

**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:

S1326 - Brown long-eared bat (*Plecotus auritus*)

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.

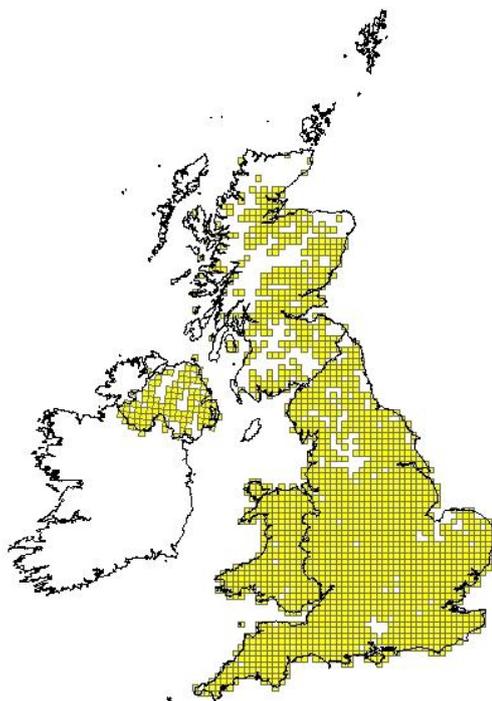
As of 1 April 2013, the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales became Natural Resources Wales/Cyfoeth Naturiol Cymru

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	S1326
	0.2.2 Species scientific name	<i>Plecotus auritus</i>
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	Brown long-eared bat

1.1 Maps

1.1.1 Distribution map	Sensitive	False
<p>P. auritus is a common and widespread species, found throughout Wales. Gaps in distribution probably reflecting an absence of survey data rather than an absence of the species, though it may be less common in upland areas.</p>		



1.1.2 Method used - map	Complete survey/Complete survey or a statistically robust estimate
	<p>See also 1.1.1. Distribution map based entirely on validated records with no extrapolation or modelling. 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. However, this species is often found in buildings and is easily</p>

	recognised, so level of recording is likely to be high. The species has also been the subject of several extensive research projects (Stebbins 1966; Entwistle et al., 1996, 1997; Swift 1998). It is a low-intensity echolocator, so bat detector surveys have limited value because of short detection range. Other survey methods (counts at breeding and hibernation sites) are more resource-intensive and less statistically robust.
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	

2.1 Biogeographical region & marine regions	ATL
2.2 Published sources	<p>"BARR, C.J. & GILLESPIE, M.K. 2000. Estimating hedgerow length and pattern characteristics in Great Britain using Countryside Survey data. Journal of Environmental Management, 60, 23-32.</p> <p>BAT CONSERVATION TRUST. 2006. The National Bat Monitoring Programme Annual Report 2005. Available to download from Bat Conservation Trust website (www.bats.org.uk) and Tracking Mammals Partnership website (www.trackingmammals.org).</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. 1999. A comparison of the roost ecology of the brown long-eared bat <i>Plecotus auritus</i> and the serotine bat <i>Eptesicus serotinus</i>. Unpublished PhD thesis, University of Sussex.</p> <p>BATTERSBY, J (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership.</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>BRIGGS, P. 2002 A study of bats in barn conversions in Hertfordshire in 2000. Hertfordshire Biological Records Centre, Hertford.</p> <p>ENTWISTLE, A.C., RACEY, P.A. & SPEAKMAN, J.R. 1996. Habitat exploitation by a gleaning bat, <i>Plecotus auritus</i>. Philosophical Transactions of the Royal Society, London B, 351: 921-931.</p> <p>ENTWISTLE, A.C., RACEY, P.A. & SPEAKMAN, J.R. 1997. Roost</p>

	<p>selection by the brown long-eared bat <i>Plecotus auritus</i>. <i>Journal of Applied Ecology</i>, 34: 399-408.</p> <p>ENTWISTLE, A.C. & SWIFT, S.M. 2008. Brown Long-eared Bat <i>Plecotus auritus</i>. Pp 364-370 in HARRIS, S. & YALDEN, D.W. <i>Mammals of the British Isles: Handbook</i>, 4th edition. The Mammal Society, Southampton. 799pp.</p> <p>HAINES-YOUNG, R.H., BARR, C.J., BLACK, H.I.J., BRIGGS, D.J., BUNCE, R.G.H., CLARKE, R.T., COOPER, A., DAWSON, F.H., FIRBANK, L.G., FULLER, R.M., FURSE, M.T., GILLESPIE, M.K., HILL, R., HORNING, M., HOWARD, D.C., McCANN, T., MORECROFT, M.D., PETIT, S., SIER, A.R.J., SMART, S.M., SMITH, G.M., STOTT, A.P., STUART, R.C. & WATKINS, J.W. 2000. Accounting for nature: assessing habitats in the UK countryside. <i>Countryside Survey 2000</i>. DETR, HMSO, London.</p> <p>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.</p> <p>MITCHELL-JONES, A.J. 2004. <i>Bat Mitigation Guidelines</i>. English Nature, Peterborough.</p> <p>Murphy et al. 2012, <i>Journal of Zoology</i>, London, 288: 177-183.</p> <p>RICHARDSON, P. (2000) <i>Distribution atlas of bats in Britain and Ireland 1980-1999</i>. Bat Conservation Trust, London.</p> <p>RUSS, J.M. (1999) <i>The Microchiroptera of Northern Ireland: community composition, habitat associations and ultrasound</i>. Unpublished PhD thesis. Queen's University, Belfast.</p> <p>SPEAKMAN, J.R. 1991. The impact of predation by birds on bat populations in the British Isles. <i>Mammal Review</i>, 21, 123-142.</p> <p>SPENCER, J.W. & KIRBY, K.J. 1992 An inventory of ancient woodland for England and Wales. <i>Biological Conservation</i>, 62, 77-93.</p> <p>STEBBINGS, R.E. 1966. A population study of the bats of the genus <i>Plecotus</i>. <i>Journal of Zoology</i>, London, 150, 53-75.</p> <p>SWIFT, S.M. 1998. <i>Long-eared bats</i>. T & A.D. Poyser Ltd, London."</p>
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2.3 Range	
2.3.1 Surface area Range	
2.3.2 Method used Surface area of Range	<p>Complete survey/Complete survey or a statistically robust estimate</p> <p>See Note 1.1.2</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>This is a widely distributed species, found in all wooded landscapes and in mild areas in more exposed locations. It is found in most areas of Wales and its distribution is unlikely to have changed markedly. See</p>

	also Note 2.3.10b	
2.3.5 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
2.3.6 Long-term trend Period	1989-2012	
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
	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?	True
	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		
2.4.1 Population size estimation (using individuals or agreed exceptions where possible)	a) Unit	number of individuals
	b) Minimum	17500
	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	17500
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 partial data with some extrapolation and/or modelling	
	The population estimate was 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 and distribution of <i>Pipistrellus pipistrellus</i> colonies in Scotland following the methods described by Speakman (1991) and Harris et al. (1995). National Bat Monitoring Programme data indicate that there has been no significant change in the population index in the period 1997-2012 (Bat Conservation Trust, 2012), so there is no justification for updating the 1995 estimate.	
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 short (NBMP 2012). 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	
	a) Genuine change?	False
	b) Improved knowledge/more accurate data?	True
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:	See Notes 2.3.10b and 2.4.7.	
	c) Use of different method (e.g. "Range tool")?	False

2.5 Habitat for the species	
2.5.1 Area estimation	<p>20206</p> <p><i>P. auritus</i> requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. Boye & Dietz (2005) provide a good overview of this species' habitat requirements. Deciduous forests with different ages of trees are preferred as foraging habitats, but less structured woodlands (including coniferous forests), forest edges, bushes and hedges, orchards, parks and gardens are used for insect hunting, where this highly manoeuvrable species can glean insects from the foliage. The species also likes to have a source of water near maternity roosts. Individual home ranges are related to habitat structures and prey abundance and vary between one and 40 hectares. Individual foraging areas overlap to a minor extent and during foraging flights bats usually stay close to the roost, travelling a maximum distance of about 3 kilometres, with core areas up to 1.5 kilometres</p>

	<p>from the roost. <i>P. auritus</i> is a woodland bat that naturally roosts in tree holes, but has adapted very well to using loft spaces of large old buildings such as churches, barns and old houses. The species is also frequently found in bat boxes where they are located in woodland. Colonies move roosts regularly throughout the summer when roosting in woodlands, but tend to be highly philopatric to building roosts. Winter roosts are in caves, mines and cellars, where, animals prefer a temperature around 7°C, and occasionally in tree holes. BOYE, P. & DIETZ, M. 2005, ENTWISTLE et al. 1996 and 1997. SWIFT, 1998.</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	Estimate based on expert opinion with no or minimal sampling	
Habitat for the species	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.	
2.5.4 Quality of the habitat	a) Habitat quality	Unknown
	<p>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 has been used as an estimate of habitat area. 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.</p>	
	b) Assessment method	No or insufficient reliable information available. The area of occupied habitat has been used as a proxy for the area of suitable habitat in the absence of other information.
	See note 2.5.4a	
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	20206
	See Note 2.5.1s and 2.5.4a	
	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	
A10: Restructuring agricultural land holding	H	
B02: Forest and Plantation management & use	H	
B07: Forestry activities not referred to above	H	
G05: Other human intrusions and disturbances	H	
A02: modification of cultivation practices	M	
A07: use of biocides, hormones and chemicals	M	
D01: Roads, paths and railroads	M	
H01: Pollution to surface waters (limnic & terrestrial, marine & brackish)	L	
J02: human induced changes in hydraulic conditions	L	

Pressures and threats can generally be divided into those that affect roosts and those that affect commuting and foraging (including prey availability). Although roosts are strictly protected, *P. auritus* has quite specific summer roosting requirements that are not provided by newer buildings, so roost availability may eventually be limiting and current roosts must be maintained. It is particularly susceptible to loss of roost sites through barn conversions and loft conversions. It also avoids lit areas and is detrimentally affected by increased lighting, both directly on the roost access and also in the wider habitat.

P. auritus commutes and forages along linear features, over grazed pasture and in woodland. Agricultural and forestry practices that remove or simplify these habitats, or affect the biomass of insect prey could negatively affect populations as will developments that result in loss of or severance of habitat (see Murphy

et al. 2012, Journal of Zoology 288: 177-183). Other forestry activities (B07) is included to identify forest fragmentation as an issue. As a low, slow flying species, it is also vulnerable to mortality through collision with vehicles.

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. Entwistle & Swift, 2008.

2.7 Threats		
a) Threat	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
A10: Restructuring agricultural land holding	H	
B02: Forest and Plantation management & use	H	
B07: Forestry activities not referred to above	H	
G05: Other human intrusions and disturbances	H	
A02: modification of cultivation practices	M	
A07: use of biocides, hormones and chemicals	M	
D01: Roads, paths and railroads	M	
H01: Pollution to surface waters (limnic & terrestrial, marine & brackish)	L	
J02: human induced changes in hydraulic conditions	L	

See Note 2.6

2.7.1 Method used – Threats

expert opinion

See 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

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