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:

S1317 - Nathusius' pipistrelle (*Pipistrellus nathusii*)

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	**1317**
1.3 Species scientific name	**Pipistrellus nathusii**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Nathusius' pipistrelle

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.
Lundy, M.G., Aughney, T., Montgomery, W.I., and Roche, N. (2011). Landscape conservation for Irish bats & species: specific roosting characteristics. Bat Conservation Ireland. Unpublished.
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.
Lundy, M., Montgomery, I. and Russ, J. (2010). Climate change-linked range expansion of Nathusius' pipistrelles bat, Pipistrellus nathusii (Keyserling & Blasius, 1839). Journal of Biogeography. 37: 2232-2242.
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	Uncertain (u)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used		
5.6 Long-term trend Period		
5.7 Long-term trend Direction		
5.8 Long-term trend Magnitude	a) Minimum	b) Maximum
5.9 Long-term trend Method used		
5.10 Favourable reference range	a) Area (km²) b) Operator c) Unknown d) Method	
5.11 Change and reason for change in surface area of range	No change The change is mainly due to:	
5.12 Additional information		

6. Population

6.1 Year or period	1996-2018	
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	79
6.3 Type of estimate	Best estimate	

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6.4 Additional population size (using population unit other than reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	10000
	c) Maximum	18000
	d) Best single value	
6.5 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	2007-2018	
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	Based mainly on extrapolation from a limited amount of data	
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

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)?	Unknown
	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	Insufficient or no data available	
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		

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7.9 Additional information

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05)	H
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	M
Use of other pest control methods in agriculture (excluding tillage) (A23)	H
Conversion to other types of forests including monocultures (B02)	H
Clear-cutting, removal of all trees (B09)	H
Wind, wave and tidal power, including infrastructure (D01)	M
Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02)	H
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Tree surgery, felling/removal of roadside trees and vegetation for public safety (H05)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M

Threat	Ranking
Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05)	H
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	M
Use of other pest control methods in agriculture (excluding tillage) (A23)	H
Conversion to other types of forests including monocultures (B02)	H
Clear-cutting, removal of all trees (B09)	H
Wind, wave and tidal power, including infrastructure (D01)	M
Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02)	H
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Tree surgery, felling/removal of roadside trees and vegetation for public safety (H05)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M

8.2 Sources of information

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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

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

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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

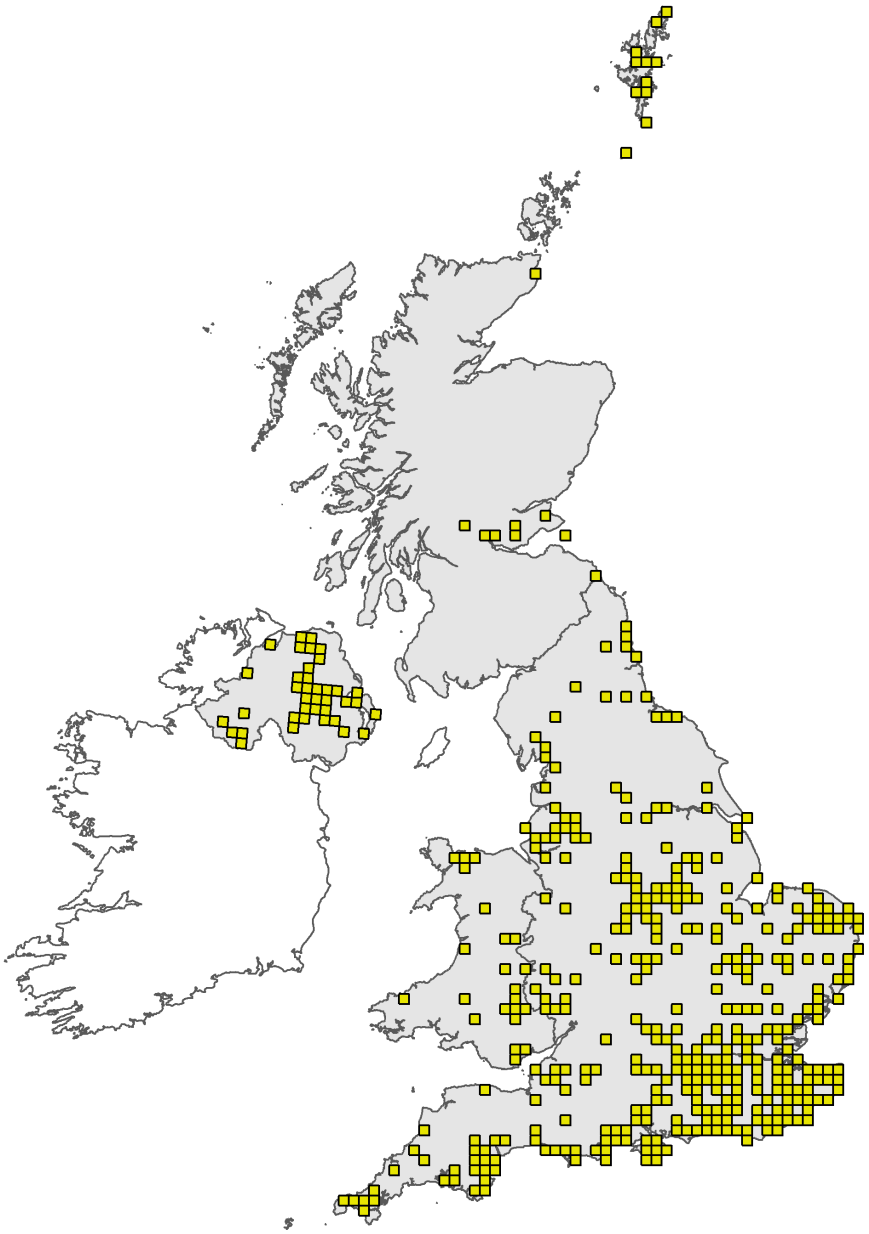

Figure 1: UK distribution map for S1317 - Nathusius' pipistrelle (*Pipistrellus nathusii*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

Range Map

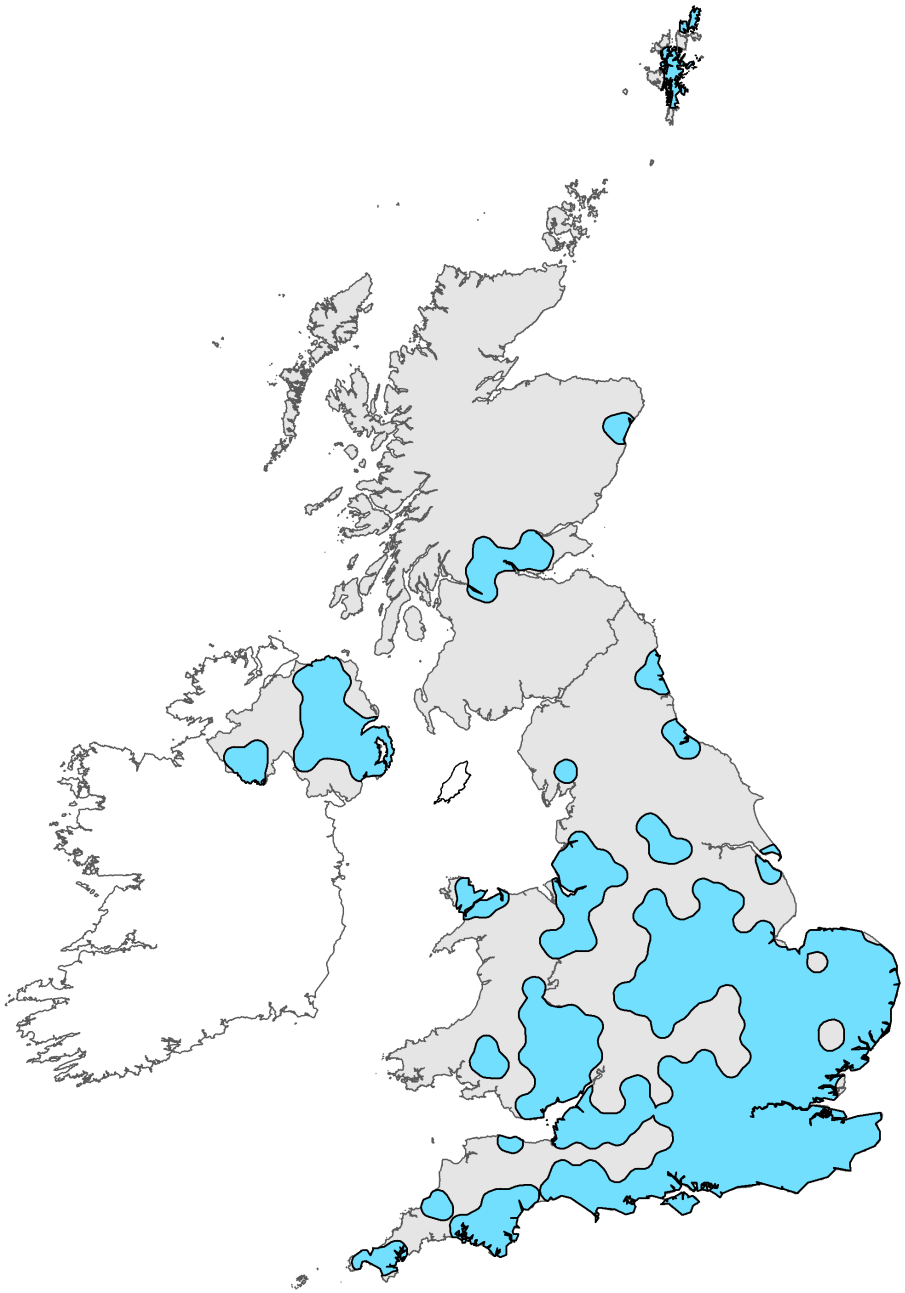

Figure 2: UK range map for S1317 - Nathusius' pipistrelle (*Pipistrellus nathusii*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

Explanatory Notes

Species name: Pipistrellus nathusii (1317) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	The short-term trend direction for the range has been reported as 'uncertain' because there is insufficient monitoring data available to accurately interpret range trends. We cannot infer any directional population trend between this period and the last with confidence, due to the quality and amount of data available.
5.5 Short term trend; Method used	There are much fewer records of Nathusius' pipistrelle than for most other bat species in Northern Ireland. They were only discovered in Northern Ireland in 1996, with the first maternity colony described in Co. Antrim in 1998 (Russ et al. 1998). There may be additional incidental records from other sources that have not been added to existing databases. The absence of these will influence the assessment of species' range and population.
5.11 Change and reason for change in surface area of range	We have stated that there has been 'no' change in the surface area of this species' range because there is insufficient monitoring data available to determine whether an actual change in range surface area has occurred within this reporting period.
6.1 Year or Period	Population estimates (1x1km squares presence) based upon data from 1994-2018, due to generally poor recording of bat species.
6.5 Type of estimate	Based upon estimate used in 2013 Report. Since all Nathusius' pipistrelle 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 using two different methods. Both methods are based on the probability of detecting a Nathusius' pipistrelle at any roadside location at any given time and a perceived detection range for echolocating Nathusius' pipistrelle bats of 30-40m. One method uses the approximate area that is detectable (Area Method). The area of Northern Ireland is then divided by the approximate detectable area and multiplied by the probability of detecting a Nathusius' pipistrelle bat along any given roadside in Northern Ireland (2007-2012) on any given evening, from Car-based Bat Monitoring data. The alternative method assumes that pipistrelles fly mainly along linear features (Linear Method). This uses the total length of linear features in Northern Ireland, divided by approximate detectable distance for the species (20-30m), and multiplied by the probability of detecting a Nathusius' pipistrelle from Car-based Bat Monitoring Scheme data. It is worth noting that the Nathusius' pipistrelle is rarely encountered during the Car-based Bat Monitoring Scheme, therefore, even the probability estimates are unreliable. The minimum end of the range (10,000) is based on the Linear Method and wider detection range (40m) while the maximum end (18,000) is based the Area Method using the closer detection range (30m). These population estimates use a number of assumptions which may be only approximately correct. They could be improved with more detailed information on size and shape of detectable areas, greater knowledge of Nathusius' pipistrelle 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	There are much fewer records of Nathusius' pipistrelle than for other bat species in Northern Ireland. They were only discovered in Northern Ireland in 1996, with the first maternity colony described in Co. Antrim in 1998 (Russ et al. 1998). They are recorded as part of the All-Ireland Car-Based Bat Monitoring Scheme which has run annually since 2003. Te Nathusius pipistrelle is the least encountered species from these surveys; however an increase has been observed by BCI since 2005 to 2011. Additional records used in this report include those collected by NI Bat Group, Bat Conservation Trust and Bat Conservation Ireland, which are are available from databases managed by CEDaR, NI Bat Group, Bat Conservation Ireland and the National Biodiversity Data Centre. It is thought there are additional records from other sources that have not been added to these databases. The omission of these records will affect the interpretation of the overall range distribution and population estimates of the species within this report.
6.16 Change and reason for change in population size	This species of bat is one of the rarest in Northern Ireland. Although there are very few records of this species, records (which were previously concentrated around Lough Neagh) have been steadily increasing and this increase is thought to represent a genuine increase in the population.
7.1 Sufficiency of area and quality of occupied habitat	We have stated 'unknown' because although the species is known to be associated with (and restricted to) natural wetlands and water bodies, there is little data on their habitat use, diet, behaviour and roost preference in Northern Ireland. Habitat area estimation was calculated for this species for the 2013 Report using maximum entropy modelling by Lundy et al. (2011). However, given the paucity of records the model had relatively low predictive capability compared to those of the other species.
7.4 Short term trend; Direction	The short-term trend direction for the habitat for the species has been reported as 'uncertain' because there is insufficient monitoring data available to accurately interpret trends of habitat for the species. We cannot infer any directional trend between this period and the last with confidence, due to the quality and amount of data available.
8.1 Characterisation of pressures/ threats	The species forages along rides, paths, woodland edge (deciduous and coniferous), meadows and also over water at half tree height. In comparison to the other two pipistrelle species, Nathusius' pipistrelle tends to avoid built up areas. Hence there are many similarities with other bat species in terms of Threats and Pressures - 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); B02: Conversion to other types of forests including monocultures; B09: Clear-cutting, removal of all trees; D01: Wind, wave and tidal power, including infrastructure; F02: Construction or modification (of e.g. housing and settlements) in existing urban or recreational areas; E01: Roads, paths railroads and related infrastructure (e.g. bridges, viaducts, tunnels); H05: Tree surgery, felling/removal of roadside trees and vegetation for public safety; J01: Mixed source pollution to surface and ground waters (limnic and terrestrial).
10.1 Future prospects of parameters	The future prospects for the range and habitat for species have been reported as 'unknown' because there is insufficient monitoring data available to accurately interpret trends. We cannot infer any trend between this period and the last with confidence, due to the quality and amount of data available.