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

Fourth Report by the United Kingdom under Article 17

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

Supporting documentation for the
conservation status assessment for the species:

S1331 - Leisler's bat (*Nyctalus leisleri*)

NORTHERN IRELAND

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to the UK Report on the conservation status of this species, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this species is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species) and/or (iv) the field was only relevant at UK-level (sections 9 Future prospects and 10 Conclusions).
- For technical reasons, the country-level future trends for Range, Population and Habitat for the species are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-level reporting information for all habitats and species is also available in spreadsheet format.

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

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

NATIONAL LEVEL

1. General information

1.1 Member State	**UK (Northern Ireland information only)**
1.2 Species code	**1331**
1.3 Species scientific name	**Nyctalus leisleri**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Leisler's bat

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1994-2018
2.3 Distribution map	Yes
2.4 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
2.5 Additional maps	No

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

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

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

a) Unit

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

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

3.5. Additional information

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

4.2 Sources of information

Lundy, M. & Montgomery, I. (2010) Summer habitat associations of bats between riparian landscapes and within riparian areas, European Journal of Wildlife Research, 56(3): 385-394.
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Russ, J.M. & Montgomery, W.I. (2002). Habitat association of bats in Northern Ireland: implications for conservation. Biological Conservation. 108: 49-58.
Lundy, M.G., Buckley, D.J., Boston, E.S.M., Scott, D.D., Prodohl, P.A., Marnell, F.,Teeling, E.C., Montgomery, W.I., (2012). Behavioural context of multi-scale species distribution models assessed by radio-tracking. Basic Appl. Ecol., http://dx.doi.org/10.1016/j.baae.2011.1012.1003.
Hutson, A.M., Mickleburgh, S.P., and Racey, P.A. (comp.). (2001). Microchiropteran bats: global status survey and conservation action plan. IUCN/SSC Chiroptera Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK. x + 258 pp.
Hutson, A.M., Mickleburgh, S.P. & Racey, P.A. (comp.). (2001) Global Status Survey and Conservation Action Plan Microchiropteran Bats, The Nature Conservation Bureau Ltd, ISBN: 2-8317-0595-9, http://www.uni-giessen.de/faculties/f08/departments/tsz/mammalian-ecology-group/downloads/iucn-microchiroptera
Russ, J.M. (1999). The Microchiroptera of Northern Ireland: community composition, habitat associations and ultrasound. Unpublished Ph.D thesis. The Queen's University of Belfast.
Russ, J.M., Briffa M. & Montgomery, W.I. (2003). Seasonal patterns in activity

and habitat use by Pipistrellus spp. and Nyctalus leisleri in Northern Ireland, determined using a driving transect.Journal of Zoology. 259: 289-299.
Boston, E. (2010) A size comparison of Irish Leisler's bats (Nyctalus leisleri Kuhl, 1818) with those in continental Europe. Irish Naturalists' Journal 31 No.1: p65.
Hopkirk, A. & Russ. J. (2004). Pre-hibernal and hibernal activity and dispersal patterns of Leisler's bats Nyctalus leisleri in Northern Ireland. A report for the Environment and Heritage Service, Northern Ireland.
Shiel, C.B. & Fairley, J.S. (1998). Activity of Leislers's bat vNyctalus leisleri in the field in south-east County Wexford, as reveled by a bat detector. Biology and Environment, Vol. 98B, No. 2. 105-112.
Shiel, C.B. & Fairley, J.S. (2000). Evening emergence of two nursey colonies of Leislers's bat Nyctalus leisleri (Kuhl, 1817) in Ireland. Myotis 37: 41-53.
Shiel, C.B., Duverge, P., Smiddy, P & Fairley, J.S. (1998) Analysis of the diet of Leislers's bat (Nyctalus leisleri) in Ireland with some comparative analyses from Englanf and Germany. Journal of Zoology, 246: 417-425.
Shiel, C.B., Shiel, R.E. & Fairley, J.S. (1999) Seasonal changes in the foraging behaviour of Leislers's bat (Nyctalus leisleri) in Ireland as revealed by radio-telemetry. Journal of Zoology, 249: 347-358.
Boston, E. (2016) A report on Article 17 reporting for Northern Ireland on the eight bat species listed in annex IV of the UK Habitats Directive, unpublished report compiled for CEDaR
Mathews, F., Richardson, S., Lintott, P., and Hosken, D. 2016. Understanding the Risk to European Protected Species (bats) at Onshore Wind Turbine Sites to inform Risk Management. University of Exeter. Report to DEFRA.
Roche, N., Langton, S. and Aughney T. (2012) Car-based bat monitoring in Ireland 2003-2011. Irish Wildlife Manuals, No. 60. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland.
Aughney, T., Roche., N., & Langton, S. (2016) Irish Bat Monitoring Schemes: Annual Report for 2015. www.batconservationireland.org.

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period		
5.3 Short-term trend Direction	Stable (0)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used		
5.6 Long-term trend Period		
5.7 Long-term trend Direction		
5.8 Long-term trend Magnitude	a) Minimum	b) Maximum
5.9 Long-term trend Method used		
5.10 Favourable reference range	a) Area (km²) b) Operator c) Unknown d) Method	
5.11 Change and reason for change in surface area of range	No change The change is mainly due to:	
5.12 Additional information		

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6. Population

6.1 Year or period	1994-2018	
6.2 Population size (in reporting unit)	a) Unit	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	433
6.3 Type of estimate	Best estimate	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	14000
	c) Maximum	24000
	d) Best single value	
6.5 Type of estimate	Best estimate	
6.6 Population size Method used	Complete survey or a statistically robust estimate	
6.7 Short-term trend Period	2003-2018	
6.8 Short-term trend Direction	Increasing (+)	
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.10 Short-term trend Method used	Complete survey or a statistically robust estimate	
6.11 Long-term trend Period		
6.12 Long-term trend Direction		
6.13 Long-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.14 Long-term trend Method used		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size	
	b) Operator	
	c) Unknown	
	d) Method	
6.16 Change and reason for change in population size	Genuine change	
	The change is mainly due to:	Genuine change
6.17 Additional information		

7. Habitat for the species

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7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (to maintain the species at FCS)?	Yes
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on extrapolation from a limited amount of data	
7.3 Short-term trend Period	2007-2018	
7.4 Short-term trend Direction	Uncertain (u)	
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		

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	H
Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05)	M
Use of other pest control methods in agriculture (excluding tillage) (A23)	M
Removal of dead and dying trees, including debris (B07)	M
Clear-cutting, removal of all trees (B09)	H
Wind, wave and tidal power, including infrastructure (D01)	M
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02)	H
Residential or recreational activities and structures generating noise, light, heat or other forms of pollution (F24)	M
Tree surgery, felling/removal of roadside trees and vegetation for public safety (H05)	M

Threat	Ranking
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	H
Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05)	M
Use of other pest control methods in agriculture (excluding tillage) (A23)	M

Removal of dead and dying trees, including debris (B07)	M
Clear-cutting, removal of all trees (B09)	H
Wind, wave and tidal power, including infrastructure (D01)	M
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02)	H
Residential or recreational activities and structures generating noise, light, heat or other forms of pollution (F24)	M
Tree surgery, felling/removal of roadside trees and vegetation for public safety (H05)	M

8.2 Sources of information

8.3 Additional information

9. Conservation measures

9.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified and taken
9.2 Main purpose of the measures taken		Maintain the current range, population and/or habitat for the species
9.3 Location of the measures taken		Both inside and outside Natura 2000
9.4 Response to the measures		Medium-term results (within the next two reporting periods, 2019-2030)

9.5 List of main conservation measures

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters

a) Range
b) Population
c) Habitat of the species

10.2 Additional information

11. Conclusions

11.1. Range

11.2. Population

11.3. Habitat for the species

11.4. Future prospects

11.5 Overall assessment of Conservation Status

11.6 Overall trend in Conservation Status

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11.7 Change and reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status No change The change is mainly due to: b) Overall trend in conservation status No change The change is mainly due to:
11.8 Additional information	

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

12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)	a) Unit b) Minimum c) Maximum d) Best single value
12.2 Type of estimate	
12.3 Population size inside the network Method used	
12.4 Short-term trend of population size within the network Direction	
12.5 Short-term trend of population size within the network Method used	
12.6 Additional information	

13. Complementary information

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

Distribution Map

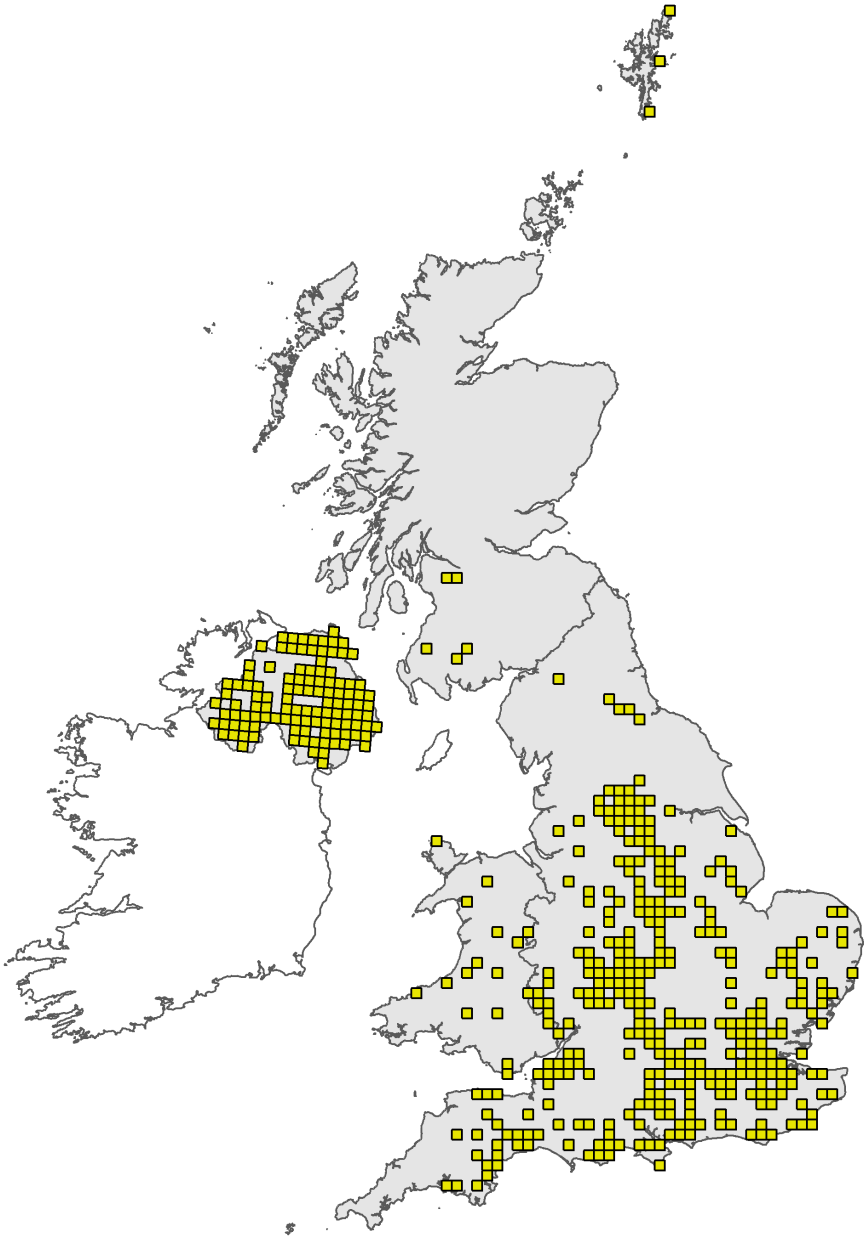

Figure 1: UK distribution map for S1331 - Leisler's bat (*Nyctalus leisleri*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

Range Map

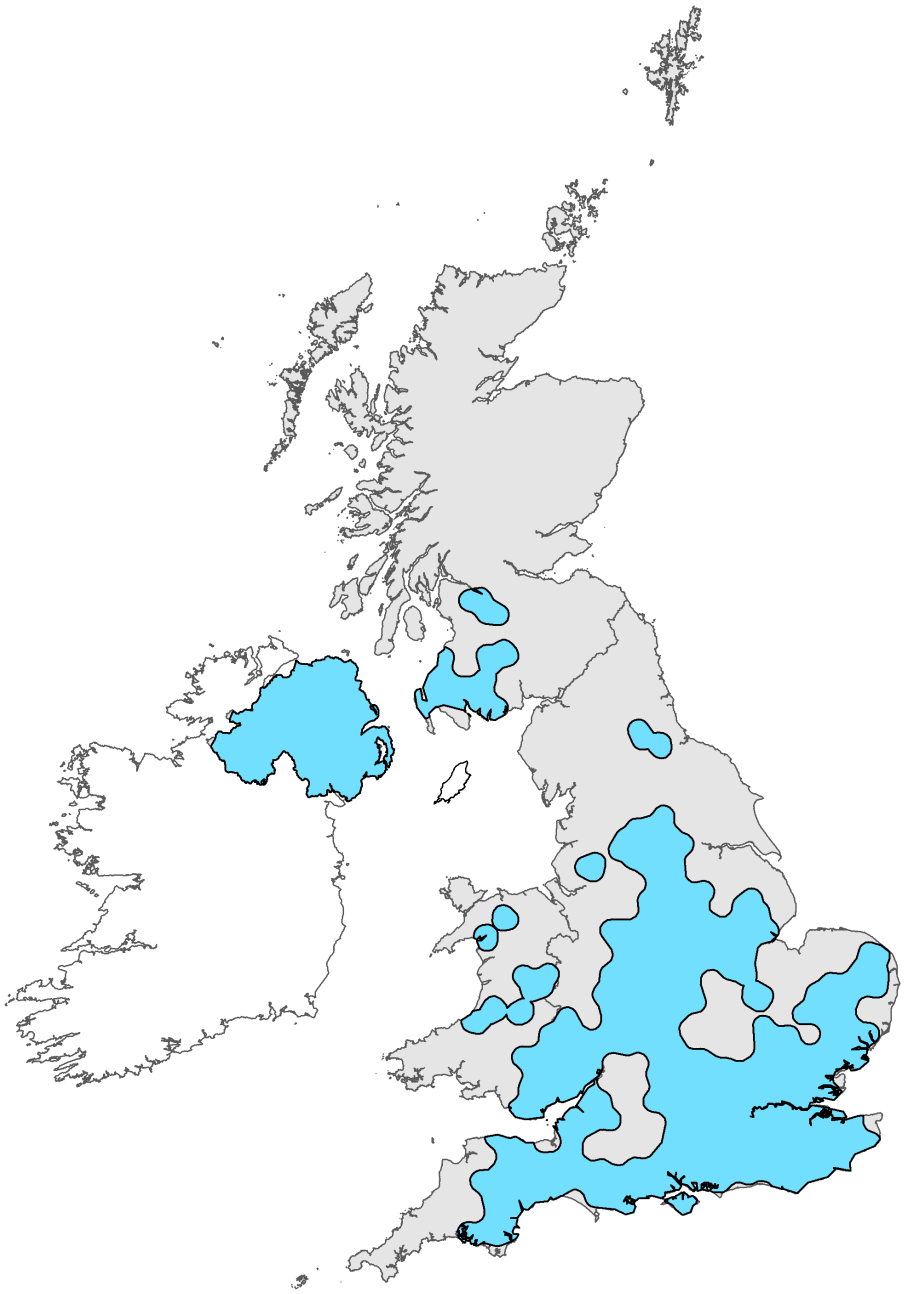

Figure 2: UK range map for S1331 - Leisler's bat (*Nyctalus leisleri*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

Explanatory Notes

Species name: Nyctalus leisleri (1331) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	There is good distributional data available for this species in Northern Ireland and it is likely that the range of Leisler's bat covers the entire surface of Ireland and is stable.
5.5 Short term trend; Method used	There is good distributional data available for this species in Northern Ireland from ongoing record collection since 1985 by the Northern Ireland Bat Group (NIBG), Bat Conservation Trust (BCT) and Bat Conservation Ireland (BCI). This species is also monitored as part of the All-Ireland Car-Based Bat Monitoring Scheme (Roche et al. 2009, 2012) which has run annually since 2003. It is likely that there a number of additional incidental records from other sources that have not been added to the species recording databases. The omission of these records may influence the interpretation of the overall distribution of the species within this report.
5.11 Change and reason for change in surface area of range	Although insufficient monitoring data is available to conclusively determine whether an actual change in range surface area has occurred within this reporting period, given the population increase, it is unlikely that range will have declined - hence assessed as 'no' change in the surface area of range.
6.1 Year or Period	Due to inconsistent recording, population estimates (1x1km squares presence) for all bat species have been based upon available data from the period 1994-2018.
6.5 Type of estimate	Based upon estimate used in 2013 Report. Since all Leisler's bat roosts are not known it is not possible to count the population based on a complete census. Therefore, the population of mature (volant) individuals has been estimated using data from the Car-based Bat Monitoring Scheme data. This population estimate is calculated based on the detection distance for echolocating Leisler's bats (60-80m) and the approximate area that is detectable. The area of Northern Ireland is divided by the approximate detectable area and multiplied by the probability of detecting a Leisler's bat along any given roadside in Northern Ireland (2007-2012) on any given evening, from Car-based Bat Monitoring data. The minimum end of the range (14,000) is based on the wider detection range (80m) while the maximum end (24,000) is based on the closer detection range (60m). This population estimate uses a number of assumptions which may be only approximately correct and it could be improved with more detailed information on size and shape of detectable areas, better knowledge of Leisler's bat habitat use around roadsides and other factors. However, it may be considered a starting point from which to refine future estimates. See Roche et al. (2012) for further details.
6.6 Population size; Method used	Regarding systematic surveys, this species has been monitored annually on an All-Ireland basis through the Car-based Bat Monitoring Scheme since 2003. In addition, records have been used from sources such as NI Bat Group, Bat Conservation Trust and Bat Conservation Ireland generally through databases managed by CEDaR, NI Bat Group, Bat Conservation Ireland and the National Biodiversity Data Centre. It is thought there are additional incidental records from other sources that have not been added to these databases. The absence of these records will affect the interpretation of the overall distribution of the species within this report.
6.16 Change and reason for change in population size	There has been an increase in the population and it is thought to represent a genuine increase in the population. However, the reasons behind this increase are poorly understood. Bat Conservation Ireland have hypothesised that the species might be recovering from past declines or responding to increases in woodland cover and / or climate change.

7.4 Short term trend; Direction	Leisler's bats can occupy a variety of habitats. There is little information on habitat associations of the species available. Given that there have been no systematic surveys carried out across Leisler's bat sites in all of the possible habitats to assess their condition in relation to soprano pipistrelles requirements, we cannot infer any directional trend between this period and the last for 'habitat for the species' with confidence. Therefore the short-term trend direction for the habitat for the species has been reported as 'uncertain'.
8.1 Characterisation of pressures/ threats	Leisler's bats forage over lakes, meadows and above tree crowns. This bat is more commonly found above parkland or foraging in large circles over edges such as the interface between broadleaf woodland and open fields. Hence, Pressures and Threats are largely similar to other bat species, and include agricultural practices, tree and woodland management, construction, etc - i.e. A02: Conversion from one type of agricultural land use to another (excluding drainage and burning); A05: Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) A23: Use of other pest control methods in agriculture (excluding tillage); B07: Removal of dead and dying trees, including debris; B09: Clear-cutting, removal of all trees; D01: Wind, wave and tidal power, including infrastructure; E01: Roads, paths railroads and related infrastructure (e.g. bridges, viaducts, tunnels); F02: Construction or modification (of e.g. housing and settlements) in existing urban or recreational areas; F24: Residential or recreational activities and structures generating noise, light, heat or other forms of pollution; and H05: Tree surgery, felling/removal of roadside trees and vegetation for public safety.
10.1 Future prospects of parameters	The future prospects for the habitat for the species have been reported as 'unknown' because there is insufficient monitoring data available to accurately interpret habitat trends. Trends in the habitat for the species between this period and the last cannot be identified with confidence, due to the quality and amount of data available.