

**European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)**

**Second Report by the United Kingdom under
Article 17
on the implementation of the Directive
from January 2001 to December 2006**

**Conservation status assessment for :
H7150: Depressions on peat substrates of the
*Rhynchosporion***

Please note that this is a section of the report. For the complete report visit <http://www.jncc.gov.uk/article17>

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H7150 Depressions on peat substrates of the *Rhynchosporion*

Audit trail compiled and edited by JNCC and the UK statutory nature conservation agencies Lowland Wetland Lead Co-ordination Network.

This paper and accompanying appendices contain background information and data used to complete the standard EC reporting form (Annex D), following the methodology outlined in the commission document "Assessment, monitoring and reporting under Article 17 of the Habitats Directive, Explanatory Notes and Guidelines, Final Draft 5; October 2006". The superscript numbers below cross-reference to the headings in the corresponding Annex D reporting form. This supporting information should be read in conjunction with the UK approach for habitats (see 'Assessing Conservation Status: UK Approach').

1. National-biogeographic level information

1.1 General description and correspondence with National Vegetation Classification (NVC) and other habitat types

Table 1.1.1 provides a summary description of H7150 and its relations with UK classifications.

Depressions on peat substrates of the *Rhynchosporion* occur in complex mosaics with lowland wet heath and valley mire vegetation, in transition mires, and on the margins of bog pools and hollows in both raised and blanket bogs. The vegetation is typically very open, usually characterised by an abundance of white beak-sedge *Rhynchospora alba*, often with well-developed algal mats, the bog moss *Sphagnum denticulatum*, round-leaved sundew *Drosera rotundifolia* and, in relatively base-rich sites, brown mosses such as *Drepanocladus revolvens* and *Scorpidium scorpioides*. The nationally scarce species brown beak-sedge *Rhynchospora fusca* and marsh clubmoss *Lycopodiella inundata* also occur in this habitat.

On lowland heaths in southern and eastern England this habitat occurs on humid, bare or recently exposed peat in three distinct situations:

- In and around the edges of seasonal bog pools, particularly on patterned areas of valley mire;
- In flushes on the edges of valley mires in heathlands; and
- In areas that are artificially disturbed, such as along footpaths and trackways and in old peat-cuttings and abandoned ditches.

In these southern localities, Depressions on peat substrates of the *Rhynchosporion* are often associated with NVC type M21 *Narthecium ossifragum* – *Sphagnum papillosum* mire. In the north and west, within 7110 Active raised bogs and 7130 Blanket bogs, this habitat type is usually part of the transition between bog pools (NVC types M1 *Sphagnum auriculatum* bog pool community and M2 *Sphagnum cuspidatum/recurvum* bog pool community) and the surrounding bog vegetation (mainly M17 *Scirpus cespitosus* – *Eriophorum vaginatum* blanket mire and M18 *Erica tetralix* – *Sphagnum papillosum* raised and blanket mire).

Table 1.1.1 Summary description of habitat H7150 and its relations with UK vegetation/habitat classifications

Classification	Correspondence with Annex I type	Comments
EU Interpretation Manual	In these southern localities, Depressions on peat substrates of the <i>Rhynchosporion</i> are often associated with NVC type M21 <i>Narthecium ossifragum</i> – <i>Sphagnum papillosum</i> mire. In the north and west, within 7110 Active raised bogs and 7130 Blanket bogs, this habitat type is usually part of the transition between bog pools (NVC types M1 <i>Sphagnum auriculatum</i> bog pool community and M2 <i>Sphagnum cuspidatum/recurvum</i> bog pool community) and the surrounding bog vegetation (mainly M17 <i>Scirpus cespitosus</i> – <i>Eriophorum vaginatum</i> blanket mire and M18 <i>Erica tetralix</i> – <i>Sphagnum papillosum</i> raised and blanket mire).	Not all examples of these types are included (see text above). Only semi-natural stands are included.
NVC	M21 <i>Narthecium ossifragum</i> – <i>Sphagnum papillosum</i> mire. M1 <i>Sphagnum auriculatum</i> bog pool community. M2 <i>Sphagnum cuspidatum/recurvum</i> bog pool community M14 <i>Schoenus nigricans-Narthecium ossifragum</i> mire; M15 <i>Scirpus cespitosus-Erica tetralix</i> wet heath; M16 <i>Erica tetralix-Sphagnum compactum</i> wet heath; M17 <i>Scirpus cespitosus</i> – <i>Eriophorum vaginatum</i> blanket mire M18 <i>Erica tetralix</i> – <i>Sphagnum papillosum</i> raised and blanket mire M21 <i>Narthecium ossifragum-Sphagnum papillosum</i> valley mire; M29 <i>Hypericum elodes-Potamogeton polygonifolius</i> soakway	The habitat type normally represents a transition between these core NVC types (see text above). Only semi-natural stands are included.
BAP priority habitat type	Lowland heathland; blanket bog; lowland raised bog.	Partially contained within these priority habitats which cover a wide range of other Annex I types as well.
CSM reporting categories	<ul style="list-style-type: none"> ▪ Bogs ▪ Fen, marsh and swamp 	Partially contained within these reporting categories which cover a wide range of other Annex I types as well.

2. Range ^{2.3}

2.1 Current range

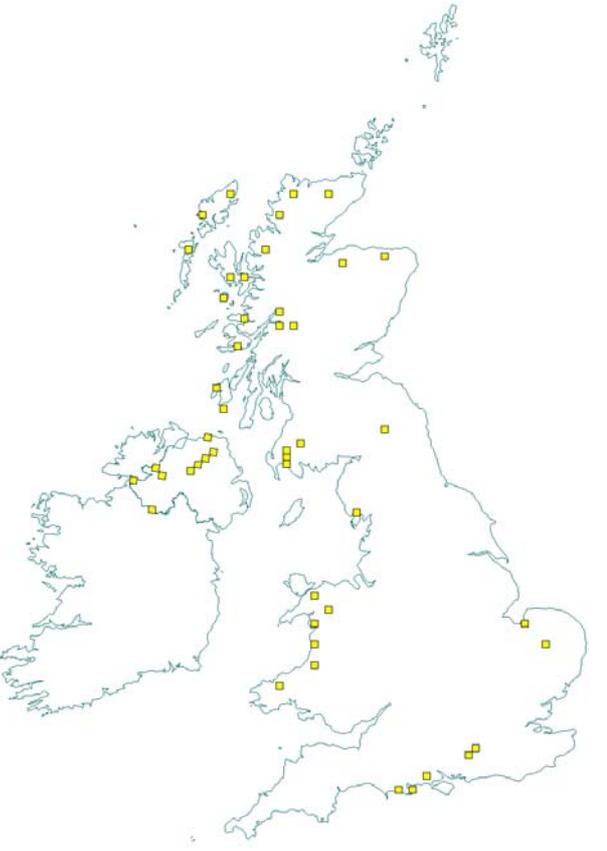
Range surface area ^{2.3.1}: 13,987km²

Date calculated ^{2.3.2}: May 2007

Quality of data ^{2.3.3}: Poor

The surface area estimate was calculated within alpha hull software, using extent of occurrence as a proxy measure for range (see Map 2.1.1). The value of alpha was set at 25 km; the alpha was clipped to include inland areas only.

Maps 2.1.1 and 2.1.2 show the range and distribution of H7150 in the UK. Depressions on peat substrates of the *Rhynchosporion* is a rare habitat type in the UK that exhibits a narrow range of ecological variation and has a restricted geographical distribution. This habitat type has a very discontinuous distribution, being found in largest quantity on heaths in southern England and on blanket and raised bogs in western Britain, with outliers in East Anglia. However, this reflects the fact that the habitat has generally only been distinguished where it occurs on Special Areas of Conservation (SACs). In general, H7150 Depressions on peat substrates of the *Rhynchosporion* has been viewed as an integral component of the “host” vegetation communities (i.e. communities that occur on lowland raised bog, blanket bog, valley mire and wet heath).

Map 2.1.1 Habitat range map ^{1.1} for H7150	Map 2.1.2 Habitat distribution map ^{1.2} for H7150
	
<p>Range envelope shown in blue/grey shade in above map is a minimum convex polygon constructed using JNCC Alpha Shapes tool (see Technical Note I for details of methodology).</p>	<p>Each yellow square represents a 10x10-km square of the National Grid and shows the known and/or predicted occurrence of this habitat. 10-km square count: 47</p>

2.2 Trend in range since c.1994

Trend in range^{2.3.4}: Unknown
Trend magnitude^{2.3.5}: Not applicable
Trend period^{2.3.6}: 1994-2006
Reasons for reported trend^{2.3.7}: Not applicable

There is no evidence or information on any trend in the range of H7150 since 1994.

2.3 Favourable reference range

Favourable reference range^{2.5.1}: 14,000 km²

Section 3.2.1.3 of 'Assessing Conservation Status: UK Approach' sets out how favourable reference range estimates for habitats have been determined in the UK. Based on this approach, the current surface area, 14,000 km², has been set as the favourable reference area. Reasons for this are discussed below.

There is no information on the historic range of this habitat. The current distribution of H7150 appears to occupy most of the potential range. The current range as shown on Map 2.1.1 is not extensive but is naturally limited by the hydrological conditions required. These requirements also mean that, when combined with past human impacts, the resource has a naturally fragmented distribution within and only partial occupancy of this range, particularly in the lowlands.

Expert opinion suggests that the favourable reference range and distribution is likely to match closely the current range and distribution, of which the best examples are contained within the national and internationally designated series.

2.4 Conclusions on range

Conclusion^{2.6.i}: **Favourable**

There is no information on any changes in range for H7150 since 1994, nor any previous historical data on extent or changes. However, the current range is considered to be close to both the potential range for the habitat and to its favourable reference range, and so the judgement on range for H7150 is Favourable.

3. Area^{2.4}

3.1 Current area

Total UK extent^{2.4.1}: **>13.74km²**

Date of estimation^{2.4.2}: **May 2007**

Method^{2.4.3}: **1 = only or mostly based on expert opinion**

Quality of data^{2.4.4}: **Poor**

Table 3.1.1 provides information on the area of H7150 in the UK.

There is no comprehensive data available for the extent of this habitat type in the UK, hence the figure given in Table 3.1.1 is the total recorded area for the habitat on UK SACs designated for H7150.

Although generally a scarce habitat in the UK, *Rhynchosporion* depressions can be relatively extensive on some SACs. The New Forest contains the largest proportion of the habitat in England by far, with significant areas of the habitat recorded for the SACs Lewis Peatlands and Caithness and Sutherland Peatlands.

Table 3.1.1 Area of H7150 in the UK

	Area (ha)	Method^{2.4.3}	Quality of data^{2.4.4}
England	>427	1	Poor
Scotland	>781	1	Poor
Wales	>164	1	Poor
Northern Ireland	>2	1	Poor
Total UK extent^{2.4.1}	>1,374	1	Poor

Method used to estimate the habitat surface area: 1 = only or mostly based on expert opinion; 2 = based on remote sensing data; 3 = ground based survey. Only the most relevant class is given if more than one applies.

Quality of habitat surface area data: 'Good' e.g. based on extensive surveys; 'Moderate' e.g. based on partial data with some extrapolation; 'Poor' e.g. based on very incomplete data or on expert judgement.

3.2 Trend in area since c.1994

Trend in area ^{2.4.5} :	Unknown
Trend magnitude ^{2.4.6} :	Not applicable
Trend period ^{2.4.7} :	1994-2006
Reasons for reported trend ^{2.4.8} :	Not applicable

There is no readily available information on UK trends in area for H7150 since 1994.

3.3 Favourable reference area

Favourable reference area^{2.5.2}: Unknown

Historically the overall trend in area for H7150 is thought to be one of contraction because of direct habitat destruction and various forms of habitat degradation resulting from pollution, habitat neglect and drainage. However, there is no quantitative information available to confirm this trend nor, particularly given the absence of any data on current or 1994 extent of H7150 outside SACs, to suggest how this might relate to favourable reference area.

3.4 Conclusions on area covered by habitat

Conclusion^{2.6.ii}: Unknown

The habitat is likely to have declined both historically and recently given known trends in area for the principal host habitats. However, as there are no figures, recent or historic, on the area of H7150 or any means of establishing a figure for favourable reference area, the judgement for area for H7150 is Unknown.

4. Specific structures and functions (including typical species)

4.1 Main pressures^{2.4.10}

The following list of main pressures for H7150 has been derived from the six year Common Standards Monitoring (CSM) results for SACs designated for their representation of H7150 and results from the 2005 UK Biodiversity Action Plan (BAP) reporting for the 'host' habitats of lowland raised bog; lowland heathland; and blanket bog (see www.ukbap.org.uk/GenPageText.aspx?id=104 for further details):

- Drainage (**810 Drainage**)

Past and continuing loss of area of 'host' habitats by drainage and conversion to intensive agriculture. Lowland raised bogs frequently occur in drained agricultural landscapes. Perimeter drainage and water abstraction from underlying aquifers may limit the rewetting potential of certain sites. Raised bogs and wet heaths drained either directly or indirectly (e.g. via historical domestic peat cutting) degenerate without conservation management.

- Grazing (**140 Grazing**)

A lack of grazing coupled with drier conditions has favoured the expansion of scrub and tall heather to the detriment of the 'host' habitats. However, over-grazing can lead to compaction as well as contamination of the surface of the 'host' habitat.

- Burning (**180 Burning**)

Burning was once a management tool used to open the open raised bog landscape and create a diverse surface structure, and is still used on blanket bog areas. However, it can lead to damage to the core vegetation of H7150.

- Absence of or inappropriate management (**141 Abandonment of pastoral systems**)

Lack of or inappropriate management of existing bogs, wet heaths and blanket bogs (including supported *Rhynchosporion* depressions) can lead to drying, scrub encroachment and succession to woodland.

- Forestry operations (**162 Artificial planting**)

In addition to the direct impacts of existing plantations on deep peat, successive rotations dry out neighbouring areas and act as an invasive seed source.

- Fragmentation (**890 Other human induced changes in hydraulic conditions**)

Fragmentation and isolation is particularly an issue for H7150, which depends upon a delicate hydrological balance within the wet heaths and bogs that it occurs. Losses of host habitats - and damage to them, particularly through hydrological impacts - has fragmented H7150 and clearly had a major impact on connectivity.

- Air pollution (**702 Air pollution**)

Based on an assessment of the exceedence of relevant critical loads (see Technical Note III), air pollution is considered to be a potentially significant pressure to the structure and function of this habitat.

4.2 Current condition

4.2.1 CSM condition assessments

Condition assessments based on CSM (see www.jncc.gov.uk/page-2199) provide a means to assess the structure and functioning of H7150 in the UK. The following attributes were examined for all CSM assessments relevant to the habitat:

- Extent.
- Composition (habitat and vegetation).
- Structure.
- Positive and negative indicator species.
- Indicators of local distinctiveness.

The guidance can be applied to *Rhynchosporion* depressions in lowland bogs, wet heaths and blanket bogs respectively. In setting targets for this habitat, because it is so variable, it is essential to take site-specific factors into account; these include the wider habitat context and the local species composition.

For the occurrence of *Rhynchosporion* depressions in fens, when setting targets for positive indicator species, the guidance on targets for relevant NVC types (M14, M21, M29) should be used, taking into account the local species composition.

For raised bogs and blanket bogs, H7150 usually occurs as a minor component of the bog/ wet heath expanse and so its condition generally reflects that of the surrounding host habitat. The targets for the mire expanse should therefore be used, with additional targets under *Indicators of local distinctiveness* for key species of this habitat such as *Rhynchospora alba* and *R. fusca*.

Table 4.2.1 CSM condition assessment results for UK SACs supporting H7150. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Condition	Condition sub-categories	Area (ha)	Number of site features
Unfavourable	Declining	82	4
	No change	340	3
	Unclassified		
	Recovering	357	6
	Total	780	13
	<i>% of all assessments</i>	<i>57%</i>	<i>43%</i>
	<i>% of total UK resource</i>	<i>unknown%</i>	<i>unknown</i>
Favourable	Maintained	536	14
	Recovered		
	Unclassified	55	3
	Total	591	17
	<i>% of all assessments</i>	<i>43%</i>	<i>57%</i>
	<i>% of total UK resource</i>	<i>unknown%</i>	<i>unknown</i>

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data from those used in the six year report produced by JNCC. (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC).
3. Only assessments made for qualifying interest features on SAC have been included in this analysis.
4. Area figures for CSM assessments have been calculated using the data presented on the standard Natura 2000 data forms submitted to the EU.

SAC condition assessments

Table 4.2.1 and Map 4.2.1 summarise the CSM condition assessments for UK SACs supporting habitat H7150. These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 57% of the area and 43% of the number of assessments was unfavourable; and
- an unknown % of the total UK habitat area was in unfavourable condition.

Site of Special Scientific Interest (SSSI)/Area of Special Scientific Interest (ASSI) condition assessments

Table 4.2.2 and Maps 4.2.2 and 4.2.3 summarise the CSM condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical Note II for details of methodology behind this). These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 71% of weakly indicative assessments were unfavourable.

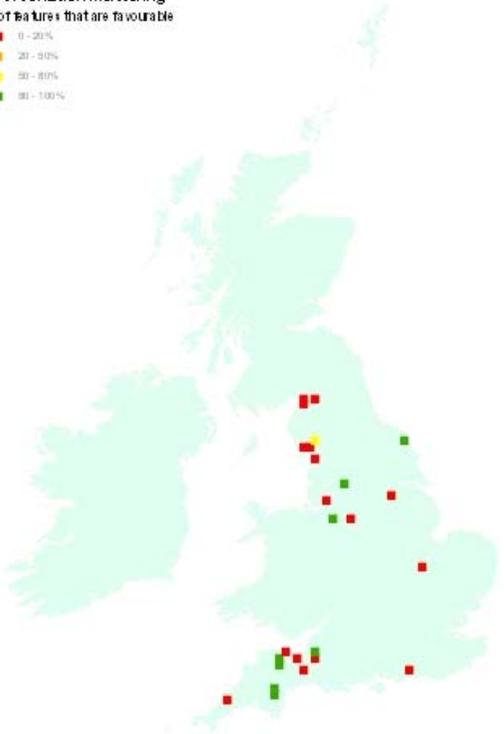
Table 4.2.2 CSM condition assessment results for UK SSSI/ASSIs that were judged to be either strongly or weakly indicative of the condition of H7150 on SSSI/ASSIs. See notes below table and Technical Note II for further details

Condition	Condition sub-categories	Number of assessments	
		Strongly indicative assessments (Category 1)	Weakly indicative assessments (Category 2)
Unfavourable	Declining		3
	No change		8
	Unclassified		
	Recovering		11
	Total		22
	<i>% of all assessments</i>	<i>%</i>	71%
Favourable	Maintained		
	Recovered		
	Unclassified		9
	Total		9
	<i>% of all assessments</i>	<i>%</i>	29%

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006.

Current Condition of H7150 based on CSM condition assessments (See Sections 4.2 and 7.2 for further information)

Map 4.2.1 SAC assessments	Map 4.2.2 Assessments strongly indicative of the condition on SSSI/ASSIs	Map 4.2.3 Assessments weakly indicative of the condition on SSSI/ASSIs
 <p>Current status of HSD features CURRENT_ST</p> <ul style="list-style-type: none"> ■ unfavourable ■ favourable ■ not assessed □ not on SAC 	<p>Not applicable</p>	 <p>SSSI condition monitoring % of features that are favourable</p> <ul style="list-style-type: none"> ■ 0 - 20% ■ 20 - 50% ■ 50 - 80% ■ 80 - 100%

Key
Red = unfavourable, i.e. the square contains at least one SAC where this habitat feature is present and has been judged to be unfavourable
Green = favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been assessed as favourable but there are no unfavourable SAC features
Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported
Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type

Key*
Green - 80 - 100% of assessed features on 10-km square are favourable
Yellow - 50 - 80% of assessed features on 10-km square are favourable
Orange - 20 - 50% of assessed features on 10-km square are favourable
Red - 0 - 20% of assessed features on 10-km square are favourable
 *This is the same key as was used for JNCC CSM Report 2006

4.3 Typical species

Typical species^{2.5.3}: *Hypericum elodes*, *Eleocharis multicaulis*, *Baldellia ranunculoides*, *Hammarbya paludosa*, *Drosera intermedia*, *Andromeda polifolia*, *Rhynchospora alba*

Typical species assessment^{2.5.4}: **Change in 10 km square occupancy across UK over last 25 years**
The trends of the following typical species are considered to indicative or informative on the structure and function of the UK resource of H7150.

Table 4.3.1 Trends and faithfulness of selected typical species for H7150

Typical species considered:	Faithfulness to habitat H7150 (based on analysis of NVC synoptic tables)	Trend over last 25 years from BSBI atlas - based on change in 10 km square occupancy across UK (see http://www.jncc.gov.uk/page-3254)
<i>Hypericum elodes</i>	Very high	Significant increase, but <25% in 25yrs
<i>Eleocharis multicaulis</i>	Medium	Significant increase, but <25% in 25yrs
<i>Baldellia ranunculoides</i>	Medium	Significant decline, but <25% in 25yrs
<i>Hammarbya paludosa</i>	Medium	No significant change
<i>Drosera intermedia</i>	Medium	No significant change
<i>Andromeda polifolia</i>	Medium	Significant increase, but <25% in 25yrs
<i>Rhynchospora alba</i>	Medium	Significant increase, but <25% in 25yrs

None of the other species listed as characteristic of this habitat in the EU Interpretation Manual are particularly faithful to this habitat so available trend data at the UK-level is not particularly meaningful and has not been utilised here. Overall the trend for these species suggests an improvement in the condition of the wider resource of H7150; however there are no trends for the species since 1994.

4.4 Conclusions on specific structures and functions (including typical species)

Conclusion^{2.6.iii}: **Unfavourable – Bad but improving**

The EC Guidance states that where “more than 25% of the area of the habitat is unfavourable as regards its specific structures and functions”, the conclusion should be Unfavourable – Bad. In the UK this was generally taken to mean that more than 25% of the habitat area in unfavourable condition.

From CSM data, at least 57% of the resource of H7150 on SACs is currently judged unfavourable, although 26% is recovering compared to 6% declining. On SSSI/ASSIs, 71% of weakly indicative assessments were unfavourable with 10% declining and 36% recovering. Extrapolating these trends to the wider UK resource of H7150 in the absence of other data suggests that more than 25% of the UK resource of H7150 is currently unfavourable.

The principle reasons for sites supporting H7150 being in unfavourable condition are usually the same as those leading to unfavourable condition on the ‘host’ habitat, in particular an adverse eco-hydrological regime and the need for follow up management of the consequences of the negative eco-hydrological regime.

Overall this suggests a judgement on structure and function of Unfavourable - Bad but improving.

5. Future prospects

5.1 Main factors affecting the habitat

5.1.1 Conservation measures

The following list of conservation measures are those that have been applied to H7150 specifically as well as the core 'host' habitats of lowland raised bog; lowland heathland; and blanket bog:

- Protection within SACs

A significant proportion of the resource of H7150 lies within SACs with management measures specifically aimed at maintaining and enhancing the features for which they are designated, and to address some of the pressures listed within Section 4.1 and the future threats listed in Section 5.1.2. An unknown but significant proportion of the resource of H7150 also lies within the SSSI/ASSI series where similar management measures are in place. In many of the larger sites specific major restoration programmes have been underway for several years to increase and restore the area of active and degraded raised bog and wet heathland.

- Specific conservation programmes for raised bogs resource

The English Nature (EN) Lowland Peatland Programme, launched in 1992, focused particular attention on the conservation of lowland raised bogs in England. Outcomes of this programme have included acquisition and after-use agreement on land worked by a major peat cutting company; declaration of three large raised bog National Nature Reserves (NNRs); resource assessment of English lowland raised bogs and prioritisation of sites for conservation and rehabilitation; production of rehabilitation management plans for priority sites; a review of monitoring and development of a computer database for data storage and interrogation.

The Scottish Wildlife Trust (SWT), with EU *Life* funding for a three-year project, accrued survey data for many of Scotland's lowland raised bogs. Under the same project the SWT also held an international Peatland Convention in 1995 the proceedings of which (*Conserving Peatlands*) were published in 1997. The project also published *Conserving Bogs: The Management Handbook*, a best-practice guide on management and rehabilitation of lowland raised bogs.

- Agri-environment measures

A suite of agri-environment measures are now in place in the lowlands which are addressing more appropriate management, particularly grazing levels, for the unknown proportion of the resource of H7150 outside the statutory site series.

- Water Framework Directive (WFD)

In addition to the drive for improvement generated by the SAC and SSSI network, the WFD is adding considerable impetus for widespread action on issues affecting the resource of H7150 such as abstraction licences and pollution. Furthermore, water level management plans are in place for much of the lowland raised bog resource to address water management in the immediate catchment of the bog.

- UK BAP

The feature is accommodated within the action plans for lowland raised bogs, wet heathland, blanket bog and (to a lesser extent) fens action plans under the UK BAP (see www.ukbap.org.uk), as well as under country and local biodiversity action plans and strategies, with targets to maintain, improve, restore and expand the resource.

5.1.2 Main future threats^{2.4.11}

The most obvious major future threats to H7150 are listed below, several of which are referred to in Section 4.1. The measures identified in section 5.1.1 are addressing many of these factors, with a greater proportion being addressed within the statutory site series, and their effects are likely to decrease:

- Drainage (**810 Drainage**)
- Grazing (**140 Grazing**)
- Burning (**180 Burning**)
- Absence of or inappropriate management (**141 Abandonment of pastoral systems**)
- Forestry operations (**162 Artificial planting**)
- Fragmentation/ isolation (**890 Other human induced changes in hydraulic conditions**)

- Climate change (**750 Other pollution or human impacts/ activities**)

Based on the literature review (Technical Note IV) climate change is considered a major threat to the future condition of this habitat especially in the long term. However, there is a high degree of uncertainty in defining future climate threats on habitats and species due to uncertainty in: future greenhouse gas emissions; the consequential changes in climatic features (for instance temperature, precipitation CO₂ concentrations); the responses of habitats and species to these changes (for instance location, phenology, community structure) and the role of other socio-economic drivers of environmental change. The scale of change in habitats and species as a result of climate change will vary across ecosystems. Small changes in the climate are more likely to have a substantial impact on habitats and species which exist within a narrow range of environmental conditions. The future impacts of climate change on UK biodiversity will be exacerbated when coupled with other drivers of environmental change.

- Air pollution (**702 Air pollution**)

Based on an assessment of the exceedence of relevant critical loads (see Technical Note III), air pollution is considered to be a potentially significant threat to the future condition of this habitat.

5.2 Future condition (as regards range, area covered and specific structures and functions)

5.2.1 CSM condition assessments

The CSM condition assessments reported in Sections 4.2.1-2 provide a basis to predict the potential future condition of H7150 in the UK. This involved treating all assessments currently identified as either favourable or unfavourable recovering as future-favourable: remaining categories were treated as future-unfavourable – see Table 5.2.1. There are a number of caveats to this approach, which are set out beneath this table.

SAC condition assessments

Table 5.2.1 and Map 5.2.1 summarise the predicted potential future condition of H7150 on UK SACs. This is based on the approach described above. The maps give an impression of the overall spread of where future-unfavourable and future-favourable sites are predicted to occur (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 69% of the area and 77% of the number of assessments fall within the future-favourable category; and
- an unknown % of the total UK habitat area falls within the future-favourable category.

Table 5.2.1 Predicted future condition of UK SACs supporting H7150 based on current CSM condition assessments. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Future condition	Present condition	Area (ha)	Number of site features
Future-unfavourable	Unfavourable declining	82	4
	Unfavourable no change	340	3
	Unfavourable unclassified		
	Total	422	7
	<i>% of assessments</i>	31%	23%
	<i>% of total UK extent</i>	unknown%	Unknown
Future-favourable	Favourable maintained	536	14
	Favourable recovered		
	Unfavourable recovering	357	6
	Favourable unclassified	55	3
	Total	949	23
	<i>% of assessments</i>	69%	77%
	<i>% of total extent</i>	unknown%	Unknown

Note that the scenario presented above is based on the same information as used to construct the Table 4.2.1. It is based on the following premises:

- (i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
- (ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
- (iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.

IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

SSSI/ASSI condition assessments

Table 5.2.2 and Maps 5.2.2 and 5.2.3 summarise the predicted potential future condition of H7150 on UK SSSI/ASSIs. This is based on the approach described above and utilises condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical Note II for details of methodology behind this). The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 65% weakly indicative assessments fall within the future-favourable category.

Table 5.2.2 Predicted future condition of H7150 on SSSI/ASSIs based on CSM assessments that were judged to be either strongly or weakly indicative of the condition. See notes below table and Technical Note II for further details

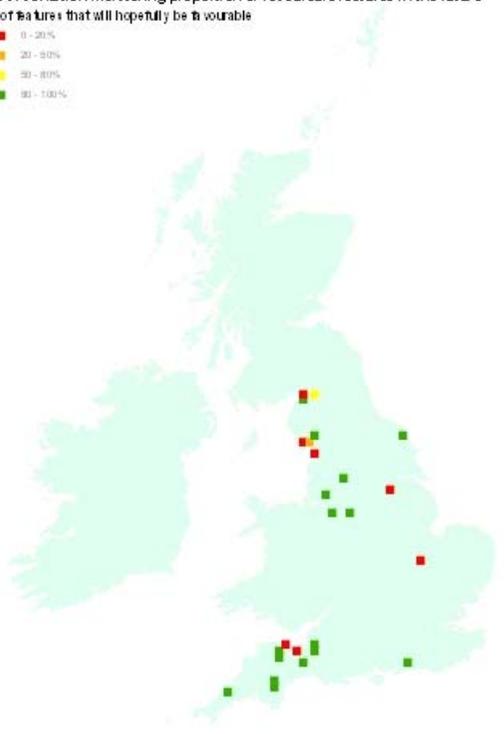
Future condition	Present condition	Number of assessments	
		Strongly indicative assessments (Category 1)	Weakly indicative assessments (Category 2)
Future-unfavourable	Unfavourable declining		3
	Unfavourable no change		8
	Unfavourable unclassified		
	Total		11
	<i>% of assessments</i>	<i>%</i>	35%
Future-favourable	Favourable maintained		
	Favourable recovered		
	Unfavourable recovering		11
	Favourable unclassified		9
	Total		20
	<i>% of assessments</i>	<i>%</i>	65%

Note that the scenario presented above is based on the same information as used to construct the Table 4.2.2. It is based on the following premises:

- (i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
- (ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
- (iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.

IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

Predicted Future Condition of H7150 based on CSM condition assessments (See Sections 5.2 and 7.2 for further information on these maps)

Map 5.2.1 SAC assessments	Map 5.2.2 Assessments strongly indicative of the condition on SSSI/ASSIs	Map 5.2.3 Assessments weakly indicative of the condition on SSSI/ASSIs
	<p>Not applicable</p>	

Key
Red = future-unfavourable, i.e. the square contains one or more SACs where this habitat feature is present and has been predicted to be future-unfavourable
Green = future-favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been predicted to be future-favourable
Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported
Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type

Key*
Green – 80 – 100% of assessed features on 10-km square are favourable
Yellow - 50 – 80% of assessed features on 10-km square are favourable
Orange - 20 – 50% of assessed features on 10-km square are favourable
Red - 0 – 20% of assessed features on 10-km square are favourable
 *This is the same key as was used for JNCC CSM Report 2006

5.3 Conclusions on future prospects (as regards range, area covered and specific structures and functions)

Conclusion^{2.6.iv}: Unfavourable – Inadequate but improving

The EC Guidance states that where habitat prospects are intermediate between “good with no significant impacts from threats expected and long-term viability assured” and “bad with severe impacts from threats expected and long-term viability not assured”, the judgement should be Unfavourable – Inadequate. In the UK, this was generally taken to mean that range and/or area are stable or decreasing, and between 75-95% of the habitat area is likely to be in favourable condition in 12-15 years.

Many of the future threats and pressures (particularly waster abstraction; grazing; burning; lack of management; forestry) on the overall resource of H7150 are being addressed for the unknown proportion of the resource within the statutory site series; and (through agri-environment measures; work proposed under the UK, country or local biodiversity plans; and similar positive management) for an unknown proportion of the resource lying outside statutory sites. However, even within the statutory sites series 31% of the assessed SAC area (and 35% of the assessed SSSI/ASSIs) with this habitat are likely to remain unfavourable. Extrapolating these trends beyond statutory sites in the absence of other data suggests that a substantial but unknown proportion of the total resource of H7150 is likely to remain in poor condition.

The range for H7150 as shown in Map 2.1.1 is unlikely to change unless there are dramatic changes in rainfall patterns, which is unlikely in the next 15-20 years timescale under consideration. The surface area for H7150 should continue to increase due to the improved vegetation condition initiated by current and future restoration projects, including under the UK and local biodiversity plans particularly on raised bogs (H7110 and H7120) and wet heaths (H4010).

Overall these considerations lead to a judgement of Unfavourable – Inadequate but improving for future prospects for H7150.

6. Overall conclusions and judgements on conservation status^{2.6}

Conclusion^{2.6}: Unfavourable – Bad but improving

On the basis of Structure and Function, the overall conclusion for this habitat feature is Unfavourable – Bad.

Table 6.1 Summary of overall conclusions and judgements

Parameter	Judgement	Grounds for Judgement	Confidence in judgement*
Range	Favourable	Current range is stable and not less than the favourable reference range.	3
Area covered by habitat type within range	Unknown	Insufficient information to make a judgement.	3
Specific structures and functions (including typical species)	Unfavourable – Bad but improving	More than 25% of the habitat area is considered to be unfavourable as regards its specific structures and functions. Significantly more of the resource in unfavourable condition is improving than declining.	3

Future prospects (as regards range, area covered and specific structures and functions)	Unfavourable – Inadequate but improving	Habitat prospects considered to be intermediate between “good with no significant impacts from threats expected and long-term viability assured” and “bad with severe impacts from threats expected and long-term viability not assured. Measures are in place and planned to address threats to future range, extent and structure and function for the overall UK resource.	3
Overall assessment of conservation status	Unfavourable – Bad but improving	One parameter judged as ‘Unfavourable - Bad’; two parameters improving.	3

Key to confidence in judgement: 1 = High; 2 = Medium; 3 = Low

7. Annexed material (including information sources used 2.2)

7.1 References

JACKSON, D.L. & MCLEOD, C.R. (eds.) 2002. Handbook on the UK status of EC Habitats Directive interest features: provisional data on the UK distribution and extent of Annex I habitats and the UK distribution and population size of Annex II species. *JNCC Report* No. 312. Version 2. www.jncc.gov.uk/page-2447

JOINT NATURE CONSERVATION COMMITTEE. 2005. *Common Standards Monitoring (CSM)*. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/page-2217

Map data source

JNCC International Designations Database. Joint Nature Conservation Committee.

7.2 Further information on CSM data as presented in Sections 4.2 and 5.2

Table 7.2.1 Summary of the coverage of the data shown in Tables 4.2.1 and 5.2.1

Data	Value
Number of SACs supporting feature (a)	32
Number of SACs with CSM assessments (b)	30
% of SACs assessed (b/a)	94
Extent of feature in the UK – hectares (c)	
Extent of feature on SACs – hectares (d)	1,372
Extent of features assessed – hectares (e)	1,371
% of total UK hectarage on SACs (d/c)	
% of SAC total hectarage that has been assessed (e/d)	100
% of total UK hectarage that has been assessed (e/c)	

Table 7.2.2 Summary of grid square map data shown in Maps 4.2.1-3 and 5.2.1-3

Status	Number of squares	Proportion of all squares
Current – Unfavourable (red)	13	27%
Current – Favourable (green)	17	35%
On SAC but not assessed (blue)	1	2%
Not on SAC (transparent)	17	35%
Total Number of 10-km squares (any colour)	48	
Future – Unfavourable (red)	7	15%
Future – Favourable (green)	23	48%