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

Supporting documentation for the
conservation status assessment for the species:

S1309 - Common pipistrelle (*Pipistrellus pipistrellus*)

WALES

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to 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.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this species is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- 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; (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species) and/or (iv) the field was only relevant at UK-level (sections 9 Future prospects and 10 Conclusions).
- For technical reasons, the country-level future trends for Range, Population and Habitat for the species are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-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 (Wales information only)**
1.2 Species code	**1309**
1.3 Species scientific name	**Pipistrellus pipistrellus**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Common pipistrelle

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1997-2016
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

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
Bat Conservation Trust. 2017. The National Bat Monitoring Programme. Raw Data provided to NRW. Bat Conservation Trust, London
Barlow KE. 1997. The diets of two phonic types of the bat Pipistrellus pipistrellus in Britain. Journal of Zoology, 243(3), 597-609.
Barlow KE, Jones G. 1999. Roosts, echolocation calls and wing morphology of two phonic types of Pipistrellus pipistrellus. Zeitschrift fur Saugetierkunde,, 64, 257-268.
Barratt EM, Deaville R, Burland TM, Bruford MW, Jones G, Racey PA, Wayne RK. 1997. DNA answers the call of pipistrelle bat species. Nature (Lond.), 387:138-139.
Battersby J. (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership. JNCC, Peterborough
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, 268: 55-62.
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
Fensome AG, Mathews F. 2016. Roads and bats: a meta-analysis and review of evidence on vehicle collisions and barrier effects. Mammal Review, 46 (4), 311-323
Fuentes-Montemayor E, Goulson D, Cavin L, Wallace JM, Park KJ. 2013. Fragmented woodlands in agricultural landscapes: The influence of woodland character and landscape context on bats and their insect prey. Agriculture, Ecosystems and Environment, 172, 6-15
Glendell M. Vaughan N. 2002. Foraging activity of bats in historic landscapoe parks in relation to habitat composition and park management. Animal Conservation, 5 (4), 309-316
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.
Jenkins EV, Laine T, Morgan SE, Cole KR, Speakman JR. 1998. Roost selection in the pipistrelle bat, Pipistrellus pipistrellus (Chiroptera: Vespertilionidae), in northeast Scotland. Anim Behav, 56(4), 909-917.
Jones G, Barratt EM. 1999. Vespertilio pipistrellus Schreber, 1774 and V. pygmaeus Leach, 1825 (currently Pipistrellus pipistrellus and P. pygmaeus; Mammalia, Chiroptera): proposed designation of neotypes. Bulletin of Zoological Nomenclature, 56: 182-186.
Jones G, Racey PA. 2008. Common pipistrelle Pipistrellus pipistrellus, Soprano pipistrelle Pipistrellus pygmaeus. Pages 343-351 In Harris, S. & Yalden, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton. 799pp.
Lintott PR, Bunnefeld N, Park KJ. 2015. Opportunities for improving the foraging potential of urban waterways for bats. Biological Conservation, 191, 224-233.
Lintott PR, Barlow K, Bunnefeld N, Briggs P, Gajas Roig C, Park KJ. 2016. Differential responses of cryptic bat species to the urban landscape. Ecology and Evolution, 6 (7), 2044-2052
Mathews F, Richardson SM, Hosken DJ. 2016. Understanding the risks to bat populations posed by wind turbines - Phase 2 - WC0753, Defra.
Mathews F, Kubasiewicz LM, Gurnell J, Harrower C, McDonald RA, Shore RF. 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.
Mitchell-Jones TJ. 2010. Bats in houses - the conservation challenge. Pp 365-378, In: Species Management: challenges and solutions for the 21st century. Baxter, J.M. & Galbraith, C.A. Tso Scotland, Edinburgh.
Mitchell-Jones TJ, Carlin C. 2009. TIN051 Bats and onshore wind turbines Interim Guidance. 2nd edition, February 2012. Available at http://publications.naturalengland.org.uk/file/490077
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: S1309 - Common pipistrelle bat (Pipistrellus pipistrellus)
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.
Oakley SF, Jones G. 1998. Habitat around maternity roosts of the 55 kHz phonic

type of pipistrelle bats (Pipistrellus pipistrellus). Journal of Zoology, 245(2), 222-228.
Racey PA. 1969. Diagnosis of pregnancy and experimental extension of gestation in the pipistrelle bat, Pipistrellus pipistrellus. J Reprod Fertil, 19(3), 465-474.
Richardson P. 2000. Distribution atlas of bats in Britain and Ireland 1980-1999. Bat Conservation Trust, London.
Speakman JR. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review, 21, 123-142.
Waring SD, Essah E, Gunnell K, Bonser R. 2013. Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. Architecture and Environment, 1 1-3
Warren RD, Waters DA, Altringham JD, Bullock DJ. 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 (1), 85-91

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period		
5.3 Short-term trend Direction	Uncertain (u)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used		
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) b) Operator c) Unknown d) Method	
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		

6. Population

6.1 Year or period	2016-2017	
6.2 Population size (in reporting unit)	a) Unit b) Minimum c) Maximum d) Best single value	number of map 1x1 km grid cells (grids1x1)
6.3 Type of estimate	Best estimate	

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

6.4 Additional population size (using population unit other than reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	96600
	c) Maximum	732000
	d) Best single value	
6.5 Type of estimate	95% confidence interval	
6.6 Population size Method used	Complete survey or a statistically robust estimate	
6.7 Short-term trend Period	2006-2017	
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	Insufficient or no data available	
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 d) Method	
6.16 Change and reason for change in population size	Genuine change Improved knowledge/more accurate data Use of different method	
	The change is mainly due to:	Use of different method
6.17 Additional information		

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (to maintain the species at FCS)?	Yes
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on extrapolation from a limited amount of data	
7.3 Short-term trend Period	1997-2016	
7.4 Short-term trend Direction	Unknown (x)	
7.5 Short-term trend Method used	Based mainly on expert opinion with very limited data	
7.6 Long-term trend Period		

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

7.7 Long-term trend Direction

7.8 Long-term trend Method used

7.9 Additional information

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Residential or recreational activities and structures generating noise, light, heat or other forms of pollution (F24)	H
Industrial or commercial activities and structures generating noise, light, heat or other forms of pollution (F25)	H
Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02)	H
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	H
Wind, wave and tidal power, including infrastructure (D01)	H
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	M
Use of plant protection chemicals in agriculture (A21)	M
Conversion to other types of forests including monocultures (B02)	M
Logging without replanting or natural regrowth (B05)	M
Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05)	M

Threat	Ranking
Residential or recreational activities and structures generating noise, light, heat or other forms of pollution (F24)	H
Industrial or commercial activities and structures generating noise, light, heat or other forms of pollution (F25)	H
Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02)	H
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	H
Wind, wave and tidal power, including infrastructure (D01)	H
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	M
Use of plant protection chemicals in agriculture (A21)	M
Conversion to other types of forests including monocultures (B02)	M
Logging without replanting or natural regrowth (B05)	M
Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05)	M

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

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		Medium-term results (within the next two reporting periods, 2019-2030)

9.5 List of main conservation measures

Adapt/manage renewable energy installation, facilities and operation (CC03)
Reduce impact of transport operation and infrastructure (CE01)
Reduce/eliminate noise, light, heat or other forms pollution from industrial, commercial, residential and recreational areas and activities (CF09)
Manage conversion of land for construction and development of infrastructure (CF01)
Reduce/eliminate diffuse pollution to surface or ground waters from industrial, commercial, residential and recreational areas and activities (CF05)
Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land (CA01)
Other measures related to agricultural practices (CA16)
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)
Restore small landscape features on agricultural land (CA02)

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters	a) Range
	b) Population
	c) Habitat of the species

10.2 Additional information

11. Conclusions

11.1. Range

11.2. Population

11.3. Habitat for the species

11.4. Future prospects

11.5 Overall assessment of Conservation Status

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

11.6 Overall trend in Conservation Status	
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	

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	
12.4 Short-term trend of population size within the network Direction	
12.5 Short-term trend of population size within the network Method used	
12.6 Additional information	

13. Complementary information

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

Distribution Map

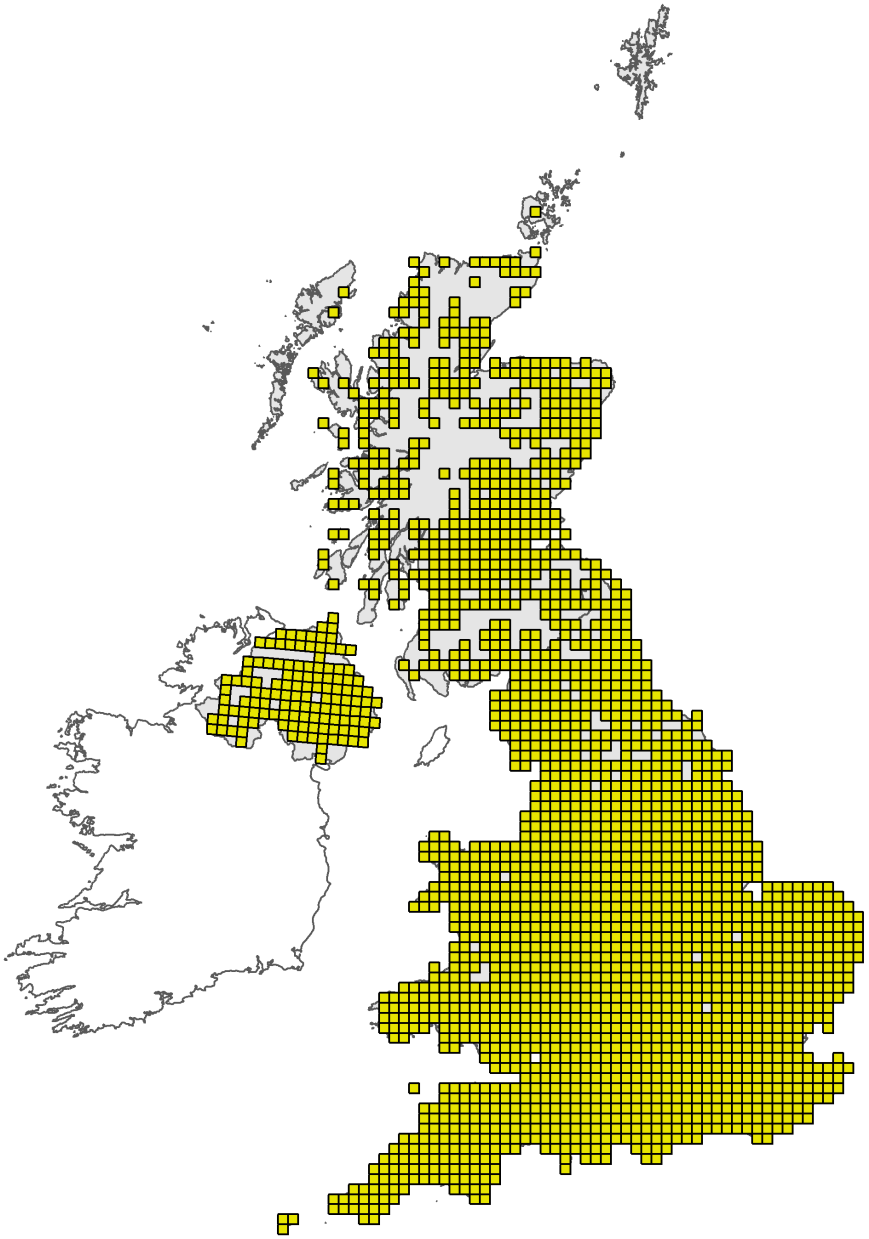

Figure 1: UK distribution map for S1309 - Common pipistrelle (*Pipistrellus pipistrellus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

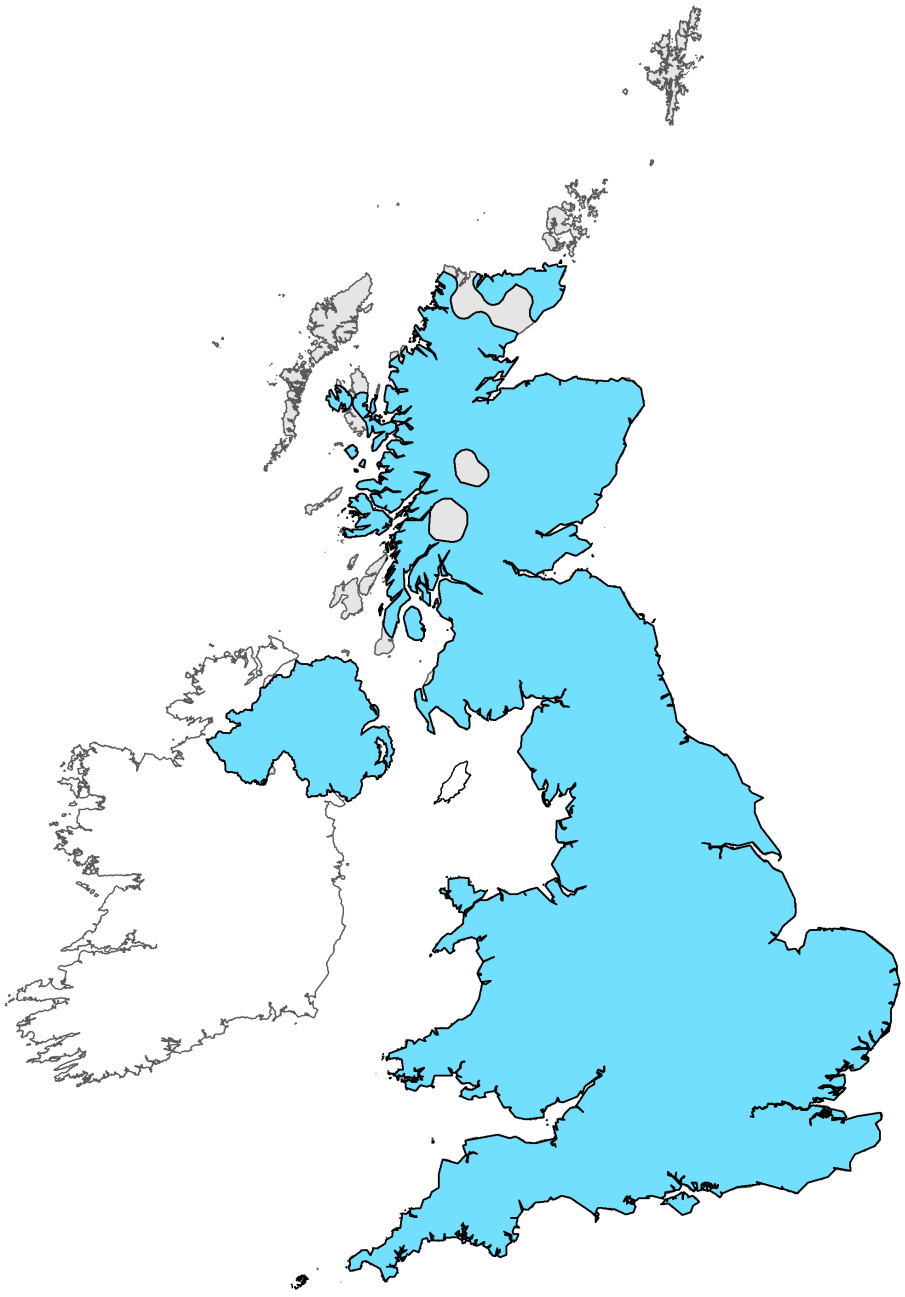

Figure 2: UK range map for S1309 - Common pipistrelle (*Pipistrellus pipistrellus*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.

Explanatory Notes

Species name: Pipistrellus pipistrellus (1309)

Field label	Note
2.4 Distribution map; Method used	P. pipistrellus commonly roosts in houses and many records come from requests for information or advice. The widespread use of bat detectors and structured surveys for the National Bat Monitoring Programme has increased the number of records in recent years. The technological improvements seen in bat detectors and sound analysis of bat calls has probably increased the accuracy of identification to species. P. pipistrellus is widely distributed throughout Wales, with gaps in distribution probably reflecting an absence of survey data rather than an absence of the species or reports of Pipistrelle spp, not confirmed to species.

Species name: Pipistrellus pipistrellus (1309) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	Given the significant change to the method for range determination we are uncertain of the nature and degree of change in short-term range trend for this species.
5.11 Change and reason for change in surface area of range	Area of land (including unsuitable habitat) contained within the range is given as 20,601 km2 (Mathews et al. 2018). Range 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 range has been taken from Mathews et al. 2018, whereby an alpha hull value of 20km was drawn around the presence records, which represented the best balance between the inclusion of unoccupied sites (i.e. where records are sparse but close enough for inclusion) and the exclusion of occupied areas due to gaps in the data (i.e. where records exist but are too isolated for inclusion). An additional 10km buffer was added to the final hull polygon to provide smoothing to the hull and to ensure that the hull covered the areas recorded rather than intersecting them. This differs from the approach taken in 2013 and 2007 whereby a 45km alpha hull value was used for all species with a starting range unit of individual 10km squares. The new method has led to much finer detail maps being produced underpinned by data gathered at a much finer resolution, leading to the production of a more accurate FRR. Added to which acoustic detectors have changed considerably over the years in both accuracy and sensitivity, which also adds to the production of this value. As P. pipistrellus is a widespread species occupying a wide variety of habitat types it is assumed that the range is equal to the favourable reference range.

6.4 Additional population size	Mathews et al. 2018 population estimates were derived by first calculating the adult bat density (bats/km2) within poor, average and good habitat and then multiplying this with the total habitable area within their range to give lower, median and upper population estimates. Habitable area was defined as all area within the range excluding montane habitat since this is unlikely to include suitable locations for maternity roosts. Details of calculations are as follows: Adult bat density (bats/km2) Median density=[(median n. bats/roost[1]) * (p female [2]) * (n roosts/typical km2 average habitat)]* 2 Lower limit=[(lower plausible n. bats/roost) * (p female min) * (plausible n. roosts/typical km2 poor habitat)]* 2 Upper limit = [(upper plausible n. bats/roost) * (p female max) * (plausible n. roosts/typical km2 good habitat)]* 2 [1] roost is typical maternity roost in the pre-parturition period. n. is number of adults. [2] p female : proportion female. p female min and p female max are lowest and highest plausible proportions of adult females in typical maternity roost Population size Total Adult Population = Median adult density (bats/km2) * total habitable area within range (km2) Lower Limit=Lower limit adult density (bats/km2) * total habitable area within range (km2) Upper Limit=Upper limit adult density (bats/km2) * total habitable area within range (km2) The estimates excluded colonies that contained less than 30 bats in order to ensure that counts did not include individuals in formation roosts that were then counted again at maternity sites. This may have led to some over-estimation of population size; when all roosts were included the bat population density estimate fell by approximately a third. However, most data were derived from NBMP data and here all roosts were included regardless of size since they were part of a longitudinal monitoring programme. Given that the estimated roost size is close to expert opinion and published data, it is likely to be a reasonable basis for the calculations.
6.7 Short term trend; Period	Based on Bat Conservation Trust (2018a) NBMP short-term period for Great Britain.
6.8 Short term trend; Direction	The GB short-term trend covering the period 2006-2017 drawn from the Bat Conservation Trust (2018a) National Bat Monitoring Programme data shows a statistically significant increase in population for the field surveys. Data from the colony counts suggest a significant decline, however, it is likely that for this species, frequent roost switching results in a negative bias in roost count data. The Roost Count trend is therefore not considered a reliable measure of population change for these species. Mathews et al. 2018 records the trend as being unknown as acoustic detectors used to record bat activity in the field have changed considerably over time and have become much more sensitive. There is considerable misidentification between the common pipistrelle and soprano pipistrelle especially when using heterodyne detectors and there is also confusion with the Myotis species. The true trend probably lies between the trend that has been reported for the two phonic types (common and soprano pipistrelle).
6.10 Short term trend; Method used	A reliable trend cannot be drawn for Wales due to insufficient available data.
6.16 Change and reason for change in population size	Data from the NBMP indicates that there has been a statistically significant increase in P. pipistrellus between 2006-2017 at a GB level and this is assumed to also be reflected in Wales. Also improved knowledge; acoustic detectors used to record bat activity in the field have changed considerably over time and have become much more sensitive. Primarily the change is due to Mathews et al. 2018 utilising a different method of calculating population size.

7.1 Sufficiency of area and quality of occupied habitat	Area: 20,600 km2. Habitable area as given by Mathews et al. 2018 has been used as a proxy for occupied habitat. The habitable area calculation defined all the area within the range as habitable excluding montane habitat since this is unlikely to include suitable locations for maternity roosts. Quality: No or insufficient reliable information is available. Although we do not have a reliable measure of the quality of the occupied habitat, the population trend for the species population is increasing and therefore the area and quality of occupied habitat is likely to be sufficient to maintain the species at FCS. P.pipistrellus is an extremely widespread species and is found in almost any habitat type ranging from grasslands to urban and suburban environments. However, the species requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. Boye & Dietz (2005) and Jones & Racey (2008) 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. 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. P. pipistrellus frequently forage over pasture and foraging activity is higher where grazing livestock are present (Fuentes-Montemayor et al. 2013). Linear features in a landscape are important elements for orientation either during foraging or in commuting flights. Foraging activity is generally within 2km of 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. Recent evidence shows that there is a strong negative response of P.pipistrellus to urbanisation at a relatively local scale (1km; Lintott et al 2016). However, the reverse association has also been reported (Warren et al. 2000, Glendell & Vaughan 2002, Lintott et al. 2015). In summer the roost sites are predominantly in crevices in buildings, especially between tiles and the underlying roofing felt 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. Overall:Yes
7.2 Sufficiency of area and quality of occupied habitat; Method used	As a widespread, common species, using a mosaic of habitats, it has been assumed that the area of distribution can be used as a proxy for the area of suitable habitat in the absence of other information. Previously calculated from the area of the filled 10km squares in the distribution map, the estimate given for occupied habitat is now derived from Mathews et al. 2018. supporting data set which is more accurate and gives occupied 1km squares. The habitable area given by Mathews et al. 2018 is 20,600 km2, which defined all the area within the range as habitable excluding montane habitat since this is unlikely to include suitable locations for maternity roosts , and range calculation utilises an alpha hull value of 20km was drawn around the presence records, which represented the best balance between the inclusion of unoccupied sites (i.e. where records are sparse but close enough for inclusion) and the exclusion of occupied areas due to gaps in the data (i.e. where records exist but are too isolated for inclusion). An additional 10km buffer was added to the final hull polygon to provide smoothing to the hull and to ensure that the hull covered the areas recorded rather than intersecting them.
7.4 Short term trend; Direction	The trend for area would appear to be stable as the estimates are broadly in line with each other. The 2013 Article 17 report for this species calculated the habitat for the species at 19,274 km2, calculated from the area of the filled 10km squares in the distribution map. The given estimate for 2016 is 20,600 km2 which is taken form the habitable area given by Mathews et al. 2018, which defined all the area within the range as habitable excluding montane habitat since this is unlikely to include suitable locations for maternity roosts. However due to the poor information on quality of occupied habitat, unknown must be selected for short term trend direction.

8.1 Characterisation of pressures/ threats	Pressures: Pressures can generally be divided into those that affect roosts and those that affect commuting and foraging (including prey availability). A02 - Conversion from one type of agricultural land use to another (excluding drainage and burning), A05 - Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.), A21 - Use of plant protection chemicals in agriculture, B02 - Conversion to other types of forests including monocultures, B05 - Logging without replanting or natural regrowth: P. pipistrellus forage across a mosaic of habitat types, though they are frequently found foraging over pasture, especially at sites with grazing livestock (Fuentes-Montemayor et al, 2013). Agricultural and forestry practices that remove or simplify these habitats or affect the biomass of insect prey could negatively affect populations. D01 - Wind, wave and tidal power, including infrastructure and E01 - Roads, paths railroads and related infrastructure (e.g. bridges, viaducts, tunnels): This is one of the primary species killed at wind turbine sites and in road collisions. It is unclear whether the scale of casualties is sufficient to impact on local populations, Mathews et al., (2016) and Fensome & Mathews, (2016). F02 - Construction or modification (of e.g. housing and settlements) in existing urban or recreational areas, F24 - Residential or recreational activities and structures generating noise, light, heat or other forms of pollution and F25 - Industrial or commercial activities and structures generating noise, light, heat or other forms of pollution: Although, roosts are strictly protected through legislation a variable number of licences are issued every year permitting exclusion, destruction and damage. Changes to building regulations and efforts to make buildings more energy-efficient have tended to reduce their accessibility and thermal suitability for bats. Breathable roofing membranes also pose a threat of entanglement, (Mitchell-Jones, 2010 and Waring et al., 2014). A31 (Drainage) & J01 (Mixed source pollution) are considered low pressures and consequently not formally reported in line with JNCC guidance. Threats: Threats can also generally be divided into those that affect roosts and those that affect commuting and foraging (including prey availability). A02 - Conversion from one type of agricultural land use to another (excluding drainage and burning), A05 - Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.), A21 - Use of plant protection chemicals in agriculture, B02 - Conversion to other types of forests including monocultures, B05 - Logging without replanting or natural regrowth: P. pipistrellus forage across a mosaic of habitat types, though they are frequently found foraging over pasture, especially at sites with grazing livestock (Fuentes-Montemayor et al, 2013). Agricultural and forestry practices that remove or simplify these habitats or affect the biomass of insect prey could negatively affect populations and this is a situation that is unlikely to change in the future. D01 - Wind, wave and tidal power, including infrastructure and E01 - Roads, paths railroads and related infrastructure (e.g. bridges, viaducts, tunnels): This is one of the primary species killed at wind turbine sites and in road collisions. It is unclear whether the scale of casualties is sufficient to impact on local populations, Mathews et al., (2016) and Fensome & Mathews, (2016). Construction of new turbines along with the continued widening/realignment of existing linear infrastructure projects in the future is likely to continue. F02 - Construction or modification (of e.g. housing and settlements) in existing urban or recreational areas, F24 - Residential or recreational activities and structures generating noise, light, heat or other forms of pollution and F25 - Industrial or commercial activities and structures generating noise, light, heat or other forms of pollution: Although, roosts are strictly protected through legislation a variable number of licences are issued every year permitting exclusion, destruction and damage. Changes to building regulations and efforts to make buildings more energy-efficient have tended to reduce their accessibility and thermal suitability for bats. Breathable roofing membranes also pose a threat of entanglement, (Mitchell-Jones, 2010 and Waring et al, 2014). The rate of developments and building works which may impact bats is likely to increase in the future. A31 (Drainage) & J01 (Mixed source pollution) are considered

	low level threats and consequently not formally reported in line with JNCC guidance.
9.5 List of main conservation measures	CC03 - Adapt/manage renewable energy installation, facilities and operation: Guidance is being developed and will shortly be available from the agencies to help planners, developers and ecological consultants to consider the potential effects of onshore wind energy developments on bats. Guidance is available for land managers on how to manage their land holdings for bats. Addressing D01. CE01 - Reduce impact of transport operation and infrastructure: Road design construction and operation need to take into account the likely impact on bats, for example, in relation to the provision of safe crossing structures and the loss and severance of bat habitat and lighting. Addressing E01. CF09 - Reduce/eliminate noise, light, heat or other forms pollution from industrial, commercial, residential and recreational areas and activities, CF01 - Manage conversion of land for construction and development of infrastructures, CB01 - Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation, CB04 - Adapt/manage reforestation and forest regeneration, CF05 - Reduce/eliminate diffuse pollution to surface or ground waters from industrial, commercial, residential and recreational areas and activities: Legal and administrative measures continue to be required to ensure that the protection provided by the legislation is effective. If roosts are to be destroyed, damaged or lost due to development, adequate mitigation/compensation methods must be put in place to maintain the favourable conservation status of the species. Addressing F02, F24 and F05. CF05 - Reduce/eliminate diffuse pollution to surface or ground waters from industrial, commercial, residential and recreational areas and activities, CA01 - Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land, CA16 - Other measures related to agricultural practices, CA02 - Restore small landscape features on agricultural land: Agricultural related measures are implimented via agri-environmental schemes. Addressing A05, A02, A21, J01, A31.
10.1 Future prospects of parameters	10.1a Future prospects of Range. The future prospects of range for this species is considered to be overall stable in Wales. P. pipistrellus is widely distributed throughout Wales, with gaps in distribution probably reflecting an absence of survey data rather than an absence of the species therefore the future range is likely to remain as overall stable 10.1b Future prospects of Population The future prospects of population for this species is considered to be very positive in Wales. P. pipistrellus is a common species within Wales and trend data from the NBMP indicates that there has been a statistically significant increase in P. pipistrellus between 2006-2017 at a GB level and this is assumed to also be reflected in Wales. There is no reason to believe that this increase will not continue in the future. 10.1c Future prospects of Habitat of the species The future prospects of habitat of the species is considered to be overall stable in Wales. P. pipistrellus is widely distributed throughout Wales, currently available habitat is considered sufficient to maintain the species at FCS and there are no specific wide scale threats to the habitat for the species. There is therefore no reason to assume that the current situation will not continue over the next 12 years.