

**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 :  
S1322: *Myotis nattereri* - Natterer's bat**

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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## S1322 *Myotis nattereri* Natterer's bat

*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').

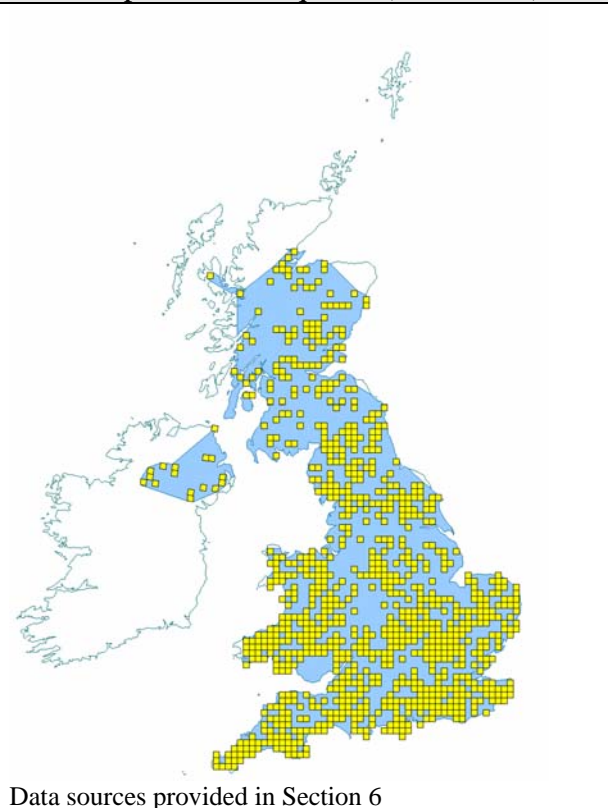
### 1. Range Information<sup>2,3</sup>

*Myotis nattereri* is found throughout England, Wales, and Northern Ireland and in to areas of Scotland except the extreme north-west.

#### 1.1 Surface area of range<sup>2,3,1</sup> 212,318km<sup>2</sup>

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<sup>2,3,2</sup> 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<sup>2.3.3</sup>**

#### **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.

### **1.4 Range trend<sup>2.3.4</sup> & Range trend magnitude<sup>2.3.5</sup>**

#### **Stable**

There have not been any surveys carried out to assess trend in range for this species during the selected time period 1980-2006. However, the range is widespread across the UK, apart from northern Scotland, and there is no evidence of change in range comparing current and historic recording (see 1.7), suggesting the range has remained stable in the long-term.

### **1.5 Range trend period<sup>2.3.6</sup>**

#### **1980 – 2006**

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

### **1.6 Reasons for reported trend in range<sup>2.3.7</sup>**

#### **Not applicable**

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

### **1.7 Favourable reference range<sup>2.7.1</sup>**

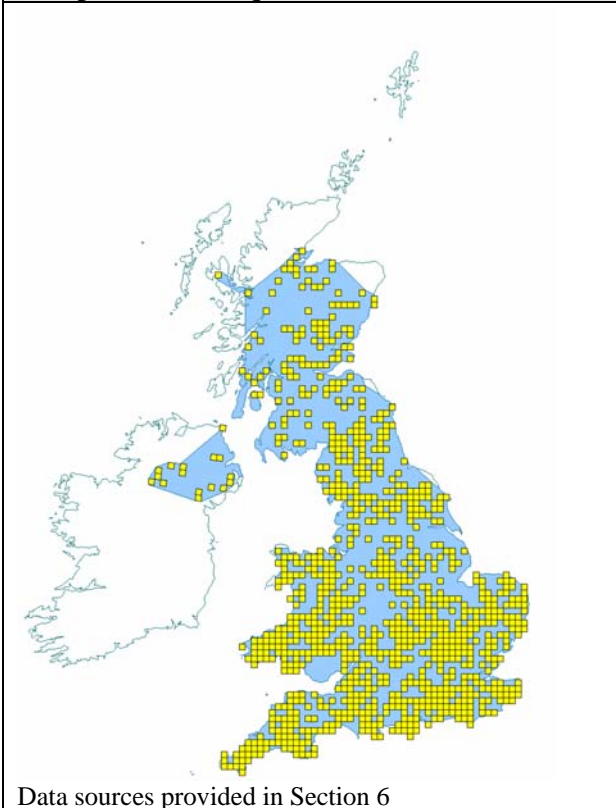
#### **212,318km<sup>2</sup> (Equal to current)**

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.

Range for this species is widespread across the UK and appears to be stable with very little difference between current (see Map 1.1) and historic area (214,294km<sup>2</sup> using Alpha Hull software and an alpha value of 45 km. See Map 1.2). The range is of sufficient size to support a viable population of the species in the long-term and is also large enough to allow for increase in distribution within the range. The current estimated range is, therefore, set as the favourable reference range.

**Map 1.2** Historic extent of occurrence and occupied 10-km squares (1900-2006)



Data sources provided in Section 6

The rationale for including all records in the historic range estimate, and not only those obtained prior to 1980, is that we have assumed a decline over time for this species was more likely than an increase and that where the species occurs currently it would also have occurred historically, but historic recording was not comprehensive enough to provide sufficient information. Data prior to the 1900s has been excluded for the analysis of historic range on the basis that it is unlikely to be numerous or reliable. Historic range has been calculated from the total of the data accumulated over the longer period, is not adjusted for natural fluctuations in range, and could exceed the maximum actual range occupied by the species at any given time during that period.

## **1.8 Range conclusion<sup>2.8</sup>**

### **Favourable**

Given that the range appears to be stable and is the same as the favourable reference range (see above), the conclusion for range is Favourable.

## **2. Population of the species<sup>2.4</sup>**

### **2.1 Population estimate<sup>2.4.1</sup>**

**148,000 individuals**

70,000 in England; 17,500 in Scotland; 12,500 in Wales (Harris *et al.* 1995); and 48,000 in Northern Ireland (Russ 1999).

## **2.2 Date of population estimate<sup>2.4.2</sup>**

**1999**

Reported in Battersby & Tracking Mammals Partnership (TMP) (2005)

## **2.3 Method of population estimate<sup>2.4.3</sup>**

**1 = based on expert opinion**

The estimates were based on expert judgement and extrapolation from limited field surveys. The 1995 population estimate for Great Britain (GB) (not including Northern Ireland) was based on very limited information, extrapolating from known size of *Pipistrellus pipistrellus* colonies in relation to size of *M. nattereri* colonies following the methods described by Speakman (1991) and Harris *et al.* (1995). Population estimates for Northern Ireland were based on extrapolation of survey results and were added to the GB estimate to give UK totals (Russ 1999).

## **2.4 Quality of population data<sup>2.4.4</sup>**

**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. For this reason the quality of data is assessed as Poor.

The GB estimate was not supported by quantitative data and was an expert judgement based on field experience. Harris *et al.*'s (1995) reliability rating of the estimate was four, meaning that it is "based on a very limited amount of information on the species". The Northern Ireland estimate should also be treated with caution because it is thought likely to be an overestimate (Battersby & TMP 2005). Accurate estimates are not possible until more is known about the ecology of this species.

## **2.5 Population trend<sup>2.4.5</sup> & Population trend magnitude<sup>2.4.6</sup>**

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The UK National Bat Monitoring Programme (NBMP) has been carrying out a standardised annual Hibernation Survey since 1997 and Colony Counts since 2000. The Hibernation Survey has detected a significant upward trend of 47% since 1997, representing a mean annual increase of 6% across the UK. Colony Counts suggest the population is stable. The Hibernation Survey is considered to be the more robust survey for this species and so the population is considered to be increasing (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.

## **2.6 Population trend period<sup>2.4.7</sup>**

**1997 – 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<sup>2.4.8</sup>**

### **Unknown**

The reported recent increase may be a direct result of conservation efforts, or it may reflect natural fluctuations. Longer time series datasets are required in order to confirm trends.

## **2.8 Justification of % thresholds for trends<sup>2.4.9</sup>**

### **Not applicable**

The recent increase of 6% annually since 1997 is greater than the specified threshold and no justification is required.

## **2.9 Main pressures<sup>2.4.10</sup>**

**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**

**490 Other urbanisation, industrial and similar activities: development, renovation of barns and old buildings, timber treatment**

**502 routes, autoroutes**

**624 mountaineering, rock climbing, speliology**

**803 infilling of ditches, dykes, ponds, pools, marshes or pits**

## **2.10 Threats<sup>2.4.11</sup>**

**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**

**490 Other urbanisation, industrial and similar activities: development, renovation of barns and old buildings, timber treatment**

**502 routes, autoroutes**

**624 mountaineering, rock climbing, speliology**

**803 infilling of ditches, dykes, ponds, pools, marshes or pits**

## **2.11 Favourable reference population<sup>2.7.2</sup>**

**100,000 individuals (Equal to 1995 GB 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 stable or increasing trends since 1997, which are not considered to be the result of natural fluctuations. The GB population for this species in 1995 was estimated to be 100,000 individuals (see section 2.3). With stable or 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<sup>2.8</sup>**

### **Favourable**

Populations of this species have been increasing since at least 1997, as measured by the National Bat Monitoring Programme (NBMP) and the current population is likely to be above the favourable reference population. The population is, therefore, considered to be Favourable.

## **3. Habitat for the species in the Biogeographic region or sea<sup>2.5</sup>**

*M. nattereri* require a complex mosaic of habitats to support foraging, roosting and commuting behaviour. Boye & Dietz (2005) provides a good overview of this species' habitat requirements.

Various woodland types are used as roost sites and foraging areas. *M. nattereri* forages in deciduous, mixed and coniferous forests, along forest edges, tree rows, hedges, and in pasture and arable land. In springtime most foraging activity is in open habitats such as orchards, fields and pastures with hedgerows and trees or near waters. However, in summer, foraging activity is concentrated in woodlands and the species even uses dense coniferous forests.

*M. nattereri* prefers to forage at distances up to 1,500 metres from roosts. They tend to have core foraging areas of two to 20 hectares within a home range of 100-600 hectares, which are visited every night by the same individuals. *M. nattereri* use linear features such as hedges and alleys for flight paths.

During summer *M. nattereri* choose roost sites in woodlands and human settlements. Maternity colonies have been found in lofts, wall crevices, tree holes, wood crevices, in forests and also in bird and bat boxes. Many are located in cattle sheds or barns.

Hibernation takes place in caves and mines and even ordinary buildings that have high humidity and temperatures above freezing. The animals often stay near the entrance of the hibernaculum. Summer and winter habitats may be separated by distances of up to 185 km, but most are less than 80 km apart.

## **3.1 Surface area of habitat<sup>2.5.2</sup>**

### **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<sup>2.5.3</sup>**

### **2006**

### **3.3 Quality of data on habitat area<sup>2.5.4</sup>**

#### **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<sup>2.5.5</sup>**

#### **Unknown**

Only approximately 6% of the UK is currently covered by broadleaved woodland, (Haines-Young *et al.* 2000), the most suitable habitat for this species, and approximately 6% is covered by coniferous woodland, giving a total woodland cover of 12%. 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 still 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<sup>2.5.6</sup>**

#### **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<sup>2.5.7</sup>**

#### **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 km<sup>2</sup>)<sup>2.7.3</sup>**

#### **Unknown**

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

### **3.8 Habitat conclusion<sup>2.8</sup>**

#### **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 historic loss of suitable habitat for this species, but also evidence of recent improvements, making it difficult to be sure of the situation regarding habitat extent and quality. The assessment is, therefore, 'unknown' at present.

## **4. Future Prospects<sup>2.6</sup>**

### **Good prospects**

Species expected to survive and prosper.

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

**Legislation.** *M. nattereri* 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.** It is recognised that conservation action is required to improve the suitable habitat available and increase connectivity of habitat patches. Recent increases in woodland extent in all countries suggest that the situation is improving.

**Threats.** *M. nattereri* is generally restricted to woodland and hedgerows as its preferred foraging habitat, although it will forage in other habitats. It is likely to have suffered historically from loss and fragmentation of woodland, caused by deforestation and land-use changes. Furthermore, it does not like to cross open spaces and is affected by habitat fragmentation. The construction of major roads and motorways that can form barriers to the species mobility and cause mortality is, therefore, still a problem, as are the use of pesticides and the loss of landscape connectivity. The low percentage of woodland cover across the UK means that the area of habitat available for this species is relatively low.

This species is often found roosting in old barns and there is concern about the impact of barn developments with inadequate or unproven mitigation. In a study undertaken in 2000 *M. nattereri* was found in 14 of 15 barns surveyed, but lost in eight of the 11 barns that were developed – a loss of 73%. Only two developed barns maintained their roosts (the status of the remaining site was unknown), compared with all of the three undeveloped barns (Briggs 2002). This is a small study, but could have worrying implications.

Range is stable at present and populations are increasing suggesting that overall the species is doing well. It is, therefore, likely that the species will survive in the long term, but there are still threats to its survival that need to be addressed.

#### 4.1 Future prospects conclusion<sup>2,8</sup>

##### Favourable

The combination of factors affecting this species suggests that future prospects for this species are good and the assessment should be Favourable at this stage.

### 5. Overall Assessment<sup>2,8</sup>

##### Favourable

Range, population and future prospects are assessed as Favourable, but habitat for the species is assessed as Unknown because of lack of information. The overall assessment 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	3
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	3

<b>Overall Assessment</b>	Favourable	Three Favourable and one Unknown	3
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\*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](http://www.bats.org.uk)) and Tracking Mammals Partnership website ([www.trackingmammals.org](http://www.trackingmammals.org)).

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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

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), Hibernation survey (1997-2005).

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.