

**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*)

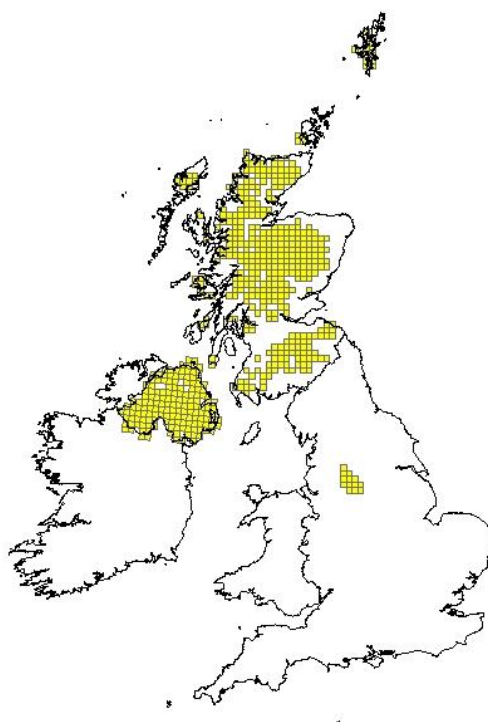
**IMPORTANT NOTE – PLEASE READ**

- 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 **Scottish Natural Heritage** and refers only to the state of the habitat/species in **Scotland** - 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>	
<b>0.2 Species</b>	<b>0.2.1 Species code</b>	<b>S1334</b>
	<b>0.2.2 Species scientific name</b>	<i>Lepus timidus</i>
	<b>0.2.3 Alternative species scientific name</b> Optional	
	<b>0.2.4 Common name</b> Optional	<b>Mountain hare</b>

<b>1.1 Maps</b>		
<b>1.1.1 Distribution map</b>		<b>Sensitive</b> <b>False</b>
<p>L. timidus is widespread in Scotland, but natural populations are absent from England and Wales. In Scotland, the species is widespread in upland areas, but absent from lowland areas, such as the central lowlands, where it is replaced by the Brown hare <i>L. europaeus</i>. It is also present on some islands in Orkney, Shetland and the Outer and Inner Hebrides.</p> <p>The species was introduced into the Peak District, Derbyshire, England in the 19th century and that population still survives.</p> <p>The majority of data come from a questionnaire survey carried out in 2006-7. This provided almost complete (90%) coverage of Scotland at a 10 x 10 km resolution. Additional data came from biological recording schemes (NBN data). Coverage is, therefore, good.</p>		



<b>1.1.2 Method used - map</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b> KINRADE, V., EWALD, J., SMITH, A., NEWWEY, S., IASON, G., THIRGOOD, S. & RAYNOR, R. 2008. The distribution of Mountain Hare ( <i>Lepus timidus</i> ) in Scotland (2006/07). Scottish Natural Heritage Commissioned Report No.278 <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/Report%2520No278.pdf">www.snh.org.uk/pdfs/publications/commissioned_reports/Report%2520No278.pdf</a> NBN data
<b>1.1.3 Year or period</b>	<b>2006-2012</b>
<b>1.1.4 Additional distribution map</b>	<b>False</b>
<b>1.1.5 Range map</b>	

<b>2.1 Biogeographical region &amp; marine regions</b>	<b>ATL</b>
<b>2.2 Published sources</b>	<p>"GB/Scotland</p> <p><b>AEBISCHER, N.J., DAVEY, P.D. &amp; KINGDON, N.G. 2011. National Gamebag Census: Mammal Trends to 2009. Game &amp; Wildlife Conservation Trust, Fordingbridge (<a href="http://www.gwct.org.uk/ngcmammals">www.gwct.org.uk/ngcmammals</a>).</b></p> <p><b>BATTERSBY, J. (ED) &amp; TRACKING MAMMALS PARTNERSHIP. 2005. UK Mammals: Species Status and Population Trends. Joint Nature Conservation Committee/Tracking Mammals Partnership <a href="http://jncc.defra.gov.uk/page-3311">http://jncc.defra.gov.uk/page-3311</a>.</b></p> <p><b>DAVIS, S.E., NEWSON, S.E., &amp; NOBLE, D.G. 2007. The production of population trends for UK mammals using BBS mammal data: 1995-2005 update. BTO Research Report No. 462 <a href="http://jncc.defra.gov.uk/page-4309">http://jncc.defra.gov.uk/page-4309</a>.</b></p> <p><b>HARRIS, S., MORRIS, P., WRAY, S. &amp; YALDEN, D. (1995) A Review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. Joint Nature Conservation Committee, Peterborough <a href="http://jncc.defra.gov.uk/page-2759">http://jncc.defra.gov.uk/page-2759</a>.</b></p> <p><b>HARRISON, A., NEWY, S., GILBERT, L., HAYDON, D.T. &amp; THIRGOOD, S. 2010. Culling wildlife hosts to control disease: mountain hares, red grouse and louping ill virus. Journal of Applied Ecology 47: 926-930 <a href="http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2010.01834.x/abstract">http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2010.01834.x/abstract</a></b></p> <p><b>IAISON, G.R., HULBERT, I.A.R., HEWSON, R &amp; DINGERKUS, K. 2008. Mountain Hare. Pages 220-228 In HARRIS, S &amp; YALDEN, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton. 799pp.</b></p> <p><b>KINRADE, V., EWALD, J., SMITH, A., NEWWEY, S., IASON, G., THIRGOOD, S. &amp; RAYNOR, R. 2008. The distribution of Mountain Hare (<i>Lepus timidus</i>) in Scotland (2006/07). Scottish Natural Heritage Commissioned Report No.278 <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/Report%2520No278.pdf">www.snh.org.uk/pdfs/publications/commissioned_reports/Report%2520No278.pdf</a></b></p> <p><b>NEWWEY, S., WILLEBRAND, T., HAYDON, D.T., DAHL, F., AEBISCHER, N.J., SMITH, A.A., &amp; THIRGOOD, S.J. 2007. Do</b></p>

mountain hare populations cycle? *Oikos*, **116**, 1547-1557.  
**NEWAY, S., DAHL, F., WILLEBRAND, T., & THIRGOOD, S.J. 2007.** Unstable dynamics and population regulation in mountain hares: a review. *Biological Reviews*, **82**, 527-549.  
**NORTON, L.R.; MURPHY, J.; REYNOLDS, B.; MARKS, S.; MACKEY, E.C. 2009** Countryside Survey: Scotland Results from 2007. NERC/Centre for Ecology & Hydrology, The Scottish Government, Scottish Natural Heritage, 83pp. (CEH Project Number: C03259)  
[www.countrysidesurvey.org.uk/outputs/scotland-results-2007](http://www.countrysidesurvey.org.uk/outputs/scotland-results-2007).  
**TAPPER, S. 1987.** Cycles in game-bag records of hares and rabbits in Britain. *Symposia of the Zoological Society of London* **58**:79–98.  
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**TOSH, D., MARQUES, A.T., BROWN, S., PRESTON, J., REID, N., MONTGOMERY, I., BORCHERS, D. L., BUCKLAND, S. T., & MCDONALD, R. 2005.** Northern Ireland Irish Hare Survey 2005. Environment & Heritage Service, Northern Ireland/Queen's University, Belfast.  
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<b>2.3 Range</b>	
<b>2.3.1 Surface area Range</b>	
<b>2.3.2 Method used Surface area of Range</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>
<b>2.3.3 Short-term trend Period</b>	<b>1995-2007</b> 1995/6 – 2006/7
<b>2.3.4 Short term trend Trend direction</b>	<b>stable</b> Scotland: 0 England + ? Wales: N/A
<b>2.3.5 Short-term trend Magnitude</b>	<b>a) Minimum</b>
	TAPPER, S. 1996. Distribution and level of take of native mountain hares <i>Lepus timidus</i> . JNCC unpublished report, Peterborough. KINRADE, V., EWALD, J., SMITH, A., NEWHEY, S., IASON, G., THIRGOOD, S. & RAYNOR, R. 2008. The distribution of Mountain Hare ( <i>Lepus timidus</i> ) in Scotland (2006/07). Scottish Natural Heritage Commissioned Report No.278 <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/Report%2520No278.pdf">www.snh.org.uk/pdfs/publications/commissioned_reports/Report%2520No278.pdf</a> MALLON, D., WHEELER, P., WHITELEY, D. & YALDEN, D.W. 2003. Mountain Hares in the Peak District. British Wildlife Dec 2003. Kinrade et al (2008) compared the distribution of mountain hares (at hectad resolution) found in their questionnaire study with that reported by Tapper (1996), who used a similar methodology. They concluded that there had been no significant change in distribution, though some hectads had changed in status from positive to negative and vice versa. <i>L. timidus</i> undergoes long-term cycles of abundance, which could mask any underlying range trend.  In England, a series of surveys has shown that the hare has increased its range in the Peak District, though this remains a small isolated population, with little opportunity for further expansion.
<b>2.3.6 Long-term trend Period</b>	
<b>2.3.7 Long-term trend Trend direction</b>	<b>stable</b>
<b>2.3.8 Long-term trend</b>	<b>a) Minimum</b>

<b>Magnitude</b>  Optional	AEBISCHER,N.J., DAVEY,P.D. & KINGDON,N.G. 2011. National Gamebag Census: Mammal Trends to 2009. Game & Wildlife Conservation Trust, Fordingbridge (www.gwct.org.uk/ngcmammals). <i>L. timidus</i> undergoes long-term cycles of abundance, which could mask any underlying long-term range trend. However, the available data give no indication of a long-term loss of range.	
	<b>b) Maximum</b>	
<b>2.3.9 Favourable reference range</b>	<b>a) Value in km<sup>2</sup></b>	
	<b>b) Operator for FRR</b>	
	<b>c) FRR is unknown (indicated by "true")</b>	False
<b>2.3.10 Reason for change</b>  Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to...	<b>a) Genuine change?</b>	False
	<b>b) Improved knowledge/more accurate data?</b>	False
	<b>c) Use of different method (e.g. "Range tool")?</b>	False

<b>2.4 Population</b>		
<b>2.4.1 Population size estimation</b> (using individuals or agreed exceptions where possible)	<b>a) Unit</b>	<b>number of individuals</b>
	10,000 in England; 350,000 in Scotland - based on published average estimate	
	<b>b) Minimum</b>	<b>350000</b>

	<b>c) Maximum</b>	<b>350000</b>
<b>2.4.2 Population size estimation</b> (using population unit other than individuals) Optional ( <i>if 2.4.1 filled in</i> )	<b>a) Unit</b>	
	<b>b) Minimum</b>	
	<b>c) Maximum</b>	
<b>2.4.3 Additional information on population estimates / conversion</b> Optional	<b>a) Definition of "locality"</b>	
	No survey data on population size in Scotland are available. The estimate by Harris et al (1995) was based on either 1) the area of heather moorland (the hare's main habitat) or 2) the area of distribution multiplied by an average density figure from published studies. In England, long-term counts of the only population provide a firmer basis for estimating population size.	
	<b>b) Method to convert data</b>	
	<b>c) Problems encountered to provide population size estimation</b>	
<b>2.4.4 Year or period</b>	<b>1995-1995</b>	
	1995 for Scotland 2002 for England	
<b>2.4.5 Method used Population size</b>	<b>Estimate based on expert opinion with no or minimal sampling</b> 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. Joint Nature Conservation Committee, Peterborough <a href="http://jncc.defra.gov.uk/page-2759">http://jncc.defra.gov.uk/page-2759</a> . MALLON, D., WHEELER, P., WHITELEY, D. & YALDEN, D.W. 2003. Mountain Hares in the Peak District. British Wildlife Dec 2003. The estimate is based on the original estimate by Harris et al. (1995) which was based on either 1) the area of heather moorland (the hare's main habitat) or 2) the area of distribution multiplied by an average density figure from published studies. There are no subsequent data to allow this estimate to be updated. For England the estimate has been amended to reflect the most recent survey of the population (Mallon et al 2003). Large between year fluctuations make data difficult to interpret. Harris et al.'s reliability rating of the above estimate was three, meaning that the estimated margin of error is +/- 50%	
<b>2.4.6 Short-term trend Period</b>	<b>1995-2009</b>	



<b>2.4.7 Short-term trend Trend direction</b>	<b>stable</b>	
	Scotland: 0 England: +  UK: 0 (English population small compared with Scottish one)	
<b>2.4.8 Short-term trend Magnitude</b>	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
	<b>c) Confidence interval</b>	
<b>2.4.9 Short-term trend Method used</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b> AEBISCHER,N.J., DAVEY,P.D. & KINGDON,N.G. 2011. National Gamebag Census: Mammal Trends to 2009. Game & Wildlife Conservation Trust, Fordingbridge ( <a href="http://www.gwct.org.uk/ngcmammals">www.gwct.org.uk/ngcmammals</a> ) DAVIS, S.E., NEWSON, S.E., & NOBLE, D.G. 2007. The production of population trends for UK mammals using BBS mammal data: 1995-2005 update. BTO Research Report No. 462. Data for the Scottish population from the National Gamebag Census (Aebischer et al 2009) suggests a non-significant short term decline in the period 1995-2009, with wide confidence limits, which may be part of a longer-term population cycle. BBS mammal data (Davis et al 2007) detected no significant change in abundance between 1995 and 2007 (8% decline with wide confidence limits).	
<b>2.4.10 Long-term trend – Period</b>	<b>1984-2009</b>	
<b>2.4.11 Long-term trend Trend direction</b>	<b>stable</b>	
<b>2.4.12 Long-term trend Magnitude</b>  Optional	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
	<b>c) Confidence</b>	

	<b>interval</b>	
<b>2.4.13 Long term trend Method used</b>	<b>2</b>	
	<p>AEBISCHER,N.J., DAVEY,P.D. &amp; KINGDON,N.G. 2011. National Gamebag Census: Mammal Trends to 2009. Game &amp; Wildlife Conservation Trust, Fordingbridge (<a href="http://www.gwct.org.uk/ngcmammal">www.gwct.org.uk/ngcmammal</a> ) Game bag data for the Scottish population from the NGC indicates a change of -16% over this period, but with 95% confidence limits of -58 to +73%.This change is not significant, and is not corroborated by other data. As the very long-term NGC data (1960-2010) indicates no significant trend, a stable, though irregularly cycling, population can be assumed.</p>	
<b>2.4.14 Favourable reference population</b>	<b>a) Number of individuals/agreed exceptions/other units</b>	<b>350000</b>
	<p>Scotland: 350,000  England: 10,000  The favourable reference population value has been derived using 1994 as the baseline and making a judgement on whether the population in 1994 was viable in the long-term, using the decision tree in Note 1 (of 'Assessing Conservation Status: UK Approach') as a guide. Historic and current information on population size, distribution and trends have been used in order to assess viability and, if the 1994 level was not viable, then consideration has been given to what would constitute a viable population. For <i>L. timidus</i> the population estimate for 1994 was approximately 350,000 for Scotland and this is considered to be of sufficient size for a long-term viable population, although trends are masked by natural population cycles.</p>	
	<b>b) Operator</b>	
	<b>c) FRP is unknown indicated by "true"</b>	<b>False</b>
	<b>d) Method used to set FRP</b>	
<b>2.4.15 Reason for change</b>	<b>a) Genuine change?</b>	<b>False</b>
Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:		
	<b>b) Improved knowledge/more accurate data?</b>	<b>False</b>

	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.5 Habitat for the species</b>		
<b>2.5.1 Area estimation</b>	<b>37381</b>	
	<p><i>L. timidus</i> favours upland dwarf shrub heath. A dense understorey is thought to be important for food and shelter. <i>L. timidus</i> populations are localised; they reach the highest densities in north-east Scotland, and are particularly scarce in north and west Scotland. Population densities range from 3-46 per km<sup>2</sup>, depending upon habitat type. The highest densities occur on heather moors overlying base-rich rocks, with the lowest densities where there are acidic rocks; locally densities may reach 300 per km<sup>2</sup> (Iason et al, 2008).</p> <p>It is unknown whether the amount of habitat in the UK is sufficient to support a viable population of the species. Scotland: 37,381 England: 1,300</p> <p>It is unknown whether the amount of habitat in the UK is sufficient to support a viable population of the species.</p>	
<b>2.5.2 Year or period</b>	<b>2012-2012</b>	
<b>2.5.3 Method used Habitat for the species</b>	<b>Estimate based on expert opinion with no or minimal sampling</b>	
<b>2.5.4 Quality of the habitat</b>	<b>a) Habitat quality</b>	<b>Moderate</b>
	<p>This species relies largely on heather moorland and benefits from traditional management for grouse shooting; both are in decline. The latest Countryside Survey for Scotland (Norton et al, 2009) reports a loss of 113,000ha (11%) of dwarf shrub heath between 1990 and 2007, though the change (-1.9%) between 1998 and 2007 was not significant. This is the broad habitat most likely to support <i>L. timidus</i> populations at intermediate or high densities. The losses were to other broad habitats, bracken and acid grassland. Over the same period (1990-2007), there was a significant 12% decrease in species richness of the dwarf shrub broad habitat, which may affect densities of <i>L. timidus</i>.</p> <p>Area</p> <p>As this is a generalist species, using a mosaic of habitats, the area of distribution is used as an estimate of habitat area.</p> <p>Quality (Scotland)</p> <p>This species relies largely on heather moorland and benefits from traditional management for grouse shooting; both are in decline. The latest Countryside Survey for Scotland (Norton et al, 2009) reports a loss of 113,000ha (11%) of dwarf shrub heath between 1990 and 2007, though the change (-1.9%) between 1998 and 2007 was not significant. This is the broad habitat most likely to support <i>L. timidus</i> populations at intermediate or high densities. The losses were to other broad habitats,</p>	

	bracken and acid grassland. Over the same period (1990-2007), there was a significant 12% decrease in species richness of the dwarf shrub broad habitat, which may affect densities of <i>L. timidus</i> . These data, particularly those on species richness, suggest that habitat quality should be described as Moderate.		
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<b>2.5.5 Short-term trend Period</b>	<b>1990-2007</b>		
<b>2.5.6 Short-term trend Trend direction</b>	<p><b>stable</b></p> <p>IAISON, G.R., HULBERT, I.A.R., HEWSON, R &amp; DINGERKUS, K. 2008. Mountain Hare. Pages 220-228 In HARRIS, S &amp; YALDEN, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.</p> <p>NORTON, L.R.; MURPHY, J.; REYNOLDS, B.; MARKS, S.; MACKEY, E.C. 2009 Countryside Survey: Scotland Results from 2007. NERC/Centre for Ecology &amp; Hydrology, The Scottish Government, Scottish Natural Heritage, 83pp. (CEH Project Number: C03259) <a href="http://www.countrysidesurvey.org.uk/outputs/scotland-results-2007">www.countrysidesurvey.org.uk/outputs/scotland-results-2007</a>.</p> <p>The latest Countryside Survey for Scotland (Norton et al, 2009) reports a loss of 113,000ha (11%) of dwarf shrub heath between 1990 and 2007, though the change (-1.9%) between 1998 and 2007 was not significant. This is the broad habitat most likely to support <i>L. timidus</i> populations at</p>		

	intermediate or high densities.	
<b>2.5.7 Long-term trend Period</b>		
<b>2.5.8 Long-term trend Trend direction</b>	<b>decrease</b>	
	<p>NORTON, L.R.; MURPHY, J.; REYNOLDS, B.; MARKS, S.; MACKEY, E.C. 2009 Countryside Survey: Scotland Results from 2007. NERC/Centre for Ecology &amp; Hydrology, The Scottish Government, Scottish Natural Heritage, 83pp. (CEH Project Number: C03259)  <a href="http://www.countrysidesurvey.org.uk/outputs/scotland-results-2007">www.countrysidesurvey.org.uk/outputs/scotland-results-2007</a>.  This species relies largely on heather moorland and benefits from traditional management for grouse shooting; both are in decline. The latest Countryside Survey for Scotland (Norton et al, 2009) reports a loss of 113,000ha (11%) of dwarf shrub heath between 1990 and 2007, though the change (-1.9%) between 1998 and 2007 was not significant. This is the broad habitat most likely to support <i>L. timidus</i> populations at intermediate or high densities There were losses to other broad habitats, bracken and acid grassland. Over the same period (1990-2007), there was a significant 12% decrease in species richness of the dwarf shrub broad habitat, which may affect densities of <i>L. timidus</i>.</p>	
<b>2.5.9 Area of suitable habitat for the species</b>	<b>a) Value in km<sup>2</sup></b>	<b>37381</b>
	Scotland: 37,381 England: 1,300	
	<b>b) Absence of data indicated as '0'</b>	
<b>2.5.10 Reason for change</b> Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>False</b>
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.6 Main pressures</b>		
<b>a) Pressure</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance M = medium importance L = low importance	
A04: grazing	H	
B07: Forestry activities not referred to above	H	

A02: modification of cultivation practices	M	
B01: forest planting on open ground	M	
F03: Hunting and collection of wild animals (terrestrial)	M	
M02: Changes in biotic conditions	L	

Hares benefit from grouse moor management, which is in decline, but also suffer from harvesting in the same areas. In addition, hares are culled in an effort to limit louping ill, a virus that affects red grouse (Harrison et al. 2010). No significant evidence that harvesting has driven a change in distribution or population. Loss or fragmentation of open moorland through afforestation could also affect hare density. *L. timidus* will rarely cross more than 20 km of unsuitable habitat, which means the Scottish population is effectively fragmented into a series of sub-populations, some of which could be quite vulnerable to extinction (Harris et al. 1995).

*L. timidus* may be susceptible to replacement by *L. europaeus* if climate change leads to warming/drying (Thulin, 2003).

#### 2.6.1 Method used – Pressures

#### mainly based on expert judgement and other data

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. Joint Nature Conservation Committee, Peterborough <http://jncc.defra.gov.uk/page-2759>.

HARRISON, A., NEWY, S., GILBERT, L., HAYDON, D.T. & THIRGOOD, S. 2010. Culling wildlife hosts to control disease: mountain hares, red grouse and louping ill virus. *Journal of Applied Ecology* 47: 926-930 <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2010.01834.x/abstract>

IAISON, G.R., HULBERT, I.A.R., HEWSON, R & DINGERKUS, K. 2008. Mountain Hare. Pages 220-228 In HARRIS, S & YALDEN, D.W. *Mammals of the British Isles: Handbook*, 4th edition. The Mammal Society, Southampton. 799pp.

THULIN C.G. 2003. The distribution of mountain hares *Lepus timidus* in Europe: a challenge from brown hares *L. europaeus*? *Mammal Review* 33:29–42 <http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2907.2003.00008.x/abstract>.

2.7 Threats		
a) Threat	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
A04: grazing	H	
B07: Forestry activities not referred to above	H	
A02: modification of cultivation practices	M	
B01: forest planting on open ground	M	

F03: Hunting and collection of wild animals (terrestrial)	M	
M02: Changes in biotic conditions	L	

Hares benefit from grouse moor management, which is in decline, but also suffer from harvesting in the same areas. No significant evidence that harvesting has driven a change in distribution or population. Loss or fragmentation of open moorland through afforestation could also affect hare density. *L. timidus* will rarely cross more than 20 km of unsuitable habitat, which means the Scottish population is effectively fragmented into a series of sub-populations, some of which could be quite vulnerable to extinction (Harris et al. 1995). *L. timidus* may be susceptible to replacement by *L. europaeus* if climate change leads to warming/drying (Thulin, 2003).

<b>2.7.1 Method used – Threats</b>	<b>expert opinion</b>
	<p>HARRIS, S., MORRIS, P., WRAY, S. &amp; YALDEN, D. (1995) A Review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. Joint Nature Conservation Committee, Peterborough <a href="http://jncc.defra.gov.uk/page-2759">http://jncc.defra.gov.uk/page-2759</a>.</p> <p>HARRISON, A., NEWY, S., GILBERT, L., HAYDON, D.T. &amp; THIRGOOD, S. 2010. Culling wildlife hosts to control disease: mountain hares, red grouse and louping ill virus. <i>Journal of Applied Ecology</i> 47: 926-930 <a href="http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2010.01834.x/abstract">http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2010.01834.x/abstract</a></p> <p>IAISON, G.R., HULBERT, I.A.R., HEWSON, R &amp; DINGERKUS, K. 2008. Mountain Hare. Pages 220-228 In HARRIS, S &amp; YALDEN, D.W. <i>Mammals of the British Isles: Handbook</i>, 4th edition. The Mammal Society, Southampton. 799pp.</p> <p>THULIN C.G. 2003. The distribution of mountain hares <i>Lepus timidus</i> in Europe: a challenge from brown hares <i>L. europaeus</i>? <i>Mammal Review</i> 33:29–42 <a href="http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2907.2003.00008.x/abstract">http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2907.2003.00008.x/abstract</a>.</p>

<b>2.8 Complementary information</b>	
<b>2.8.1 Justification of % thresholds for trends</b>	
<b>2.8.2 Other relevant information</b>	
<b>2.8.3 Trans-boundary assessment</b>	

<b>2.9 Conclusions (<i>assessment of conservation status at end of reporting period</i>)</b>
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	
<b>3.1.1 Population size</b>  Estimation of population size included in the SAC network	<b>a) Unit</b>
	<b>b) Minimum</b>
	<b>c) Maximum</b>
<b>3.1.2 Method used</b>	
<b>3.1.3 Trend of population size within the network</b> (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

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