

**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:

**H7110 - Active raised bogs**

**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	7110 - Active raised bogs

### 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: <a href="http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H7110_SCOTLAND.pdf">http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H7110_SCOTLAND.pdf</a>

### 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                      No d) Method
4.11 Change and reason for change in surface area of range	Improved knowledge/more accurate data The change is mainly due to:      Improved knowledge/more accurate data
4.12 Additional information	1) Newly collated vegetation map information (HabMoS) has identified some new occurrences of this habitat which did not appear in previous Article 17 reporting distribution maps. However, an examination of the maps produced by the new method shows that there are significant errors - with several confirmed sites (including SACs) omitted by 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. Some of the new occurrences are outwith the currently-mapped range and will result in a small increase in the surface area of the range. Other new records have been excluded as checking has shown that they are not active raised bog. There is no evidence of any actual change in range in Scotland in the period 2006-2017. Within this period, Site Condition Monitoring has confirmed the continued

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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 km <sup>2</sup> )	a) Minimum	b) Maximum	c) Best single value 59.18
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 (km <sup>2</sup> ) b) Operator c) Unknown No d) Method		
5.14 Change and reason for change in surface area of range	Improved knowledge/more accurate data The change is mainly due to: Improved knowledge/more accurate data		
5.15 Additional information	The initial estimate for area (as quoted in previous A17 reports) was taken from Lindsay, R.A. & Immirzi, P., 1996 An inventory of lowland raised bogs in Great Britain. SNH Survey and Monitoring Report No. 78. Scottish Natural Heritage, Battleby. 84 pages. <a href="http://www.snh.org.uk/pdfs/publications/research/78.pdf">http://www.snh.org.uk/pdfs/publications/research/78.pdf</a> . The inventory includes SAC, SSSI and lower tier (local nature reserve) raised bogs. Lindsay & Immirzi calculated figures for near-natural (P1), drained (p2) and degraded (P3) primary raised bog. This gave a baseline of 5,600 ha. This did not include area figures for secondary re-vegetated or regenerating raised bog (S1) which accounts for a significant proportion of the total resource of active raised bog in Scotland. There is also detailed information on the extent and condition of SAC raised bogs. For this A17 report new records produced by the HabMos mapping project have also been checked - some records have been verified and accepted while others were rejected. There is no evidence of a decline 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 projects from the latest 2017 funding round. This restoration work will have contributed to some improvements in condition and in some cases an increase in the area of active bog. However, we are not yet able to demonstrate sufficient improvement has taken place for areas of raised bog to be transferred from the degraded (H7120) to the active (H7110) feature category. SCM assessments show that since the last		

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reporting period 4 SACs have improved in condition and 2 have declined - with a net improvement on area of 681.12 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	<div>a) Area in good condition (km<sup>2</sup>) Minimum 7.11 Maximum 7.11</div> <div>b) Area in not-good condition (km<sup>2</sup>) Minimum 15.3 Maximum 15.3</div> <div>c) Area where condition is not known (km<sup>2</sup>) Minimum 36.77 Maximum 36.77</div>
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	2003-2016
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	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	<p>Site Condition Monitoring provides a means of assessing the structure and function of H7110 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 4 SACs have improved in condition and 2 have declined (in terms of area this is a net improvement of 681 ha). 2 SAC features are now assessed as favourable recovered (an increase of 1 from the previous reporting period). Overall, 32 ha was assessed as declining in condition (Unfavourable declining or Favourable declining) - compared to 344 ha assessed as declining in the previous reporting period. 711 ha were assessed as being in favourable and 1,530 ha in unfavourable condition - compared to 711 ha and 1,236 ha respectively in the last reporting period. Of the SAC active raised bogs, 1438 ha was assessed as Favourable recovered or Unfavourable recovering, with a further 218 ha considered to be unfavourable recovering due to management - compared to 719 ha unfavourable recovering or recovered in 2012. As the extent reported to be recovering has more than doubled and the percentage of sites assessed as recovering has increased from 27% to 44%, overall the judgement is that condition is improving. However, it should be noted that full recovery to active status may take a considerable time on some sites and may not be achieved on others. It should also be noted that 10 of the H7110 features for which the assessed condition has not changed have not been assessed since the previous reporting period (of these 2 are Unfavourable recovering, 4 Unfavourable no change, 2 Favourable maintained and 1 Favourable recovered). 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 SSSI 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</p>

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unfavourable. 12 of the unfavourable sites are classed as unfavourable recovering due to management.

## 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
Problematic native species (I04)	H
Abandonment of management/use of other agricultural and agroforestry systems (all except grassland) (A07)	H
Peat extraction (C05)	M
Increases or changes in precipitation due to climate change (N03)	M
Burning for agriculture (A11)	M
Modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams) (B27)	M
Other invasive alien species (other than species of Union concern) (I02)	M
Oil and gas pipelines (D07)	M

Threat	Ranking
Drainage for use as agricultural land (A31)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Problematic native species (I04)	H
Abandonment of management/use of other agricultural and agroforestry systems (all except grassland) (A07)	H
Peat extraction (C05)	M
Increases or changes in precipitation due to climate change (N03)	H
Burning for agriculture (A11)	M
Modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams) (B27)	M
Other invasive alien species (other than species of Union concern) (I02)	M
Oil and gas pipelines (D07)	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 98% of the habitat  
 Invasion by native trees and scrub (mainly birch)  
 Lack of active management - including lack of/ undergrazing  
 No new permissions - extraction under existing consents  
 Relatively few lowland raised bogs are actively burned

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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*  
 Maintenance of existing pipelines ( and overhead power lines)

## 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 - this includes work on both designated and non-designated bogs. 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 planned. Restoration measures include ditch blocking (peat and plastic piling dams), bunding, surface reprofiling and mulching, reprofiling the rand, and tree and scrub removal.

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## 9. Future prospects

### 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 active raised bog features - and eventually to the restoration and reclassification of some areas of degraded raised bog to active bog. So far, 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 fully successful restoration from degraded to active bog - so are currently just reporting on changes in assessed condition within the existing Natura habitat categories - but this will be reviewed as the restorations projects progress. Any improvements in condition brought about by restoration activities could be undermined by the effects of high levels of Nitrogen deposition and by climate change. The assessment of N deposition indicates that the critical load threshold for N is breached across 98% 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 already 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

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



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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 22.41

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 H7110 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 4 SACs have improved in quality and 2 have declined (in terms of area this is a net improvement of 681 ha). 2 SAC features are now assessed as favourable recovered (an increase of 1 from the previous reporting period). Overall, 32 ha was assessed as declining in condition (Unfavourable declining or Favourable declining) - compared to 344 ha assessed as declining in the previous reporting period. 711 ha were assessed as being in favourable and 1,530 ha in unfavourable condition - compared to 711 ha and 1236 ha respectively in the last reporting period. Of the SAC active raised bogs, 1438 ha was assessed as Favourable recovered or Unfavourable recovering, with a further 218 considered to be unfavourable recovering due to management - compared to 719 ha unfavourable recovering or recovered in 2012. As the extent reported to be recovering has more than doubled and the percentage of sites assessed as recovering has increased from 27% to 44%, overall the judgement is that condition is improving. However, it should be noted that full recovery to active status may take a considerable time on some sites and may not be achieved on others. It should also be noted that 10 of the H7110 features for which the assessed condition has not changed have not been assessed since the previous reporting period (of these 2 are Unfavourable recovering, 4 Unfavourable no change, 2 Favourable maintained and 1 Favourable recovered). In addition to the SACs detailed above, there are 60 SSSIs notified as raised bogs (25 of these overlap with SAC features). Native tree and scrub encroachment was reported as a pressure on 17 sites, active drainage was reported as a pressure on 7 sites but is present on more and encroachment by Rhododendron and sitka spruce was reported on 4 sites. There has been extensive restoration work on SAC raised bogs in Scotland, initially through SNH management agreements and subsequently through the Peatland Action project. To date, Peatland Action projects have funded restoration work on 9 SACs involving approximately 438ha (figures do not include the 2017/18 funding round). Further funding rounds and restoration work are planned. This work will contribute to an improvement in the condition of active raised bog on some SACs.

## 12. Complementary information

12.1 Justification of % thresholds for trends

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## **12.2 Other relevant information**

# Distribution Map

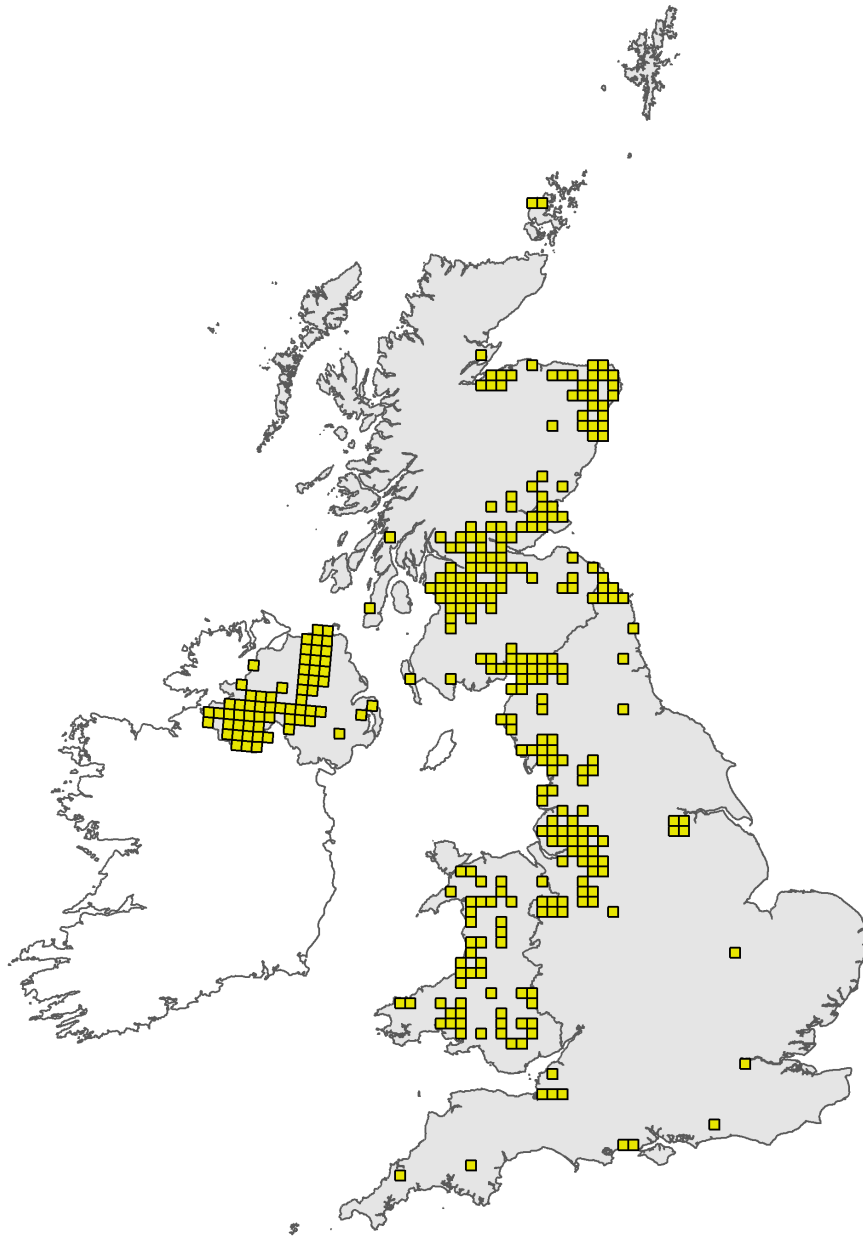


Figure 1: UK distribution map for H7110 - Active raised bogs. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

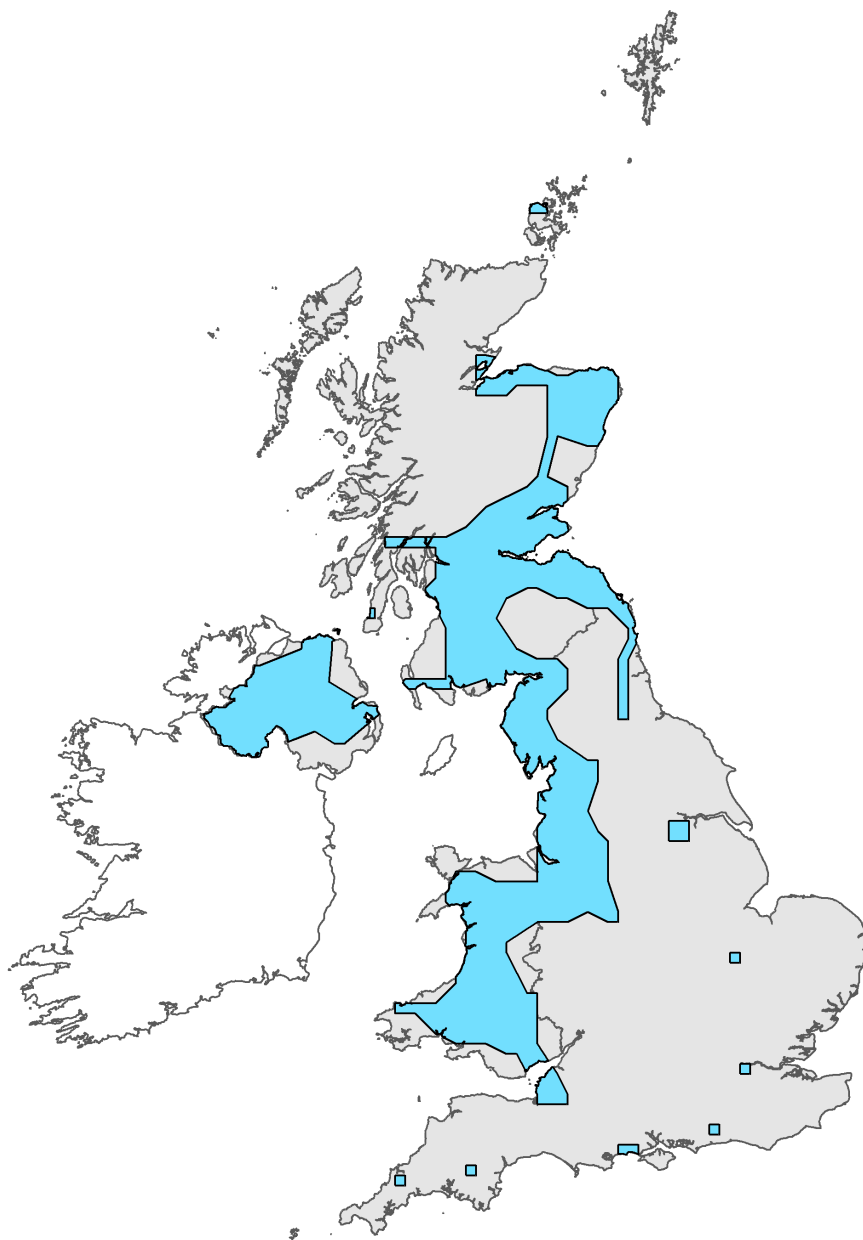


Figure 2: UK range map for H7110 - Active raised bogs. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.