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:

S1334 - Mountain hare (*Lepus timidus*)

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	**1334**
1.3 Species scientific name	**Lepus timidus**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Mountain hare

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

Dingerkus, S.K. (1997) The distribution and ecology of the Irish hare L. t. hibernicus in Northern Ireland. Unpublished PhD Thesis. The Queen's University of Belfast, Belfast, UK.
Dingerkus, S. K. & Montgomery, W. I. (2002) A review of the status and decline in abundance of the Irish Hare (Lepus timidus hibernicus) in Northern Ireland, https://onlinelibrary.wiley.com/doi/pdf/10.1046/j.1365-2907.2002.00098.x
Environment and Heritage Service (2000) Biodiversity In Northern Ireland - Northern Ireland Species Action Plans; Irish Hare, Chough & Curlew, file:///U:/Article 17/Reports -- White Clawed Crayfish - Mountain Hare (Paul doing Marsh Saxifrage)/Mountian Hare References/NI Species Action Plans - Irish Hare, Chough & and Curlew 2000.pdf
Hall-Aspland, S., Sweeney, O., Tosh, D., Preston., P., Montgomery, W.I. & McDonald, R.A. (2006) Northern Ireland Irish hare survey 2006. Report prepared by Quercus for the Environment and Heritage Service (DOE, N.I.). UK.
Paxton, C.G.M. & Borchers, D.R. (2010) Estimates of Northern Irish Hare Abundance 2002- 2010. Unpublished report. Research Unit for Wildlife Population Assessment (RUWPA), Centre for Research into Ecological and Environmental Modelling (CREEM), University of St. Andrews.
Reid, N. Irish hare (Lepus timidus hibernicus): Information and recommendations for farmers. Department of Environment (DOE NI). 2009, Leaflet.
Reid, N. & Montgomery, W.I. (2010) Retrospective analysis of the Northern Ireland Irish hare Survey data from 2002-2010. Report prepared by the Natural Heritage Research Partnership, Quercus, Queen's University Belfast for the Northern Ireland Environment Agency. Northern Ireland Environment Agency Research and Development Series No. 11/16. weblink to report -

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http://www.doeni.gov.uk/niea/nhrp_project_report_retrospective_analysis_of_the_northern_ireland_2010.pdf
Reid, N., McDonald, R. A. & Montgomery, W.I. (2010) Homogeneous habitat can meet the discrete and varied resource requirements of hares but may set an ecological trap 143(7) 1701-1706, https://www.sciencedirect.com/science/article/pii/S0006320710001588?via%3Dihub
Reid, N., Caravaggi, A. & Montgomery, W.I. (2015) Range expansion and comparative habitat use of insular, congeneric lagomorphs: invasive european hares lepus europaeus and endemic irish hares lepus timidus hibernicus, 17(2):687-698, https://link.springer.com/article/10.1007%2Fs10530-014-0759-1
Reid, N., Sweeney, O., Wilson, C., Preston, S.J., Montgomery, W.I. & McDonald, R.A. (2007c) Developments in hare survey methodology - as applied to the NI Irish hare survey 2007. Report prepared by Quercus for the Environment and Heritage Service (DOE, N.I.). UK.
Reid, N. (2006) Conservation ecology of the Irish hare Lepus timidus hibernicus. Unpublished PhD Thesis. The Queen's University of Belfast, Belfast, UK.
Reid, N., Dingerkus, K., Montgomery, W.I., Marnell, F., Jeffrey, R., Lynn, D., Kingston, N. & McDonald, R.A. (2007) Status of hares in Ireland. Irish Wildlife Manuals, No. 30. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
Reid, N., Harrison, A.T. & Robb, G.N. (2011) Northern Ireland Irish hare survey 2010. Report prepared by the Natural Heritage Research Partnership, Quercus, Queen's University Belfast for the Northern Ireland Environment Agency. Northern Ireland Environment Agency Research and Development Series No. 11/10.

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		

6. Population

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6.1 Year or period	1994-2018	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	12600
	c) Maximum	183800
	d) Best single value	40900
6.3 Type of estimate	Best estimate	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	1346
6.5 Type of estimate	Minimum	
6.6 Population size Method used	Based mainly on extrapolation from a limited amount of data	
6.7 Short-term trend Period	1994-2018	
6.8 Short-term trend Direction	Unknown (x)	
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
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	
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	No change	
	The change is mainly due to:	
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)?	Yes
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	

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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	Unknown (x)
7.5 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data
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)	M
Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05)	H
Mowing or cutting of grasslands (A08)	H
Intensive grazing or overgrazing by livestock (A09)	M
Extensive grazing or undergrazing by livestock (A10)	M
Burning for agriculture (A11)	M
Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02)	M
Other activities related to extraction and cultivation of biological living resources not referred to above (G27)	H
Other human intrusions and disturbance not mentioned above (H08)	H
Other invasive alien species (other then species of Union concern) (I02)	H

Threat	Ranking
Conversion from one type of agricultural land use to another (excluding drainage and burning) (A02)	M
Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05)	H
Mowing or cutting of grasslands (A08)	H
Intensive grazing or overgrazing by livestock (A09)	M
Extensive grazing or undergrazing by livestock (A10)	M
Burning for agriculture (A11)	M
Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02)	H

Other activities related to extraction and cultivation of biological living resources not referred to above (G27)	M
Other human intrusions and disturbance not mentioned above (H08)	H
Other invasive alien species (other then species of Union concern) (I02)	H

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

Maintain existing extensive agricultural practices and agricultural landscape features (CA03)
Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures (CA04)
Adapt mowing, grazing and other equivalent agricultural activities (CA05)
Other measures related to agricultural practices (CA16)
Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities (CF12)
Other measures related to exploitation of species (CG15)
Reduce impact of other specific human actions (CH03)
Management, control or eradication of other invasive alien species (CI03)

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

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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

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

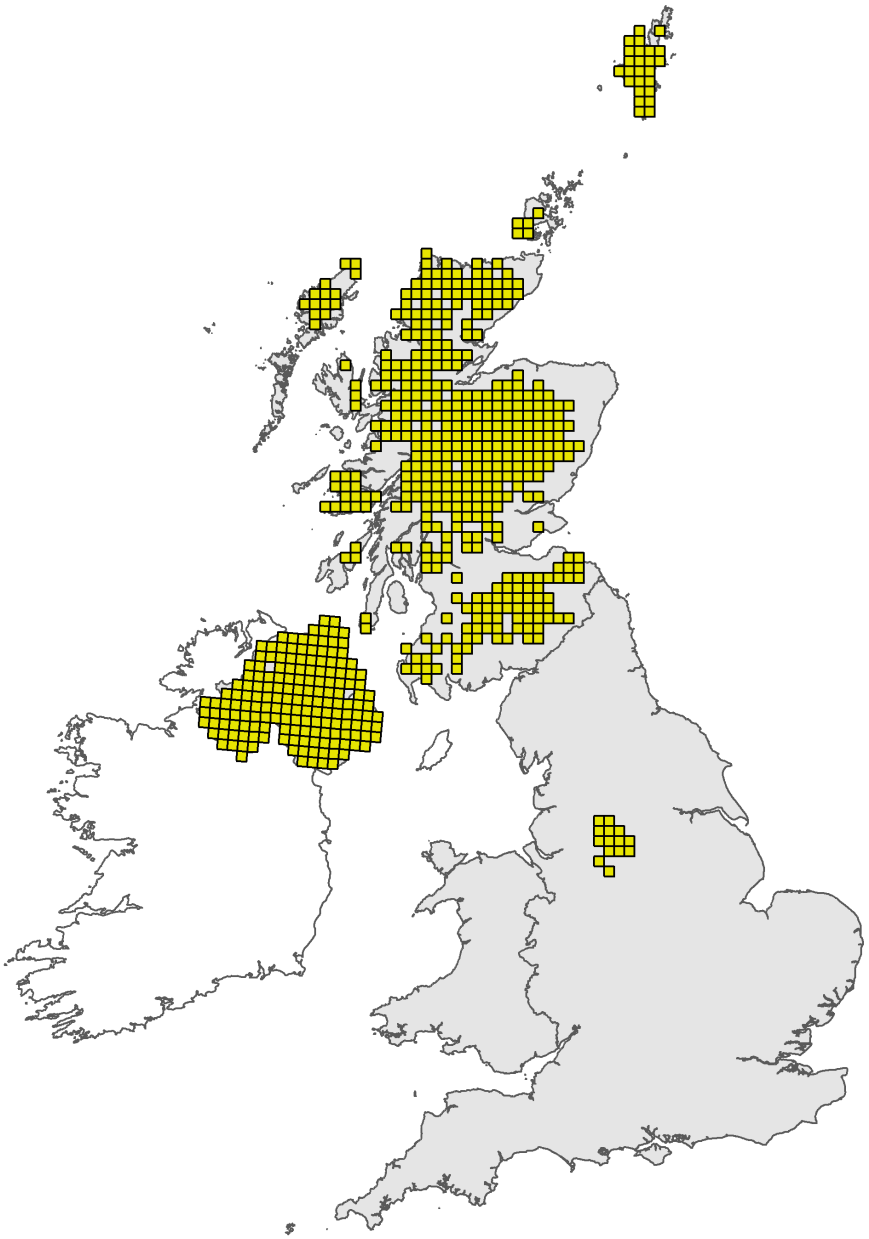

Figure 1: UK distribution map for S1334 - Mountain hare (*Lepus timidus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

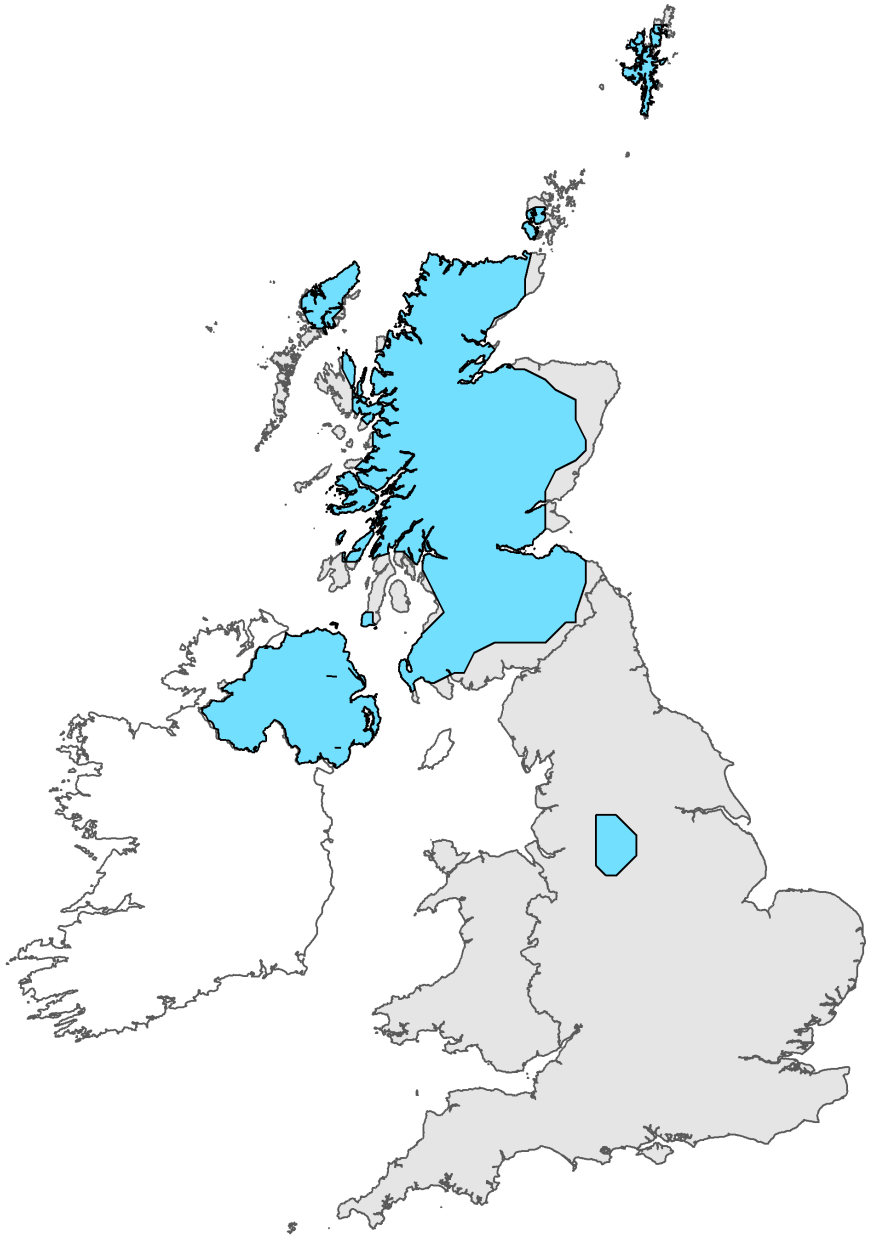

Figure 2: UK range map for S1334 - Mountain hare (*Lepus timidus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by applying a bespoke range mapping tool for Article 17 reporting (produced by JNCC) to the 10km grid square distribution map presented in Figure 1. The alpha value for this species was 25km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Lepus timidus (1334)

Field label	Note
2.2 Year or Period	Range and population based upon data from 1994 to 2018 to maximise the amount of data available.

Species name: Lepus timidus (1334) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	The short-term trend direction for the range has been reported as 'stable'. Although there has been no systematic recording of the species in NI over the last 6 years, incidental records of the species during that period do not show any obvious decreases across the broad extent of NI, with the species recorded from all six counties.
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.
6.2 Population size	Hare populations are characterised by very large naturalfluctuations. There has been no systematic survey of Irish Hares during the current reporting period. Therefore, it is necessary to use the most up-to-date survey from 2010 - i.e. this gave a range of 12,600 hares (min) to 183,800 hares (max) with a mean of 40,900 hares at 3.4 hares / km2.
6.4 Additional population size	Additional population assessment unit is number of 1x1kn square grids occupied. Using the full range of records from 1994 to 2018, the alternative population size is 1346 1x1km grids occupied.
6.8 Short term trend; Direction	Anecdotal reports of declines in local populations of Irish hares in the mid 1990s prompted a series of hare surveys to be carried out during the last reporting period. These surveys suggested that numbers had fluctuated considerably during the past decade, with estimated density ranging from one to five animals per kilometre square. The report concluded that there had been no overall trend in hare numbers over the decade, which suggested that any long-term decline may have stabilised. In the absence of a more recent systematic surveys of Irish Hare across NI, it is impossible to accurately interpret recent population trends. Hence, the short-term trend direction for the population has been reported as 'unknown'.
6.12 Long term trend; Direction	Hare populations are characterised by large interannual and multiannual fluctuations. Anecdotal reports of declines in local populations of Irish hares in the mid 1990s prompted a series of hare surveys to be carried out. Recent surveys suggest that numbers have fluctuated considerably during the last decade with estimated density ranging from one to five animals per kilometre square. The population estimates from both the 1997 PhD (Dingerkus, S.K.) and the 2002 survey (Dingerkus & Montgomery) estimated a population of beteen 7,000 and 25,200 Irish Hares. The analysis of 2002 to 2010 data placed the 2010 survey at a range of 12,600 hares (min) to 183,800 hares (max) with a mean of 40,900 hares at 3.4 hares / km2. There was no clear overall trend in hare numbers over the previous decade, suggesting that any long-term decline may have stabilised. In the absence of a systematic survey during the current reporting period, it is advisable to leave the long-term trend as unknown.
6.16 Change and reason for change in population size	We have stated that there has been 'no' genuine change in population size - certainly there is no evidence of a decline in species' population.

7.1 Sufficiency of area and quality of occupied habitat	The Irish hare is widespread throughout the country and is found in habitats as far ranging as coastal dunes to mountain tops. Densities however appear to fluctuate from year to year and often from habitat to habitat. In lowland areas, Irish hares rely on a mosaic of habitats within the rural landscape, with pockets of good agricultural land interspersed with rougher marginal areas. Report states that the area of habitat for the species is believed to be sufficient. However, this is based mainly on extrapolation from a limited amount of data (e.g. NI Countryside Survey; NIEA condition assessment of designated sites).
7.4 Short term trend; Direction	The short-term trend direction for the habitat for the species has been reported as 'unknown' 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 to us for all reporting periods.
8.1 Characterisation of pressures/ threats	The Irish hare is widespread throughout the country and is found in habitats as far ranging as coastal dunes to mountain tops. Densities however appear to fluctuate from year to year and often from habitat to habitat. In lowland areas, Irish hares rely on a mosaic of habitats within the rural landscape, with pockets of good agricultural land interspersed with rougher marginal areas. It is likely that the Irish hare population is highly sensitive to loss of suitable habitat through changes in land management and farming practices including farm specialisation, improvement of less productive fields and increased use of machinery. For example, the peak of births occurs from April to June and during this time, leverets that are concealed in long grass are extremely vulnerable to disturbance from farm machinery. Leveret mortality is likely to be high if cutting machinery is used in spring or early summer. Upland populations may be subjected to damaging impacts from wildfires. Introduced Brown hares have become common in parts of NI, notably Mid-Ulster and west Tyrone. Hybridisation between the brown hare and the Irish hare may pose a threat to the genetic integrity of the Irish hare population. Pressures and threat therefore include factors related to changes in agricultural practice, loss of habitat, disturbance, burning, invasive species, 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.); A08: Mowing or cutting of grasslands; A09: Intensive grazing or overgrazing by livestock; A10: Extensive grazing or undergrazing by livestock; A11: Burning for agriculture; F02: Construction or modification (of e.g. housing and settlements) in existing urban or recreational areas; G27: Other activities related to extraction and cultivation of biological living resources not referred to above ; H08: Other human intrusions and disturbance not mentioned above I02: Other invasive alien species (other then species of Union concern).
10.1 Future prospects of parameters	The future prospects for the range have been reported as overall stable, as the species' range includes most of NI. The future prospects for the population have been reported as 'unknown' because there is insufficient monitoring data available to accurately interpret population trends. We cannot infer any directional population trends between this period and the last with confidence, due to the quality and amount of data available to us for all reporting periods. Habitat for species reported as Overall stable.