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

2019-2024

Conservation status assessment for the species:

S1312 - Noctule

(*Nyctalus noctula*)

Wales

Cyfoeth Naturiol Cymru
Natural Resources Wales

JNCC

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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: Noctule

Distribution Map

Range Map

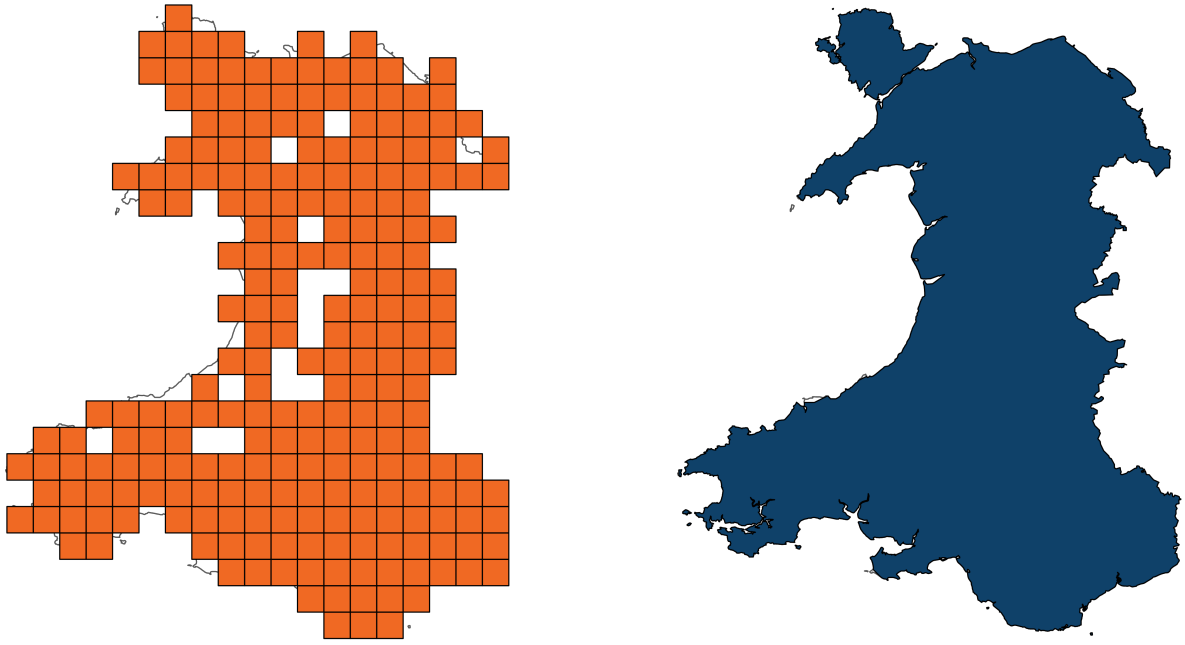

Figure 1: Wales distribution and range map for S1312 - Noctule (*Nyctalus noctula*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available species records within the current reporting period.

Table 1: Table summarising the conservation status for S1312 - Noctule (*Nyctalus noctula*). 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)

Favourable (FV)

Breakdown of Overall Conservation Status

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

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Species code	S1312
1.3 Species scientific name	*Nyctalus noctula*
1.4 Alternative species scientific name	
1.5 Common name	Noctule
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)	20,806.94
5.2 Short-term trend; Period	2013-2024
5.3 Short-term trend; Direction	Stable
5.4 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
5.5 Short-term trend; Method used	Based mainly on expert opinion with very limited data
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	Current range is less than 2% smaller than the FRR
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate

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	No
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	759
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	2,880
c) Maximum	304,000
d) Best single value	91,900
e) Type of estimate	Best estimate
6.6 Population size; Method used	Based mainly on extrapolation from a limited amount of data
6.7 Short-term trend; Period	2017-2022
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	Current population is less than 5% smaller than the FRP
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate

6.16 Change and reason for change in population size

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

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

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

a) Sufficiency of area of occupied habitat; Method used	Based mainly on extrapolation from a limited amount of data
b) Sufficiency of quality of occupied habitat; Method used	Based mainly on expert opinion with very limited data
7.3 Short-term trend; Period	2013-2024
7.4 Short-term trend; Direction	Stable
7.5 Short-term trend; Method used	Based mainly on expert opinion with very limited data
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
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)
PA05: Abandonment of management/use of grasslands and other agricultural and agroforestry systems (e.g. cessation of grazing, mowing or traditional farming)	Ongoing and likely to be in the future	Medium (M)
PA15: Use of other pest control methods in agriculture (excluding tillage)	Ongoing and likely to be in the future	Medium (M)
PB02: Conversion from one type of forestry land use to another	Ongoing and likely to be in the future	Medium (M)
PB07: Removal of dead and dying trees (including debris)	Ongoing and likely to be in the future	High (H)
PB08: Removal of old trees (excluding dead or dying trees)	Ongoing and likely to be in the future	High (H)
PB09: Clear-cutting, removal of all trees	Ongoing and likely to be in the future	High (H)
PB14: Forest management reducing old growth forests	Ongoing and likely to be in the future	High (H)
PD01: Wind, wave and tidal power (including infrastructure)	Ongoing and likely to be in the future	High (H)
PF02: Construction or modification (e.g. of housing and settlements) in existing built-up areas	Ongoing and likely to be in the future	Medium (M)

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
MA02: Restore small landscape features on agricultural land	High (H)
MA14: Other measures related to agricultural practices	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	High (H)
MB05: Adapt/change forest management and exploitation practices	Medium (M)
MB06: Stop forest management and exploitation practices	High (H)
MC03: Adapt/manage renewable energy installation, facilities and operation (excl. hydropower and abstraction activities)	High (H)
MF10: Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities	Medium (M)

9.6 Additional information

No additional information

10. Future prospects

10.1a Future trends of parameters

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

10.1b Future prospects of parameters

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

10.2 Additional information

No additional information

11. Conclusions

11.1 Range	Favourable (FV)
11.2 Population	Favourable (FV)
11.3 Habitat for the species	Favourable (FV)
11.4 Future prospects	Favourable (FV)
11.5 Overall assessment of Conservation Status	Favourable (FV)
11.6 Overall trend in Conservation Status	Stable

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.

Arnold H. 1993. Atlas of Mammals in Britain. Institute of Terrestrial Ecology Research Publication no. 6, London.

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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, Kiefer A. 2016. Bats of Britain and Europe. Bloomsbury, United Kingdom.

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.

Jones G. 1995. Flight performance, echolocation and foraging behaviour in noctule bats Nyctalus noctula. Journal of Zoology, 237(2), 303-312.

Lehnert LS, Kramer-Schadt S, Schonborn S, Lindecke O, Niermann I, Voigt CC. 2014. Wind farm facilities in Germany kill noctule bats from near and far. PLoS One, 9(8), e103106.

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.

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Mackie IJ, Racey PA. 2008. Noctule (Nyctalus noctula). Pp 338-342 In Harris S, Yalden DW. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.

Mitchell-Jones TMJ, 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: S1312 – Noctule bat (Nyctalus noctula).

Petit E, Mayer F. 2000. A population genetic analysis of migration: the case of the noctule bat (Nyctalus noctula). Molecular Ecology, 9(6), 683-690.

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.

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.

Sluiter JW, van Heerdt PF. 1966. Seasonal habits of the noctule bat (Nycalus noctula). Archives Neérlandaises de Zoologic, 16, 423-439.

Speakman JR. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review, 21, 123-142.

Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
2.2: Year or Period	The 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	The noctule is considered a widespread species in Wales. Although there has been no structured distribution surveys, this species is easy to record due to the relatively long distance over which their calls can be heard (≥30m) and their high altitude flight in open space (Dietz and Keifer 2016). Although there is considerable overlap in the call parameters with N. leiseri and Eptesicus serotinus when in clutter they are relatively easy to identify in open space, where they are typically recorded.
5.3: Short-term trend; Direction	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 widespread 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 20,627 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 20,806 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.
6.5: Additional population size	Based on Mathews et al. 2018 methodology: Unit = Individuals Minimum = 2,880 Maximum = 304,000 Best Single Value: 91,900 There is no update of this estimate from the previous Article 17 reporting round. 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 habitats within the range excluding montane habitats since these are unlikely to provide suitable locations for roosts. Because of the landscape-wide movements of bats and their dependency on a matrix of habitats and roosting locations, it is not currently possible to make more refined estimates of the area of suitable habitat within the range.

Details of calculations are as follows:

Adult bat density (bats/km2)

Median density=[(median n. bats/roost†) x (p♀‡) x (n roosts/typical km2 average habitat)]x 2

Lower limit=[(lower plausible n. bats/roost) x (p♀min) x (plausible n. roosts/typical km2 poor habitat)]x 2

Upper limit = [(upper plausible n. bats/roost) x (p♀max) x (plausible n. roosts/typical km2 good habitat)]x 2

† roost is typical maternity roost in the pre-parturition period. n. is number of adults.

‡ p♀: proportion female. p♀min and p♀max are lowest and highest plausible proportions of adult females in typical maternity roost

Population size

Total Adult Population = Median adult density (bats/km2) x total habitable area within range (km2)

Lower Limit=Lower limit adult density (bats/km2) x total habitable area within range (km2)

Upper Limit=Upper limit adult density (bats/km2) x total habitable area within range (km2)

The density of maternity roosts across Wales is uncertain as it is highly likely large numbers of roosts are unreported. Further, a colony may make use of multiple roosts and switch between them, meaning that there is likely to be high variability in counts at individual sites. There is a lack information available from the literature indicating that that there is little or no understanding of noctule bat roost (or colony) density. No information is available on the sex ratio

	within maternity colonies pre-breeding. The calculations presented by Mathews et al. 2018 are based on an assumption that all individuals in recorded sites are female. If half of the individuals are male, this would halve the estimates presented. Given the large effect on the total population size, further research is required. The main population size estimates provided by Mathews et al. (2018) are an order of magnitude greater than those in Harris et al. 1995 and the 2013 Article 17 Report (Natural Resources Wales. 2013). Nevertheless, the values previously estimated do fall within the plausible limits. The estimates by Harris et al. 1995 were based on expert judgement and extrapolation from limited field surveys. The 1995 population estimates were based on very limited information, extrapolating from known size of Pipistrellus pipistrellus colonies in relation to size of N. noctula colonies following the methods described by Speakman (1991), and taking into account the relative frequency of species in bats submitted for rabies testing. Harris et al. 1995 reliability rating of the estimate was 3, meaning that the error margins around the estimate are thought to be +/- 50%.
6.7: Short-term trend; Period	Based on Bat Conservation Trust (2024) NBMP short-term period of 5 years.
6.8: Short-term trend; Direction	No trend data is available for Wales and therefore unknown has been selected. The National Bat Monitoring Programme roost count data (BCT 2024) states that the population of noctule in Great Britain is considered to have been stable since 2017. It is monitored through the Field Survey and is a loud echolocator with identifiable call, so very suitable for structured bat detector surveys. The main issue is maintaining adequate sampling intensity to show trends at the UK level and increasing the number of sites monitored to provide country level trend data. There has been increased survey effort due to surveys for developments and more systematic survey methodology using advanced bat detectors capable of recording bat calls.

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	The best available population estimate remains unchanged as Mathews et al. 2018 has not been updated, however reported 1km x 1km grid squares have changed due to changes in methodology and surveyor effort between reporting time periods. While Welsh trends cannot be drawn based on NBMP data, GB trends are likely to be reflective of those in Wales and show short-term (since 2017) increase of 0.1% (95% CI -14.3% to 16.5%)although this is not significantly significant and is reported as 'stable'.
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 Although we do not have a reliable measure of the quality of the occupied habitat the GB population trend for the species is stable and therefore the area and quality of occupied habitat is likely to be sufficient to maintain the species at FCS and this is also likely to be the situation in Wales. N. Noctula requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. Boye & Dietz (2005) provide a good overview of this species' habitat requirements. Foraging areas may be in several parts of the landscape, all of which host a high abundance of insect fauna and offer the space needed by the fast flying N. Noctula. Large water bodies, valley pastures and broadleaved woodland are preferred, but the bats also

	forage in other habitats and even above harvested fields and urban street lights. The species emerges early, particularly during lactation (Jones 1995, Mackie and Racey 2007), and is therefore sometimes thought to benefit from artificial night lighting. However there is no evidence of higher noctule activity in areas that are lit compared with dark control sites (Mathews et al. 2015). N. Noctula can easily make foraging flights more than 10 kilometres away from the roost site, up to a maximum of 20 kilometres. However, the main activity of a maternity colony is within a radius of about 2 kilometres from the colony's roost. Summer roosts are predominantly in woodlands and parks. Deciduous and flood forests with a high percentage of old and dead trees are of highest importance. Roosts are mostly in woodpecker holes in broad-leaved trees. Maternity colonies use several roost sites in a network, which means that the individuals often change from one roost to another. Associations of males, which change their roost sites on average every second or third day, need at least eight tree holes suitable for roosting per square kilometre of forest. Besides tree holes, the bats also roost in bat boxes (flat constructions are preferred) and small spaces behind wall coverings of buildings or in houses. Winter roosts are mainly in forest and park trees, but large hibernation colonies also roost in buildings or rock crevices. Tree holes must provide a lot of space for a large number of bats in order to be a good hibernaculum for the species. Additional information on habitat quality would improve the confidence in this assessment.
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, has been used as a proxy for occupied habitat. The habitable area within the range is noted as 20,600 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	PB02: Conversion from one type of forestry land use to another, PB07: Removal of dead and dying trees (including debris), PB08: Removal of old trees (excluding dead or dying trees), PB09: Clear-cutting, removal of all trees, PB14: Forest management reducing old growth forests: The noctule is predominantly a tree-roosting species, so would be vulnerable to loss of roost opportunities in dead, dying or damaged trees. PA04: Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.), PA05: Abandonment of management/use of grasslands and other agricultural and agroforestry systems (e.g. cessation of grazing, mowing or traditional farming), PA15: Use of other pest control methods in agriculture (excluding tillage): Pressures that affect the biomass of flying insects, such as the widespread use of pesticides, deterioration of water quality or the removal of uncultivated land, such as hedgerows or woodland, could also affect this species. PF02: Construction or modification (e.g. of housing and settlements) in existing built-up areas, PD01: Wind, wave and tidal power (including infrastructure): Although primarily associated with tree roosts, this species occasionally roosts in man-made structures including dwellings making it vulnerable to issues connected to development. In addition, this species is one that is considered to be at high risk from fatalities associated with

	wind farms from studies in the European Continent (Rodrigues et al. 2015) and the impact at the population level was also considered to be high, Mitchell-Jones and Carlin, 2009.
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 and that protected habitats for the species are managed appropriately. MB01: Prevent conversion of (semi-) natural habitats into forests and of (semi-) natural forests into intensive forest plantation, MB04: Adapt/manage reforestation and forest regeneration, MB06: Stop forest management and exploitation practices, MB05: Adapt/change forest management and exploitation practices, MA02: Restore small landscape features on agricultural land, MA14: Other measures related to agricultural practices: Noctule bats hunt over pastures and in deciduous or mixed woodland. Environmental land management schemes in the agricultural and forestry sectors are now widely used to ensure the protection of roosts/potential roosting locations and these habitats in the vicinity of roosts 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. MC03: Adapt/manage renewable energy installation, facilities and operation (excl. hydropower and abstraction activities), MF10: Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities: Wind turbine design and operation needs to take into account the likely impact on bats, e.g. in relation to mortality and habitat fragmentation.

10.1: Future trends and prospects of parameters	Future prospects of range The future prospects of range for this species is considered to be overall stable in Wales. N. noctula range currently covers all of Wales and there is no reason to assume that this will contract in the future. Future prospects of population The future prospects of population for this species is considered to be overall stable in Wales. Although there is insufficient data to draw trends for Wales it is accepted that the species is relatively common and widespread and there is no reason to assume that Wales is not currently following the national GB trend. There is no reason to assume this will not continue into the future. Future prospects of habitat of the species The future prospects of habitat of the species is considered to be overall stable in Wales. N. noctula uses a mosaic of habitats; 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 reported trend 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 stable; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range.
11.2: Population	Conclusion on Population reached because:(i) the short-term trend direction in Population size is unknown; (ii) the current Population size is approximately equal to the Favourable Reference Population; 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) the area of occupied habitat is sufficiently large for the long-

	term survival of the species (ii) the quality of occupied habitat is suitable for the long-term survival of the species; and (iii) the short-term trend in area of habitat is stable.
11.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (ii) the Future prospects for Population are good; and (iii) the Future prospects for Habitat for the species are good.
11.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Favourable because all of the conclusions are Favourable.
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. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current distribution and trends.