

**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 habitat:

**H4060 - Alpine and Boreal heaths**

**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 habitat, 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 habitat 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; and/or (iii) the field was only relevant at UK-level (sections 10 Future prospects and 11 Conclusions).
- For technical reasons, the country-level future trends for Range, Area covered by habitat and Structure and functions 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 17 for Annex I habitat types (Annex D)

## NATIONAL LEVEL

### 1. General information

1.1 Member State	UK (Northern Ireland information only)
1.2 Habitat code	4060 - Alpine and Boreal heaths

### 2. Maps

2.1 Year or period	2013-2018
2.3 Distribution map	Yes
2.3 Distribution map Method used	Complete survey or a statistically robust estimate
2.4 Additional maps	No

## BIOGEOGRAPHICAL LEVEL

### 3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs	<b>Atlantic (ATL)</b>
3.2 Sources of information	<p>Allison, N. (1994). Erosion Profile - High Mourne. Environment and Heritage Service. Belfast.</p> <p>Armstrong, J. I., Calvert, J. &amp; Ingold, C. T. (1930). The Ecology of the Mountains of Mourne with Special Reference to Slieve Donard. Proceeding of the Royal Irish Academy, XX, 440-452.</p> <p>Cooper, A. &amp; McCann, T. (2001). The Northern Ireland Countryside Survey 2000. Environment and Heritage Service, Belfast</p> <p>Cooper, A., McCann, T. and Rogers, D. (2009) Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency. Northern Ireland Environment Agency Research and Development Series No. 09/06. Belfast. 58 pp.</p> <p>McCann, T., Rogers, D. and Cooper, A. (2009) Northern Ireland Countryside Survey 2007: Field methods and technical manual. Northern Ireland Environment Agency. Northern Ireland Environment Agency, Research and Development Series No 09/07. Belfast.</p> <p>Murray, R., McCann, T. and Cooper, A. (1992). A Land Classification and Landscape Ecological Study of Northern Ireland. Department of the Environment NI and Department of Environmental Studies, University of Ulster, Coleraine.</p> <p>Rodwell, J.S. (1991). British Plant Communities. Volume 2, Mires and heaths. Cambridge: Cambridge University Press</p> <p>NIEA. Internal Condition Assessment Reports (various sites and years).</p> <p>Rodwell, J.S., Dring, J.C., Averis, A.B.V., Proctor, M.C.F., Malloch, A.J.C., Schaminee, J.H.J &amp; Dargie, T.C.D. 1998. Review of Coverage of the National Vegetation Classification. Lancaster: Unit of Vegetation Science report to the Joint Nature Conservation Committee.</p> <p>Data on aerial Nitrogen deposition taken from Air Pollution Information System website - <a href="http://www.apis.ac.uk/">http://www.apis.ac.uk/</a></p> <p>NIEA. Internal Survey Reports (various sites and years).</p> <p>Warnock, J. (2000) Heathland Productivity and the Determination of Stocking Densities in the Eastern Mourne Area of Special Scientific Interest. PhD thesis, The Queen's University of Belfast.</p> <p>Wilson, C. (1992) A vegetation survey of the Mourne uplands 1990 - 1992, Final Report. Mourne Advisory Council, Newcastle.</p> <p>Ferris, C. (1994). The management of recreation induced erosion in a granite</p>

# Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

upland - the Mourne Mountains. PhD thesis, The Queen's University of Belfast Smith, B. J., Thomas, M. & Bloomfield, C. (1998). Erosion hazard and footpath condition survey of the High Mourne Mountains. Environment and Heritage Service. Belfast.

## 4. Range

4.1 Surface area (in km <sup>2</sup> )			
4.2 Short-term trend Period			
4.3 Short-term trend Direction	Stable (0)		
4.4 Short-term trend Magnitude	a) Minimum	b) Maximum	
4.5 Short-term trend Method used			
4.6 Long-term trend Period			
4.7 Long-term trend Direction			
4.8 Long-term trend Magnitude	a) Minimum	b) Maximum	
4.9 Long-term trend Method used			
4.10 Favourable reference range	a) Area (km <sup>2</sup> ) b) Operator c) Unknown d) Method	No	
4.11 Change and reason for change in surface area of range	No change The change is mainly due to:		
4.12 Additional information			

## 5. Area covered by habitat

5.1 Year or period	2013-2018		
5.2 Surface area (in km <sup>2</sup> )	a) Minimum	b) Maximum	c) Best single value 0.8
5.3 Type of estimate	Best estimate		
5.4 Surface area Method used	Complete survey or a statistically robust estimate		
5.5 Short-term trend Period	2007-2018		
5.6 Short-term trend Direction	Stable (0)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used	Complete survey or a statistically robust estimate		
5.9 Long-term trend Period	1994-2018		
5.10 Long-term trend Direction	Stable (0)		
5.11 Long-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.12 Long-term trend Method used	Based mainly on extrapolation from a limited amount of data		
5.13 Favourable reference area	a) Area (km <sup>2</sup> ) b) Operator c) Unknown d) Method	No	
5.14 Change and reason for change in surface area of range	No change The change is mainly due to:		
5.15 Additional information			

# Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

## 6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km <sup>2</sup> )	Minimum 0.209	Maximum 0.209
	b) Area in not-good condition (km <sup>2</sup> )	Minimum 0.321	Maximum 0.321
	c) Area where condition is not known (km <sup>2</sup> )	Minimum 0.27	Maximum 0.27
6.2 Condition of habitat Method used	Complete survey or a statistically robust estimate		
6.3 Short-term trend of habitat area in good condition Period	2007-2018		
6.4 Short-term trend of habitat area in good condition Direction	Increasing (+)		
6.5 Short-term trend of habitat area in good condition Method used	Complete survey or a statistically robust estimate		
6.6 Typical species	Has the list of typical species changed in comparison to the previous reporting period?		No
6.7 Typical species Method used			
6.8 Additional information			

## 7. Main pressures and threats

### 7.1 Characterisation of pressures/threats

Pressure	Ranking
Intensive grazing or overgrazing by livestock (A09)	H
Burning for agriculture (A11)	M
Mixed source air pollution, air-borne pollutants (J03)	H
Droughts and decreases in precipitation due to climate change (N02)	M
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	M
Sports, tourism and leisure activities (F07)	H
Threat	Ranking
Intensive grazing or overgrazing by livestock (A09)	M
Burning for agriculture (A11)	M
Mixed source air pollution, air-borne pollutants (J03)	H
Droughts and decreases in precipitation due to climate change (N02)	H
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	H
Sports, tourism and leisure activities (F07)	H

### 7.2 Sources of information

### 7.3 Additional information

## 8. Conservation measures

# Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

8.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified and taken
8.2 Main purpose of the measures taken	Restore the habitat of the species (related to 'Habitat for the species')	
8.3 Location of the measures taken	Both inside and outside Natura 2000	
8.4 Response to the measures	Medium-term results (within the next two reporting periods, 2019-2030)	
8.5 List of main conservation measures		

Adapt mowing, grazing and other equivalent agricultural activities (CA05)

Reduce impact of mixed source pollution (CJ01)

Implement climate change adaptation measures (CN02)

Reduce impact of outdoor sports, leisure and recreational activities (CF03)

8.6 Additional information

## 9. Future prospects

9.1 Future prospects of parameters	a) Range b) Area c) Structure and functions
9.2 Additional information	

## 10. Conclusions

10.1. Range

10.2. Area

10.3. Specific structure and functions (incl. typical species)

10.4. Future prospects

10.5 Overall assessment of Conservation Status

10.6 Overall trend in Conservation Status

10.7 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:

10.8 Additional information

## 11. Natura 2000 (pSCIs, SCIs, SACs) coverage for Annex I habitat types

# Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km<sup>2</sup> in biogeographical/marine region)

- a) Minimum
- b) Maximum
- c) Best single value 0.53

11.2 Type of estimate

Best estimate

11.3 Surface area of the habitat type inside the network Method used

Complete survey or a statistically robust estimate

11.4 Short-term trend of habitat area in good condition within the network Direction

Increasing (+)

11.5 Short-term trend of habitat area in good condition within network Method used

Complete survey or a statistically robust estimate

11.6 Additional information

## 12. Complementary information

12.1 Justification of % thresholds for trends

12.2 Other relevant information

# Distribution Map

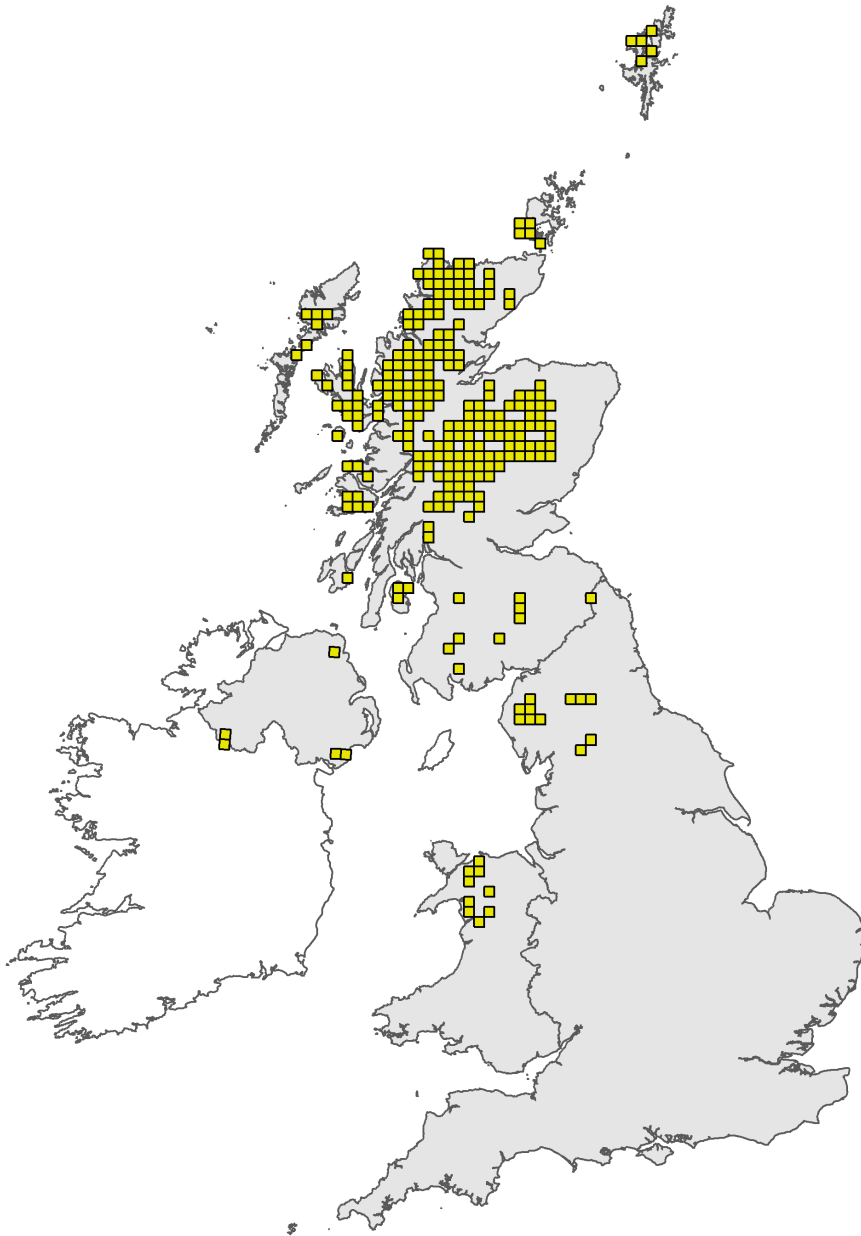


Figure 1: UK distribution map for H4060 - Alpine and Boreal heaths. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available habitat records which are considered to be representative of the distribution within the current reporting period. For further details see the 2019 Article17 UK Approach document.



## Range Map

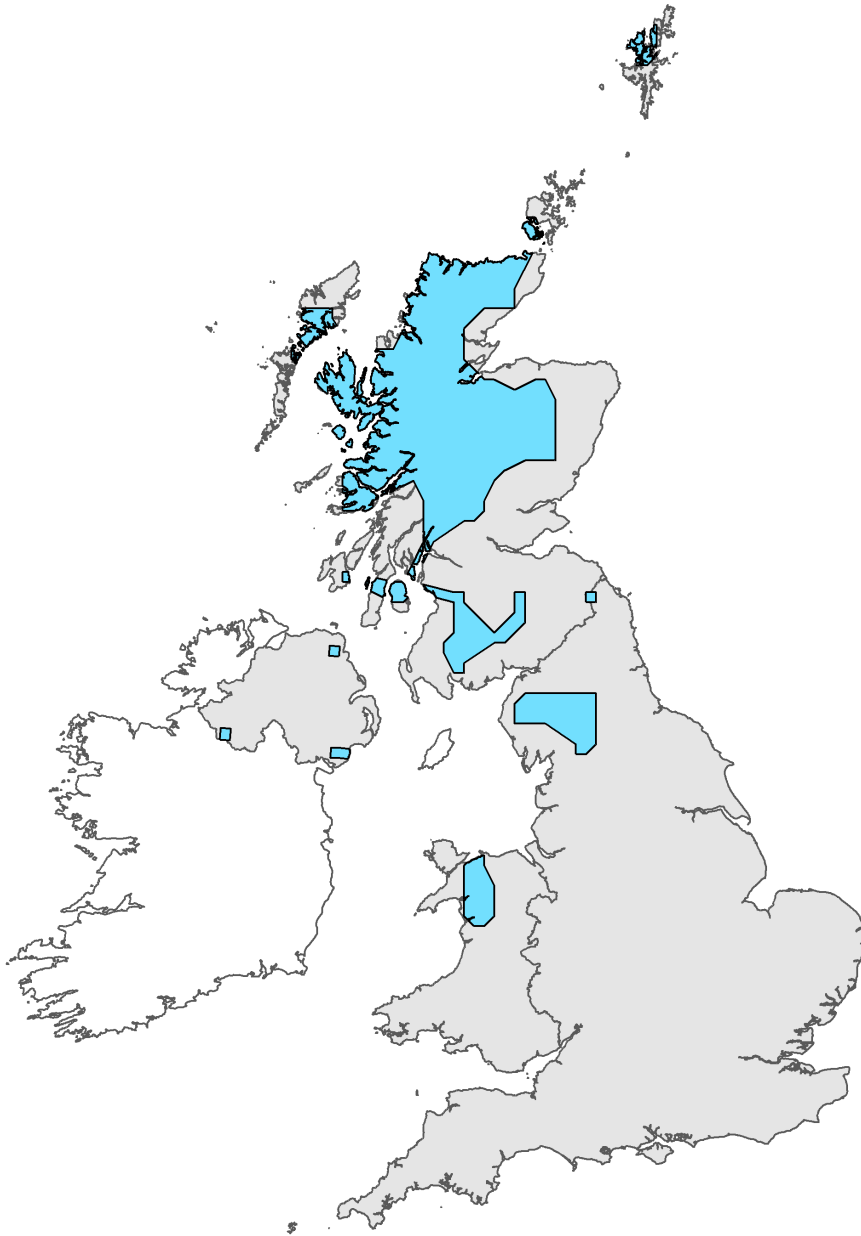


Figure 2: UK range map for H4060 - Alpine and Boreal heaths. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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 habitat was 25km. For further details see the 2019 Article 17 UK Approach document.

# Explanatory Notes

## Habitat code: 4060

Field label	Note
2.2 Distribution map	In the Atlantic Biogeographic Region, alpine and subalpine heaths are restricted to Ireland and the UK, where they are most extensive and best developed in the Scottish Highlands. There is a wide range of alpine and sub-alpine heath types, with variation related to climate, local exposure and snow-lie. The habitat includes seven NVC types of alpine heath community. It is generally only found above the natural tree line, on the highest mountains. The vegetation is influenced by a cold and wet climate with exposure to winds and frost, thin soils and steep rocky ground. Plants that can tolerate this harsh environment include dwarf shrubs, sedges, mosses, lichens and alpine fungi. Characteristic shrub species are the familiar heather, bilberry, crowberry and cowberry. Northern Ireland is at the southern edge of the natural range for Alpine heath. As the habitat tends to develop on the higher mountains (over 600 m in altitude), it is hardly surprising that it is very rare in NI (with only 3 areas at, or over this height). Individual stands of the habitat that do occur in Northern Ireland, tend to be small and fragmented, and often lack many of the species, particularly arctic-alpine elements, that are characteristic of better-developed stands from the remainder of the United Kingdom (especially Scotland). However, survey work suggests that some of the NVC types that are characteristic of this community (H14 <i>Racomitrium</i> heath, and possibly H19 and H20) are present in NI, in addition to sub-alpine forms of H10. The habitat occurs in the Eastern Mourne and Cuilcagh Mountain SACs. There is a tiny stand of the habitat in the Slieveanorra and Croaghan ASSI. It is possible that there may be additional small stands in exposed parts of the higher uplands in NI. Note that this habitat and H6150 Siliceous alpine and boreal grasslands form the Priority habitat Montane Heath - and the two communities share many characteristics.
2.3 Distribution map; Method used	Map based upon fieldwork by NIEA staff at SACs, ASSIs and other locations. During the reporting period, NIEA staff have generally visited SACs and ASSIs; the habitat is very rare outside of these areas.

## Habitat code: 4060 Region code: ATL

Field label	Note
10.6 Overall trend in Conservation Status	Stable assessment based upon improving condition, which is believed to counterbalance the impacts of aerial Nitrogen deposition.
4.1 Surface area	Survey work has covered the main areas of alpine heath in NI. The habitat is rare and restricted to a very narrow environmental range in NI. There is no reason to believe that there has been a loss in range; certainly no loss in range has been recorded in the habitat on SACs or ASSIs since the condition assessment programme was introduced in 2002.
4.5 Short term trend; Method used	Based upon regular condition monitoring of protected montane heath sites. These cover the main sites for the habitat in NI.
5.2 Surface area	The figure for NI of 80 ha of Alpine heath is an estimate based upon survey work by NIEA staff.
5.4 Surface area; Method used	The figure for NI of 80 ha of Alpine heath is an estimate based upon fieldwork by NIEA staff.
5.6 Short term trend; Direction	Assessment of stable based upon recent condition assessment work undertaken by NIEA staff at Alpine heath sites in the Eastern Mourne and Cuilcagh Mountain SACs. No change in extent noted.

5.8 Short term trend; Method used	Assessment of stable based upon recent condition assessment work undertaken by NIEA staff at Alpine heath sites in the Eastern Mourne and Cuilcagh Mountain SACs. No change in extent noted.
5.10 Long term trend; Direction	Long term trend believed to be stable.
6.1 Condition of habitat	Recent condition assessment data for SACs show that the Alpine heath on Cuilcagh Mountain is favourable, but on the Eastern Mourne it is unfavourable. Therefore over half the resource in SACs is unfavourable, while the condition of the remainder on ASSIs is currently unknown (i.e. not yet formally assessed), but probably unfavourable. However, there are signs of improvement in the condition of the heath on the Eastern Mourne, and it is hoped that there will soon be more favourable management regimes in place on this and other sites through current Interreg Va and RDP programmes.
6.2 Condition of habitat; Method used	Condition has been largely assessed from data taken from the most recent Common Standards Monitoring of Alpine heath SACs. These represent a large portion of the resource in NI. Extrapolating the evidence from the protected sites network to the wider resource of alpine heath would suggest that a high proportion of the overall resource is likely to be in unfavourable condition, although showing signs of improvement.
7.1 Characterisation of pressures/ threats	Condition Assessment data for SACs suggest that a high proportion of Alpine heath is in unfavourable condition. Previously, heavy grazing was responsible for much of this poor condition, leading to loss of vegetation structure and the failure of more palatable or vulnerable species to reproduce and maintain themselves. It can also lead to the loss of plant species and associated fauna, and the spread of rank, unpalatable plant species. In extreme cases, very heavy grazing and trampling can lead to exposure of bare soil and erosion. However, recent condition assessments suggest that grazing intensity has been reduced. Accidental burning by fires spreading upslope from fires of submontane tall heaths is another factor that may affect the habitat. Recreational pressures in the form of hill walking are a localised but significant pressure in some locations. Many popular walking routes traverse areas of upland habitats to the mountain summits. The effects of recreational pressure therefore tend to be concentrated on montane heaths, which occupy such a small area on the mountain tops and are especially sensitive to disturbance. The annual 'Mourne Wall Walk' was stopped in the 1983 due to erosion and the effect it was having on plant communities (Smith, Thomas & Bloomfield, 1998). Since 1990, a perceived upsurge in recreational use initiated a number of studies on path erosion in the High Mourne (the area enclosed within the Mourne Wall) (Allinson, 1994; Ferris 1994; Smith et al, 1998). However, no reliable data exists on current use in the High Mourne, either in terms of overall numbers of walkers and other recreational users or the pattern of use in space and time (Smith et al, 1998). It is therefore difficult to forecast the future, but based on the trends in other upland areas in Great Britain, there is a prediction that recreational use of upland areas in Northern Ireland, especially the High Mourne is likely to increase significantly. In County Fermanagh, the Ulster Way runs directly through the Cuilcagh Mountain Park to the summit of the mountain. An increase in tourism and recreational activities is already beginning to have similar implications for Cuilcagh Mountain. Climate change will inevitably have some effects on the habitat, through changing patterns of rainfall and temperature. It is difficult to predict what the long-term effects of this will be. The habitat is very sensitive to aerial Nitrogen deposition, with a critical load range listed in the APIS website as 5 -15 kg N /ha/yr. Most of the habitat in NI receives above this - in some cases considerably higher than this. For example, the Eastern Mourne in the south-east of NI has a predicted annual rate of 21.8 kg/N/ha/year (average figure), compared to Cuilcagh Mountain in the west, which has a figure of 10.9 kg/N/ha/year (average figure).

7.2 Sources of information	Threats and pressures assessed from the most recent Common Standards Monitoring of montane heath at protected sites (SACs and ASSIs), in addition to data from the NI Countryside Survey and expert judgement to assess pressures in the wider countryside. Threats based upon current pressures and expert judgement on future trends.
8.1 Status of measures	As discussed above, recent monitoring of alpine heath on SACs has shown that much of the habitat is in unfavourable condition. However, measures have been put in place at several SACs and ASSIs to improve condition - e.g. in the Eastern Mournes - the most extensive area of alpine heath in NI - NIEA's Environment Fund has been used to develop conservation management plans and initiate a programme of wildfire management measures; control of grazing impacts in the Cuilcagh Mountain SAC (Council initiative - Cuilcagh Mountain Park and GeoPark site). Although some of these measures are primarily aimed at some of the other, more extensive upland habitats such as blanket bog and dry heath, there will also be beneficial effects for Alpine heath. More measures will be put in place under the Interreg Va programme, and the Environmental Farming Scheme (EFS).
8.2 Main purpose of the measures taken	Measures aimed at reducing damaging impacts from current pressures and future threats. The habitat is very rare in NI and restricted to a very narrow environmental range (i.e. mountain summits above around 600m altitude). There is therefore little opportunity to extend the range or extent of the habitat. There is little doubt that heavy grazing pressure on summit heaths in recent decades has tended to reduce the distinctive features of this vegetation, favouring an increase in fine-leaved grasses and resistant herbs like Heath Bedstraw <i>Galium saxatile</i> at the expense of <i>Racomitrium lanuginosum</i> . These degraded montane communities are more akin to NVC classification U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland (Rodwell, 1991). Hence, this is reported as Restore the structure and functions, including the status of typical species (related to 'Specific structure and functions') - i.e. in particular to restore the former abundance of <i>Racomitrium lanuginosum</i> as one of the most characteristic species of this habitat type.
8.3 Location of the measures taken	Management measures have been taken at a number of sites - e.g. Eastern Mournes SAC, Cuilcagh Mountain SAC. In addition, Interreg Va project will be developing conservation management plans and implementing further management measures at these SACs. It is hoped that other areas of Alpine heath across NI will be entered into the Environment Farming Scheme (EFS), which aims to implement sympathetic management.
9.1 Future prospects of parameters	Condition Assessment data for SACs suggest that a high proportion of Alpine heath is in unfavourable condition. However, much of the habitat is in recovering condition and management measures are in place or proposed. Future Prospects for Structure and Function need to be assessed on the balance between improving condition and management measures in place or proposed on the one hand, against aerial Nitrogen deposition exceedance over much of the habitat. The habitat is very sensitive to aerial Nitrogen deposition, with a critical load range listed in the APIS website as 5 -15 kg N /ha/yr. Most of the habitat in NI receives above this - in some cases considerably higher than this. For example, the Eastern Mournes in the south-east of NI has a predicted annual rate of 21.8 kg/N/ha/year (average figure), compared to Cuilcagh Mountain in the west, which has a figure of 10.9 kg/N/ha/year (average figure). Although the Department is developing a road map to reduce atmospheric Nitrogen from agricultural sources, until this initiative is implemented and its impacts evaluated, advice from JNCC is that the assessment of Future Prospects for Structure and Function should be assessed as Negative.

10.1 Range	In NI, Alpine heath is a scarce habitat limited to the summits and exposed ridges of the highest mountains. NIEA staff have visited most - if not all - of the resource over the last few years and there is no evidence that the range of the habitat has declined; therefore the current range is judged to be equal to the Favourable Reference Range - therefore Favourable assessment.
10.2 Area	In NI, Alpine heath is a scarce habitat limited to the summits and exposed ridges of the highest mountains. Over the short term, there has been no evidence of loss in extent, although there is little doubt that the habitat in NI - like the rest of the UK - has been in decline, as overgrazing has converted it to other forms of heath and upland grassland (see Armstrong, J. I., Calvert, J. & Ingold, C. T. (1930)). These degraded montane communities are more akin to NVC classification U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland (Rodwell, 1991). However, we believe that this reflects poor habitat condition, rather than a loss in extent. Hence extent reported as Favourable.
10.3 Specific structure and functions	The Alpine heath resource is reported as not good for structure and function. Within the protected sites network, a significant proportion is in unfavourable condition, albeit showing signs of improvement and under favourable management, which should in the longer term improve condition. Nevertheless, an Unfavourable Bad assessment.
10.4 Future prospects	Despite some positive developments within the protected sites network as a result of conservation measures both already in place and planned for the future, the structure and function of the Alpine heath habitat is currently bad. Future prospects are uncertain in the light of potential impacts of climate change, but the added impact of atmospheric Nitrogen deposition make this attribute Unfavourable Bad.
10.5 Overall assessment of Conservation Status	Range is Favourable; extent is Favourable; Structure and function is bad, although indications are that this is improving. Future prospects are bad despite improving management on designated sites, with climate change impacts currently unpredictable and atmospheric Nitrogen deposition still a major threat. Hence an overall Unfavourable bad assessment.
11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network	Alpine heath is a feature on 2 SACs: Cuilcagh Mountain and Eastern Mourne. Together these sites cover an estimated 53 ha of the habitat.
11.3 Surface area of the habitat type inside the network; Method used	Extent of Alpine heath habitat on SACs has been estimated by field survey. CSM of SACs is undertaken on a regular basis and no recent loss in extent has been recorded.
11.4 Short term trend of habitat area in good condition within the network; Direction	Assessment of increasing based upon recent condition assessment data and recent management measures. Although the majority of the Alpine heath habitat in the SAC network is reported as unfavourable (i.e. the Eastern Mourne SAC), a significant amount here is showing signs of improvement.
11.5 Short term trend of habitat area in good condition within the network; Method used	Assessment based upon recent condition assessment data, in addition to the planned introduction of management measures that should improve the condition of the Alpine heath.