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

2019-2024

Conservation status assessment for the species:

S1331 - Leisler's bat

(*Nyctalus leisleri*)

Wales

Cyfoeth Naturiol Cymru
Natural Resources Wales

JNCC

For further information please contact:

Natural Resources Wales, Welsh Government Offices, Cathays Park, King Edward VII Avenue, Cardiff, CF10 3NQ. https://naturalresources.wales

JNCC, Quay House, 2 East Station Road, Fletton Quays, Peterborough, PE2 8YY. https://jncc.gov.uk

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

This document should be cited as:

Natural Resources Wales and JNCC. (2026). Conservation status assessment for the species: S1331 Leisler's bat (*Nyctalus leisleri*).

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: Leisler's bat

Distribution Map

Range Map

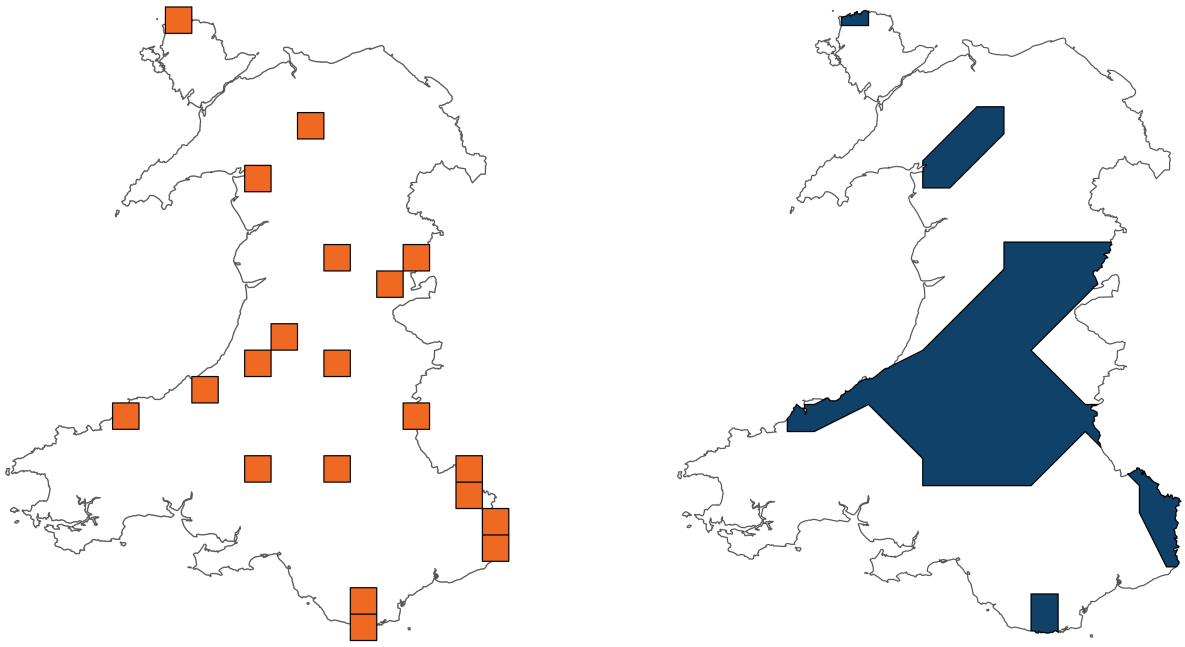

Figure 1: Wales distribution and range map for S1331 - Leisler's bat (*Nyctalus leisleri*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available species records within the current reporting period.

Table 1: Table summarising the conservation status for S1331 - Leisler's bat (*Nyctalus leisleri*). 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	S1331
1.3 Species scientific name	*Nyctalus leisleri*
1.4 Alternative species scientific name	
1.5 Common name	Leisler's bat
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)	5,979.4
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	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	
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	No
d) Different method	Yes
e) No information	No
f) Other reason	No
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	45

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	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	
c) Unknown	Yes
d) Method used	
e) Quality of information	

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	No
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?	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
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)
MA03: Maintain existing extensive agricultural practices and agricultural landscape features	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)
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)
MA14: Other measures related to agricultural practices	Medium (M)
MB05: Adapt/change forest management and exploitation practices	Medium (M)
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	Unknown
ci) Habitat for the species	Unknown

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.

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

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, 2024. The National Bat Monitoring Programme Annual Report 2023. Bat Conservation Trust, London. Available at https://www.bats.org.uk/our-work/national-bat-monitoring-programme/reports/nbmp-annual-report

Battersby J. (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/ Tracking Mammals Partnership.

Boye P, Dietz M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough.

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.

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.

Mathews F, Roche N, Aughney T, Jones N, Day J, Baker J, Langton S. 2015. Barriers and benefits: implications of artificial night-lighting for the distribution of common bats in Britain and Ireland. Phil. Trans. R. Soc. B 370, 20140124.

McAney K. 2006. A conservation plan for Irish vesper bats, Irish Wildlife Manuals, National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

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: S1331 – Leisler's bat (Nyctalus Leisleri).

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, Hopkirk A, Lucas T, Gueguen S, Boston E. In Prep. Roost selection, activity and dispersal of Leisler's bat, Nyctalus leisleri (Kuhl, 1818) during the pre-hibernal and hibernal periods.

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.

Shiel CB, Jones G, Walters D. 2008. Leisler's bat. Nyctalus leisleri. Pp 334-338. In: Harris, S. & Yalden, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.

Shiel C, Fairley J. 1999. Evening emergence of two nursery colonies of Leisler's bat (Nyctalus leisleri) in Ireland. Journal of Zoology 247, 439-447.

Shiel C, Shiel R, Fairley J. 1999. Seasonal changes in the foraging behaviour of Leisler's bats (Nyctalus leisleri) in Ireland as revealed by radio-telemetry. Journal of Zoology 249, 347-358.

Waters D, Jones G, Furlong M. 1999. Foraging ecology of Leisler's bat (Nyctalus leisleri) at two sites in southern Britain. Journal of Zoology 249, 173-180.

Whitby D, Binet A. 2020 Bechstein's Bat Survey of NRW Owned Woodland. NRW Evidence Report No: 517. 65pp

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	Nyctalus leisleri is a rare bat throughout Wales, though with a concentration of records in the south-east. Leisler's bat is considered migratory in Europe and transient individuals have been widely recorded. Its status in Wales is unclear. Historically, this is a poorly-recorded species, though the widespread use of broadband bat detectors has significantly increased the number of records and extended the known distribution of Leisler's bat in the UK. However, while the species makes loud echolocation calls that are readily recorded on modern broadband bat detectors, there is considerable overlap in the call parameters of the other Nyctaloid bats, N. noctula and Eptesicus serotinus. Many acoustic records are not supported by regional records of bats identified in the hand (or by molecular analysis of droppings), raising doubts about their validity. Leisler's bat is considered migratory in Europe, but thought to undergo only local dispersal within the UK (Shiel et al. 1999). Acoustic records of the species have been obtained at coastal sites whilst looking for evidence of bat migrations, suggesting the possibility of some movement between Ireland and Wales.
5.3: Short-term trend; Direction	Given the significant change to the method for range determination, and suspected patterns of change in geographic occurrence, along with significant data deficiencies, the short-term range trend for this species is unknown.
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 6,740 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 5,979 km2. This decrease in range is likely mainly due to a change in methodology rather than a genuine change in range.
6.5: Additional population size	There is no update of this estimate from the previous Article 17 reporting round. Mathews et al. 2018 was unable to give an updated population estimate. They state 'Given the absence of data on roost density it was not possible to compute a population estimate. It is considered unlikely that most maternity roosts in Britain are known and therefore it was also not possible to make a total count. No population genetics study has been conducted, and therefore no alternative metrics of population size were available.' The estimate by Harris et al. 1995 (population estimate for Wales = zero) was based largely on expert opinion, taking

	into account the ratio of Leisler's roosts to pipistrelle roosts or the ratio of Leisler's bats to serotines. The estimate was considered to have poor reliability. The estimated population of 0 for Wales given in Harris is clearly too low, now that the presence of the species has been confirmed, although no roost records have yet been made, there are no data on which to base population estimates so population for Wales must be reported as unknown with regard to the unit of 'individuals'.
6.6: Population size; Method used	The reported figure in 6.2 is based on occupied 1km grid squares and is therefore reliant on existing records.
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 NBMP was equally unable to draw trends at a GB level.
6.10: Short-term trend; Method used	A reliable trend cannot be drawn for Wales due to insufficient available data.
7.1: Sufficiency of area and quality of occupied habitat	Occupied habitat area 6,740 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. Occupied area quality 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. Leisler's bats forage in woodland, pasture and riparian habitats and along woodland margins, even close to major roads and around street lights. It has been seen foraging over beaches and sand dunes and shows no clear habitat associations (Shiel and Fairley 1999, Shiel et al. 1999,

	Waters et al. 1999, Mathews et al. 2015). The average home range area can approach 18 square km and foraging flights can be up to 13km from the roost. Leisler's bats are not as dependent on tree roosts as N. noctula and use a wide range of buildings. Leisler's have occasionally been found in caves, tunnels and buildings during the hibernation period (McAney 2006), but tree roosts are likely to be utilised the most with roosts in deciduous trees being used almost exclusively after November in Ireland (Russ et al. in prep). 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 6,740 km2, but it is unlikely that the entirety of this area forms suitable habitat. Leisler's bat shows no clear habitat associations. 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: 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, PB02 - Conversion from one type of forestry land use to another: Leisler's bat is primarily a tree-roosting species, so would be vulnerable to loss of roost opportunities in dead, dying or damaged trees.

PF02 - Construction or modification (e.g. of housing and settlements) in existing built-up areas: The species also utilises buildings as maternity sites, so are vulnerable to roost loss through the demolition or alteration of buildings or changes to construction methods (Mitchell- Jones, 2010).

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 and changes in water quality, also affect this species.

PA04 - Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.): Despite the fact that Leisler's bats will forage high above the ground, when light levels are high on emergence from roosts, they will follow linear landscape elements such as hedgerows (Russ et al., 2003), indicating the importance of these features within the landscape. Therefore the loss of these features might be expected to impact on the species.

PD01 - Wind, wave and tidal power, including infrastructure: Leisler's bats have a high risk of collision with wind turbines as they fly and forage in open areas and are known to be killed by wind turbines in Europe (Rodrigues et al. 2014, Rydell et al. 2010).

9.5: List of main conservation measures	MA02 Restore small landscape features on agricultural land, 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, MA03: Maintain existing extensive agricultural practices and agricultural landscape features, MA14: Other measures related to agricultural practices, MB05 Adapt/change forest management and exploitation practices: Leisler's bats hunt over cattle-grazed pasture and in deciduous or mixed woodland. Roosts are often within trees. Environmental land management schemes in the agricultural and forestry sectors are now widely used to ensure 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: 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. 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 stable in Wales. N. lesleri range is restricted in Wales; no specific short-term drivers for expansion or contraction have been identified and therefore there is no reason to assume that range will vary significantly within the next 12 years unless previously unknown populations are located. 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 however no specific short-term drivers for population change have been identified. Future prospects of habitat of the species The future prospects of habitat of the species is considered to be Unknown in Wales. We do not have a reliable measure of the quality of the occupied habitat, or clear understanding of why their range is so restricted in Wales despite N. leisleri using a mosaic of habitats.
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'.