Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A

2019-2024

Conservation status assessment for the species:

S1317 - Nathusius' pipistrelle

(*Pipistrellus nathusii*)

Wales

Cyfoeth Naturiol Cymru
Natural Resources Wales

JNCC

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This report was produced by JNCC in collaboration with Natural Resources Wales.

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Important note - Please read

- The information in this document represents the Wales Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural Resources Wales, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the species are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country 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 National Site Network coverage for Annex II species).

Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the JNCC website.

Assessment Summary: Nathusius' pipistrelle

Distribution Map

Range Map

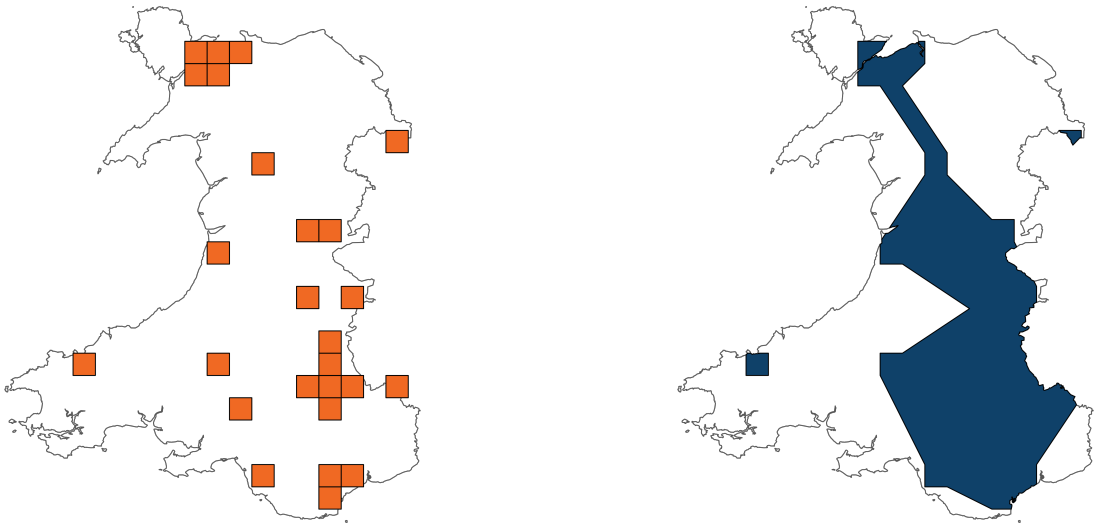

Figure 1: Wales distribution and range map for S1317 - Nathusius' pipistrelle (*Pipistrellus nathusii*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available species records within the current reporting period.

Table 1: Table summarising the conservation status for S1317 - Nathusius' pipistrelle (*Pipistrellus nathusii*). Overall conservation status for species is based on assessments of range, population, habitat for the species, and future prospects.

Overall Conservation Status (see section 11)

Unknown (XX)

Breakdown of Overall Conservation Status

Range (see section 5)	**Unknown (XX)**
Population (see section 6)	**Unknown (XX)**
Habitat for the species (see section 7)	**Unknown (XX)**
Future prospects (see section 10)	**Unknown (XX)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Species code	S1317
1.3 Species scientific name	*Pipistrellus nathusii*
1.4 Alternative species scientific name	
1.5 Common name	Nathusius' pipistrelle
Annex(es)	IV

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1995-2024
2.3 Distribution map	Yes
2.4 Distribution map; Method used	Based mainly on extrapolation from a limited amount of data

2.5 Additional information

No additional information

3. Information related to Annex V Species

3.1 Is the species taken in the wild / exploited?

3.2 What measures have been taken?

a) Regulations regarding access to property
b) Temporary or local prohibition on the taking of specimens in the wild and exploitation
c) Regulation of the periods and/or methods of taking specimens
d) Application of hunting and fishing rules which take account of the conservation of such populations

e) Establishment of a system of licences for taking specimens or of quotas

f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens

g) Breeding in captivity of animal species as well as artificial propagation of plant species

Other measures

Other measures description

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

a) Unit

Table 2: Quantity taken from the wild during the reporting period (see 3.3a for units). For species with defined hunting seasons, Season 1 refers to 2018/2019 (autumn 2018 to spring 2019), and Season 6 to 2023/2024. For species without hunting seasons, data are reported by calendar year: Year 1 is 2019, and Year 6 is 2024.

	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
b) Minimum	-	-	-	-	-	-
c) Maximum	-	-	-	-	-	-
d) Unknown	-	-	-	-	-	-

3.4: Hunting bag or quantity taken in the wild; Method used

3.5: Additional information

No additional information

Biogeographical Level

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs	ATL

4.2 Sources of information

See section 14 References

5. Range

5.1 Surface area (km²)	8,453.51
5.2 Short-term trend; Period	
5.3 Short-term trend; Direction	Unknown
5.4 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	Yes
e) Type of estimate	
f) Rate of decrease	
5.5 Short-term trend; Method used	Insufficient or no data available
5.6 Long-term trend; Period	
5.7 Long-term trend; Direction	
5.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	

5.9 Long-term trend; Method used	

5.10 Favourable Reference Range (FRR)

a) Area (km²)	
b) Pre-defined increment	
c) Unknown	Yes
d) Method used	
e) Quality of information	

5.11 Change and reason for change in surface area of range

a) Change	Yes
b) Genuine change	No
c) Improved knowledge or more accurate data	Yes
d) Different method	Yes
e) No information	No
f) Other reason	
g) Main reason	Use of different method

5.12 Additional information

No additional information

6. Population

6.1 Year or period	2019-2024

6.2 Population size (in reporting unit)

a) Unit	number of map 1x1 km grid cells
b) Minimum	
c) Maximum	
d) Best single value	91

6.3 Type of estimate	Best estimate
6.4 Quality of extrapolation to reporting unit	

6.5 Additional population size (using population unit other than reporting unit)

a) Unit	number of individuals
b) Minimum	
c) Maximum	
d) Best single value	
e) Type of estimate	
6.6 Population size; Method used	Insufficient or no data available
6.7 Short-term trend; Period	2013-2024
6.8 Short-term trend; Direction	Unknown
6.9 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
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	
d) Rate of decrease	
6.14 Long-term trend; Method used	

6.15 Favourable Reference Population (FRP)

ai) Population size	
aii) Unit	
b) Pre-defined increment	
c) Unknown	Yes
d) Method used	
e) Quality of information	

6.16 Change and reason for change in population size

a) Change	No
b) Genuine change	
c) Improved knowledge or more accurate data	
d) Different method	
e) No information	
f) Other reason	
g) Main reason	

6.17 Additional information

No additional information

6.18 Age structure, mortality and reproduction deviation	Unknown

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat (for long-term survival)

a) Is area of occupied habitat sufficient?	Unknown
b) Is quality of occupied habitat sufficient?	Unknown
c) If No or Unknown, is there a sufficiently large area of unoccupied habitat of suitable quality?	Unknown

7.2 Sufficiency of area and quality of occupied habitat; Method used

a) Sufficiency of area of occupied habitat; Method used	Insufficient or no data available
b) Sufficiency of quality of occupied habitat; Method used	Insufficient or no data available

7.3 Short-term trend; Period	2013-2024
7.4 Short-term trend; Direction	Unknown
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

No additional information

8. Main pressures

8.1 Characterisation of pressures

Table 3: Pressures affecting the species, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PA02: Conversion from one type of agricultural land use to another (excluding drainage and burning)	Ongoing and likely to be in the future	Medium (M)
PA04: Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.)	Ongoing and likely to be in the future	Medium (M)
PA14: Use of plant protection chemicals in agriculture	Ongoing and likely to be in the future	Medium (M)
PA22: Drainage for use as agricultural land	Ongoing and likely to be in the future	High (H)
PA21: Active abstraction of water for agriculture	Ongoing and likely to be in the future	High (H)
PB02: Conversion from one type of forestry land use to another	Ongoing and likely to be in the future	Medium (M)
PB09: Clear-cutting, removal of all trees	Ongoing and likely to be in the future	Medium (M)
PD01: Wind, wave and tidal power (including infrastructure)	Ongoing and likely to be in the future	High (H)
PE01: Roads, paths, railroads and related infrastructure	Ongoing and likely to be in the future	High (H)

8.2 Sources of information

See section 14 References

8.3 Additional information

No 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 National Site Network
9.4 Response to measures	Long-term results (after 2036)

9.5 List of main conservation measures

Table 4: Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
MA01: Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land	Medium (M)
MA02: Restore small landscape features on agricultural land	Medium (M)
MA09: Manage the use of natural and synthetic fertilisers as well as chemicals in agricultural for plant and animal production	Medium (M)
MA13: Manage agricultural drainage and water abstraction (incl. the restoration of drained or hydrologically altered habitats)	Medium (M)
MB01: Prevent conversion of (semi-) natural habitats into forests and of (semi-) natural forests into intensive forest plantation	High (H)
MB04: Adapt/manage reforestation and forest regeneration	Medium (M)
MB05: Adapt/change forest management and exploitation practices	High (H)
MC03: Adapt/manage renewable energy installation, facilities and operation (excl. hydropower and abstraction activities)	High (H)
ME01: Reduce impact of transport operation and infrastructure	High (H)

9.6 Additional information

No additional information

10. Future prospects

10.1a Future trends of parameters

ai) Range	Unknown
bi) Population	Unknown
ci) Habitat for the species	Overall stable

10.1b Future prospects of parameters

aii) Range	Unknown
bii) Population	Unknown
cii) Habitat for the species	Unknown

10.2 Additional information

No additional information

11. Conclusions

11.1 Range	Unknown (XX)
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	

11.7 Change and reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.8 Additional information

No additional information

12. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network

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 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction
12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used

12.8 Additional information

No additional information

13. Complementary information

13.1 Justification of percentage thresholds for trends

No justification information

13.2 Trans-boundary assessment

No trans-boundary assessment information

13.2 Other relevant information

No other relevant information

14. References

Biogeographical and marine regions

4.2 Sources of information

Aderyn, LERC Wales' Biodiversity Information & Reporting Database. Data downloads under NRW licence 2024.

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Dietz C, Helversen OV, Nill D. 2009. Bats of Britain, Europe & Northwest Africa. A & C Black Publishers Ltd., London.

Hutterer R, Ivanova T, Meyer-Cords C, Rodrigues L. 2005. Bat Migrations in Europe: A review of banding data and literature. Federal Agency for Nature Conservation, Bonn.

Lundy M, Montgomery I, Russ J. 2010. Climate change-linked range expansion of Nathusius' pipistrelle bat, Pipistrellus nathusii (Keyserling & Blasius, 1839). J. Biogeogr. 37(12): 2232-2242.

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, T.J. 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, T.M.J & Carlin, C. 2009. TIN051 Bats and onshore wind turbines Interim Guidance. 2nd edition, February 2012.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: S1317 – Nathusius' pipistrelle bat (Pipistrellus nathusii).

Richardson P. 2000. Distribution atlas of bats in Britain and Ireland 1980-1999. Bat Conservation Trust, London.

Rodrigues L, Bach L, Dubourg-Savage MJ, Karapandza D, Kovac D, Kervyn T, Dekker J, Kepel A, Bach P, Collins J, Harbusch C, Park K, Micevski B, Minderman J. 2015. Guidelines for consideration of bats in wind farm projects - Revision 2014. EUROBATS Publication Series No. 6. UNEP/EUROBATS Secretariat, Bonn, Germany, 133pp.

Russ J, Briffa M, Montgomery W. 2003. Seasonal patterns in activity and habitat use by bats (Pipistrellus spp. and Nyctalus leisleri) in Northern Ireland, determined using a driven transect. Journal of Zoology 259, 289-299.

Russ JM, Hutson AM, Montgomery WI, Racey PA, Speakman JR. 2001. The status of Nathusius' pipistrelle (Pipistrellus nathusii Keyserling & Blasius, 1839) in the British Isles. Journal of Zoology, 254, 91–100.

Russ JM, Jones G, Racey PA, Hutson AM. 2008. Nathusius' pipistrelle Pipistrellus nathusii. Pp 351-355 In: Harris, S & Yalden, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp

Rydell J, Bach L, Dubourg-Savage MJ, Green M, Rodrigues L, Hedenström A. 2010. Bat mortality at wind turbines in northwestern Europe. Acta Chiropterologica 12, 261-274.

Speakman JR, Racey PA, Catto CMC, Webb PI, Swift SM, Burnett AM. 1991. Minimum summer populations and densities of bats in N.E. Scotland, near the northern borders of their distributions. Journal of Zoology, 225(2), 327-345.

Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
2.2: Year or Period	This time period has been selected as distribution has been calculated using data from Mathews et al. 2018, and updated with recent records from Aderyn.
2.4: Distribution map; Method used	Distribution map is based on validated records. Prior to 1980 there are very few records of Nathusius' pipistrelle in Britain and until the late 1990s the species was considered a migrant winter visitor (Speakman et al. 1991) when a small number of maternity colonies were found in Northern Ireland and two juveniles were caught in South-East England. While it is clearly a highly migratory species, moving south-westwards from northern continental Europe in autumn (Hutterer et al. 2005) low numbers of maternity roosts are known in Eastern England and Northern Ireland, and thus the UK population consists of both residents and migrants. There are scattered records for the species across Wales, however, no maternity sites have been found in Wales and its status in Wales is unclear. The recent improvements in bat detector technologies have led to an increase in records of the species, along with a heightened profile and species focused projects.
5.3: Short-term trend; Direction	See 5.11 Although mapping may display small changes in range since the 2019 report (based on Mathews et al. 2018), there is no evidence of a genuine change to range for this species. Any minor expansions are due to surveyor effort/ additional data rather than genuine change.
5.11: Change and reason for change in surface area of range	In the 2019 Article 17 report, the area of land (including unsuitable habitat) contained within the range was given as 6,921 km2 (Mathews et al. 2018). Mathews et al. 2018, applied an alpha hull value of 20km 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 this reporting round, and also the 2013 and 2007 reports, whereby a 45km alpha hull value was used for all species with a starting range unit of individual 10km squares. To produce the range maps JNCC were provided with any additional 10km x 10km grid squares where bats roost records were located between 2018 and 2024, along with the 2019 Article 17 report data. No grid squares have been removed as there have not been any widespread surveys that could indicate loss of a species from any area. The resulting updated maps produced by JNCC indicate a range of 8,453 km2. The increase in range indicated is likely mainly due to a change in methodology and some additional records rather than a genuine change in range. It is important to note that for this species range represents all records, most of which are acoustic. Given the species great mobility, the range may not correspond with the roost range (Mathews et al. 2018).
6.5: Additional population size	Unit = Individuals Best Single Value = Unknown Mathews et al. 2018 was unable to give an updated population estimate. They state 'There is insufficient information on roosts density or counts to enable an estimate of population size to be derived. No alternative sources of information (e.g. from population genetics) are available for the UK.' The population in the UK is at least partly migratory, though the proportion of residents to migrants is unknown. No

	maternity roosts are known in Wales and it is not clear if there is a resident population. As there are no data on which to base population estimates for Wales it must be reported as unknown with regard to the unit of 'individuals'.
6.8: Short-term trend; Direction	No trend data is available for Wales and therefore unknown has been selected. In Wales several bat groups continue to survey for Nathusius' pipistrelle. Despite many detector records, it was only in 2024 that an individual was trapped in North Wales as part of a targeted survey. A low number have been caught in the south where detector records are commoner.
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	There is no new information or sufficient data available on which to base a population estimate for Wales. Currently there is no evidence of breeding within Wales.
7.1: Sufficiency of area and quality of occupied habitat	Area of occupied habitat 6,920 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. It is however unknown if this is sufficient as we know very little about the species in Wales. Quality of occupied habitat Unknown. We do not have a reliable measure of the quality of the occupied habitat. Without trend data it is also difficult to infer if habitat is of sufficient quality to maintain FCS. Nathusius' pipistrelle bats are heavily associated with large water bodies. It feeds in riparian habitats, broadleaved and mixed woodland and parkland. Occasionally found in

	farmland, but nearly always near running or still water. This is a generalist species, using a mosaic of habitats and in order to obtain an estimate of actual occupied habitat, 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.
7.2: Sufficiency of area and quality of occupied habitat; Methods used	The habitable area has been taken from 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. The habitable area within the range is noted as 6,920 km2, but it is unlikely that the entirety of this area forms suitable habitat. To obtain a proper estimate of suitable habitat used by the species, 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.
8.1: Characterisation of pressures	Pressures: PD01: Wind, wave and tidal power (including infrastructure): This is the only species in GB with clear evidence of considerable movement between GB and continental Europe. Within Wales movement between Ireland and mainland UK is also possible. Recent capture and ringing effort has shown movement of the species between SW England and the Netherlands and between Latvia and Estonia and SE England. In addition, records of Nathusius'

pipistrelle bat have been made in the English Channel using acoustic detectors installed on passenger ferries (Mathews et al., 2018). Stable isotope analyses of the fur samples collected as part of the Nathusius' Pipistrelle Project have provided evidence that at least part of the British population is derived from the far east of Europe (Barlow et al., 2016). The species is known to be at high risk of collision with wind turbines based on evidence elsewhere in Europe (Rodrigues et al. 2015), though data in GB is lacking as few sites in coastal or other high-risk areas have been monitored and data is also lacking on migratory routes (Mathews et al, 2018). Development of wind power will continue into the future.

PE01: Roads, paths, railroads and related infrastructure, PA22: Drainage for use as agricultural land, PA21: Active abstraction of water for agriculture, PA02: Conversion from one type of agricultural land use to another (excluding drainage and burning), PA04: Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.), PA14: Use of plant protection chemicals in agriculture, PB02: Conversion from one type of forestry land use to another, PB09: Clear-cutting, removal of all trees:

Most pressures and threats can generally be divided into those that affect commuting and foraging (including prey availability). The species routinely forages in deciduous mixed woodlands, damp lowland forests, riparian forests but also coniferous forests, park landscapes and often over water bodies (Dietz et al, 2009). Roosting sites in Europe are primarily within trees, though the species adopts bat and bird boxes and can be found within residential buildings. This behaviour would seem to occur in England as well and could be expected in Wales. Linear infrastructure may impact commuting and foraging habitats. Agricultural and forestry practices that remove or simplify

	these habitats or affect the biomass of insect prey could negatively affect populations.
9.5: List of main conservation measures	Legal and administrative measures continue to be required to ensure that the protection provided by the legislation is effective. MC03: Adapt/manage renewable energy installation, facilities and operation (excl. hydropower and abstraction activities)Guidance has been developed by agencies to help planners, developers and ecological consultants to consider the potential effects of onshore wind energy developments on bats. Further guidance to clarify and tighten expectations from developments is required and is in preparation. MB01: Prevent conversion of (semi-) natural habitats into forests and of (semi-) natural forests into intensive forest plantation, MB05: Adapt/change forest management and exploitation practices, ME01: Reduce impact of transport operation and infrastructure, MA01: Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land, MA02: Restore small landscape features on agricultural land, MA09: Manage the use of natural and synthetic fertilisers as well as chemicals in agricultural for plant and animal production, MA13: Manage agricultural drainage and water abstraction (incl. the restoration of drained or hydrologically altered habitats), MB04: Adapt/manage reforestation and forest regeneration: The species routinely forages in deciduous mixed woodlands, damp lowland forests, riparian forests but also coniferous forests, park landscapes and often over water bodies (Dietz et al, 2009). Roosting sites in Europe are primarily within trees, though the species adopts bat and bird boxes and can be found within residential buildings. Environmental land management schemes in the agricultural and forestry sectors are now widely used to ensure these habitats are well-managed and provide appropriate insect food at the correct time of year. Planning

	at landscape scale is required to conserve commuting routes and foraging areas.
10.1: Future trends and prospects of parameters	Future prospects of range The future prospects of range for this species is considered to be unknown in Wales. The species range is fragmented in Wales; this may be due to under recording. Reported range may increase within the next 12 years however this may be the result of better data rather than actual range increase. Lundy et al. 2010 indicated that climate change will be a positive driver of change through alteration of migration routes and summer/wintering grounds however it is unclear if this will be observed within the next 12 years. Future prospects of population The future prospects of population for this species is considered to be unknown in Wales. There is insufficient data to draw trends for Wales. With additional survey effort further records of the species may be located however the only GB maternity roosts so far located are eastern England and resident population increase is typically driven by maternity roost success. Future prospects of habitat for species The future prospects of habitat of the species is considered to be overall stable in Wales. We do not have a reliable measure of the quality of the occupied habitat, however P. nathusii uses a mosaic of habitats and there are no specific identified drivers of change across these habitats. There is therefore no reason to assume that the current status of habitat will not continue over the next 12 years.
11.1: Range	Conclusion on Range reached because:(i) the short-term trend direction in Range surface area is unknown; and (ii) the Favourable Reference Range is unknown.
11.2: Population	Conclusion on Population reached because:(i) the short-term trend direction in Population size is unknown; (ii) the

	Favourable Reference Population is unknown and iii) reproduction, mortality and age structure does not have data available.
11.3: Habitat for the species	Conclusion on Habitat for the species reached because: (i) it is unknown whether the area of occupied habitat is sufficiently large for long-term survival (ii) it is unknown whether the quality of occupied habitat is suitable for the long-term survival of the species; and iii) it is unknown whether there is a sufficiently large area of occupied and unoccupied habitat of suitable quality for long term survival (iv) the short-term trend in area of habitat is unknown.
11.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are unknown; (ii) the Future prospects for Population are unknown; and (iii) the Future prospects for Habitat for the species are unknown.
11.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Unknown because two or more of the conclusions are Unknown.
6.15: Favourable Reference Population (FRP)	The UK-level FRV for population was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current population trends and abundance.
5.10: Favourable Reference Range (FRR)	The UK-level FRV for range was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. Following expert review, a Wales-level FRV was derived based on distribution and trend evidence specific to Wales, rather than adopting the UK-level value.

	The revised FRV has been set as in Wales this species is rare and data deficient and therefore we recommend a country level FRR of 'unknown'.