> <p>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 number of filled 10 km squares in the distribution map.</p>	
	b) Assessment method	No or insufficient reliable information available
	No or insufficient reliable information available	
2.5.5 Short-term trend Period		
2.5.6 Short-term trend Trend direction	unknown	
2.5.7 Long-term trend		

Period		
2.5.8 Long-term trend	unknown	
Trend direction		
2.5.9 Area of suitable habitat for the species	a) Value in km²	
	England: 65,900 Scotland: 1,738 Wales: 13,058	
	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?	False
	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	
A04: grazing	H	
A10: Restructuring agricultural land holding	H	
B02: Forest and Plantation management & use	H	
A07: use of biocides, hormones and chemicals	M	0
E06: Other urbanisation, industrial and similar activities	M	
G05: Other human intrusions and disturbances	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	

J02: human induced changes in hydraulic conditions	L	

Pressures can generally be divided into those that affect roosts and those that affect commuting and foraging (including prey availability). Although roosts are strictly protected, a small number of licences permitting exclusion or roost destruction is issued every year. In addition, changes in building practices to improve energy efficiency mean that new buildings may offer fewer roosting opportunities (Mitchell-Jones, 2010). Whiskered 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 could negatively affect populations.

2.6.1 Method used – Pressures **mainly based on expert judgement and other data**

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 management & use	H	
A07: use of biocides, hormones and chemicals	M	O
E06: Other urbanisation, industrial and similar activities	M	
G05: Other human intrusions and disturbances	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	
J02: human induced changes in hydraulic conditions	L	

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2.7.1 Method used – Threats	expert opinion
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2.8 Complementary information

2.8.1 Justification of % thresholds for trends

2.8.2 Other relevant information

M. mystacinus is very difficult to distinguish from its sister species *M. brandtii*. Its echolocation calls are also difficult to identify unambiguously. Current monitoring is by counting *M. mystacinus*/*M. brandtii* in hibernation sites, but this may not give an unbiased trend estimate.

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

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