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 :

S1331: *Nyctalus leisleri* - Leisler's bat

S1331 *Nyctalus leisleri* Leisler's bat

Audit trail compiled and edited by JNCC and the UK 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]

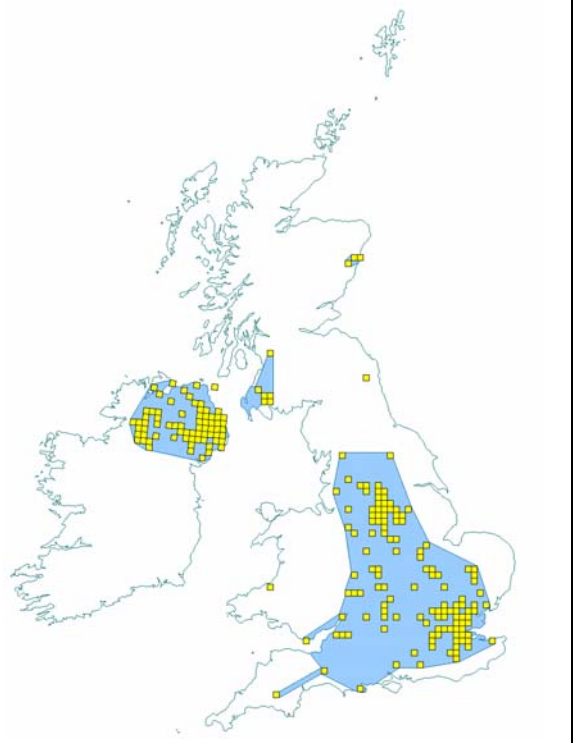
Nyctalus leisleri is local and uncommon in Great Britain (GB). It is most common in Northern Ireland.

1.1 Surface area of range[2.3.1]

88,618km^2

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)



Data sources provided in Section 6

1.2 Date of range determination[2.3.2]

1980 – 2006

1980-2006 has been selected as the date range 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 this time range 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]

Poor

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. However, 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. This species is often found in buildings in Northern Ireland so its presence is recorded when advice is sought regarding building renovation or development, but it is likely to be under recorded generally and the range estimate is probably low, particularly for northern England and Wales.

1.4 Range trend[2.3.4] & Range trend magnitude[2.3.5]

Stable

There is no information on trends in range for this species during the selected time period 1980-2006. However, range does not appear to have changed since historic times (see 1.7) suggesting range has been stable during the selected period and, therefore, since 1994.

1.5 Range trend period [2.3.6]

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[2.3.7]

Not applicable

1.7 Favourable reference range[2.7.1]

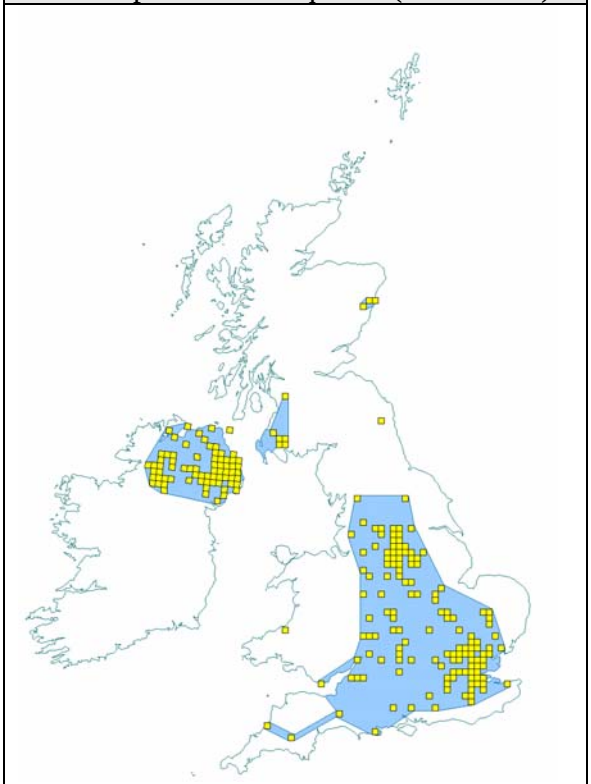
88,618km^2 (Equal to current)

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 of this species is widespread across England, Wales and Northern Ireland, with a few records in Scotland, and appears to be stable with very little difference between current (see Map 1.1) and historic area (calculated at 89,536km^2 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[2.8]

Favourable

Current range is stable and equal to the favourable reference range. The range assessment is, therefore, Favourable.

2. Population of the species[2.4]

2.1 Population estimate[2.4.1]

28,000 individuals

9,750 in England; 250 in Scotland (Harris *et al.* 1995); and 18,000 in Northern Ireland (Russ 1999).

2.2 Date of population estimate[2.4.2]

1999

2.3 Method of population estimate[2.4.3]

1 = based on expert opinion

The population estimates produced for GB 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. Population estimates for Northern Ireland were based on extrapolation of survey results.

2.4 Quality of population data[2.4.4]

Poor

The above GB estimate was not supported by quantitative data and was an expert judgement based on field experience. The reliability rating of the Harris *et al.* (1995) estimate was four, meaning that it is "based on a very limited amount of information on the species". The Northern Ireland estimate may be an overestimate (Battersby & Tracking Mammals Partnership (TMP), 2005). For this reason the quality of data is assessed as Poor.

2.5 Population trend[2.4.5] & Population trend magnitude[2.4.6]

Unknown

It is probable that this species has always occurred at relatively low population levels in Britain. There has been a proportional increase in the number of recent *N. leisleri* records, and the species may be increasing slightly (Harris *et al.* 1995). However, this may be due to increased survey effort.

2.6 Population trend period[2.4.7]

1994-2006

There is no information on population trends at present – only professional judgements based on possible historical change.

2.7 Reasons for reported trend in population[2.4.8]

Not applicable

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
166 Removal of dead and dying trees
167 Exploitation without replanting
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
166 Removal of dead and dying trees
167 Exploitation without replanting
803 infilling of ditches, dykes, ponds, pools, marshes or pits

2.11 Favourable reference population[2.7.2]

28,000 individuals (Equal to current)

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.

There is no information on population trends for this species, but the species is fairly widespread, and the indications are that this species was viable in 1994. The current population estimate is considered to represent population size in 1994 and can be set as the favourable reference population. In the case of this species the Northern Ireland estimate is less likely to be an overestimate than for other UK species, because the main population occurs in Northern Ireland. Therefore, the Northern Ireland estimate has been included in the favourable reference value for this species.

2.12 Population conclusion[2.8]

Favourable

Current trends for this species are unknown at present, but the current population is considered to be viable in the long term and is the same as the favourable reference value. The population assessment is, therefore, Favourable.

3. Habitat for the species in the Biogeographic region or sea[2.5]

N. leisleri forages in woodland, pasture and riparian habitats and along woodland margins, even close to major roads (Altringham 2003). It has been seen foraging over beaches and sand dunes. The average home range area can approach 18 square km and foraging flights can be up to 13 km from the roost. *N. leisleri* is not as dependent on tree roosts as *Nyctalus noctula* and uses a wide range of buildings. Little is known about hibernation sites, but the species probably prefers tree holes like *N. noctula*.

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]

Not applicable

3.3 Quality of data on habitat area[2.5.4]

Poor

Limited information is available on the habitat requirements of this species in the UK and there are no estimates of area of habitat use. Quality of data is therefore taken to be poor.

3.4 Habitat trend[2.5.5]

Unknown

Trend in area of habitat used by the species is unknown, although it is recognised that the habitats used by this species have declined, with 23% loss of hedgerows between 1984 and 1990 (Barr & Gillespie 2000) and a general decline in, and fragmentation of suitable woodland habitat for foraging and commuting, and a decline in potential woodland roosting habitat (Spencer & Kirby 1992). However, there have been some improvements since 1990 as measured by the most recent Countryside Survey (Haines-Young *et al.* 2000), and total woodland area has begun to increase. Further information on habitat use and current habitat status is required to make a robust assessment of habitat for this species.

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 km^2)[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 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[2.6]

Unknown

Insufficient information to make a judgement.
Factors likely to affect the species over the next 12-15 years are considered below.

Legislation. *Pipistrellus pipistrellus* is listed on Schedules 5 & 6 of the Wildlife and Countryside Act 1981 (as amended), 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. In Northern Ireland the species is listed as a priority species (in need of conservation action) a species of conservation concern (requiring monitoring to assess need for future action) and is covered by the Northern Ireland Species Action Plan.

A car-based surveillance scheme is underway across Ireland, incorporating Northern Ireland, to monitor distribution and changes in abundance.

There are habitat action plans in place to relieve some of the main pressures and threats to the species, such as loss of woodland.

Research projects have been carried out investigating the species ecology, emergence patterns, social structure of colonies and roost dynamics.

Threats. Destruction and disturbance of maternity roosts due to exclusions, reduction in insect prey due to highly intensive farming, the use of ivermectins to control internal parasites of livestock leading to a reduction in dung beetle populations and loss of habitat due to expansion of urban areas are all still important threats. However, the Species Action Plan in Northern Ireland should help to address many of these threats.

4.1 Future prospects conclusion[2.8]

Unknown

The lack of detailed information on distribution, abundance and habitat requirements and the inability at present to detect population trends means that it is difficult to plan conservation management action and to know if action planned for other species will be effective for this species.

5. Overall Conclusion [2.8]

Unknown

Range and population are assessed as Favourable for this species, but habitat and future prospects are unknown at present because of lack of information and the overall assessment is, therefore, Unknown.

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	Unknown	No or insufficient reliable information available	N/A
Overall Assessment	Unknown	No or insufficient reliable information available	N/A

*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

ALTRINGHAM, J.D. 2003. British Bats. The New Naturalist Library.

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.

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., HORNUNG, 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.

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.

Map Data Sources

Biological Records Centre - Mammals Database 100m; Batsites inventory for Britain; via National Biodiversity Network (NBN) Gateway.

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

Ulster Museum - CEDaR database.

Bat Conservation Trust - National Bat Monitoring Programme (NBMP) data to 2005 including: Colony survey (2000 -2005), Hibernation survey (1997-2005).

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