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:

H4030 - European dry 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	**4030 - European dry 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	**Atlantic (ATL)**
3.2 Sources of information	Cooper, A. & McCann, T. (2001). The Northern Ireland Countryside Survey 2000. Environment and Heritage Service, Belfast 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. 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. 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. Rodwell, J.S. (1991). British Plant Communities. Volume 2, Mires and heaths. Cambridge: Cambridge University Press NIEA. Internal Condition Assessment Reports (various sites and years). Rodwell, J.S., Dring, J.C., Averis, A.B.V., Proctor, M.C.F., Malloch, A.J.C., Schaminee, J.H.J & 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. Data on aerial Nitrogen deposition taken from Air Pollution Information System website - http://www.apis.ac.uk/ NIEA. Internal Survey Reports (various sites and years). Warnock, J. (2000) Heathland Productivity and the Determination of Stocking Densities in the Eastern Mournes Area of Special Scientific Interest. PhD thesis, The Queen's University of Belfast. Wilson, C. (1992) A vegetation survey of the Mourne uplands 1990 - 1992, Final Report. Mournes Advisory Council, Newcastle.

4. Range

4.1 Surface area (in km²)	
4.2 Short-term trend Period	

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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 (km²) b) Operator c) Unknown No d) Method		
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 km²)	a) Minimum	b) Maximum	c) Best single value 168
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	Increasing (+)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data		
5.9 Long-term trend Period	1994-2018		
5.10 Long-term trend Direction	Increasing (+)		
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 (km²) b) Operator c) Unknown No d) Method		
5.14 Change and reason for change in surface area of range	No change The change is mainly due to:		
5.15 Additional information			

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum 0	Maximum 0
	b) Area in not-good condition (km²)	Minimum 56.093	Maximum 56.093
	c) Area where condition is not known (km²)	Minimum 111.907	Maximum 111.907

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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)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Wind, wave and tidal power, including infrastructure (D01)	M
Other invasive alien species (other then species of Union concern) (I02)	M
Droughts and decreases in precipitation due to climate change (N02)	M
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	H
Conversion into agricultural land (excluding drainage and burning) (A01)	M
Sports, tourism and leisure activities (F07)	M

Threat	Ranking
Intensive grazing or overgrazing by livestock (A09)	M
Burning for agriculture (A11)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Wind, wave and tidal power, including infrastructure (D01)	M
Other invasive alien species (other then species of Union concern) (I02)	M
Droughts and decreases in precipitation due to climate change (N02)	H
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	H
Conversion into agricultural land (excluding drainage and burning) (A01)	M
Sports, tourism and leisure activities (F07)	M

7.2 Sources of information	
7.3 Additional information	

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8. Conservation measures

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		Maintain the current range, population and/or 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		

Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land (CA01)

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

Reduce impact of mixed source pollution (CJ01)

Adapt/manage renewable energy installation, facilities and operation (CC03)

Management, control or eradication of other invasive alien species (CI03)

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:

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10.8 Additional information	

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

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km² in biogeographical/ marine region)	a) Minimum b) Maximum c) Best single value 56.093
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

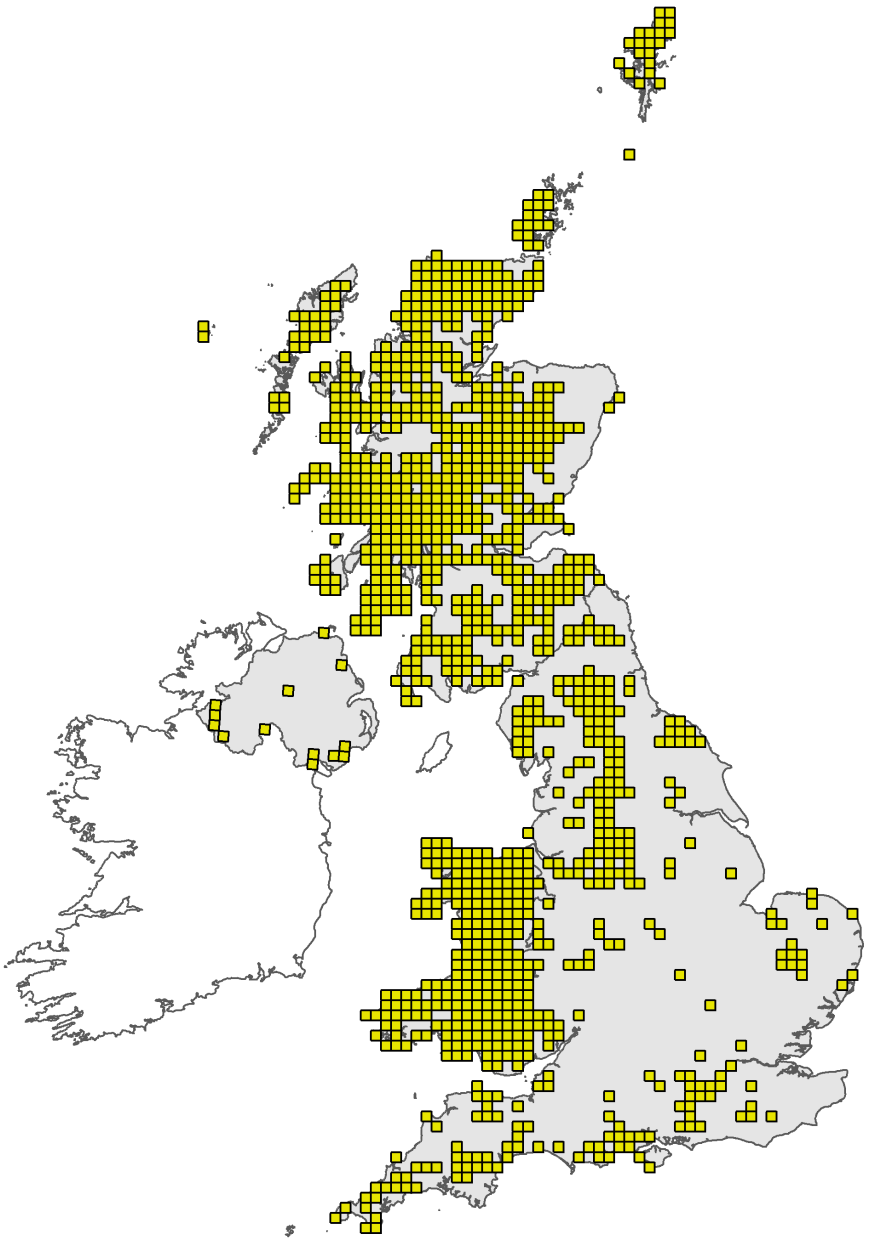

Figure 1: UK distribution map for H4030 - European dry heaths. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

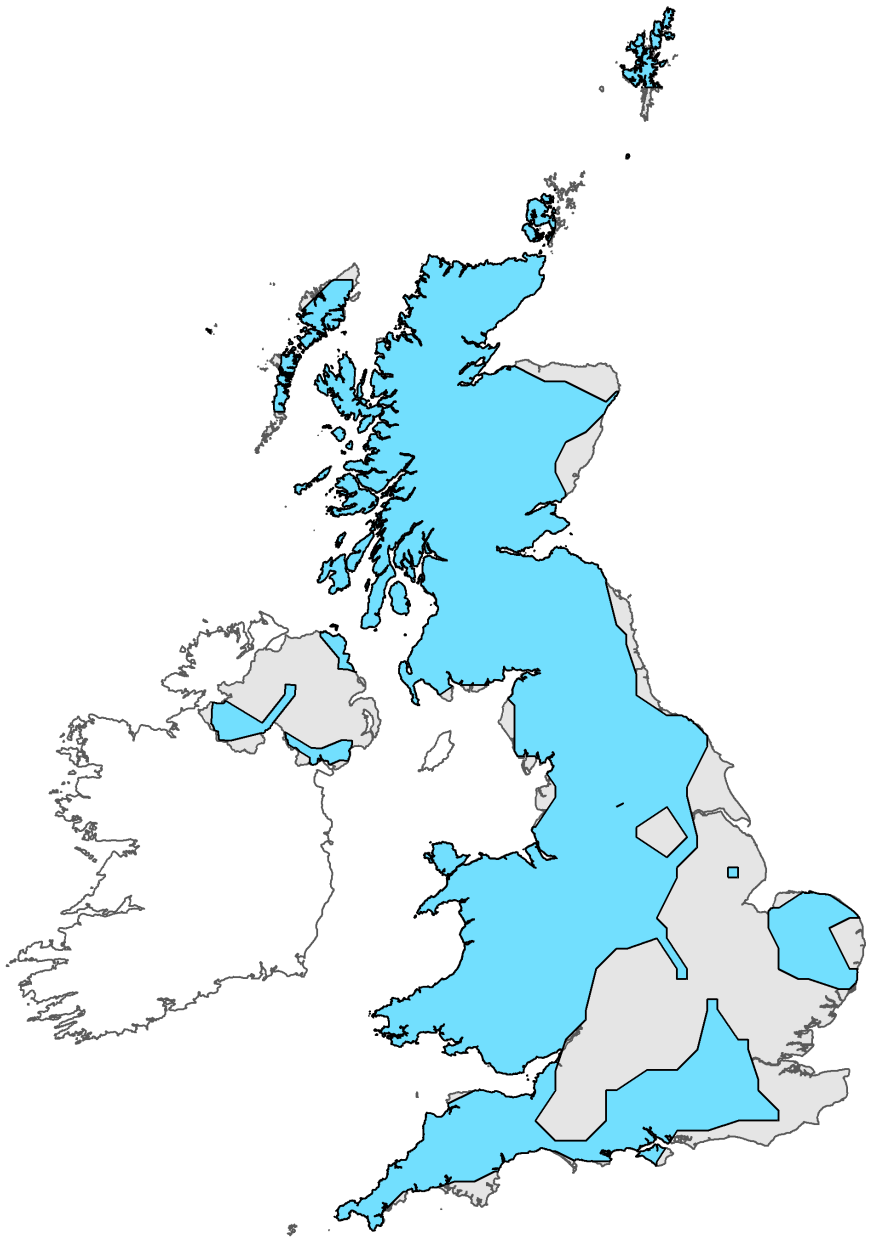

Figure 2: UK range map for H4030 - European dry heaths. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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: 4030

Field label	Note
2.2 Distribution map	Dry heaths are widespread and extensive in the UK and occur in both the lowlands and the uplands. A high proportion of the EC resource occurs in the UK, and the habitat exhibits exceptional diversity in comparison with examples found elsewhere in the EC. Twelve NVC dry heath communities in Britain may be considered as meeting the definition of this habitat type - H1 Calluna vulgaris-Festuca ovina heath, H2 Calluna vulgaris-Ulex minor heath, H3 Ulex minor-Agrostis curtisii heath, H4 Ulex gallii-Agrostis curtisii heath, H7 Calluna vulgaris-Scilla verna heath, H8 Calluna vulgaris-Ulex gallii heath, H9 Calluna vulgaris-Deschampsia flexuosa heath, H10 Calluna vulgaris-Erica cinerea heath, H12 Calluna vulgaris-Vaccinium myrtillus heath, H16 Calluna vulgaris-Arctostaphylos uva-ursi heath, H18 Vaccinium myrtillus-Deschampsia flexuosa heath, H21 Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium heath. Dry heaths vary according to climate and are also influenced by altitude, aspect, soil conditions (especially base status and drainage), maritime influence and grazing intensity. There is a gradation from southerly to northerly kinds of heath and there are both western (oceanic) and eastern (more continental) forms of dry heath. The total area of dry heath in NI has been estimated at around 10,000 ha (NICS - but this includes some dry heath/grassland mosaic). The habitat is widespread, but does not generally form extensive stands outside the Mournes, Slieve Croob and Slieve Gullion areas (NICS). It often occurs as an intricate part of the upland mosaic, with wet heath, blanket bog and acid grassland. A full inventory has not been completed, but some NVC communities known to occur here include H7 (especially around rocky slopes beside the coast, such as Rathlin Island), H8 (Mourne Mountains, Slieve Gullion, Strangford Lough and Rathlin Island), H10 (Slieve Gullion and especially Mourne Mountains), H12 (Mourne Mountains and other higher altitude mountains and hills) and H21 (west Fermanagh uplands). Dry heath is a feature on 5 SACs: Pettigoe Plateau, Slieve Gullion, Cuilcagh Mountain, Eastern Mournes and Slieve Beagh. it is also present as a selection feature on a number of ASSIs: Mullaghcarn, Rathlin Island - Ballycarry, Rathlin Island - Kebble, Lough Navar Scarps and Lakes, Big Dog Scarps and Lakes, Garron Plateau, Black Lough (Down), Rathlin Island - Ballygill North, Galboly and the Murrins.
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, with coverage of the habitat in the wider countryside more patchy.

Habitat code: 4030 Region code: ATL

Field label	Note
10.6 Overal trend in Conservation Status	Stable assessment based upon increasing extent and improving condition, which are believed to counterbalance the impacts of aerial Nitrogen deposition.
4.1 Surface area	Although survey work has covered the main areas of dry heath in NI, the complete resource has not been surveyed. However, 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 dry heath sites. These cover the main sites for the habitat in NI.

5.2 Surface area	The figure for NI of 16,800 ha of dry heath is an estimate based upon NI Countryside Survey (Cooper, et al.,2009). The S.E. of the estimate is 45.6 km2. The estimated area has increased since the 2007 report (10,300 ha estimated then). This increase appears to be the result of both improved data, in addition to a genuine increase in the extent of the habitat due to reduced grazing and subsequent recovery of heath from acid grassland communities.
5.4 Surface area; Method used	The figure for NI of 16,800 ha of dry heath is an estimate based upon NI Countryside Survey (Cooper, et al.,2009). The S.E. of the estimate is 45.6 km2. Area is estimated from NI Countryside Survey data based on field mapping within 288 25ha sample squares.
5.6 Short term trend; Direction	The habitat showed and increase in extent from 13,900 ha in 1998 to 16,750 ha in 2007, which was an increase of 28.4 km2 (20.4%) with a S.E. of 25.0 km2. Although this change was not statistically significant (p=0.05, 95%), it strongly suggests that the habitat expanded during that period - almost certainly as a result of reduced grazing levels in the uplands. In the absence of more recent data from the wider countryside, we are extrapolating that the trend identified between 1998 and 2007 has continued.
5.8 Short term trend; Method used	Trend based upon NI Countryside Survey data for the period 1998 to 2007. Assumed that the trend has continued into the current reporting period - hence Based mainly on extrapolation from a limited amount of data. The NICS was based on field mapping within 288 25ha sample squares.
5.12 Long term trend; Method used	Assessment of increasing based upon analysis of NI Countryside Survey data which showed an increase in extent of dry heath from 1998 to 2007. We are suggesting that this increase has continued - hence Based mainly on extrapolation from a limited amount of data.
6.1 Condition of habitat	Recent condition assessment data for SACs and ASSIs suggest that, apart from the lowland heaths on Rathlin Island, most sites with dry heath as a selection feature are in unfavourable condition. However, a high proportion of these protected sites have shown signs of improvement in condition, and/or will soon have more favourable management regimes in place. The amount in the protected site series represents a relatively high proportion of the overall NI resource. Although the situation in the wider countryside is less well-known, NI Countryside Survey data suggest that the habitat is generally improving in condition (i.e. dry heath increasing in extent at the expense of acid grassland as grazing pressures have reduced).
6.2 Condition of habitat; Method used	Condition has been largely assessed from data taken from the most recent Common Standards Monitoring of dry heath SACs and ASSIs. These represent a large portion of the resource in NI. Extrapolating the evidence from the protected sites network to the wider resource of dry heath would suggest that a high proportion of the overall resource is likely to be in unfavourable condition, although showing signs of improvement. This is supported by general trends identified in the NI Countryside Survey 1998-2007 (Cooper, et al., 2009). Although the latter is now somewhat out of date, it is likely that the broad trends identified are still valid.

7.1 Characterisation of pressures/ threats	Condition Assessment data for SACs suggest that a high proportion of the habitat is in unfavourable condition; data for ASSIs with dry heath as a selection feature display a similar trend. Previously, heavy grazing was responsible for much of this poor condition. However, recent condition assessments suggest that grazing intensity has been reduced over a significant area of the resource. Undergrazing may now be an issue in some areas, particularly in lowland heaths. Uncontrolled burning remains a significant issue. Outside the protected sites network construction of windfarms can have a significant localised impact on the habitat, in addition to colonisation by exotic conifer species from adjacent plantations. Recreational pressures in the form of hill walking are a localised but significant pressure in some locations - e.g. Eastern Mournes SAC. Climate change will inevitably have some effects on the habitat, through changing patterns of rainfall. It is difficult to predict what the long-term effects of this will be. The habitat is sensitive to aerial Nitrogen deposition, with a critical load range listed in the APIS website as 10-20 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). Apart from nutrient enrichment and the impacts on species composition, some key heathland species are particularly sensitive to the effects of ammonia (i.e. Cladonia portentosa and Calluna vulgaris).
7.2 Sources of information	Threats and pressures assessed from the most recent Common Standards Monitoring of dry 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 dry heath on designated sites has shown that 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 dry 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); management measures are being undertaken on the Garron Plateau SAC, initially as part of a joint NIEA/RSPB/Water NI project, and now part of Interreg Va programme. Although some of these measures are primarily aimed at the blanket bog habitat, there will also be beneficial effects for dry 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 extensive across NI. Hence this is reported as Maintain the structure and functions, including the status of typical species (related to 'Specific structure and functions').
8.3 Location of the measures taken	Management measures have been taken at a number of sites - i.e. Eastern Mournes SAC, Garron Plateau SAC, Cuilcagh Mountain SAC. In addition, Interreg Va project will be developing conservation management plans and implementing management measures at several SACs, and Rural Development Plan (RDP) funds are being used to develop similar Conservation Management Plans at other SACs that contain dry heath. Several areas of dry heath across NI - both within designated sites and outside - have been entered into the Environment Farming Scheme (EFS), which aims to implement sympathetic management.

9.1 Future prospects of parameters	Future Prospects for Dry Heath need to balance increasing extent, and management measures in place or proposed, against current pressures and future threats. The habitat is sensitive to aerial Nitrogen deposition, with a critical load range listed in the APIS website as 10-20 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). Apart from nutrient enrichment and the impacts on species composition, some key heathland species are particularly sensitive to the effects of ammonia (i.e. Cladonia portentosa and Calluna vulgaris). 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, although there have undoubtedly been losses - particularly to afforestation and agricultural intensification - it is not believed that these have had any impact on the range of the habitat. Available evidence from survey work and aerial photo coverage suggests that the range has remained stable since 1988. Certainly the habitat occurs widely over all suitable upland areas. There has undoubtedly been a more significant decline in dry heath in lowland settings, but it is unlikely that this has reduced the range of the habitat over the past 20-30 years. Overall expert judgement is that the known distribution of dry heath is likely to be occupying most of its potential natural range; and that the favourable reference range and distribution for dry heath is likely to match closely the current range and distribution.
10.2 Area	In the past there have been significant losses in the extent of dry heath, particularly to afforestation and agricultural reclamation - the latter more pronounced but by no means restricted to lowland settings. Most of this was before 1994. Data from the NI Countryside Survey suggests that the extent of the habitat has increased over the period 1998 to 2007, primarily due to reduced grazing pressures in the uplands. Although this change was not statistically significant (p=0.05, 95%)), we have no reason to believe that this rate of increase has changed over the intervening period. Hence the area is assessed as Favourable.
10.3 Specific structure and functions	The dry heath resource is reported as not good for structure and function. Within the protected sites network, most is in unfavourable condition, but showing signs of improvement and under favourable management, which should in the longer term improve condition. However, a significant part of the resource is outside the protected sites network and the condition is not known. NI Countryside data suggest that this may be improving (indicated by increase in extent between 1998 and 2007). 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 dry 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	Dry heath is a feature on 5 SACs: Pettigoe Plateau, Slieve Gullion, Cuilcagh Mountain, Eastern Mournes and Slieve Beagh. Together these sites cover over 5,600 ha of the habitat.

11.3 Surface area of the habitat type inside the network; Method used	Extent of dry 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 dry heath habitat in the SAC network is reported as unfavourable, a significant amount is either showing signs of improvement, and or is in (or likely to be in the near future) sympathetic management.
11.5 Short term trend of habitat area in good condition within the network; Method used	Assessment based upon recent condition assessment data and the planned introduction of management measures that should improve the condition of dry heath.