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:

H4010 - Northern Atlantic wet heaths with *Erica tetralix*

WALES

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 (Wales information only)**
1.2 Habitat code	**4010 - Northern Atlantic wet heaths with Erica tetralix**

2. Maps

2.1 Year or period	1979-2012
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	APIS (Nitrogen Deposition: Dwarf-shrub Heath). Available from: http://www.apis.ac.uk/node/974 Barker, C.G., Power, S.A., Bell, N.B. & Orme, C. D. (2004) Effects of habitat management on heathland response to atmospheric nitrogen deposition. Biological Conservation Volume 120, Issue 1, Pages 41-52 Blackstock T. H., Howe E. A., Stevens J. P., Burrows C. R. & Jones P. S. 2010. Habitats of Wales. A comprehensive field survey 1979-1997. University of Wales Press, Cardiff. Bishop, J. & Jones, N. 2011. Review into the impacts of management on the heathland community and the potential for the control of Phytophthora. Food and Environment Research Agency (DEFRA research PH0601). Bunch, N., Cheffings, C., & Robinson, A. 2016 Decision-making guidance for managing Phytophthora infections in Vaccinium myrtillus populations JNCC Report No: 578 Conyers, S., Somerwill, K., Ramwell, C., Hughes J., Laybourn, R., & Jones N. 2011. Review of the known and potential biodiversity impact of Phytophthora and the likely impacts on ecosystem services. Food and Environment Research Agency (DEFRA research PH0601) Cwlwm Seriol Big Lottery Project. Available from: https://cwlwmseriolbond.com Defra. 2014. Tree Health Management Plan. Dobben van, H. 1991. Acidification Research in the Netherlands. Chapter 5 Heathlands. Studies in Environmental Science Vol 46. 139-145 Fag00fandez, J. 2013. Heathlands confronting global change: drivers of biodiversity loss from past to future scenarios. Annals of Botany 111(2) 151-172 Gray, D.A., 2004. A National Vegetation Survey (NVC) of the Brecon Beacons SSSI. CCW Science Report 667 Gray, D.A., 2002. NVC Survey of proposed extensions to Eryri cSAC (Glydeirau and Y Wyddfa). CCW Contract Science Report 517. Gray, D.A., 2003. NVC Survey of Mynydd Llangatwg and Mynydd Llangynidr. CCW Contract Science Report 605. Gritten R. 2012. Conservation Assessment of Lowland Heathland in the Upland Fringes (Ffridd Zone) of Snowdonia National Park. CCW Science Report No.992. Guest, D. 2012. Assessing N deposition as a pressure for Article 17 reporting on habitats. CCW internal document.

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4. Range

4.1 Surface area (in km²)	
4.2 Short-term trend Period	
4.3 Short-term trend Direction	Uncertain (u)
4.4 Short-term trend Magnitude	a) Minimum b) Maximum
4.5 Short-term trend Method used	

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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	1979-2012		
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value 144.14
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	2007-2017		
5.6 Short-term trend Direction	Uncertain (u)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used	Insufficient or no data available		
5.9 Long-term trend Period	1989-2017		
5.10 Long-term trend Direction	Decreasing (-)		
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	31.13	Maximum	31.13
	c) Area where condition is not known (km²)	Minimum	113.01	Maximum	113.01
6.2 Condition of habitat Method used	Based mainly on expert opinion with very limited data				

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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	Unknown (x)
6.5 Short-term trend of habitat area in good condition Method used	Insufficient or no data available
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
Extensive grazing or undergrazing by livestock (A10)	H
Intensive grazing or overgrazing by livestock (A09)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Droughts and decreases in precipitation due to climate change (N02)	M
Drainage (K02)	M
Change of habitat location, size, and / or quality due to climate change (N05)	M
Sports, tourism and leisure activities (F07)	M
Mowing or cutting of grasslands (A08)	M
Burning for agriculture (A11)	M

Threat	Ranking
Extensive grazing or undergrazing by livestock (A10)	H
Intensive grazing or overgrazing by livestock (A09)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Droughts and decreases in precipitation due to climate change (N02)	H
Drainage (K02)	M
Change of habitat location, size, and / or quality due to climate change (N05)	M
Sports, tourism and leisure activities (F07)	M
Mowing or cutting of grasslands (A08)	M
Burning for agriculture (A11)	M
Other invasive alien species (other then species of Union concern) (I02)	M

7.2 Sources of information	
7.3 Additional information	

8. Conservation measures

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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		

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

Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures (CA04)

Recreate Annex I agricultural habitats (CA07)

DO NOT USE Management, control or eradication of other alien species (CI04)

Management of problematic native species (CI05)

Other measures related to problematic species (CI06)

Reduce/eliminate air pollution from agricultural activities (CA12)

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

Manage drainage and irrigation operations and infrastructures in agriculture (CA15)

Manage/reduce/eliminate air pollution from transport (CE03)

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

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 31.13
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	Stable (0)
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

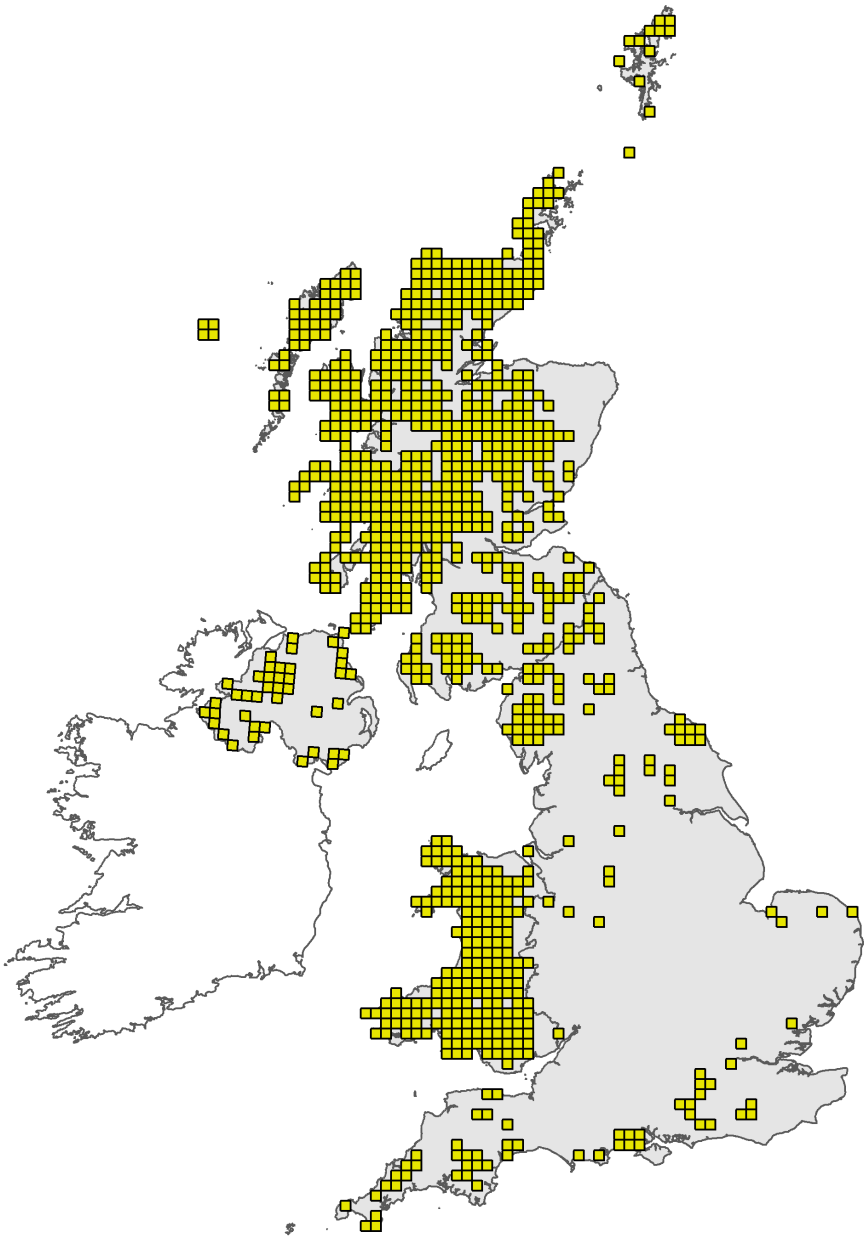

Figure 1: UK distribution map for H4010 - Northern Atlantic wet heaths with *Erica tetralix*. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

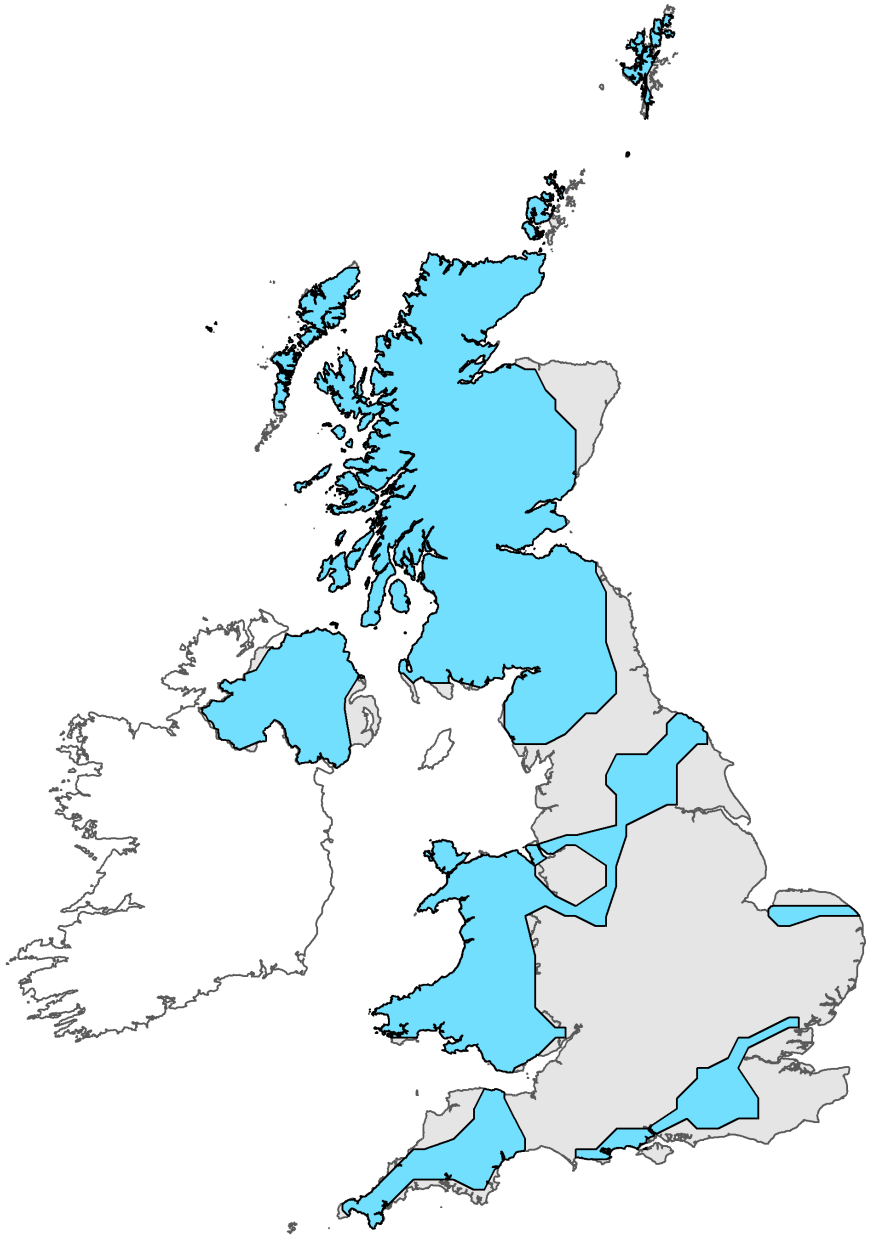

Figure 2: UK range map for H4010 - Northern Atlantic wet heaths with *Erica tetralix*. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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: 4010

Field label	Note
2.3 Distribution map; Method used	The distribution (and extent) of H4010 has been calculated using three main data sources plus additional surveys and research reports. A polygon-based GIS inventory was produced in 2012 (Stevens and Sherry, 2012) and reviewed in 2018. There is likely to be additional data which could be added to the map based on a review of NVC data but currently this has not been processed and therefore no changes have been made to the map but any changes are unlikely to change the 10km square distribution. Data source 1 (MAIN DATA SOURCE): 'Phase 1' Habitat Survey of Wales (HSW; Blackstock et al., 2010). This was a comprehensive field-by-field survey of the region; distribution data for this habitat come entirely from the upland component of the survey, conducted between 1979 and 1989. This is a relatively old dataset and has not been updated with more recent changes in habitat extent. Data source 2 (MAIN DATA SOURCE): Lowland Heathland Survey of Wales (LHSW various authors summarised in Sherry 2007). This was a targeted NVC (Rodwell (ed.), 1992) survey focussing on heathlands of high conservation interest in the Welsh lowlands. Survey work was conducted between 1993 and 2002. Data source 3: (MAIN DATA SOURCE): Heathland data collected as part of the Lowland Grassland Survey of Wales (LGSW; Stevens et al., 2010). Survey work was conducted between 1987 and 2004. Data source 4: Various upland NVC Surveys (various authors) undertaken between 1996 and 2008. Data source 5: A sample survey of 48 1km squares in the Snowdonia National Park between 2009 and 2011 (Gritten 2012). Data source 6: Heathland records from 2 studies of coal spoil vegetation in south Wales in 2007.

Habitat code: 4010 Region code: ATL

Field label	Note
4.3 Short term trend; Direction	See 4.11
4.11 Change and reason for change in surface area of range	The distribution data submitted in 2013 has not been updated. Changes in surface area or range may actually have occurred since the last reporting period, but NRW has no system in place for monitoring or recording such changes.
5.4 Surface area; Method used	See 2.3
5.6 Short term trend; Direction	Both losses and gains are known to be occurring (individual site records and anecdotal evidence) but there is insufficient information to determine how these are balanced
5.8 Short term trend; Method used	Information on habitat loss and gain mostly pre-dates the 2012 reporting round. More recently some small areas of habitat loss have been recorded, for example loss of wet heath to marshy grassland on Waun Cimla SSSI (NRW, 2018). Cernydd Carmel SAC loss of 0.88 ha wet heath equating to 16% of the wet heath feature on the site (Wilkinson, 2018). Gains for wet heath are not well recorded however it is likely there have been gains in the uplands as a result of reduced grazing.

5.12 Long term trend; Method used	No change from the last reporting round as there is little information available to track losses and gains. There is no evidence to suggest that losses reported in 2012 have been re-gained (JNCC Archive 2017). Data collated during the sample survey of heathland in the Snowdonia National Park 2009-2011 (Gritten. R. 2012) has been analysed to show a 6% loss of wet heath (D.1.1 and D.5) between 1980's and 2009/11. This figure includes areas where there was evidence of actual loss through changes to the habitat rather than areas where habitat figures were recalculated due to better mapping. Losses are unlikely to be as large-scale as those recorded pre-1987 reporting round e.g. work on the Llyn Peninsula showed a 95% loss in wet heath between 1920/22 and1987/88 (Stevens 1992).
5.14 Change and reason for change in surface area	Whilst change may have occurred during the reporting period there is insufficient data to recalculate the surface area figure
6.1 Condition of habitat	Derived from most recent SAC monitoring data. Northern Atlantic Wet Heath has been assessed using Common Standards Monitoring on 12 sites, the feature is recorded as unfavourable on all sites except one which has been partially destroyed (NRW 2018a). Additional condition data from a very small selection of SSSIs (NRW 2018b).

7.1 Characterisation of pressures/ threats	Pressures: Data held in NRW's Special Sites Database (NRW 2017), which provides information on issues needing action, was used to quantify pressures and threats relating to the habitat. 1. More than half the issues (53%) relate to agricultural and land management with grazing the most significant pressure. Insufficient grazing (A10) impacts on 119 units, overgrazing (A09) impacts on 57 units, and incorrect grazing type or timing impacts on 162 units. Insufficient cutting is identified as an issue on 42 units (A08) and too much or uncontrolled burning (A11) on 53. Drainage (K02) is an issue on 45 units this includes both ditch management and water abstraction (K01). 2. Access and recreation (F07) are a pressure on 28 units and primarily refers to footpath erosion and the impacts of illegal vehicle (4x4 and motorbikes) on upland sites. 3. The NRW Life N2K dataset shows that 46% of issue risks identified for Northern Atlantic Wet Heath are of high priority and 30% are of high urgency. Of the high priority and high urgency risk 98% and 82% respectively relate to risks from agricultural and land management issues. 4. SAC Monitoring Data show that insufficient grazing and lack of appropriate heavy livestock (Wilkinson 2015, 2017 and 2018) are the key reasons for feature failure on lowland Northern Atlantic Wet Heath (A10, A09). Monitoring information from a small number of SSSIs in South and East Wales shows a similar picture with grazing and lack of management (A10,A09)being identified as the key pressures (NRW 2018a&b). 5. The LIFE Natura 2000 Programme a data shows that inappropriate grazing and livestock management is an issue or risk 78 out of 112 Natura 2000 sites across Wales (70%). The Thematic Action Plan Grazing and Livestock management recorded 163 instances of Northern Atlantic Wet Heath features being impacted by grazing issues. Monitoring data show that securing the correct grazing stock (actions database) and maintaining an appropriate grazing regime remain a significant issue. 6. Air pollution (J03) (N deposition) is assessed separately using a defined approach (Guest, 2012), using updated deposition data). Using a data overlay method in ARC GIS, 98% of the habitat by area (polygon data) was recorded at or above the relevant lower Critical Load limit (10kg/ha/yr.). Threats: 1. Data held in the Actions Database were used to assess which issues still remained to be addressed 2. Changes to agricultural management and in particular grazing, as a result of policy or economic change, remains the greatest threat to Northern Atlantic Wet Heath (A10,A09). The future of agri-environment post-Brexit is of considerable significance to the management of this habitat (RSPB 2017 and WEL 2017). 3. The vast majority of heathland is open access and pressures are likely to grow in response to various initiatives to meet Welsh Governments goal of improving the opportunities to access the outdoors for responsible recreation (Welsh Government 2015). Wet heaths on peaty soils are particularly vulnerable to damage and erosion through footfall and vehicular activity (F07). 4. There is a considerable amount of research literature on the long-term impacts of both nitrogen deposition (Southon et al 2012, 2013) and climate change (N02, N05, J03) on heathlands (Fag00fandez 2013). The response to these drivers of change can be slow and therefore remains a long-term threat, evidence has been collected on potential management measures to mitigate these impacts (Natural England 2013), (Barker et al 2004). 5. The impacts of the pathogens (I05) ramorum, P. kernoviae (and to a lesser extent P. pseudosyringae) on heathland have been well researched (Bishop and Jones 2011 and Conyers et al 2011. In heathland infection of Vaccinium is the primary concern (JNCC 2010) and therefore less of an issue on wet heath where Vaccinium is generally a smaller component of the vegetation. However, laboratory trials have shown that Calluna is also vulnerable to Phytophthora pathogens (JNCC 2010) and therefore this remains a threat to wet heath.

8.5 List of main conservation measures	1. NRW Actions Database details what conservation actions have been identified to address issues; conservation actions have been identified on units containing Northern Atlantic Wet Heath on 82 SSSIs, 15 SACs, 5 SPAs and 1 Ramsar site. 10 % of Units with Northern Atlantic Wet Heath are considered to be in appropriate conservation management. The database shows that conservation measures are implemented through a range of mechanisms including agri-environmental measures (commons, entry level and advanced) (CA05, CA04, C104, C105), NRW Management Agreements (CA05, CA04, C104, C105), direct action by landowners and tenants (CA05, CA04, C104, C105, CF03), RoC Discharge/PPC consent (CA15) , direct NRW management, enforcement, partnership working (CF03, C104, C105) etc. 2. 1.75% of the habitat is currently covered by NRW Management Agreements. Agreements cover 47% of the habitat with 1603.12ha under Glastir Advanced prescriptions, 1712.27ha under Glastir Entry prescriptions and 3408.08ha under Glastir Entry Commons CA05, CA04, C104, C105). 3. A number of landscape-scale projects which include survey, management and monitoring of Northern Atlantic Wet Heath as part of their programme of work are underway. These include the Healthy Hillsides project in South Wales, Upper Conwy Catchment Project in North East Wales and Cwlwm Seriol Project on Anglesey. Other site-based initiatives to improve management are undertaken by the NGO community on their own land CA05, CA04, C104, C105, CA15, CF03, CA07, CIO6,CN02). 4. National regulations are in place but have been insufficient to prevent continued high levels of N deposition nationally (CE03, CA12) and locally increasing ammonia pollution from expansion of poultry units. 5. A decision-making framework has been developed to guide management response to Phytophthora outbreaks on heathland (Bunch et al 2016). This is targeted at Vaccinium but could be applied to other ericoid species(C104)
9.1 Future prospects of parameters	1. On the designated sites actions identified to address the issues are only partly implemented or underway. For example, of the actions identified to address agricultural and land management issues 37% are complete, a further 4% are underway and 8 % are planned. The remaining actions are identified, agreed in principle or not agreed. Additionally, individual units are not in appropriate conservation management until all issues are under control and actions complete, at present this has been achieved on 10 % of units. (NRW Actions Database 2017). 2. Only 26% of the habitat resource lies within the protected site network. Implementation of management to address issues outside the SSSI series is not well documented but Gritten (2012) suggests that agricultural and land management issues will continue to result in the loss of structure and function outside the designated sites. 3. It is projected that the combined impacts of a number of pressures will intensify in future, for example drought stress on wet heath is predicted to increase as a result of climate change and this could be exacerbated by nitrogen deposition (Dobben van 1991).
11.3 Surface area of the habitat type inside the network; Method used	The area was calculated from the polygon data in 2012 and reviewed in 2018. It is larger than the total habitat area generated by summing values reported on the Standard Data Forms for the relevant N2K sites.
11.4 Short term trend of habitat area in good condition within the network; Direction	Although all of the SAC features are currently in unfavourable condition, areas of good quality habitat will probably be present on all SAC sites.