

**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:

S1308 - Barbastelle (*Barbastella barbastellus*)

**IMPORTANT NOTE – PLEASE READ**

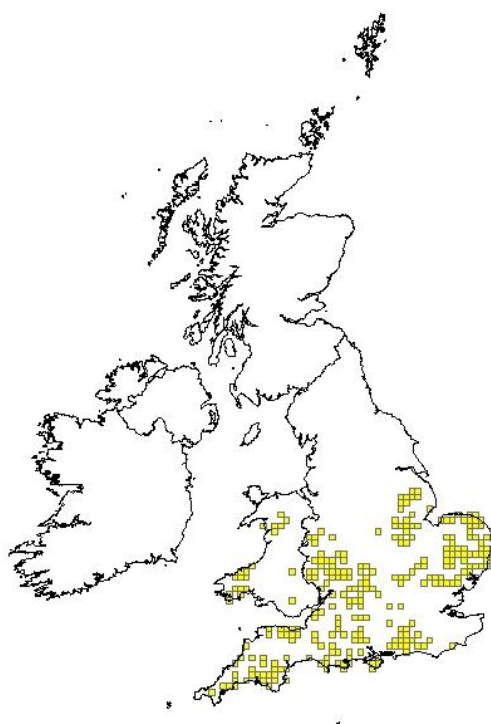
- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Natural Resources Wales** and refers only to the state of the habitat/species in **Wales** - it does not constitute an assessment 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>	
<b>0.2 Species</b>	<b>0.2.1 Species code</b>	<b>S1308</b>
	<b>0.2.2 Species scientific name</b>	<b><i>Barbastella barbastellus</i></b>
	<b>0.2.3 Alternative species scientific name</b> Optional	
	<b>0.2.4 Common name</b> Optional	<b>Barbastelle bat</b>

<b>1.1 Maps</b>			
<b>1.1.1 Distribution map</b>		<b>Sensitive</b>	<b>False</b>



<b>1.1.2 Method used - map</b>	<p><b>Estimate based on partial data with some extrapolation and/or modelling</b></p> <p>Distribution map based on validated records, but the species is likely to be underrecorded. This is a rare species, with few known roosts. Bat detector surveys are possible, but low contact rates make this resource-intensive. There have been some specific surveys for the species using trapping (e.g. Zeale, 2011) but others have occurred as a result of surveys associated with developments (particularly road schemes) and it is considered that further intensive surveys would provide better distribution data for the species. Currently records are scattered, but present throughout lowland areas of Wales and England south of a line</p>
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	from the Mersey to the Humber.
<b>1.1.3 Year or period</b>	<b>2000-2012</b>
	See also Note 1.1.2. There are few records for this species and only choosing the most recent reporting period (2007-12) would result reduce the number and result in a smaller and less accurate distribution.
<b>1.1.4 Additional distribution map</b>	<b>False</b>
<b>1.1.5 Range map</b>	

<b>2.1 Biogeographical region &amp; marine regions</b>	<b>ATL</b>
<b>2.2 Published sources</b>	<p><b>"BAT CONSERVATION TRUST, 2012. The National Bat Monitoring Programme. Annual Report 2011. Bat Conservation Trust, London. (www.bats.org.uk)</b></p> <p><b>BATTERSBY, J (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership.</b></p> <p><b>BILLINGTON, 2003. Radio tracking study of Barbastelle bats in Pengelli Forest National Nature Reserve. CCW Contract Science Report No. 590. [Confidential]. CCW, Bangor.</b></p> <p><b>BOYE, P. &amp; DIETZ, M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough.</b></p> <p><b>CAREY, P.D., WALLIS, S.M., EMMETT, B.E., MASKELL, L.C., MURPHY, J., NORTON, L.R., SIMPSON, I.C., SMART, S.S. 2008. Countryside Survey: UK headline messages from 2007. Centre for Ecology &amp; Hydrology, Wallingford.</b></p> <p><b>GREENAWAY, F. 2008. Barbastelle <i>Barbastella barbastellus</i>. Pages 362-364 In HARRIS, S &amp; YALDEN, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.</b></p> <p><b>HARRIS, S., MORRIS, P., WRAY, S. &amp; YALDEN, D. 1995. A review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. JNCC, Peterborough.</b></p> <p><b>MACDONALD, D.W. &amp; TATTERSALL, F. (2001) Britain's Mammals: The Challenge for Conservation. People's Trust for Endangered Species, London.</b></p> <p><b>MACDONALD, D.W. &amp; BURNHAM, D. (2011). The State of Britain's Mammals 2011. Peoples Trust for Endangered Species, London.</b></p> <p><b>MCLEOD, C.R., YEO, M., BROWN, A.E., BURN, A.J., HOPKINS, J.J. &amp; WAY, S.F., eds. 2002. The Habitats Directive: Selection of Special Areas of Conservation in the UK, 2nd edn. Joint Nature Conservation Committee, Peterborough</b></p> <p><b>RICHARDSON, P. (2000) Distribution atlas of bats in Britain and Ireland 1980-1999. Bat Conservation Trust, London.</b></p> <p><b>ZEALE, M.R.K. 2011. Conservation biology of the barbastelle (<i>Barbastella barbastellus</i>): applications of spatial modelling, ecology and molecular analysis of diet. PhD Thesis, University of Bristol."</b></p>


2.3 Range	
2.3.1 Surface area Range	<b>1790</b>
	See Note 1.1.2
2.3.2 Method used Surface area of Range	<b>Estimate based on partial data with some extrapolation and/or modelling</b>
	See Note 1.1.2
2.3.3 Short-term trend Period	<b>2001-2012</b>
2.3.4 Short term trend Trend direction	<b>unknown</b>
2.3.5 Short-term trend Magnitude	a) Minimum
	b) Maximum
2.3.6 Long-term trend Period	<b>1989-2012</b>
2.3.7 Long-term trend Trend direction	<b>unknown</b>
2.3.8 Long-term trend Magnitude Optional	a) Minimum
	b) Maximum
2.3.9 Favourable reference range	a) Value in km <sup>2</sup>
	b) Operator for FRR
	c) FRR is unknown (indicated by "true")

	<b>d) Method used to set FRR</b>	
<b>2.3.10 Reason for change</b> Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to...	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>True</b>
	B. barbastellus is a rare species throughout its UK range, with relatively few roosts known. The widespread use of bat detectors and sound analysis software has greatly increased the number of records of the species and this improved detection has consolidated and increased slightly its known range.	
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.4 Population</b>		
<b>2.4.1 Population size estimation</b> (using individuals or agreed exceptions where possible)	<b>a) Unit</b>	<b>number of individuals</b>
	<b>b) Minimum</b>	<b>500</b>
	See Note 2.4.5	
<b>2.4.2 Population size estimation</b> (using population unit other than individuals) Optional ( <i>if 2.4.1 filled in</i> )	<b>c) Maximum</b>	<b>500</b>
	See Note 2.4.5	
	<b>a) Unit</b>	
<b>2.4.3 Additional information on population estimates / conversion</b> Optional	<b>b) Minimum</b>	
	<b>c) Maximum</b>	
<b>2.4.3 Additional information on population estimates / conversion</b> Optional	<b>a) Definition of "locality"</b>	
	<b>b) Method to convert data</b>	
<b>2.4.3 Additional information on population estimates / conversion</b> Optional	<b>c) Problems encountered to</b>	

	<b>provide population size estimation</b>	
<b>2.4.4 Year or period</b>	<b>1995-</b> See Note 2.4.5. There are insufficient data to provide a more up to date or accurate estimate.	
<b>2.4.5 Method used Population size</b>	<b>Estimate based on expert opinion with no or minimal sampling</b> The population estimate quoted was based on subjective estimates of relative abundance because there were few density estimates and a paucity of quantified data on bat numbers in relation to habitat associations and patterns of land use. For this species the estimate was believed on subjective criteria to be within the right order of magnitude, but no greater degree of accuracy was thought to have been achieved. Insufficient data are available from monitoring to allow an update of this estimate.	
<b>2.4.6 Short-term trend Period</b>	<b>2001-2012</b>	
<b>2.4.7 Short-term trend Trend direction</b>	<b>unknown</b> This is a rare species throughout its UK range. Insufficient data are currently available to detect any trend. See also 2.4.5	
<b>2.4.8 Short-term trend Magnitude</b>	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
	<b>c) Confidence interval</b>	
<b>2.4.9 Short-term trend Method used</b>	<b>Absent data</b>	
<b>2.4.10 Long-term trend – Period</b>	<b>1989-2001</b>	
<b>2.4.11 Long-term trend Trend direction</b>	<b>unknown</b> This is a rare species throughout its UK range. Insufficient data are currently available to detect any trend.	
<b>2.4.12 Long-term trend Magnitude</b> Optional	<b>a) Minimum</b>	

	<b>b) Maximum</b>	
	<b>c) Confidence interval</b>	
<b>2.4.13 Long term trend Method used</b>	<b>0</b>	
<b>2.4.14 Favourable reference population</b>	<b>a) Number of individuals/agreed exceptions/other units</b>	
	See Note 2.4.5. There are insufficient data to provide a more up to date or accurate estimate.	
	<b>b) Operator</b>	
	<b>c) FRP is unknown indicated by "true"</b>	<b>True</b>
	<b>d) Method used to set FRP</b>	
<b>2.4.15 Reason for change</b> Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>True</b>
	If there are any changes, it is likely that these would be due to better detection and more effective recording than to actual change. There is such a paucity of information available that it is not possible to determine whether there has been any change in Wales.	
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

**2.5 Habitat for the species**

<b>2.5.1 Area estimation</b>	<p><b>1790</b></p> <p><i>B. barbastellus</i> requires a complex mosaic of habitats, and particularly large areas of mature woodland, to support foraging, roosting and commuting behaviour. Boye &amp; Dietz (2005) provides a good overview of this species' habitat requirements.</p> <p>Foraging areas are predominantly in woodlands or parks, but they can also stretch along forest edges, tree rows, hedges, waterways, or field roads with trees. The home range extends up to 8-10 km around the roost.</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 10km squares in the distribution map.</p> <p>Most summer roosts are found in narrow crevices in trees or buildings, but the preferred natural roost sites seem to be behind loose bark. Sometimes woodpecker holes are used and the species is frequently found behind window shutters or wall cover (shingles from wood or slate) on houses. On rare occasions the species is observed in bat boxes. During spring and summer, roost sites are changed frequently, sometimes every day, so that the group composition varies continuously.</p> <p>Winter roosts are known in caves, old mines and bunkers. Most of the population probably hibernates in tree crevices and walls of houses. Summer and winter roosts seem to be a maximum of 20 km apart.</p> <p>There is thought to be a sufficient amount of habitat in the UK to support a viable population of the species.</p>	
<b>2.5.2 Year or period</b>	<p><b>2000-2012</b></p> <p>The area is based on the distribution. See Note 1.1.3</p>	
<b>2.5.3 Method used</b>	<p><b>Estimate based on expert opinion with no or minimal sampling</b></p> <p>See Notes 1.1.2 and 2.5.1</p>	
<b>2.5.4 Quality of the habitat</b>	<p><b>a) Habitat quality</b></p> <p>No or insufficient reliable information available. Detailed information is available on the habitat requirements/limitations of this species. Although there is some information on the roosting and foraging requirements for this species, it is not possible to quantify the habitat required for a population to be at favourable conservation status, nor to state whether that area or quality of habitat is available within the range of the species in the UK.</p> <p>[To obtain an estimate of habitat used by the species, 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><b>Unknown</b></p> <p><b>N/A Insufficient information to assess habitat quality</b></p>
<b>2.5.5 Short-term trend</b>	<p><b>2001-2012</b></p>	



<b>Period</b>		
<b>2.5.6 Short-term trend</b>	<b>unknown</b>	
<b>Trend direction</b>		
<b>2.5.7 Long-term trend</b>	<b>1989-2012</b>	
<b>Period</b>		
<b>2.5.8 Long-term trend</b>	<b>unknown</b>	
<b>Trend direction</b>		
<b>2.5.9 Area of suitable habitat for the species</b>	<b>a) Value in km<sup>2</sup></b>	<b>0</b>
	See Note 2.5.4a	
	<b>b) Absence of data indicated as '0'</b>	
<b>2.5.10 Reason for change</b> Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>True</b>
	No or insufficient information available to assess change in Wales, but if there is a change it is likely to be as a result of better recording. See Note 1.1.3.	
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.6 Main pressures</b>		
<b>a) Pressure</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance M = medium importance L = low importance	
A10: Restructuring agricultural land holding	H	
B02: Forest and Plantation management & use	H	
A02: modification of cultivation practices	M	
A07: use of biocides, hormones and chemicals	M	
J02: human induced changes in hydraulic conditions	M	
E01: Urbanised areas, human habitation	L	

B barbastellus is predominantly a woodland species, roosting most commonly under loose bark on large old trees. Forestry operations preventing the maintenance or development of this resource are likely to have an adverse effect. This species feeds mainly on moths, so is likely to be adversely affected by agricultural operations, including pesticide use, that affect the biomass of suitable prey.

<b>2.6.1 Method used – Pressures</b>	<b>based only on expert judgements</b>
	Expert judgement has been used based on studies of the ecology of the species and current and predicted land use changes. BOYE & DIETZ, 2005; GREENAWAY, 2008, ZEALE, 2011.

<b>2.7 Threats</b>		
<b>a) Threat</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance M = medium importance L = low importance	
A10: Restructuring agricultural land holding	H	
B02: Forest and Plantation management & use	H	
A02: modification of cultivation practices	M	
A07: use of biocides, hormones and chemicals	M	
K04: Interspecific floral relations	M	
E01: Urbanised areas, human habitation	L	

See also Note 2.6. This species uses ephemeral roosts and moves roosts frequently, requiring a large number of damaged and dead trees. (K04) Loss of native broadleaf trees through new pathogens (such as *Chalara fraxinea*) could have a serious long term impact through reduction of resource.

<b>2.7.1 Method used – Threats</b>	<b>expert opinion</b>
	Expert judgement has been used based on studies of the ecology of the species and current and predicted land use changes. BOYE & DIETZ, 2005; GREENAWAY, 2008, ZEALE, 2011.

<b>2.8 Complementary information</b>	
<b>2.8.1 Justification of % thresholds for trends</b>	
<b>2.8.2 Other relevant information</b>	

<b>2.8.3 Trans-boundary assessment</b>	

### 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

<b>3.1.1 Population size</b>	<b>a) Unit</b>	<b>number of individuals</b>
Estimation of population size included <u>in the SAC network</u>	No or insufficient information available on the population as a whole or of the proportion within the N2K sites.	
	<b>b) Minimum</b>	
	There is no reliable information at present on which to base an estimate of the population within SACs in Wales. Specific survey is required.	
	<b>c) Maximum</b>	
	See 3.1.1.b	
<b>3.1.2 Method used</b>	<b>Absent data</b>	
<b>3.1.3 Trend of population size within the network</b> (short-term trend)	<b>unknown</b>	
	No or insufficient information available on population trends for the whole of the proportion or that within the N2K sites. There is insufficient information on the population to assess trends.	

#### 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.

<b>3.2.1 Measure</b>	<b>3.2.2 Type</b>	<b>3.2.3 Ranking</b>	<b>3.2.4 Location</b>	<b>3.2.5 Broad evaluation of the measure</b>
		H = high importance	where the measure is PRIMARILY applied	

	a) Legal/statutory	b) Administrative	c) Contractual	d) Recurrent	e) One-off	M = medium importance L = low importance	a) Inside	b) Outside	c) Both inside & outside	a) Maintain	b) Enhance	c) Long term	d) No effect	e) Unknown	f) Not evaluated
2.0: Other agriculture-related measures		Y		Y		H			Y		Y	Y			
3.1: Restoring/improving forest habitats		Y		Y		H			Y		Y	Y			
6.1: Establish protected areas/sites	Y					M			Y		Y	Y			
6.3: Legal protection of habitats and species	Y				Y	M			Y		Y	Y			
6.4: Manage landscape features		Y		Y		M		Y			Y	Y			

B. *barbastellus* is a rare woodland species, roosting under loose bark and in tree splits and crevices. Its diet consists primarily of moths. Improvements to woodland management, assisted by land-management schemes to increase prey availability, may increase the quality of this habitat. B. *barbastellus* travels long distances, utilising linear features in the landscape, so maintaining and improving these linkages will assist with its conservation. New roost sites have been discovered in Wales and need to be designated as SSSI and the SACs extended when further survey work is completed.