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:

H7120 - Degraded raised bogs still capable of natural regeneration

SCOTLAND

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 (Scotland information only)**
1.2 Habitat code	**7120 - Degraded raised bogs still capable of natural regeneration**

2. Maps

2.1 Year or period	2007-2012
2.3 Distribution map	Yes
2.3 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
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	References within: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H7120_SCOTLAND.pdf

4. Range

4.1 Surface area (in km²)		
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 (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	1) Newly collated vegetation map information (HabMoS) has identified some occurrences of this habitat which did not appear in previous Article 17 reporting distribution maps. Some of the new occurrences are outwith the currently-mapped range and would increase the surface area of the range. However, an examination of the maps produced by the new method shows that there are errors - with some known sites (including SACs) excluded under the new mapping process. Therefore the maps and range figures submitted for the previous reporting period will be used again here with a few minor additions where these have been verified. Detailed checking has shown that two new records produced through the HabMos mapping process are likely to be degraded raised bog and these have been added to the map and to the area/extent figures. There is no evidence of any actual change in range or extent	

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in Scotland in the period 2006-2017. Within this period, Site Condition Monitoring has confirmed the continued existence of the habitat at all sites where it is a notified feature. (SCM database, extract A2298772). It should be noted that for most non-SAC active raised bogs (SSSIs and LNRs) the areas of active and degraded raised bog have not been separately mapped.

5. Area covered by habitat

5.1 Year or period	1994-1996		
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value 149.02
5.3 Type of estimate	Best estimate		
5.4 Surface area Method used	Based mainly on extrapolation from a limited amount of data		
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	Based mainly on extrapolation from a limited amount of data		
5.9 Long-term trend Period			
5.10 Long-term trend Direction			
5.11 Long-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.12 Long-term trend Method used			
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	The initial estimate for area was taken from Lindsay , R.A. & Immirzi, P., 1996 An inventory of lowland raised bogs in Great Britian. SNH Survey and Monitoring Report No. 78. Scottish Natural Heritage, Battleby. 84 pages. http://www.snh.org.uk/pdfs/publications/research/78.pdf. The inventory includes SAC, SSSI and lower tier (local nature reserve) raised bogs. There is also detailed information on SAC raised bogs. For this A17 report new records produced by the HabMos mapping project have also been checked - some have been accepted while others were rejected. There is no evidence of an actual change in area. There has been extensive peatland restoration work since the last reporting period - e.g. the Peatland Action project has funded work on 9 lowland raised bog SACs (438ha), 16 SSSIs (339.85 ha) and 18 non designated bogs (305ha). These figures are a minimum as they do not include the latest 2017 funding round. This restoration work will have resulted in improvements in condition but we are not yet able to demonstrate that sufficient improvement has taken place for areas of raised bog to be transferred from the degraded (H7120) to the active (H7110) feature category. In the long term, the ongoing restoration programme should lead to a reduction in the area of degraded raised bog with a corresponding increase in the area of active raised bog. SCM assessments show that since the last reporting period 2 SACs have improved in condition and 2 have declined - with a net improvement on area of 30.7 Ha. It should be noted that the SCM reporting frequency for raised bogs is 12 years so		

some of the sites will not have been assessed in the intervening period since the last A17 report. It should also be noted that for most non-SAC active raised bogs (SSSIs and LNRs) the areas of active and degraded raised bog have not been separately mapped.

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km^2)	Minimum	0.44	Maximum	0.44
	b) Area in not-good condition (km^2)	Minimum	18.48	Maximum	18.48
	c) Area where condition is not known (km^2)	Minimum	130.1	Maximum	130.1
6.2 Condition of habitat Method used	Based mainly on extrapolation from a limited amount of data				
6.3 Short-term trend of habitat area in good condition Period	2000-2016				
6.4 Short-term trend of habitat area in good condition Direction	Stable (0)				
6.5 Short-term trend of habitat area in good condition Method used	Based mainly on extrapolation from a limited amount of data				
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	Site Condition Monitoring provides a means of assessing the structure and function of H7120 in Scotland. Assessment is based on the results of fieldwork carried out between 2000 and 2016. Results are recorded on the SNH SCM database, from which data was extracted to A2298772 on 23/05/2017. Since the last A17 reporting period 2 SACs have improved in quality and 2 have declined (in terms of area there is a net improvement of 31 ha). 2 SAC features are now assessed as favourable recovered (an increase of 1 from the previous reporting period). One site (4.3 ha) was assessed as declining in condition (no change from the previous A17 reporting period). Overall 44 ha was assessed as being in favourable condition and 1,848 ha as unfavourable - compared to 29 ha and 1,867 in the last round of A17 reporting. Of the SAC degraded raised bog, 1738 ha was assessed as Favourable recovered or Unfavourable recovering with a further 104 ha considered to be unfavourable recovering due to management (1842 ha overall) - compared to 1731 unfavourable recovering or recovered in 2012. There has been a small increase in the area that is reported as recovering. However, it should be noted that recovery may take a considerable time on some sites and may not be fully achieved on others. It should also be noted that 11 of the H7110 features for which the assessed condition has not changed have not been assessed since the previous reporting period (of these 6 are Unfavourable recovering, 2 Unfavourable no change, 2 Favourable maintained and 1 each of Favourable recovered, Favourable maintained and unfavourable declining). In addition to the SACs detailed above, there are 60 SSSIs notified as raised bogs (25 of these overlap with SAC features). For the remaining 35 SSSIs raised bog features we do not have feature maps to identify and quantify areas of active and degraded bog. Of these SSSIs, 10 are assessed as favourable and 25 as unfavourable. 12 of the unfavourable sites are classed as unfavourable recovering due to management. The range of restoration measures being undertaken through Peatland Action and other funding sources are aimed at restoring the strunture and hydrological function of the bogs.				

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7. Main pressures and threats

7.1 Characterisation of pressures/threats

Pressure	Ranking
Drainage for use as agricultural land (A31)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Abandonment of management/use of other agricultural and agroforestry systems (all except grassland) (A07)	H
Modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams) (B27)	H
Other invasive alien species (other then species of Union concern) (I02)	M
Peat extraction (C05)	M
Problematic native species (I04)	H
Coal mining (C04)	M
Increases or changes in precipitation due to climate change (N03)	M
Burning for agriculture (A11)	M

Threat	Ranking
Drainage for use as agricultural land (A31)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Abandonment of management/use of other agricultural and agroforestry systems (all except grassland) (A07)	H
Modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams) (B27)	H
Other invasive alien species (other then species of Union concern) (I02)	M
Peat extraction (C05)	M
Problematic native species (I04)	H
Coal mining (C04)	M
Increases or changes in precipitation due to climate change (N03)	M
Burning for agriculture (A11)	M

7.2 Sources of information

Continuing impact of existing drains rather than new drainage
Atmospheric nitrogen deposition - mixed sources including emissions from poultry and pig farms (A27). The latest calculations indicate that the critical load is exceeded on 100% of the habitat.
Lack of active management - including lack of/ undergrazing
Mainly continuing impact of existing drains and raised planting ridges rather than new drainage
Mainly Sitka spruce seeding in from adjacent forestry plantations and occasional Rhododendron ponticum
No new permissions - extraction under exisiting consents

	Invasion by native trees and scrub (mainly birch) Mainly historic Relatively few lowland raised bogs are actively burned
7.3 Additional information	

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		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		

Restore habitats impacted by multi-purpose hydrological changes (CJ03)
Reduce impact of multi-purpose hydrological changes (CJ02)
Management of problematic native species (CI05)
Reduce impact of mixed source pollution (CJ01)
Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures (CA04)
Management, control or eradication of other invasive alien species (CI03)
Other measures related to forestry practices (CB15)
Reduce/eliminate air pollution from agricultural activities (CA12)
Other measures related to mixed source pollution and multi-purpose human-induced changes in hydraulic conditions (CJ04)

8.6 Additional information	Historically restoration work has been carried out on NNR, SAC and SSSI raised bogs, funded through SNH Management agreements and other agri-environment schemes. More recently, and since the previous A17 reporting period, extensive peatland restoration work has been funded through the Peatland Action project. Since 2012 more than 14,000 ha of peatland have been restored - but this includes blanket bog as well as raised bog. Restoration work, including ditch damming, tree and scrub removal, bunding and reprofiling, has been done on 9 raised bog SACs covering 438 ha. On most sites this has included restoration of both active and degraded bog but separate figures are not currently available for each feature. Restoration has also been undertaken on 16 raised bog SSSI features (340 ha) and 18 non-designated raised bogs (305 ha). We do not have systematic mapping or reliable figures for the amount of active and degraded raised bog on these non-SAC sites. The figures given above do not include the most recent (2017/18) round of Peatland Action projects and further work is plannned. Restoration measures include ditch blocking (peat and plastic piling dams), bunding, surface reprofiling and mulching, reprofiling the rand, and tree and scrub removal.

9. Future prospects

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9.1 Future prospects of parameters	a) Range b) Area c) Structure and functions
9.2 Additional information	In the medium to longer term the extensive restoration works and management carried out through Peatland Action and other funding sources are likely to lead to an improvement in the condition of some degraded raised bog features - and eventually to the restoration and reclassification of some areas of degraded raised bog to active bog. Peatland Action has funded restoration work on 9 SAC raised bogs (438 ha), 16 SSSIs (340 ha) and 18 un-designated raised bogs (305 ha). The area of raised bog restored will increase because these figures do not include projects from 2017/18 and further funding rounds are also planned. In addition restoration projects on lowland raised bogs are being funded through the ECOCO Life Project and the East Ayrshire Coalfields LIFE project. We are not yet in a position to demonstrate successful restoration from degraded to active bog - so are currently just reporting on changes in assessed condition. Not all restoration projects will result in full restoration to active bog across the whole project area. Given the extent and complexity of previous modifications of site topography and hydrology on the dome and rand, and modifications to the hydrological connection to the surrounding land (the loss of lagg fen), it is likely that even successful restoration projects will only result in some of the degraded bog being fully restored to active bog. Any improvements in condition brought about by restoration activitites could be undermined by the effects of high levels of Nitrogen depostion and by climate change. The assessment of N deposition indicates that the critical load threshold for N is breached across 100% of the feature area and that the level of threat assigned to air pollution should be High and trend for future prospects on structure and function could be Very Negative (see UK Approach document). However, given the level of restoration work that has been done, is underway or planned, and the amount of habitat in favourable or recovering condition, it seems more appropriate to class the future prospects as Positive - slight /moderate improvement.

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	

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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 18.92
11.2 Type of estimate	Best estimate
11.3 Surface area of the habitat type inside the network Method used	Based mainly on extrapolation from a limited amount of data
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	Site Condition Monitoring provides a means of assessing the structure and function of H7120 in Scotland. Assessment is based on the results of fieldwork carried out between 2000 and 2016. Results are recorded on the SNH SCM database, from which data was extracted to A2298772 on 23/05/2017. Since the last A17 reporting period 2 SACs have improved in quality and 2 have declined (in terms of area there is a net improvement of 31 ha). 2 SAC features are now assessed as favourable recovered (an increase of 1 from the previous reporting period). One site (4.3 ha) was assessed as declining in condition (no change from the previous A17 reporting period). Overall 44 ha was assessed as being in favourable condition and 1,848 ha as unfavourable - compared to 29 ha and 1,867 in the last round of A17 reporting. Of the SAC degraded raised bog, 1738 ha was assessed as Favourable recovered or Unfavourable recovering with a further 104 ha considered to be unfavourable recovering due to management (1842 ha overall) - compared to 1731 unfavourable recovering or recovered in 2012. There has been a small increase in the area that is reported as recovering. However, it should be noted that recovery may take a considerable time on some sites and may not be fully achieved on others. It should also be noted that 11 of the H7110 features for which the assessed condition has not changed have not been assessed since the previous reporting period (of these 6 are Unfavourable recovering, 2 Unfavourable no change, 2 Favourable maintained and 1 each of Favourable recovered, Favourable maintained and unfavourable declining). Native tree and scrub encroachment was reported as a pressure on 17 sites and active drainage was reported as a pressure on 7 sites (but is likely to be a factor on more). There has been extensive restoration work on SAC raised bogs in Scotland, intially through SNH management agreements and subsequently through the Peatland Action project . To date, Peatland Action projects have funded resoration work on 9 SACs involving approximately 438ha (figures do not include the 2017/18 funding round). Further funding rounds and restroation work are planned. This work will contribute to an improvement in the condition of degraded raised bog on some SACs and may eventually lead to therestoration of some areas from degraded to active raised bog.

12. Complementary information

12.1 Justification of % thresholds for trends	

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12.2 Other relevant information

Distribution Map

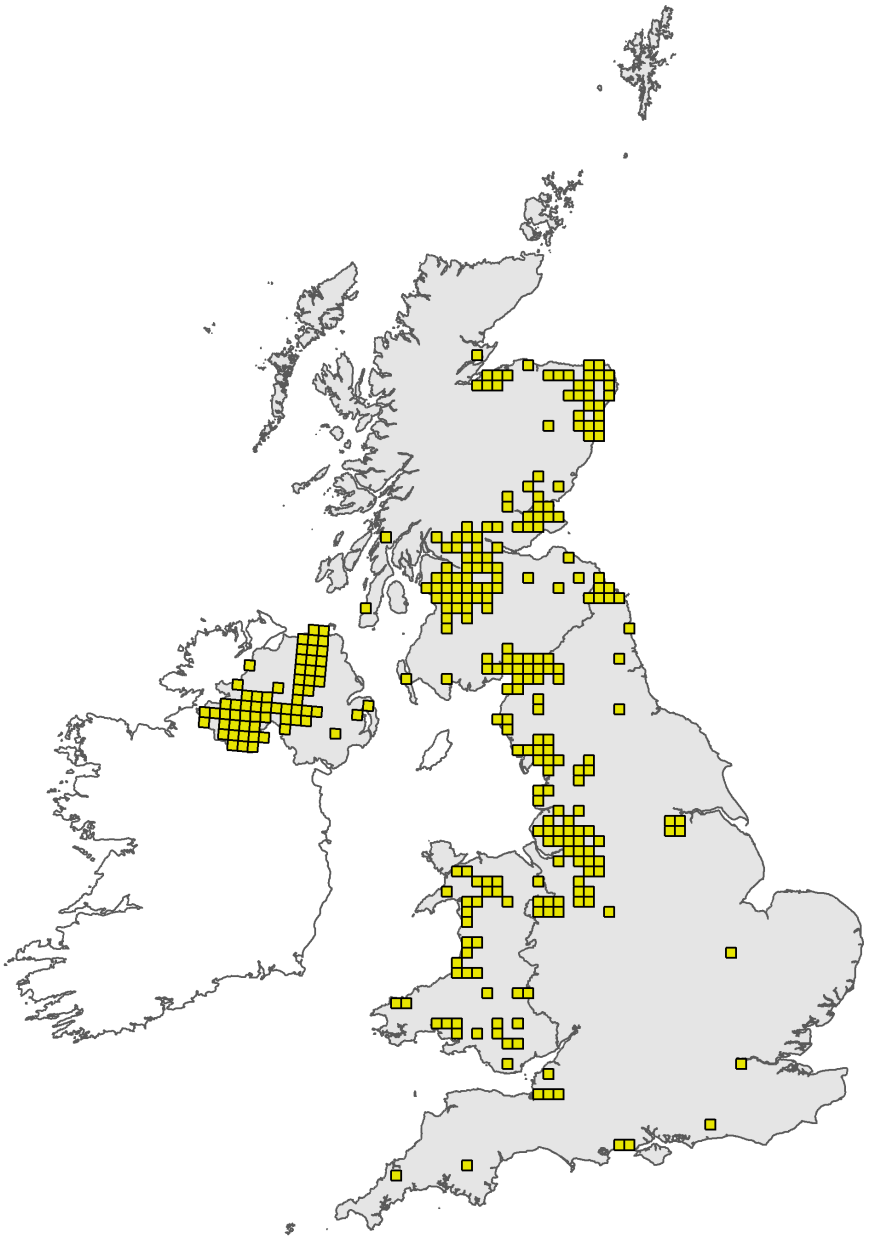

Figure 1: UK distribution map for H7120 - Degraded raised bogs still capable of natural regeneration. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

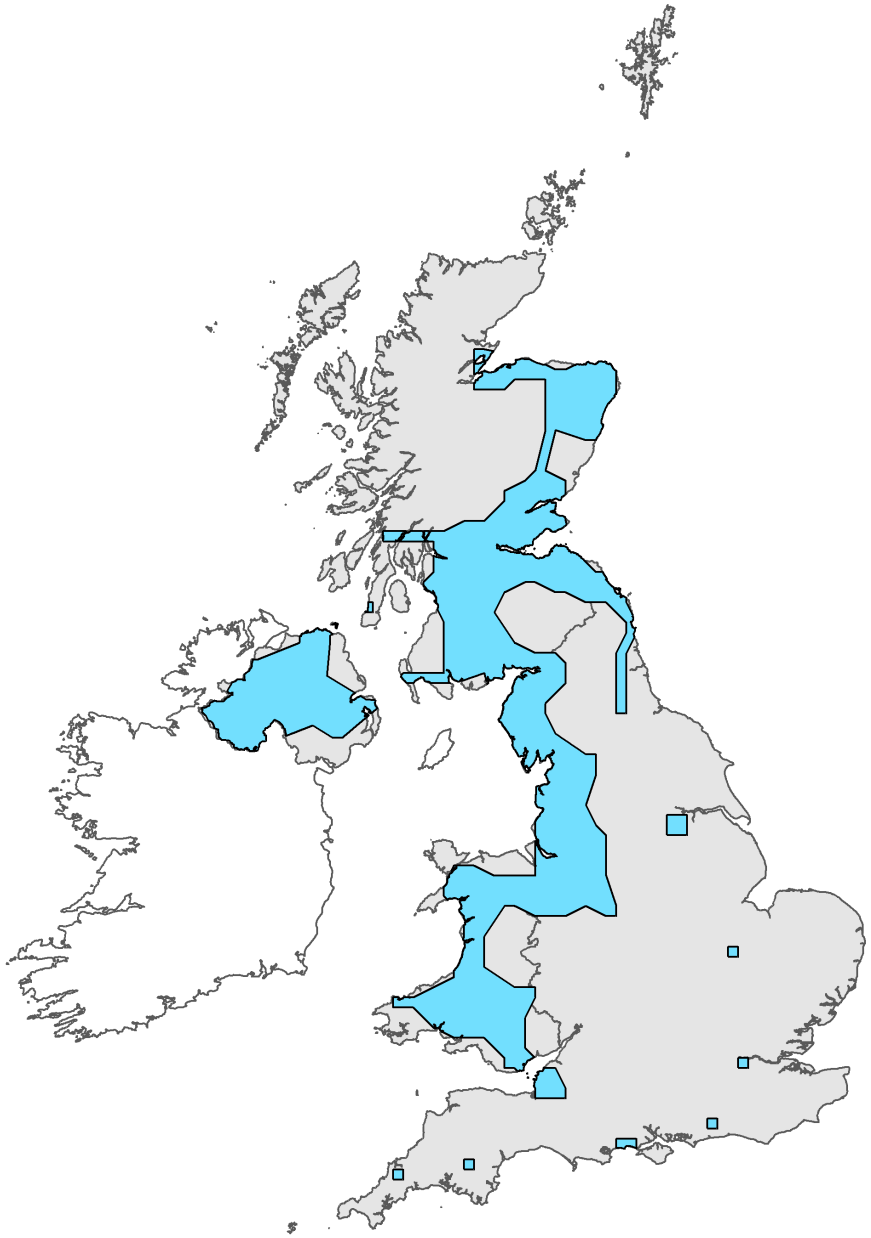

Figure 2: UK range map for H7120 - Degraded raised bogs still capable of natural regeneration. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.