

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

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:

S1334 - Mountain hare (*Lepus timidus*)

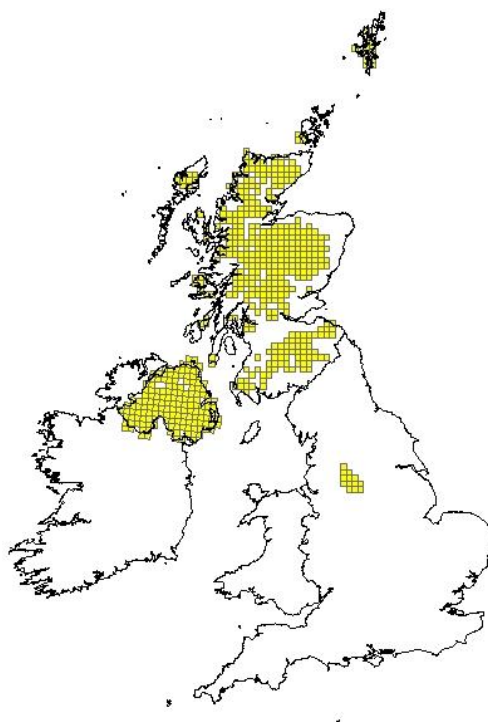
IMPORTANT NOTE – PLEASE READ

- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Northern Ireland Environment Agency** and refers only to the state of the habitat/species in **Northern Ireland** - it does not constitute an assessment for the whole of the UK.
- The Article 17 UK Approach document provides details on how this information has been used and, combined with information supplied by other Statutory Nature Conservation Bodies
- The format of the document is closely aligned to that set out by the European Commission for Member State reporting – as a result, some of the fields are not applicable at a country-level and have deliberately been left blank – in addition, the content of most fields is constrained by the EC reporting categories.

Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

<i>Field name</i>	<i>Brief explanations</i>	
0.2 Species	0.2.1 Species code	S1334
	0.2.2 Species scientific name	<i>Lepus timidus</i>
	0.2.3 Alternative species scientific name Optional	<i>Lepus timidus hibernicus</i>
	0.2.4 Common name Optional	Irish Hare

1.1 Maps			
1.1.1 Distribution map		Sensitive	False



1.1.2 Method used - map	Estimate based on partial data with some extrapolation and/or modelling		
1.1.3 Year or period	2002-2010		
1.1.4 Additional distribution map	False		
1.1.5 Range map			

--	--

2.1 Biogeographical region & marine regions	ATL
2.2 Published sources	<p>"Anonymous (2000) Biodiversity in Northern Ireland: Species Action Plans - Irish Hare, Chough & Curlew. Environment and Heritage Service NI. pp 6-9, Department of Environment. Belfast. UK. Weblink - http://www.doeni.gov.uk/niea/allirelandirishharesapnov05.pdf</p> <p>Dingerkus, S.K. (1997) The distribution and ecology of the Irish hare <i>L. t. hibernicus</i> in Northern Ireland. Unpublished PhD Thesis. The Queen's University of Belfast, Belfast, UK.</p> <p>Dingerkus, S.K. & Montgomery, W.I. (2002) A review of the status and decline in abundance of the Irish hare (<i>Lepus timidus hibernicus</i>) in Northern Ireland. <i>Mammal Review</i>, 32, 1-11.</p> <p>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. Weblink - http://jncc.defra.gov.uk/pdf/TMP_Northern%20Ireland%20Irish%20hare%20survey%202006.pdf</p> <p>Hamill, R. (2001) A study of the genetic structure and phylogeography of <i>Lepus timidus</i> L. subspecies in Europe using microsatellite DNA and mtDNA. Unpublished PhD thesis, University College Dublin. Ireland.</p> <p>Paxton, C.G.M., Marques, T.A. & Borchers, D.R. (2007) Report on Estimation of Irish Hare Density from the 2007 Survey with Revised Estimates for the 2006 Survey. Unpublished report. Research Unit for Wildlife Population Assessment (RUWPA), Centre for Research into Ecological and Environmental Modelling (CREEM), University of St. Andrews.</p> <p>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.</p> <p>Preston, S.J., Prodöhl, P., Portig, A. & Montgomery, W.I.</p>

(2006). The Northern Ireland Irish Hare *Lepus timidus hibernicus* Survey 2002. Environment and Heritage Service Research and Development Series. No. 06/21.

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. (2007a) Status of hares in Ireland: Hare Survey of Ireland 2006/07. In Marnell, F. and Kingston, N. (eds) Irish Wildlife Manuals, No. 30. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland. ISSN 1393 6670.

Reid, N., Sweeney, O., Wilson, C., Preston, S.J., & Montgomery, W.I. (2007b) Northern Ireland Irish hare survey 2007. Report prepared by Quercus for the Environment and Heritage Service (DOE, N.I.). UK.

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., Ruddock, M., Barratt, I., Robb, G.N. & Montgomery, W.I. (2008) Northern Ireland Irish hare survey 2008. Report prepared by Quercus for the Environment and Heritage Service (DOE, N.I.). UK. Weblink - <http://www.qub.ac.uk/sites/Quercus/Filestore/Fileupload,133856,en.pdf>

Reid, N., Harrison, A.T. & Robb, G.N. (2008) Northern Ireland Irish hare survey 2009. Report prepared by the Natural Heritage Research Partnership, Quercus for the Northern Ireland Environment Agency. Northern Ireland Environment Agency Research and Development Series No. 09/04.

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. weblink -

	<p>http://www.doeni.gov.uk/niea/ni_irish_hare_survey_2010.pdf</p> <p>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 - http://www.doeni.gov.uk/niea/nhrp_project_report_retrospective_analysis_of_the_northern_ireland_2010.pdf</p> <p>Tosh, D., Towers, R., Preston, J., Portig, A., McDonald, R.A. & Montgomery, W.I. (2004) Northern Ireland Irish hare survey 2004. Report prepared by Quercus for the Environment and Heritage Service (DOE, N.I.). UK.</p> <p>Tosh, D., Brown, S., Preston, J., Montgomery, W.I., Reid, N., Marques, T.A., Borchers, D.L., Buckland, S.T. & McDonald, R.A. (2005) Northern Ireland Irish hare survey 2005. Report prepared by Quercus for the Environment and Heritage Service (DOE, N.I.). UK."</p>
--	--

2.3 Range	
2.3.1 Surface area Range	12165
2.3.2 Method used Surface area of Range	Estimate based on partial data with some extrapolation and/or modelling
2.3.3 Short-term trend Period	2002-2010
2.3.4 Short term trend Trend direction	stable
2.3.5 Short-term trend Magnitude	a) Minimum
	b) Maximum

2.3.6 Long-term trend Period	1997-2010	
2.3.7 Long-term trend Trend direction	stable	
2.3.8 Long-term trend Magnitude Optional	a) Minimum	
	b) Maximum	
2.3.9 Favourable reference range	a) Value in km²	12165
	b) Operator for FRR	approximately equal to
	c) FRR is unknown (indicated by "true")	False
	d) Method used to set FRR	Please note that previously the area of Northern Ireland used for the total abundance estimation was assumed to be 14,000km². However, this was a rough approximation and did not take account habitats unavailable or unsuitable for Irish Hare or those that could not be surveyed. Removing waterbodies (unavailable), urban areas (unsuitable) and woodland (difficult to survey) the total area was adjusted to 12,165km². This did not alter the estimates of density but did reduce estimates of total abundance.
2.3.10 Reason for change Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to...	a) Genuine change?	False
	b) Improved knowledge/more accurate data?	True

	c) Use of different method (e.g. "Range tool")?	False

2.4 Population		
2.4.1 Population size estimation (using individuals or agreed exceptions where possible)	a) Unit	number of individuals
	b) Minimum	12600
	c) Maximum	183800
2.4.2 Population size estimation (using population unit other than individuals) Optional (<i>if 2.4.1 filled in</i>)	a) Unit	
	b) Minimum	
	c) Maximum	
2.4.3 Additional information on population estimates / conversion Optional	a) Definition of "locality"	
	b) Method to convert data	
	c) Problems encountered to provide population size estimation	
2.4.4 Year or period	2002-2010	
2.4.5 Method used Population size	Estimate based on partial data with some extrapolation and/or modelling	
2.4.6 Short-term trend Period	2002-2010	
2.4.7 Short-term trend Trend direction	increase	
2.4.8 Short-term trend Magnitude		80

	a) Minimum	
	b) Maximum	629.37
	c) Confidence interval	95
2.4.9 Short-term trend Method used	Estimate based on partial data with some extrapolation and/or modelling	
2.4.10 Long-term trend – Period	1997-2010	
2.4.11 Long-term trend Trend direction	increase	
2.4.12 Long-term trend Magnitude Optional	a) Minimum	52.73
	<p>In 1997 the min irish hare population in Dinkergus PhD was estimated at 8,250 hares with a maximum population of 21,000 hares. In 2002 the min population was 7,000 with a maximum of 25,200 hares In 2010 the min population was 12,600 with a maximum of 183,800 hares.</p> <p>I equates to a 52.73% increase in the min pop from 1997 to 2010 (long term) and an 80% increase in the maximum pop from 2002 to 2010 (short term). For max pop as there is a huge pop leap resulting in the long term change from 1997 to 2010 being 775.24% and the short term change from 2002 to 2010 representing a 629.37% change.</p> <p>The 2010 survey of 12,600 hares (min) to 183,800 hares (max) had a mean of 40,900 hares at 3.4 hares / km².</p>	
	b) Maximum	775.24
	c) Confidence interval	95

2.4.13 Long term trend Method used	2		
2.4.14 Favourable reference population	a) Number of individuals/agreed exceptions/other units		
	b) Operator		
	c) FRP is unknown indicated by "true"	False	
	d) Method used to set FRP		
	2.4.15 Reason for change Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	a) Genuine change?	True
	b) Improved knowledge/more accurate data?	False	
	c) Use of different method (e.g. "Range tool")?	False	

2.5 Habitat for the species		
2.5.1 Area estimation	12165	
2.5.2 Year or period	2002-2010	
2.5.3 Method used Habitat for the species	Estimate based on partial data with some extrapolation and/or modelling	
2.5.4 Quality of the habitat	a) Habitat quality	Unknown
	b) Assessment method	Data was used from a variety of sources to make an assessment of the quality of the habitat (in particular bog, moor, heath, marsh, mixed farmland, other

		<p>marginal habitats and pastoral farmland). Data sources used include:</p> <ul style="list-style-type: none"> - Northern Ireland Countryside Survey data from 1998 and 2007 - Common standards monitoring data from known preferred habitat types. - Northern Ireland Countryside Management Scheme 2007-2013 participants to grassland management options i.e delayed cutting, grass margins, low input grassland, bracken and heather control. <p>Please note that previously the area of Northern Ireland used for the total abundance estimation was assumed to be 14,000km². However, this was a rough approximation and did not take account habitats unavailable or unsuitable for Irish Hare or those that could not be surveyed. Removing waterbodies (unavailable), urban areas (unsuitable) and woodland (difficult to survey) the total area was adjusted to 12,165km². This did not alter the estimates of density but did reduce estimates of total abundance.</p> <p>An assessment was made in 2010 as part of the State of Biodiversity Report indicated the following habitat trends from 2000 to 2010:</p> <ul style="list-style-type: none"> Parkland - unknown Hedgerows - no clear trend Arable field margins - improving Lowland acid grassland - no clear trend Lowland meadow - declining (continuing) Calcareous grassland - stable Purple moor grass and rush pasture - decline (continuing) Blanket bog - stable Lowland raised bog - declining (continuing / accelerating) Upland heathland - increasing
--	--	--

		<p>Lowland heath - no clear trend</p> <p>Montane heath - no clear trend</p> <p>Whilst there have been some habitat types which have showed improvement others have showed no clear trend or a decline. Consequently the overall quality of habitat is 'unknown'.</p>
2.5.5 Short-term trend Period	1998-2007	
2.5.6 Short-term trend Trend direction	unknown	
2.5.7 Long-term trend Period	1998-2007	
2.5.8 Long-term trend Trend direction	unknown	
2.5.9 Area of suitable habitat for the species	a) Value in km²	12165
	b) Absence of data indicated as '0'	
2.5.10 Reason for change Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	a) Genuine change?	False
	b) Improved knowledge/more accurate data?	False
	c) Use of different method (e.g. "Range tool")?	False

2.6 Main pressures		
a) Pressure	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
A02: modification of cultivation practices	H	

A03: mowing / cutting of grassland	H	
A11: Agriculture activities not referred to above	M	
E01: Urbanised areas, human habitation	M	
I01: invasive non-native species	M	
J01: fire and fire suppression	M	
J03: Other ecosystem modifications	M	
A04: grazing	L	
F03: Hunting and collection of wild animals (terrestrial)	L	
G05: Other human intrusions and disturbances	L	

2.6.1 Method used – Pressures	mainly based on expert judgement and other data

2.7 Threats		
a) Threat	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
A02: modification of cultivation practices	H	
A03: mowing / cutting of grassland	H	
A11: Agriculture activities not referred to above	M	
E01: Urbanised areas, human habitation	M	
I01: invasive non-native species	M	
J01: fire and fire suppression	M	
J03: Other ecosystem modifications	M	
A04: grazing	L	
F03: Hunting and collection of wild animals (terrestrial)	L	
G05: Other human intrusions and disturbances	L	

--	--	--

2.7.1 Method used – Threats	expert opinion
------------------------------------	-----------------------

2.8 Complementary information	
2.8.1 Justification of % thresholds for trends	Leave blank
2.8.2 Other relevant information	<p>The Irish Hare attracted major conservation concern following a population decline during the 20th century. Mean Irish hare density in NI was estimated at 0.65 hares / km² during the mid 1990s. In 2000, a Northern Ireland Species Action Plan published for Irish Hares aimed to "double [the] present population by 2010". To monitor hare population change, the Northern Ireland Irish Hare Survey commenced in 2002 and was conducted annually from 2004 to 2010. A night-driven, spotlight, distance-sampling survey methodology was adopted. In 2010 the mean density of hares was estimated at 3.4 hares / km² (95%CI 1.0-15.1) giving a total of 40,900 hares (95%CI 12,600 - 183,800). This was 5.2 times greater than the estimates produced in the mid-1990s. It is important however to air caution as hare populations are characterised by interannual and multiannual fluctuations.</p> <p>In 2007, the Northern Ireland Countryside Management Scheme 2007-2013 was launched in Northern Ireland. This scheme contains several management options which benefit Irish hares in terms of habitat management and cutting timings etc. It is intended to run a further Countryside Management Scheme post 2013 which will provide longer term benefits for the Irish hare population.</p> <p>The Irish Hare is a species which is listed on Schedule 6 'animals which may not be killed or taken by certain methods' of the The Wildlife Order (NI) 1985 (as amended).</p>
2.8.3 Trans-boundary assessment	Leave blank

2.9 Conclusions (*assessment of conservation status at end of reporting period*)

Please refer to the United Kingdom assessment for this species.

**3 Natura 2000 coverage & conservation measures - Annex II species
(only applies to species listed under Annex II of the Directive)**

3.1 Population

3.1.1 Population size Estimation of population size included in the SAC network	a) Unit	
	b) Minimum	
	c) Maximum	
3.1.2 Method used		
3.1.3 Trend of population size within the network (short-term trend)		

3.2 Conservation measures

Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation.

3.2.1 Measure	3.2.2 Type					3.2.3 Ranking H = high importance M = medium importance L = low importance	3.2.4 Location where the measure is PRIMARILY applied			3.2.5 Broad evaluation of the measure					
	a) Legal/statutory	b) Administrative	c) Contractual	d) Recurrent	e) One-off		a) Inside	b) Outside	c) Both inside & outside	a) Maintain	b) Enhance	c) Long term	d) No effect	e) Unknown	f) Not evaluated

--

