

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

**Second Report by the United Kingdom under
Article 17**
on the implementation of the Directive
from January 2001 to December 2006

Conservation status assessment for :

S1309: *Pipistrellus pipistrellus* - Common Pipistrelle

Please note that this is a section of the report. For the complete report visit <http://www.jncc.gov.uk/article17>

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S1309 *Pipistrellus pipistrellus* Common Pipistrelle

Audit trail compiled and edited by JNCC and the Inter-Agency Mammal Working Group

This document is an audit of the data and judgements on conservation status in the UK's report on the implementation of the Habitats Directive (January 2001 to December 2006) for this species. Superscript numbers accompanying the headings below, cross-reference to headings in the corresponding Annex B reporting form. This supporting information should be read in conjunction with the UK approach for species (see 'Assessing Conservation Status: UK Approach').

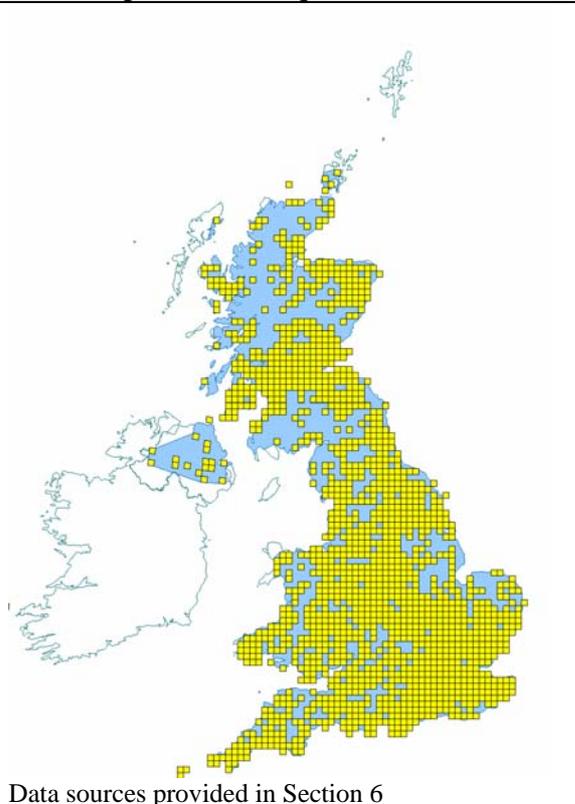
1. Range Information^{2,3}

Pipistrellus pipistrellus is considered to be the most common UK bat species and is widespread across the UK.

1.1 Surface area of range^{2,3,1} 230,249 km²

The above estimate was calculated within Alpha Hull software, using extent of occurrence as a proxy measure for range (see Map 1.1). The value of alpha was set at 45 km to reflect the mobility of this species.

Map 1.1 Current extent of occurrence
and occupied 10-km squares (1980-2006)



1.2 Date of range determination^{2,3,2} 1980 – 2006

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 used, Distribution atlas of bats in Britain and Ireland (Richardson 2000), has data ranging from 1980-1999 but the year of recording for individual records within this dataset is not known, making it impossible to divide the data into different date ranges. Deviating from this time period would mean having to exclude these records, and since other datasets may not be fully comprehensive in isolation of these, such exclusion would be inappropriate.
- 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.
- International treaties and national protective legislation affecting all European bat species came into force from 1980 onwards and is likely to have had an effect on their status.

1.3 Quality of range data^{2.3.3}

Moderate

Since the early 1980s there has been an increase in the level of survey effort afforded to UK bat species following the increased level of protection in wildlife legislation, such as the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats, &c) Regulations 1994 (and equivalent legislation in Northern Ireland), and a growing interest in wider conservation issues. 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 surveillance schemes. However, this species is often found in buildings and its presence is recorded when advice is sought regarding building renovation or development, so level of recording is likely to be high.

The quality of data for this species is affected by the discovery of a cryptic pipistrelle species *Pipistrellus pygmaeus* in the 1990s and it is not clear how many historic records refer to this species. However, the two species appear to occur sympatrically throughout the UK and it is unlikely that historic errors in recording will affect the range extent for this species.

1.4 Range trend^{2.3.4} & Range trend magnitude^{2.3.5}

Stable

The current range is across the whole of the UK and there has been no apparent change in range during the time period considered.

1.5 Range trend period^{2.3.6}

1980 – 2006

The time period selected is considered to reflect the current situation regarding range for this species and incorporates the time period since the Habitats Directive came into force.

1.6 Reasons for reported trend in range^{2.3.7}

Not applicable

There has been no change in range for this species according to available data.

1.7 Favourable reference range^{2.7.1}

230,249 km² (Equal to current)

The favourable reference range value has been derived using 1994 as the baseline and making a judgement on whether the range in 1994 was sufficient to allow the long-term survival of the species, using the decision tree in Note 1 (see 'Assessing Conservation Status: UK Approach') as a guide. Historic and current information on range size and trends have been used to assess this and, if the 1994 level was not sufficient, then consideration has been given to what would constitute a large enough range.

This species is widespread across the UK. The favourable reference range is set to be equivalent to all of the UK, excluding the Scottish Highlands above 500 m, where the species does not occur. The favourable reference range/current estimated range may not correspond exactly with UK total area, but this is due to an artefact of the alpha mapping tool and the fact that there has been no comprehensive distribution survey to complete the recording information. Expert opinion considers this species to occur throughout the UK.

1.8 Range conclusion^{2.8}

Favourable

The range of *P. pipistrellus* is stable and is the same as the favourable reference range. For these reasons range has been assessed as favourable.

2. Population of the species^{2.4}

2.1 Population estimate^{2.4.1}

UK >2,430,000 individuals

>1,280,000 in Great Britain (GB) (Battersby & Tracking Mammals Partnership (TMP) 2005) and 1,150,000 in Northern Ireland (Russ 1999).

2.2 Date of population estimate^{2.4.2}

2005

Reported in Battersby & TMP (2005).

2.3 Method of population estimate^{2.4.3}

1 = based on expert opinion

The estimates were based on expert judgement and extrapolation from limited field surveys. The 1995 population estimate for GB was based on very limited information, extrapolating from known size and distribution of *P. pipistrellus*' colonies in Scotland following the methods described by Speakman (1991) and Harris *et al.* (1995). The estimate of approximately 2,000,000 individuals included the undescribed *P. pygmaeus*. A GB estimate for *P. pipistrellus* was obtained in 2005, using ratio of common to *P. pygmaeus* encountered in the UK National Bat Monitoring Programme (NBMP) Field Survey (BCT 2006), which was approximately two *P. pipistrellus* to each *P. pygmaeus*. Population estimates for Northern Ireland were based on extrapolation of survey results and were added to the GB estimates to give UK totals (Russ 1999).

2.4 Quality of population data^{2.4.4}

Poor

The population estimates were based on subjective estimates of relative abundance because there were few density estimates and little quantified data on bat numbers in relation to

habitat associations and patterns of land use. Until more is known about the ecology of this species, more precise estimations are not possible.

The ratio of *P. pygmaeus* to *P. pipistrellus* should be taken with caution, because the two species display different foraging behaviour, with *P. pipistrellus* having smaller colonies and foraging at greater distances from roosts (Davidson-Watts & Jones 2006; Nicholls & Racey 2006a, 2006b). This would suggest that *P. pipistrellus* might have a more even and widespread distribution across the landscape and might be encountered more frequently in randomly designed survey schemes. *P. pygmaeus* forages preferentially near water and have larger colonies with smaller foraging distances. It might, therefore, be expected to have a patchier distribution than *P. pipistrellus* with less frequent foraging in the wider landscape and encountered less in random surveys.

The Northern Ireland estimate should also be treated with caution as it is likely to be an over estimate (Battersby & TMP 2005).

2.5 Population trend^{2.4.5} & Population trend magnitude^{2.4.6}

+

The UK National Bat Monitoring Programme (NBMP) has been carrying out standardised annual Field Surveys and Colony Count Surveys since 1998. The Noctule, Serotine and Pipistrelle (NSP) Field Survey, using randomly selected 1 km square bat detector transects, has detected a significant upward trend of 58% since 1998, representing a mean annual increase of 7.9% across the UK. However, the colony count survey has detected a significant downward trend of 31% (5.1% annually).

P. pipistrellus is known to use multiple roosts throughout the summer and this behaviour may result in an erroneous trend from the colony survey. Population trends derived from the Field Survey are considered more robust and likely to reflect what is occurring in the wider *P. pipistrellus* population (BCT 2006). The percentage increase in the population has not been incorporated into the current population estimate because of the levels of uncertainty in the population data for the two *Pipistrellus* species.

2.6 Population trend period^{2.4.7}

1998 – 2005

This time period has been selected because it allows consideration of the most recent trend data from surveillance schemes and is most relevant for assessing the effectiveness of the Habitats Directive.

2.7 Reasons for reported trend in population^{2.4.8}

3. Direct human influence (restoration, deterioration, destruction)

The recent population increase may be a direct result of conservation efforts. Alternatively, it may reflect natural fluctuations and longer time-series are required to confirm trends.

2.8 Justification of % thresholds for trends^{2.4.9}

Not applicable

2.9 Main pressures^{2.4.10}

110 Use of pesticides

141 Abandonment of pastoral systems

151 Removal of hedges and copses
160 General Forestry management
164 Forestry clearance
165 Removal of undergrowth
166 Removal of dead and dying trees
167 Exploitation without replanting
502 routes, autoroutes
700 Pollution
803 infilling of ditches, dykes, ponds, pools, marshes or pits

2.10 Threats^{2.4.11}

110 Use of pesticides
141 Abandonment of pastoral systems
151 Removal of hedges and copses
160 General Forestry management
164 Forestry clearance
165 Removal of undergrowth
166 Removal of dead and dying trees
167 Exploitation without replanting
502 routes, autoroutes
700 Pollution
803 infilling of ditches, dykes, ponds, pools, marshes or pits

2.11 Favourable reference population^{2.7.2}

1,280,000 individuals (Equal to GB 1995 estimate)

The favourable reference population value has been derived using 1994 as the baseline and making a judgement on whether the population in 1994 was viable in the long-term, using the decision tree in Note 1 (see ‘Assessing Conservation Status: UK Approach’) as a guide. Historic and current information on population size, distribution and trends have been used in order to assess viability and, if the 1994 level was not viable, then consideration has been given to what would constitute a viable population.

Survey schemes have been detecting increasing trends since 1997, which are not considered to be the result of natural fluctuations. The population estimate for this species provided in or around 1994 included the *P. pygmaeus* population. However, using the estimate derived in 2005 (see section 2.3) the GB population estimate for this species in 1994 (1995) was thought to be approximately 1,280,000 individuals. With increasing trends, widespread distribution and relatively high abundance, the species is judged to have been viable in 1994. The 1994 estimate has, therefore, been set as the favourable reference population. This figure does not include the more recent estimate for the Northern Ireland population and has been set with limited information. It could be revised in the future if better information becomes available.

2.12 Population conclusion^{2.8}

Favourable

The current population is probably greater than the favourable reference population given that populations have been increasing since at least 1998, as measured by the NBMP. The population is, therefore, considered to be Favourable.

3. Habitat for the species in the Biogeographic region or sea^{2.5}

P. pipistrellus requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. English Nature Report 661 (Boye & Dietz 2005) provides a good overview of this species' habitat requirements.

Although most maternity colonies are in buildings, forests of any type are used as roosting and foraging areas, particularly if open water is in the vicinity. Foraging areas are mainly along woodland edge and riparian woodland (Davidson-Watts & Jones 2006; Nicholls & Racey 2006a, 2006b), hedges, foot paths and forest roads, water banks, and at street lights. Linear features in a landscape are important elements for orientation either during foraging or in commuting flights. Foraging activity is in small areas within about 2 km from the roost. The size of an individual home range is dependent on the abundance of prey insects and may have a total size of more than 50 hectares.

The species mainly roosts in settlements and is even present in city centres. In summer the roost sites are predominantly in crevices in buildings, especially between tiles and the underlying roofing or behind boards on the gable. Furthermore, individuals and maternity colonies use tree holes, wood crevices, and bird or bat boxes as roosts.

The species disperses to temporary sites and mating roosts during the autumn post weaning period.

3.1 Surface area of habitat^{2.5.2}

Unknown

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. Therefore, area estimate is Unknown.

3.2 Date of estimation^{2.5.3}

2006

3.3 Quality of data on habitat area^{2.5.4}

Poor

Much work has been done on this species and there is a good information pertaining to its specific habitat requirements (as can be seen above). However, attempts have not been made to calculate the combined area of habitat features that are currently in use.

3.4 Habitat trend^{2.5.5}

Unknown

Both *P. pipistrellus* and *P. pygmaeus* are more generalist in their foraging and roosting behaviour than many other bat species and are able to use many different habitats and exploit a wide range of insect prey. Indications are that broadleaved, mixed and yew woodland have increased by about 5% in the UK since 1990 and there has been a small increase in tree lines and hedgerows, and some loss of pasture (Haines-Young *et al.* 2000). However, this is very limited information on which to base an assessment of trend in habitat suitable for this particular species. The assessment is, therefore, Unknown.

3.5 Habitat trend period^{2.5.6}

1990 – 1998

The time period selected reflects the results of two Countryside Surveys carried out in 1990 and 1998 (Haines-Young *et al.* 2000).

3.6 Reasons for reported trend in habitat^{2.5.7}

Not applicable

The trend during the time period considered is unknown and it is not appropriate to consider reasons for an unknown trend.

3.7 Suitable habitat for the species (in km²)^{2.7.3}

Unknown

Since current area of habitat is unknown, it would be inappropriate to suggest an area of 'suitable habitat'.

3.8 Habitat conclusion^{2.8}

Unknown

The habitat requirements for this species have been studied, but there has been no attempt to correlate population density with suitable habitat availability. There is evidence of recent improvements in habitat extent, but the information available is very limited. The conclusion is, therefore, Unknown at present. This judgement will need to be reviewed in the future depending on availability of information on habitat use and extent.

4. Future Prospects^{2.6}

Good prospects

The species is expected to survive and prosper.

Factors likely to affect the species over the next 12-15 years are considered below.

Legislation. *P. pipistrellus* is listed on Schedules 5 & 6 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats, &c.) Regulations 1994 (and equivalent legislation in Northern Ireland) and is listed on Annex IVa of the Habitats Directive.

Conservation Action. The species has been the subject of a Species Action Plan under the UK Biodiversity Action Plan. Both range and population appear to be favourable at present and there are habitat action plans in place to relieve many of the main pressures and threats to the species, such as loss of woodland and riparian habitat. The adaptability and generalist behaviour of this species and continuing increasing population trends suggests future prospects are good.

Threats. Reported historic declines may have resulted from loss of winter roosting sites in buildings and old trees, and the disturbance and destruction of roosts. Many colonies are found in buildings, making this species particularly vulnerable to anthropogenic factors, such as disturbance, timber treatment and building renovation. The construction of major roads and motorways that can form barriers to the species mobility and cause mortality is still a problem, as are the use of pesticides and the loss of landscape connectivity.

4.1 Future prospects conclusion^{2.8}

Favourable

Although there are undoubtedly continuing threats to this species, the main pressures and threats are not significant enough to affect long-term viability. The conclusion is, therefore, Favourable.

5. Overall Assessment^{2.8}

Favourable

Range, population and future prospects are all Favourable for this species and the habitat assessment is Unknown at present and requires further consideration. The overall conclusion is, therefore, Favourable.

Table 5.1. Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Favourable	Range is stable and not smaller than the favourable reference range	2
Population	Favourable	Population(s) not lower than favourable reference population	2
Habitat	Unknown	No or insufficient reliable information available	N/A
Future Prospects	Favourable	Main pressures and threats to the species not significant; species will remain viable in the long-term	2
Overall Assessment	Favourable	Three Favourable and one Unknown	2

*1=High, 2=Moderate, 3=Low

High – Expert opinion is that the concluding judgement accurately reflects the current situation based on a professional understanding of the species. For range, population, and habitat, quality of data used to establish the current estimate has been identified as “good”; data used to inform trends is comprehensive and up to date.

Moderate – A greater understanding of the feature, or the factors affecting it, is required before a confident concluding judgement can be made by experts. For range, population, and habitat, the current estimate and/or trend are based on recent, but incomplete or limited survey data; or alternately, a comprehensive, but outdated (pre-1994) review.

Low – Judgements, and comprising estimates, are based predominately on expert opinion.

N/A – Assessment conclusion is “unknown”, on the basis of insufficient reliable information

6. References

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).

BATTERSBY, J (Ed.) & TRACKING MAMMALS PARTNERSHIP. 2005. *UK Mammals: Species Status and Population Trends*. JNCC/Tracking Mammals Partnership.

BOYE, P. & DIETZ, M. 2005. *Research Report No 661: Development of good practice guidelines for woodland management for bats*. English Nature, Peterborough.

DAVIDSON-WATTS, I. & JONES, G. 2006. Differences in foraging behaviour between *Pipistrellus pipistrellus* (Schreber, 1774) and *Pipistrellus pygmaeus* (Leach, 1825). *Journal of Zoology, London*, **268** (1), 55-62.

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*. Countryside Survey 2000. DETR, HMSO, London.

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.

NICHOLLS, B. & RACEY, P. 2006a. Habitat selection as a mechanism of resource partitioning in two cryptic bat species *Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*. *Ecography*, **29**, 697-708.

NICHOLLS, B. & RACEY, P. 2006b. Contrasting home-range size and spatial partitioning in cryptic and sympatric pipistrelle bats. *Behavioural Ecology and Sociobiology*, **61**, 131-142.

RICHARDSON, P. (2000) *Distribution atlas of bats in Britain and Ireland 1980-1999*. Bat Conservation Trust, London.

RUSS, J.M. (1999) *The Microchiroptera of Northern Ireland: community composition, habitat associations and ultrasound*. Unpublished PhD thesis. Queen's University, Belfast.

SPEAKMAN, J.R. 1991. The impact of predation by birds on bat populations in the British Isles. *Mammal Review*, **21**, 123-142.

Map Data Sources

BATS & The Millennium Link - Bat species distribution in Central Belt of Scotland (2000 to 2005); Biological Records Centre - Mammals Database 100m; Environment and Heritage Service - Species Dataset; Highland Biological Recording Group Mammals dataset; Natural England - Batsites inventory for Britain (via National Biodiversity Network (NBN) Gateway).

Bat Conservation Trust - National Bat Monitoring Programme (NBMP) data to 2005 including: Colony survey (1998-2005), Field survey (1998-2005).

Scottish Natural Heritage bat records: update, J. Haddow (*pers. comm*).

Bat Conservation Trust - Distribution atlas of bats in Britain and Ireland 1980-1999, GB data only.