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

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Conservation status assessment for the species:

S1308 - Barbastelle (*Barbastella barbastellus*)

UNITED KINGDOM

IMPORTANT NOTE - PLEASE READ

- The information in this document represents the UK Report on the conservation status of this species, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the species are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species).
- The UK-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Species code	**1308**
1.3 Species scientific name	**Barbastella barbastellus**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Barbastelle

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1995-2016
2.3 Distribution map	Yes
2.4 Distribution map Method used	Complete survey or a statistically robust estimate
2.5 Additional maps	No

3. Information related to Annex V Species (Art. 14)

3.1 Is the species taken in the wild/exploited?	No	
3.2 Which of the measures in Art. 14 have been taken?	a) regulations regarding access to property	No
	b) temporary or local prohibition of the taking of specimens in the wild and exploitation	No
	c) regulation of the periods and/or methods of taking specimens	No
	d) application of hunting and fishing rules which take account of the conservation of such populations	No
	e) establishment of a system of licences for taking specimens or of quotas	No
	f) regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens	No
	g) breeding in captivity of animal species as well as artificial propagation of plant species	No
	h) other measures	No

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

3.3 Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

b) Statistics/ quantity taken	Provide statistics/quantity per hunting season or per year (where season is not used) over the reporting period					
	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
Min. (raw, ie. not rounded)						
Max. (raw, ie. not rounded)						
Unknown	No	No	No	No	No	No

3.4. Hunting bag or quantity taken in the wild Method used

3.5. Additional information

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

4.2 Sources of information

England

Ancillotto, L., L. Cistrone, F. Moscini, G. Jones, L. Boitani and D. Russo (2015). The importance of non-forest landscapes for the conservation of forest bats: lessons from barbastelles (Barbastella barbastellus). Biodiversity and Conservation, 24 (1), 171-185.

Arnold, H.R. (1993). Atlas of Mammals in Britain, Joint Nature Conservation Committee/ Institute of Terrestrial Ecology.

Mathews, F., Kubasiewicz, L.M., Gurnell, J., Harrower, C., McDonald, R.A., Shore, R.F (2018). A review of the population and conservation status of British Mammals. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage.

Russo, D., L. Cistrone, G. Jones and S. Mazzoleni (2004). Roost selection by barbastelle bats (Barbastella barbastellus, Chiroptera: Vespertilionidae) in beech woodlands of central Italy: consequences for conservation. Biological Conservation, 117 (1), 73-81

Sierro, A. and R. Arlettaz (1997). Barbastelle bats (Barbastella spp) specialise in the predation of moths: implications for foraging tactics and conservation. Acta Oecological, 18 (2), 91-106

Zeale, M.R.K. (2011). Conservation biology of the barbastelle (Barbastella barbastellus): applications of spatial modelling, ecology and molecular analysis of diet. PhD, University of Bristol

Zeale, M.R.K., I. Davidson-Watts and G. Jones (2012). Home range use and habitat selection by barbastelle bats (Barbastella barbastellus): implications for conservation. Journal of Mammology, 93 (4), 1110-1118

Wales

Ancillotto L, Cistrone L, Moscini F, Jones G, Boitani L, Russo D. 2015. The importance of non-forest landscapes for the conservation of forest bats: lessons from barbastelles (Barbastella barbastellus). Biodiversity and Conservation, 24 (1), 171-185.
Arnold HR. 1993. Atlas of Mammals in Britain, Joint Nature Conservation Committee/ Institute of Terrestrial Ecology.
Bat Conservation Trust. 2018. The State of the UK's Bats 2017. Bat Conservation Trust, London. Available at (http://www.bats.org.uk/pages/results_and_reports.html)
Bat Conservation Trust. 2018a. The National Bat Monitoring Programme. Annual Report 2017. Bat Conservation Trust, London. Available at (www.bats.org.uk/pages/nbmp_annual_report.html)
Battersby J. (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership. JNCC, Peterborough
Billington G. 2003. Radio tracking study of Barbastelle bats in Pengelli Forest National Nature Reserve. CCW Contract Science Report No. 590. [Confidential]. CCW, Bangor.
Boye P, Dietz M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough.
Carey PD, Wallis SM, Emmett BE, Maskell LC, Murphy J, Norton LR, Simpson IC, Smart SS. 2008. Countryside Survey: UK headline messages from 2007. Centre for Ecology & Hydrology, Wallingford.
Dietz C, Helversen OV, Nill D. 2009. Bats of Britain, Europe & Northwest Africa. A & C Black Publishers Ltd., London.
Dietz C, Keifer A. 2016. Bats of Britain and Europe. London, Bloomsbury
Greenaway F, Hill DA. 2004. Woodland management advice for Bechstein's and barbastelle bat. English Nature Research Reports. 658.
Greenaway F, Hill DA. 2004. Woodland management advice for Bechstein's and barbastelle bat. English Nature Research Reports. 658.
Greenaway F. 2008. Barbastelle Barbastella barbastellus. Pages 362-364 In Harris S, Yalden DW. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.
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.
Hill DA, Greenaway F. 2005. Effectiveness of an acoustic lure for surveying bats in British woodlands. Mammal Review 35(1): 116-122.
Kerth G, Melber M. 2009. Species-specific barrier effects of a motorway on the habitat use of two threatened forest-living bat species. Biological Conservation, 142(2), 270-279.
Macdonald DW, Tattersall F. 2001. Britain's Mammals: The Challenge for Conservation. People's Trust for Endangered Species, London.
Macdonald DW, Burnham D. 2011. The State of Britain's Mammals 2011. Peoples Trust for Endangered Species, London.
Mcleod C, Yeo M, Brown AE, Burn AJ, Hopkins JJ, Way SF. eds. 2002. The Habitats Directive: Selection of Special Areas of Conservation in the UK, 2nd edn. Joint Nature Conservation Committee, Peterborough
Mathews F, Kubasiewicz LM, Gurnell J, Harrower C, McDonald RA, Shore RF. 2018. A review of the population and conservation status of British Mammals.
Natural Resources Wales, 2013. 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: S1308 - Barbastelle bat (Barbastellus barbastellus). A report by The

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage.
Richardson P. 2000. Distribution atlas of bats in Britain and Ireland 1980-1999. Bat Conservation Trust, London.
Russ J. 2012. British bat calls: a guide to species identification. Exeter, Pelagic Publishing.
Russo D, Cistrone L, Jones G, Mazzoleni S. 2004. Roost selection by barbastelle bats (Barbastella barbastellus, Chiroptera: Vespertilionidae) in beech woodlands of central Italy: consequences for conservation. Biological Conservation, 117 (1), 73-81
Sierro A, Arlettaz R. 1997. Barbastelle bats (Barbastella spp) specialise in the predation of moths: implications for foraging tactics and conservation. Acta Oecological, 18 (2), 91-106
Zeale MRK. 2011. Conservation biology of the barbastelle (Barbastella barbastellus): applications of spatial modelling, ecology and molecular analysis of diet. PhD Thesis, University of Bristol.
Zeale MRK, Davidson-Watts I, Jones G. 2012. Home range use and habitat selection by barbastelle bats (Barbastella barbastellus): implications for conservation. Journal of Mammology, 93 (4), 1110-1118

5. Range

5.1 Surface area (km²)	74189	
5.2 Short-term trend Period	2013-2018	
5.3 Short-term trend Direction	Stable (0)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used	Complete survey or a statistically robust estimate	
5.6 Long-term trend Period		
5.7 Long-term trend Direction		
5.8 Long-term trend Magnitude	a) Minimum	b) Maximum
5.9 Long-term trend Method used		
5.10 Favourable reference range	a) Area (km²)	74189
	b) Operator	
	c) Unknown	
	d) Method	The FRR has changed since 2013. The new value is considered to be large enough to support a viable population and no lower than the range estimate when the Habitats Directive came into force in the UK. For further information see the 2019 Article 17 UK Approach document. The 2013 FRR value has been revised and is equal to the current range. The current range surface area has been calculated using the method outlined in Mathews et. al., (2018) and is based on presence data collected between 1995-2016. Areas that contain very isolated records may not have been included in the area of distribution. The new, more robust method of calculating range has reduced estimated range size for this species since 2013. This does not represent a real reduction in range.

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

5.11 Change and reason for change in surface area of range	Improved knowledge/more accurate data Use of different method The change is mainly due to:	Use of different method
5.12 Additional information	Short term trend in range has been assessed by using the 2019 distribution data and the 2013 method for calculating range and comparing the result with range surface area in 2013. For further information see the 2019 Article 17 UK Approach document and country assessments.	

6. Population

6.1 Year or period	1995-2017	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	5000
6.3 Type of estimate	Best estimate	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.5 Type of estimate		
6.6 Population size Method used	Based mainly on expert opinion with very limited data	
6.7 Short-term trend Period	1995-2018	
6.8 Short-term trend Direction	Unknown (x)	
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.10 Short-term trend Method used	Based mainly on expert opinion with very limited data	
6.11 Long-term trend Period		
6.12 Long-term trend Direction		
6.13 Long-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.14 Long-term trend Method used		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size	
	b) Operator	
	c) Unknown	x
	d) Method	The FRP for this species is unknown because there is insufficient information to set an FRP value. For further information see the 2019 Article 17 UK Approach

document.

6.16 Change and reason for change in population size	No change The change is mainly due to:
6.17 Additional information	The population estimate quoted is the same as in 2013 and is taken from Harris et al. 1995. Mathews et. al. 2018, determined that insufficient data are available to derive a population estimate for the species and therefore there is no update from the previous Article 17 reporting round. The population trend is also unknown. Therefore, it has not been possible to determine an FRP for this species and the population conclusion is Unknown.

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (for long-term survival)?	Unknown
	b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)?	Unknown
7.2 Sufficiency of area and quality of occupied habitat Method used	Insufficient or no data available	
7.3 Short-term trend Period	1995-2018	
7.4 Short-term trend Direction	Unknown (x)	
7.5 Short-term trend Method used	Insufficient or no data available	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		
7.9 Additional information	The area and quality of habitat and trend in area and quality of habitat for the species have been assessed as unknown as there is insufficient information available to undertake this assessment.	

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	M
Drainage for use as agricultural land (A31)	M
Conversion to other types of forests including monocultures (B02)	H
Logging without replanting or natural regrowth (B05)	H
Logging (excluding clear cutting) of individual trees (B06)	H
Removal of dead and dying trees, including debris (B07)	M
Removal of old trees (excluding dead or dying trees) (B08)	H
Clear-cutting, removal of all trees (B09)	H

Application of synthetic fertilisers in forestry, including liming of forest soils (B19)	M

Threat	Ranking
Removal of old trees (excluding dead or dying trees) (B08)	H
Clear-cutting, removal of all trees (B09)	H
Application of synthetic fertilisers in forestry, including liming of forest soils (B19)	M
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	M
Drainage for use as agricultural land (A31)	M
Conversion to other types of forests including monocultures (B02)	H
Logging without replanting or natural regrowth (B05)	H
Logging (excluding clear cutting) of individual trees (B06)	H
Removal of dead and dying trees, including debris (B07)	M

8.2 Sources of information

8.3 Additional information

9. Conservation measures

9.1 Status of measures

a) Are measures needed? Yes

b) Indicate the status of measures Measures identified and taken

9.2 Main purpose of the measures taken: Maintain the current range, population and/or habitat for the species

9.3 Location of the measures taken: Both inside and outside Natura 2000

9.4 Response to the measures: Long-term results (after 2030)

9.5 List of main conservation measures

Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land (CA01)
Restore small landscape features on agricultural land (CA02)
Manage drainage and irrigation operations and infrastructures in agriculture (CA15)
Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01)
Adapt/manage reforestation and forest regeneration (CB04)
Adapt/change forest management and exploitation practices (CB05)
Stop forest management and exploitation practices (CB06)
Manage the use of chemicals for fertilisation, liming and pest control in forestry (CB09)

9.6 Additional information

10. Future prospects

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

10.1 Future prospects of parameters	a) Range	Good
	b) Population	Unknown
	c) Habitat of the species	Unknown
10.2 Additional information	Future trend in Range is Overall stable; Future trend in Population is Unknown; and Future trend in Habitat for the species is Unknown. For further information on how future trends inform the Future Prospects conclusion see the 2019 Article 17 UK Approach document.	

11. Conclusions

11.1. Range	Favourable (FV)
11.2. Population	Unknown (XX)
11.3. Habitat for the species	Unknown (XX)
11.4. Future prospects	Unknown (XX)
11.5 Overall assessment of Conservation Status	Unknown (XX)
11.6 Overall trend in Conservation Status	Unknown (x)
11.7 Change and reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status No change The change is mainly due to: b) Overall trend in conservation status No change The change is mainly due to:
11.8 Additional information	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range. Conclusion on Population reached because: (i) the short-term trend direction in Population size is unknown; and (ii) the Favourable Reference Population in unknown. Conclusion on Habitat for the species reached because: (i) the area of occupied habitat is unknown and (ii) the habitat quality is unknown; and (iii) the short-term trend in area and quality of habitat is unknown. Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (ii) the Future prospects for Population are unknown; and (iii) the Future prospects for Habitat for the species are unknown. Overall assessment of Conservation Status is Unknown because three of the conclusions are Unknown. Overall trend in Conservation Status is based on the combination of the short-term trends for Range - unknown, Population -unknown, and Habitat for the species - unknown. Overall assessment of conservation status has not changed since 2013. Overall trend in conservation status was not recorded in 2013, but from the information provided the overall trend would have been unknown and so has not changed since 2013.

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

12. Natura 2000 (pSCIs, SCIs and SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)	a) Unit b) Minimum c) Maximum d) Best single value
12.2 Type of estimate	
12.3 Population size inside the network Method used	Insufficient or no data available
12.4 Short-term trend of population size within the network Direction	Unknown (x)
12.5 Short-term trend of population size within the network Method used	Insufficient or no data available
12.6 Additional information	The species is monitored within protected sites, where it occurs through the National Bat Monitoring Programme (NBMP) Woodland Survey. However, there is currently only sufficient information to record species presence rather than populations or any changes in trend for this species.

13. Complementary information

13.1 Justification of % thresholds for trends	
13.2 Trans-boundary assessment	
13.3 Other relevant Information	

Distribution Map

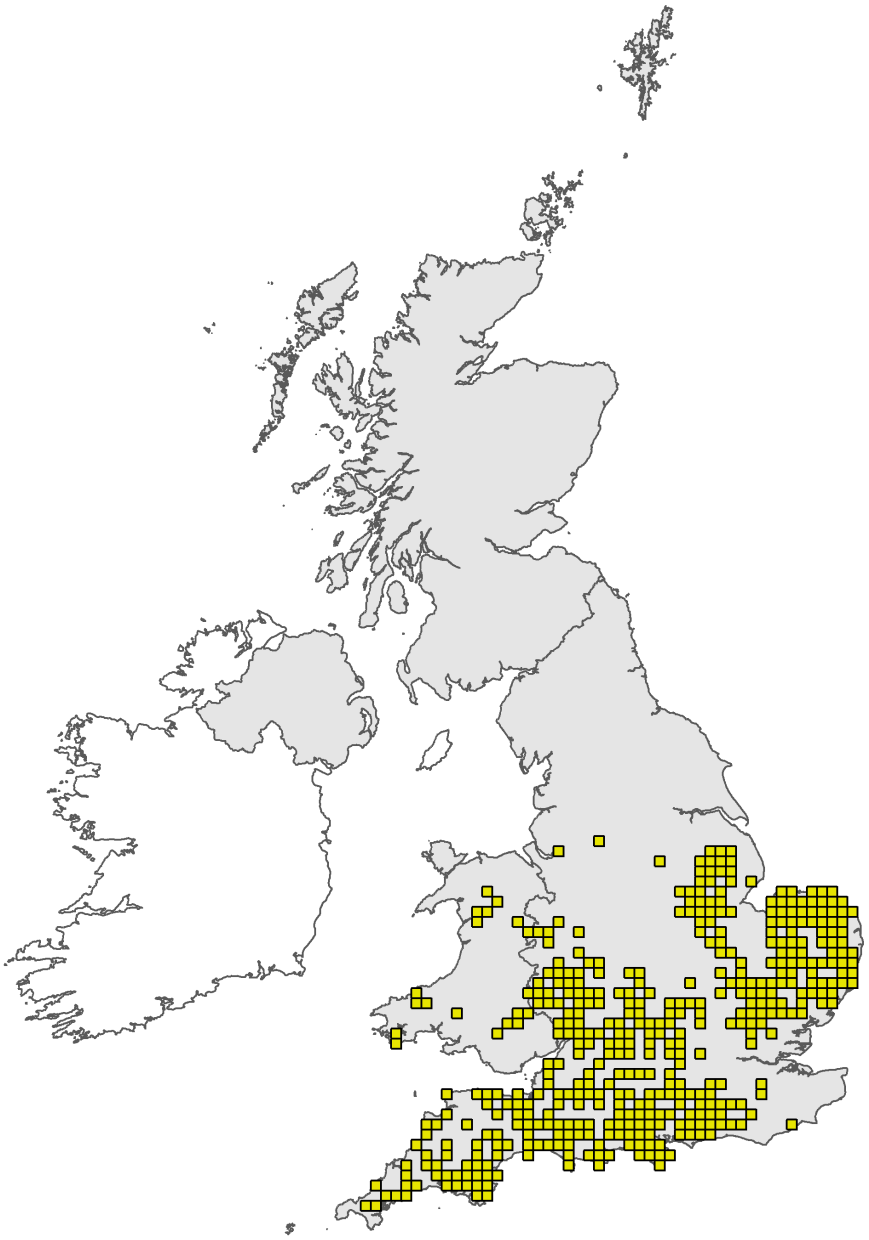

Figure 1: UK distribution map for S1308 - Barbastelle (*Barbastella barbastellus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available species records within the current reporting period. For further details see the 2019 Article 17 UK Approach document.

Range Map

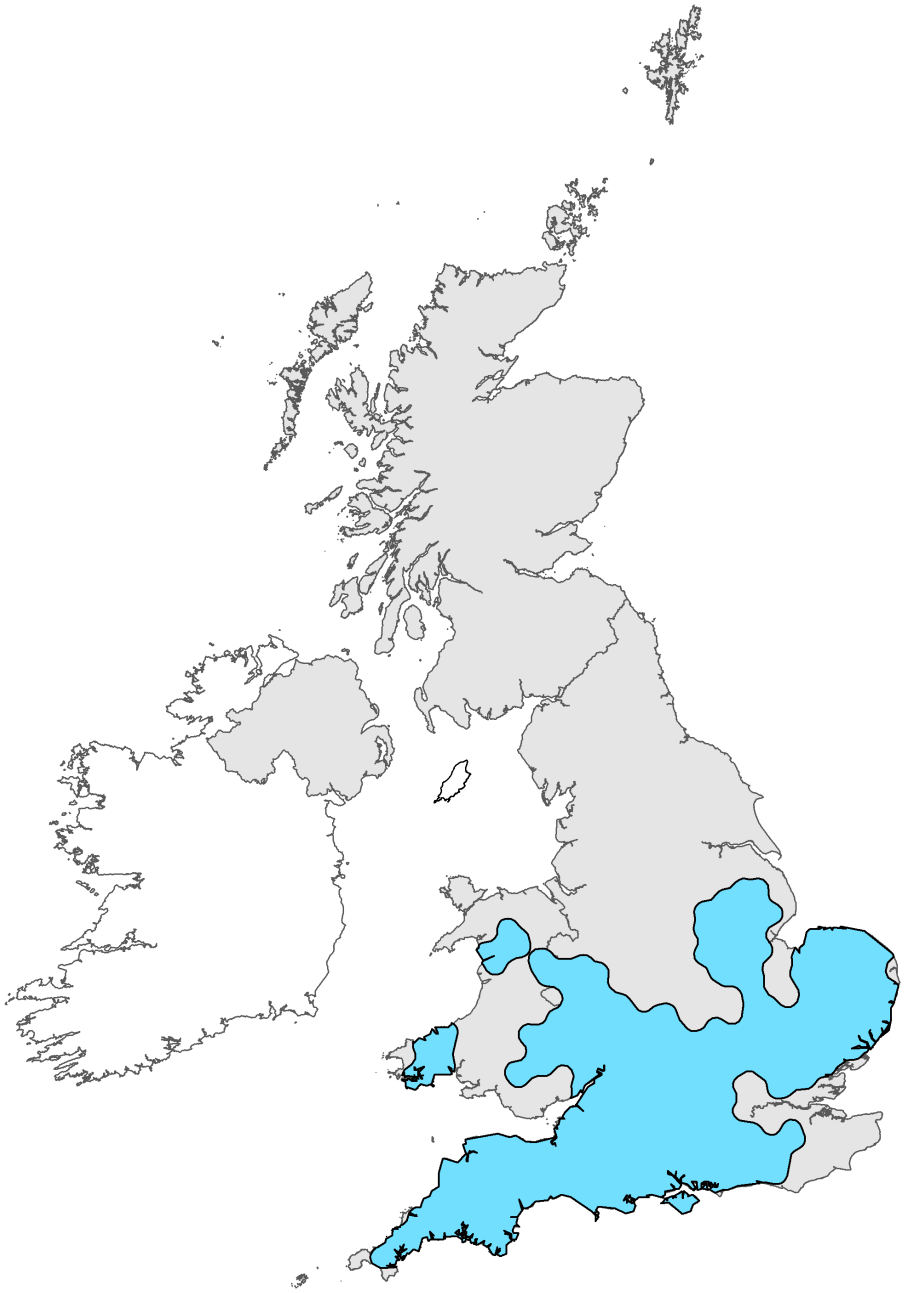

Figure 2: UK range map for S1308 - Barbastelle (*Barbastella barbastellus*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by The Mammal Society applying a range mapping tool as outlined in Matthews et al. (2018), to the 10km grid square distribution map presented in Figure 1. The alpha value for this species was 20km. For further details see the 2019 Article 17 UK Approach document.