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:

S1314 - Daubenton's bat (*Myotis daubentonii*)

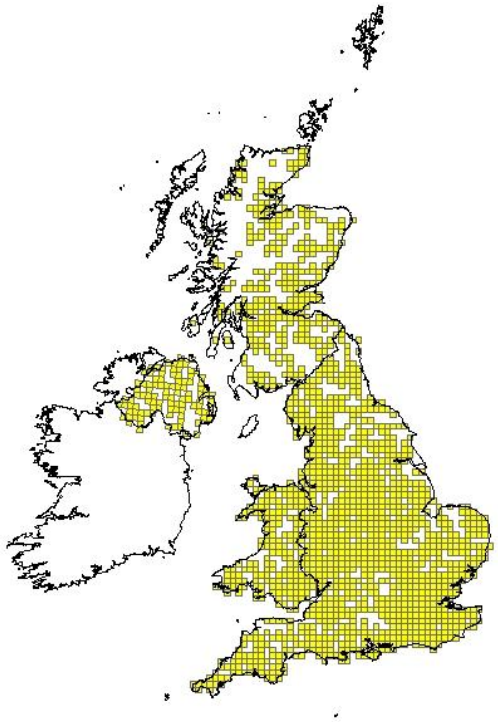
IMPORTANT NOTE – PLEASE READ

- 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 **Scottish Natural Heritage** and refers only to the state of the habitat/species in **Scotland** - 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.

Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

Field name	*Brief explanations*	
0.2 Species	**0.2.1 Species code**	**S1314**
	0.2.2 Species scientific name	***Myotis daubentonii***
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	**Daubenton's bat**

1.1 Maps			
1.1.1 Distribution map		**Sensitive**	**False**
	Daubenton's bat is widespread in the UK. Although there have been no structured distribution surveys, it has been reasonably well recorded by local bat groups and during monitoring surveys organised by the National Bat Monitoring Programme. England and Wales. The species has been recorded throughout England and Wales. Scotland. The species has been recorded throughout Scotland, but may be less common in the north and west. It has been recorded on Skye, but is absent from the Orkneys, Shetland and Outer Hebrides. An absence of records from some areas of mainland Scotland may be partly an artefact of the lower recording effort in these lightly-populated areas.		



1.1.2 Method used - map	**Estimate based on partial data with some extrapolation and/or**

	modelling
	Daubenton's bat is widespread in the UK. Although there have been no structured distribution surveys, it has been reasonably well recorded by local bat groups and during monitoring surveys organised by the National Bat Monitoring Programme.
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	**"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).** **BAT CONSERVATION TRUST. 2012. The National Bat Monitoring Programme. Annual Report 2011. Bat Conservation Trust, London. (www.bats.org.uk)** **BATTERSBY, J (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership http://jncc.defra.gov.uk/page-3311.** **BOYE, P. & DIETZ, M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough http://publications.naturalengland.org.uk/publication/65012.** **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 www.countrysidesurvey.org.uk/archiveCS2000/report.htm** **HARRIS, S., MORRIS, P., WRAY, S. and YALDEN, D. 1995. A review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. JNCC, Peterborough http://jncc.defra.gov.uk/page-2759.** **RICHARDSON, P. 2000. Distribution atlas of bats in Britain and**

	Ireland 1980-1999. Bat Conservation Trust, London. **SPEAKMAN, J.R. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review, 21, 123-142 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2907.1991.tb00114.x/abstract.** **WARREN, R.D., WATERS, D.A., ALTRINGHAM, J.D. & BULLOCK, D.J. 2000. The distribution of Daubenton's bats (Myotis daubentonii) and pipistrelle bats (Pipistrellus pipistrellus) (Vespertilionidae) in relation to small-scale variation in riverine habitat. Biological Conservation, 92, 85-91."**
	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). BAT CONSERVATION TRUST. 2012. The National Bat Monitoring Programme. Annual Report 2011. Bat Conservation Trust, London. (www.bats.org.uk) BATTERSBY, J (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership http://jncc.defra.gov.uk/page-3311. BOYE, P. & DIETZ, M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough http://publications.naturalengland.org.uk/publication/65012. 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 www.countrysidesurvey.org.uk/archiveCS2000/report.htm HARRIS, S., MORRIS, P., WRAY, S. and YALDEN, D. 1995. A review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. JNCC, Peterborough http://jncc.defra.gov.uk/page-2759. RICHARDSON, P. 2000. Distribution atlas of bats in Britain and Ireland 1980-1999. Bat Conservation Trust, London. SPEAKMAN, J.R. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review, 21, 123-142 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2907.1991.tb00114.x/abstract. WARREN, R.D., WATERS, D.A., ALTRINGHAM, J.D. & BULLOCK, D.J. 2000. The distribution of Daubenton's bats (Myotis daubentonii) and pipistrelle bats (Pipistrellus pipistrellus) (Vespertilionidae) in relation to small-scale variation in riverine habitat. Biological Conservation, 92, 85-91.

2.3 Range	
2.3.1 Surface area Range	
2.3.2 Method used	**Estimate based on partial data with some extrapolation and/or**

Surface area of Range	**modelling**	
	NBN datasets	
2.3.3 Short-term trend Period		
2.3.4 Short term trend Trend direction	**stable**	
2.3.5 Short-term trend Magnitude	**a) Minimum**	
	b) Maximum	
2.3.6 Long-term trend Period		
2.3.7 Long-term trend Trend direction		
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	**a) Genuine change?**	**False**

reported value in 2.3.1 and the previous reporting round mainly due to…		
	b) Improved knowledge/more accurate data?	**False**
	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**
	Scotland 40,000 - based on published average estimate	
	b) Minimum	**40000**
	c) Maximum	**40000**
2.4.2 Population size estimation (using population unit other than individuals) Optional *(if 2.4.1 filled in)*	**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	**2012-2012**	
2.4.5 Method used Population size	**Estimate based on expert opinion with no or minimal sampling**	
	HARRIS, S., MORRIS, P., WRAY, S. and YALDEN, D. 1995. A review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. JNCC, Peterborough http://jncc.defra.gov.uk/page-2759.	

	BAT CONSERVATION TRUST, 2012. The National Bat Monitoring Programme. Annual Report 2011. Bat Conservation Trust, London. (www.bats.org.uk) BATTERSBY, J (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership http://jncc.defra.gov.uk/page-3311. RUSS, J.M. 1999. The Microchiroptera of Northern Ireland: community composition, habitat associations and ultrasound. Unpublished PhD thesis. Queen's University, Belfast. The estimates were 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 of Pipistrellus pipistrellus colonies in relation to size of M. daubentonii colonies following the methods described by Speakman (1991) and Harris et al (1995). Harris et al's (1995) reliability rating of the estimate was 4, meaning that it is "based on a very limited amount of information on the species". Although the estimates date from 1995, NBMP data indicate that there was no significant population trend for this species in the period 1997-2010, so there is no justification for updating the estimate.	
2.4.6 Short-term trend Period		
2.4.7 Short-term trend Trend direction	**stable**	
2.4.8 Short-term trend Magnitude	**a) Minimum**	
	b) Maximum	
	c) Confidence interval	
2.4.9 Short-term trend Method used	NBMP data indicate that the population trend for this species is stable over the period 1999-2012.	
2.4.10 Long-term trend – Period	No data before 1994	
2.4.11 Long-term trend Trend direction		
2.4.12 Long-term trend Magnitude	**a) Minimum**	

Optional		
	b) Maximum	
	c) Confidence interval	
2.4.13 Long term trend Method used	**2**	
2.4.14 Favourable reference population	**a) Number of individuals/agreed exceptions/other units**	**40000**
	Scotland 40,000 - based on published average estimate The GB population for this species in 1995 was estimated to be 150,000 individuals (see section 2.3). With a stable population (NBMP, 2011), 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 has been set with limited information. It could be revised in the future if better information becomes available.	
	b) Operator	
	c) FRP is unknown indicated by "true"	**False**
	d) Method used to set FRP	
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:	**a) Genuine change?**	**False**
	b) Improved knowledge/more accurate data?	**False**
	c) Use of different method (e.g. "Range tool")?	**False**

2.5 Habitat for the species		
2.5.1 Area estimation	**27818**	
	M. daubentonii requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. Boye & Dietz (2005) provides a good overview of this species' habitat requirements. Foraging areas are predominantly at open water bodies and slow flowing rivers. M. daubentonii prefers water bodies, rivers and streams with trees or bushes on the banks to provide shelter from wind. Foraging success is also influenced by the amount of weed cover on the water surface. Sometimes, mainly in springtime, the bats also forage away from water, e.g. woodland clearings. The use of particular foraging areas generally follows the abundance of Nematocera and Ephemeroptera. When riparian insect abundance is reduced due to windy weather or cold temperatures, M. daubentonii preferentially forages in woodlands. In oak forests individual home ranges were identified with an average size of about 49 hectares. The species can cover distances of 7-8 km between roosting and foraging areas without difficulty. Woodlands are most important as roost sites, especially if they are close to water bodies. Summer roosts are predominantly in trees, sometimes in wall crevices in buildings or underneath bridges. Preferred roosts are in old woodpecker holes, which become enlarged upwards by rotting within a living tree. Fissures in stems, wood crevices, hollow branches, and bird or bat boxes are also used. Most roosts are found in or near the trunk of a broadleaf tree at a height of 1 to 25 metres above the ground with a trunk diameter of at least 30 centimetres. Roost trees are often situated near the forest edge, with more than 40% within 30 metres of the edge. Most males roost alone, and in May and June they also use underground roost sites. Summer roosts are changed frequently. Maternity colonies switch among a network of several roost sites. Winter roosts include caves, mines, cellars and other underground habitats. It is unknown whether the amount of habitat in the UK is sufficient to support a viable population of the species.	
2.5.2 Year or period	**2012-2012**	
2.5.3 Method used Habitat for the species	**Estimate based on expert opinion with no or minimal sampling**	
2.5.4 Quality of the habitat	**a) Habitat quality**	**Unknown**
	M. daubentonii is a widespread and mobile species utilising a range of habitats in a flexible way. This makes it very difficult to estimate the extent or quality of habitat available. However, two important habitats are woodland and freshwater. The former is increasing in extent in Britain/Scotland and water quality is improving (Carey et al. 2008). 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 10 km squares in the distribution map. (England = 907 squares + half the 49 shared squares -> 932 (rounded	

	up))	
	b) Assessment method	
2.5.5 Short-term trend Period		
2.5.6 Short-term trend Trend direction	**unknown**	
2.5.7 Long-term trend Period		
2.5.8 Long-term trend Trend direction	**unknown**	
2.5.9 Area of suitable habitat for the species	**a) Value in km²**	**27818**
	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?	**False**
	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	
G05: Other human intrusions and disturbances	H	
A02: modification of cultivation practices	M	
A07: use of biocides, hormones and chemicals	M	O

B02: Forest and Plantation management & use	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 can generally be divided into those that affect roosts and those that affect commuting and foraging (including prey availability). Roosts are in trees, underground places and occasionally in buildings, usually very close to water. Human intrusions that eliminate, block up or modify such places could have a negative effect on the population. Daubenton's bats forage primarily over water, but also over lowland farmland, woodland, parkland and woodland edges, Water management, agricultural or forestry practices that remove, modify or fragment these habitats, or affect the biomass of suitable insect prey could negatively affect populations.	
2.6.1 Method used – Pressures	**based only on expert judgements**

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	
G05: Other human intrusions and disturbances	H	
A02: modification of cultivation practices	M	
A07: use of biocides, hormones and chemicals	M	O
B02: Forest and Plantation management & use	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	

Threats can generally be divided into those that affect roosts and those that affect commuting and foraging (including prey availability). Roosts are in trees, underground places and occasionally in buildings, usually very close to water. Human intrusions that eliminate, block up or modify such places could have a negative effect on the population. Daubenton's bats forage primarily over water, but also over lowland farmland, woodland, parkland and woodland edges, Water management, agricultural or forestry practices that remove, modify or fragment these habitats, or affect the biomass of suitable insect prey could negatively affect populations.

2.7.1 Method used – Threats	**expert opinion**

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**