

A Strategy for the Restoration of Blanket Bog in England

An Outcomes Approach

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Contents

1. Purpose of Paper	1
2. Summary	2
3. Context	4
4. Blanket Bog Restoration	5
Why Restore Blanket Bog?	5
How to Restore Blanket Bog	6
Management of Blanket Bog for reasons other than its Restoration	7
Partnership Working to Restore Blanket Bogs.....	8
5. The Environmental Drivers for Blanket Bog Restoration	9
Nature Conservation Importance	9
What is Blanket Bog?	9
Designations	10
Favourable Conservation Status	11
Conservation Objectives at the Site Level	12
Habitat Condition	14
How to Assess Habitat Condition	15
The Current Situation	16
6. The Outcomes Approach – how will this strategy make a difference on the ground? ...	17
Site by Site Approach	17
The Restoration Trajectory	18
Action Planning, Delivery and Management	18
7. Blanket Bog Restoration Work Programme	20
8. Prioritisation Criteria	22
9. Bibliography	23
Appendix I	24

1. Purpose of Paper

- 1.1 This paper sets out a strategy for blanket bog restoration in the English uplands founded on a shared commitment to work collaboratively amongst landowners, land managers and stakeholders to achieve sustainable outcomes.
- 1.2 The overarching vision for this Blanket Bog Restoration Strategy is to:
 - Maintain or restore blanket bog to provide for its characteristic flora and fauna to Favourable Conservation Status (FCS);
 - Recognise the essential role that landowners and managers play and that inspiring and fully engaging people in delivering multiple outcomes will be key to achieving success;
 - Restoring or enhancing the range of ecosystem benefits relevant for each site;
 - Build and support sustainable businesses in the uplands which have adapted to work in harmony with the requirements of well-functioning blanket bog.
- 1.3 The Restoration Strategy is informed by the 2013 Review of Uplands Evidence¹ and supplementary work; this work continues, in particular serving to draw together experiential evidence, in order to develop more rounded and effective guidance for upland land management.
- 1.4 This paper describes an approach based around developing shared outcomes and trajectory rationale which will be used to progress blanket bog restoration and then sets out the prioritisation framework which will be used to determine annual Blanket Bog Restoration Work Programmes. It sets out a strategy to achieve blanket bog restoration and multiple outcomes and outlines the ways of working which will have to be compliant with the legal framework.

¹ <http://publications.naturalengland.org.uk/category/5968803>

2. Summary

- 2.1 The English uplands contain some of our most iconic landscapes as well as a range of internationally important habitats and species. Much of the special interest in our uplands is a product of the stewardship provided by landowners and stakeholders over many generations.
- 2.2 The majority of England's blanket bogs are designated to recognise their important nature conservation interest. The current condition of most of our blanket bogs is Unfavourable Recovering. Restoration is required with continued ongoing positive management to keep blanket bog sites on this recovery trajectory and ultimately achieve well-functioning blanket bog with multiple social, economic and environmental benefits. Blanket bog habitats will take many years to restore and therefore are likely to make a modest additional contribution to the Biodiversity 2020 Outcome 1A for 50% of SSSIs to be in Favourable Condition. Blanket bogs will however make a significant contribution to the achievement of other elements of Biodiversity 2020 Outcome 1A through positive steps to maintain 95% by area of SSSI assessed as Unfavourable Recovering and the 90% of Priority Habitat in Unfavourable Recovering or better condition Outcome which includes blanket bog outside the designated sites network. Therefore, positive management action on blanket bogs to achieve tangible progress on the recovery trajectory is very important to Biodiversity 2020 Outcome 1A.
- 2.3 The 2013 Review of Upland Evidence found no evidence that blanket bogs could not be restored. However, each situation will need to be considered on its own merits and there may be considerations (e.g social, cultural, political or economic) which mean that blanket bog restoration on an individual site is not progressed.
- 2.4 Collaboration between landowners and stakeholders will be key to achieving sustainable outcomes. This Strategy seeks to build on the Outcomes Approach developed at the Defra Upland Stakeholder Forum and piloted through five "Bogathon" events during 2014 at which key stakeholders reached good consensus on core objectives for blanket bog restoration and built a real understanding of the actions required to achieve those objectives and the implications for the multiple interests.
- 2.5 Blanket bog restoration is likely to take many years. The timescales to restore blanket bog, implement management changes and facilitate business adaptations will require long-term positive working relationships with a clear range of objectives established at the outset in a Site Restoration Plan.
- 2.6 Each Site Restoration Plan will outline the suite of mutually-agreed outcomes and will determine the interventions required and milestones to measure progress towards the delivery of each of these outcomes.
- 2.7 The trajectory within each Site Restoration Plan will indicate, for the biodiversity outcomes, what physical changes should be expected in the recovery of its blanket bog as a result of restoration, and the agreed milestones to quantify this recovery.
- 2.8 There are legal and policy drivers to protect and restore our valuable nature conservation habitats. The vision of this Blanket Bog Restoration Strategy is to work collaboratively within the parameters of these legal drivers to gain consensus for changes in land management practices to make tangible progress on blanket bog restoration. Regulation, in the form of routine adherence to legal requirements, is a

Blanket Bog Restoration Strategy- June 2015

constructive and understood part of designated land management practice. Whilst the ambition is that work conducted under this Strategy will demonstrate best practice in collaborative working using the Outcomes Approach, regulatory enforcement powers are an important tool to be used where required. However, should disputes emerge which can only be resolved using regulatory or enforcement action, this will signal a regrettable failure of collaboration and dialogue between the parties locally.

3. Context

- 3.1 The English uplands contain some of our most iconic landscapes. Upland landscapes have fascinated and inspired artists and writers for centuries. Whether as a setting for classic literature such as *Wuthering Heights*, or the Hounds of the Baskervilles or the paintings of JMW Turner, uplands hold a special place in our cultural heritage and provide inspirational landscapes for a wide range of recreational pursuits.
- 3.2 The English uplands support a range of internationally important habitats and species, some of which exist only in the uplands. Well-managed uplands provide society with a range of social, economic and environmental benefits including:
- flood management, and water supply;
 - carbon storage and climate regulation;
 - food production.
- 3.3 Much of the English uplands are in private ownership. The pattern of land tenure is often complex with land managed in hand or through tenancies. More than a third of moorlands are registered commons. These complexities need to be considered when seeking to agree any changes to land management practice.
- 3.4 The primary land uses are livestock grazing, for which the uplands make a vital contribution to the UK industry, and shooting for grouse and other game birds. Forestry is also a significant land use. The support of landowners, hill farmers, commoners, partners and other stakeholders will be essential to securing truly sustainable outcomes. Much of the special interest in our uplands is a product of the stewardship provided by landowners and other stakeholders, over many generations; the future of these habitats and landscapes depends on us putting in place regimes that build on this historic motivation and provide a long-term future for those who work on the land. Collectively, we need to find ways in which multiple public benefits, particularly the important nature conservation interests and ecosystem services, can be achieved alongside realising a healthy and viable future for the land management industry capable of supporting the management of peatland for their full range of benefits.
- 3.5 Building consensus in the uplands will help to secure sustainable, long-term land management changes which deliver conservation outcomes. Active blanket bog restoration is required on a huge scale to improve site condition and deliver Favourable Conservation Status (FCS). The knowledge and experience of land managers and stakeholders is vital in developing techniques for restoration which are compatible with local conditions. A programme of proactive measures will be required which can work alongside existing land management operations to improve the extent and condition of peat forming plant communities. Achieving this level of positive management without the active cooperation of the land manager would be extremely difficult. This approach will build on the existing contributions of the specialist peatland restoration partnerships, which will continue to play a vital role in delivery.

4. Blanket Bog Restoration

Why Restore Blanket Bog?

- 4.1 Degradation of blanket bogs affects how they function, provide a range of ecosystem services (e.g food production, carbon storage, water quality and flow attenuation, recreational opportunities for health and wellbeing, and benefits to the tourism industry) and respond to climate change. This Strategy outlines an approach to achieve multiple outcomes through blanket bog restoration and the various drivers which will need to be considered.
- 4.2 Restoration in this context means the implementation of a range of capital projects and / or annual management changes through which a blanket bog positively changes over time towards or achieving the goal of becoming well-functioning blanket bog with extensive peat-forming vegetation.
- 4.3 There are important socio-economic reasons to restore blanket bog and its ecosystem services. The uplands are an important part of England's livestock industry, and large populations of grouse (and other game birds) are maintained for the shooting industry. Blanket bog vegetation is a central part of sustaining these regimes.
- 4.4 In addition, the nature conservation and landscape interests of the uplands provide a quality setting for public access, recreation and inspiration with the potential for human health benefits. There are an estimated 60 million day visits to mountain, hill and moorland with significant implications for the local tourist trade; tourism brings an estimated £1.78bn to England's upland National Parks. Well-functioning blanket bog has been shown to attenuate the speed at which water moves downstream and thereby might contribute to reducing flood risk. An estimated 70% of the UK's drinking water is collected from upland catchments. Well-functioning blanket bog reduces the risk of dissolved organic carbon passing into water courses and the subsequent costs of clean up downstream. The English peatlands are a significant carbon store, holding an estimated 584 million tonnes of carbon which is equivalent to 2.14 billion tonnes of CO₂ or approximately 5 years of England's total annual carbon emissions². Restoration of blanket bog safeguards this important function turning degraded bogs which emit CO₂ into healthy bogs which capture and store CO₂.
- 4.5 The Habitats Directive³ means we have undertaken to maintain or restore and avoid deterioration or remedy historic deterioration of habitats such as blanket bog. This means adopting positive management practices which support the habitat's needs. Restoration of blanket bog will also contribute to UK commitments under the Water Framework Directive⁴ most notably to achieve good ecological status and to prevent further deterioration (from a 2008 baseline) to the quality of water intended for public water supply. Blanket bog restoration will also make contributions to the policy drivers of Biodiversity 2020 particularly Outcome 1A⁵ the achievement of 90% of Priority Habitats (within and outside designated sites) in Unfavourable Recovering condition and 50% of SSSIs restored to Favourable condition whilst maintaining 95% of SSSIs in

² Natural England, 2010

³ EC **Habitats Directive** (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora)

⁴ Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

⁵ 1A. Better wildlife habitats with 90% of priority habitats in favourable or recovering condition and at least 50% of SSSIs in favourable condition, while maintaining at least 95% in favourable or recovering condition

Unfavourable Recovering Condition. Agri-environment schemes provide a mechanism by which to achieve these obligations.

- 4.6 The UK Government reports on the condition of our important habitats to the European Commission every 6 years. The most recent report⁶ for the period 2007-12 noted for blanket bog that whilst the range was 'favourable', area was 'decreasing' and structure and function and future prospects are 'bad' giving an overall assessment of 'unfavourable bad'. The assessment noted that this was mostly due to human impacts. The requirement to restore blanket bog habitat is supported by this assessment.
- 4.7 If we do not deliver tangible improvements to FCS assessment of blanket bog and condition improvements on designated sites not only will we not realise the social, economic and environmental benefits which are at the heart of the outcomes approach but there is a real risk of costly infraction from the European Commission.
- 4.8 The 2013 Review of Upland Evidence found no evidence that blanket bogs could not be restored. However, each situation will need to be considered on its own merits and there may be considerations (e.g social, cultural, political or economic) which mean that blanket bog restoration on an individual site is not progressed.

How to Restore Blanket Bog

- 4.9 Blanket bogs exist in a range of conditions in England. There are a number of factors which affect the condition of the blanket bog and interact in complex ways. The main factors which have contributed to the current condition of blanket bog include:
- acidification from atmospheric pollution;
 - nitrogen deposition;
 - drainage (notably major projects in the 19th Century and more recently in the 1970s);
 - commercial afforestation;
 - unsustainable grazing levels;
 - wildfires;
 - rotational burning practices for agriculture and grouse moor management.
- 4.10 Plans to restore blanket bog are therefore likely to incorporate a wide range of actions which brings exciting opportunities to secure substantial inward investment. An external funding bid to EU LIFE⁷ is already in development aimed at supporting peatland restoration across the landscape. Capital investment e.g to restore the hydrological regime through grip blocking and revenue funding to support positive land management measures will be available through agri-environment agreements which are likely to be important, but not the only funding support available, in achieving this Strategy.
- 4.11 Additional work will be required through off-site actions to reduce atmospheric pollution. This is a more generic action with a wide range of drivers and is therefore not considered further in the context of this Strategy.

⁶ JNCC,2013.

⁷ The LIFE 2014-2020 Regulation (EC) No 1293/2013

4.12 There are already a number of projects across the United Kingdom restoring blanket bog including, in England, Moors for the Future, Yorkshire Peat Partnership and Dartmoor Farming Futures and these provide a range of practical experience.

4.13 A number of principles will be used to guide actions under this Restoration Strategy. These will be discussed and agreed with Stakeholders and include:

- Removal of coniferous plantations, cessation of peat cutting and drainage practices will be required to restore the hydrological regime;
- Blocking existing artificial drainage systems according to a well-designed, shared and agreed restoration plan with monitoring can promote hydrological restoration;
- Re-establishment and protection of *Sphagnum* moss species is key to restoring functioning bog floristic communities, this requires restoration of the peat's hydrological regime;
- Re-vegetation of bare peat is important to reduce erosion and loss of particulate matter, and may be a prerequisite of interventions to establish characteristic flora;
- Temporary removal of grazing may be necessary to enable the re-vegetation of bare peat, helping nurse crops to establish and avoiding erosion through trampling;
- Temporary removal or reductions in grazing may be required to reduce trampling and facilitate vegetation recovery;
- Well-functioning blanket bogs may require amended grazing regimes as they produce low levels of biomass but they can tolerate low levels of grazing without detriment;
- Burning of areas dominated by heather will lead to further domination of heathers unless coupled with restoration of the hydrological regime which will, over time, decrease heather dominance in favour of a mosaic of vegetation types more typical of well-functioning blanket bog;
- Continued, too frequent or too intensive burning may impede blanket bog restoration;
- Burning areas of purple moor grass is unlikely to reduce its dominance, restoration of the hydrological regime is likely to reduce its dominance over time during which period it may form peat and act as a nurse crop for *Sphagnum* mosses.

Management of Blanket Bog for reasons other than its Restoration

4.14 Each upland area is distinctive in its own way, reflecting the underlying geology and shaped by its own history of land use and degree of success at implementing upland land use policies. Farming practices have shaped the different landscapes across the uplands, from the characteristic dry stone walls in the Yorkshire Dales to large areas of open common in Cumbria. Sustainable farming is vital to maintaining these valued landscapes. More locally, grouse moor management has added its unique blend of management across the large areas of heather dominated moorland seen from the Peak District north to the Scottish Borders.

4.15 There are many circumstances where management is desirable for reasons other than nature conservation management. For example, targeted managed burning may be required in order to reduce the risk of damage from wild fire or mitigate impacts where incidents occur, as part of a wildfire plan. Extensive wild fires could prejudice the

recovery of blanket bog ecosystems by causing damage and potentially pose a serious risk to public health and safety.

- 4.16 Management proposals not directly linked to an active Site Restoration Plan are not covered under this Strategy. Where additional management is proposed on sites designated for their intrinsic nature conservation value or alongside an active agri-environment agreement the proposals will be the subject of discussions between the landowners and Natural England on a case by case basis as currently happens.

Partnership Working to Restore Blanket Bogs

- 4.17 Previous conservation approaches have sometimes been short-term, focussing on specific issues rather than aimed towards securing long-term outcomes. The need to develop a collaborative approach to delivering functional peatlands has sometimes been overshadowed by contentious issues focussed debates. The outcomes approach being adopted by this Strategy seeks to move beyond these to a consensus-led way of working focused on achieving tangible outcomes. The first step is to gain consensus around what the suite of outcomes should be and then, working back from there, what the necessary actions are and the timescales are by which these will be achieved.

- 4.18 Working with key stakeholders, an approach has been piloted to develop shared ownership of a suite of outcomes on a site-by-site basis. A vision with five mutually reinforcing core objectives for blanket bog restoration was agreed by the group:
To improve the health and functionality of deep peat (greater than 0.4 metres in depth⁸) on moorland in England so that it:

- *delivers good water quality including associated biodiversity and drinking water*
- *keeps stored carbon locked up and locks up more through peat creation*
- *supports characteristic blanket bog plant communities*
- *supports sustainable agricultural grazing*
- *supports sustainable grouse shooting*

- 4.19 This approach was highly successful in gaining consensus around these core objectives and building a real understanding of the actions required for blanket bog restoration and the implications for social, economic and environmental interests. The approach has received strong endorsement in principle from the Defra Upland Stakeholder Forum – comprised of senior representatives from a range of upland bodies, and other key partners, including land managers and conservation NGOs. This collaborative approach is the preferred way of working to achieve the ambitions of this Strategy.

- 4.20 All parties recognise that there are legal obligations which require appropriate management to be put in place to conserve environmental features. The vision of this Blanket Bog Restoration Strategy is to work collaboratively to reach consensus to progress habitat restoration through changes in land management practices where required, without resorting to regulation. All parties are committed to making the outcomes approach a success and thereby minimise the risk of regulation cases arising. Should regulation be required in some cases, this will signal a regrettable failure of collaboration and dialogue between the parties locally.

⁸ JNCC, 2011

5. The Environmental Drivers for Blanket Bog Restoration

Nature Conservation Importance

- 5.1 The UK's uplands are home to a range of rare and important habitats and species and is internationally important for peatland, holding between 9-15% of the total peatland area in Europe. Peatlands cover much of the English upland. The most extensive type of peatland is blanket bog and upland valley mire. The UK holds about 13% of the global blanket bog resource and 91% of the total of this habitat in the European Atlantic Biogeographic region.
- 5.2 England's upland peatlands are mainly distributed across the uplands of the Pennines, with other upland areas such as Dartmoor, Exmoor, the Lake District, Border Moors, Cheviots, Forest of Bowland and the North York Moors also supporting significant areas (see Figure 1 below).

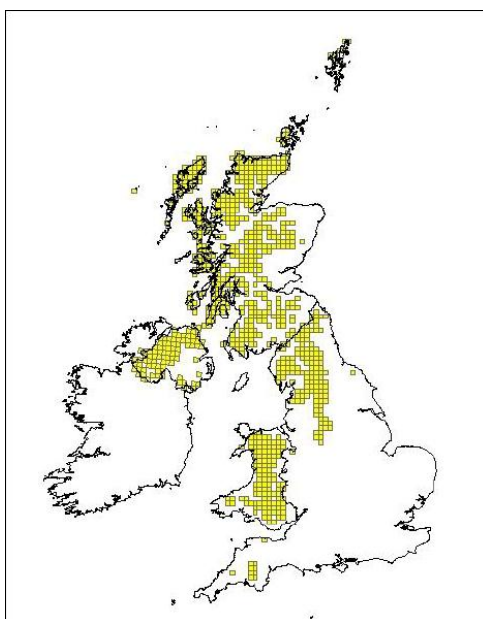


Figure 1 Blanket bog distribution in the UK

What is Blanket Bog?

- 5.3 Blanket bog is a collective term for extensive rain fed, deep upland peatland over 40cm in depth on flat or sloping ground and the range of vegetation types it can support⁹. This range reflects the natural variation in botanical composition in response to geographical and topographical factors and differences in the water table at the surface of the peat, which are then influenced by the prevailing land management practices. Less modified blanket bogs with a high water table support a range of *Sphagnum* mosses. These systems form peat by adding material into their waterlogged lower layers, which then accumulates due to their water retention

⁹ Note, using the National Vegetation Classification, blanket bog vegetation community types include; M1, M2, M16, M17, M18, M19, M3, M21, M20, M15, M25, H9, H12, and U6 in order from least modified to the most modified blanket bogs.

properties and the slow movement of rainwater. More modified blanket bogs may have lower water tables and vegetation dominated by dwarf shrubs (especially heather), cotton grasses, deer grass or purple moor grass depending on the location and management practices.

5.4 This definition is informed by a number of existing definitions and descriptions of blanket bog in a range of different sources.

- Annex 1 blanket bog habitat definition given in the EU Interpretation Manual (EC, 2007)
- Common Standards Monitoring Uplands guidance habitat definitions (JNCC, 2006)
- BAP priority habitat definition (Maddock, 2008) and new habitat mapping guidance (Geodata Institute, 2011)
- Blanket peat soil mapping in England which uses 40cm peat depth as a criterion (JNCC, 2011)
- Review of Upland Evidence – Restoration of Degraded Blanket Bog NEER003 Natural England (2013)

5.5 In the context of this Restoration Strategy, greatest priority will be given to the European Union definition of Annex 1 blanket bog habitat¹⁰ when considering objectives for restoration.

Designations

5.6 The Natura 2000 network recognises internationally important nature conservation areas and is made up of Special Areas of Conservation (SAC) designated through the Habitats Directive and Special Protection Areas (SPA) classified under the Birds Directive¹¹. All these sites are underpinned by sites recognised as nationally important and classified as Sites of Special Scientific Interest (SSSI) under the Wildlife & Countryside Act.

5.7 In England there are 229,983ha of blanket bog of which 175,461ha occurs on SSSI and 54,522ha outside the protected sites network. Of the SSSIs for blanket bog, 142,123ha (approximately 81%) is also recognised as of international importance through SAC designation¹² Figure 2 shows the areas of blanket bog within the different levels of the protected sites network.

¹⁰ Habitat reference 7130 page 83 of EUR27 Interpretation Manual

¹¹ Council Directive 2009/147/EC on the conservation of wild birds.

¹² These data from Natural England's priority habitat inventory and Ensis were correct as at November 2014.

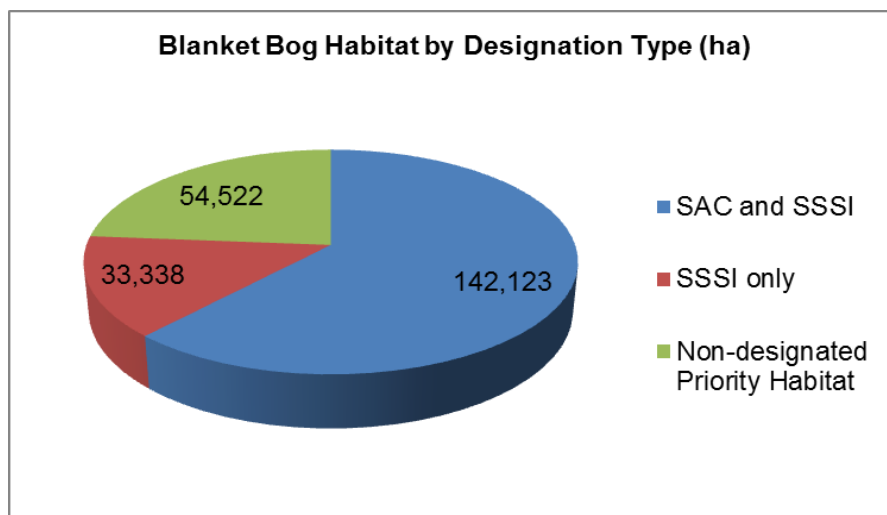


Figure 2 England's blanket bog habitat by designation type

Favourable Conservation Status

5.8 Favourable Conservation Status (FCS) is the core objective of the Habitats Directive. Site designation is a key way to achieve FCS but it applies to the totality of the habitat type or population of a species across the country and therefore positive management is also important on non-designated land.

5.9 Conservation Status for habitats is a combination of its range, extent, structure and function and the presence of healthy populations of its typical species. Conservation Status is deemed Favourable when:

- a habitat's natural range and area it covers within that range are stable or increasing; and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- the conservation status of its typical species is favourable

5.10 Conservation Status is assessed at the UK level. The table at Appendix I shows the matrix used for assessing conservation status of a habitat. A working definition of Favourable Conservation Status at the England level is currently being developed (to be completed in the summer of 2015) as this will form the core objective of this Restoration Strategy. It will seek to establish the proportion of the total resource which must meet the requirements set out in the table at Appendix I for an assessment of Favourable. Table 1 provides an indication of how the FCS threshold for blanket bog within each designation level (SAC, SSSI, Priority Habitat) might be set. An assessment of 'Favourable' would be recorded if the minimum thresholds in each designation level were met.

Table 1 Indicative Threshold for Favourable Conservation Status Assessment in each designation level. Any figures used here are illustrative only, the table will be populated once the England-level FCS definition has been developed.

Parameter	SAC Contribution	SSSI Only Contribution	Non-Designated Priority Habitat Contribution
Range	?	?	?
Area	?	?	?
Structure and Function	≥ 90%	≥ xx%	≥ xx%
Future Prospects	≥ 90%	≥ xx%	≥ xx%
TOTAL ASSESSMENT			

Conservation Objectives at the Site Level

- 5.11 As each SAC, SSSI and area of non-designated habitat contributes to the attainment of FCS, this general objective needs to be translated into site level conservation objectives. For SACs and SPAs, this is set out within a site’s Conservation Objectives. For SSSIs the objectives are outlined in Favourable Condition Tables (FCTs). As all terrestrial SACs are also notified as SSSIs these sites will have both Conservation Objectives and an FCT which will be complementary.
- 5.12 These site-specific objectives set out the baseline for an individual site and thereby its contribution to FCS. FCTs and objectives for non-designated habitat should add up to FCS. By having a clear and defined England-level definition of FCS it will be possible to critically assess the conservation objectives across the whole of the habitat extent to ensure they deliver FCS and to understand what levels of variation are possible. Understanding the scope for variation is key to tailoring the FCTs for an SSSI and establishing appropriate objectives for the Site Restoration Plan. Tailoring the FCTs for a site is an important early step to inform and support the outcomes approach on that site.
- 5.13 Figure 3 seeks to demonstrate the relationship between FCS and objectives for designated sites and non-designated habitat and how that affects management decisions and condition assessments.

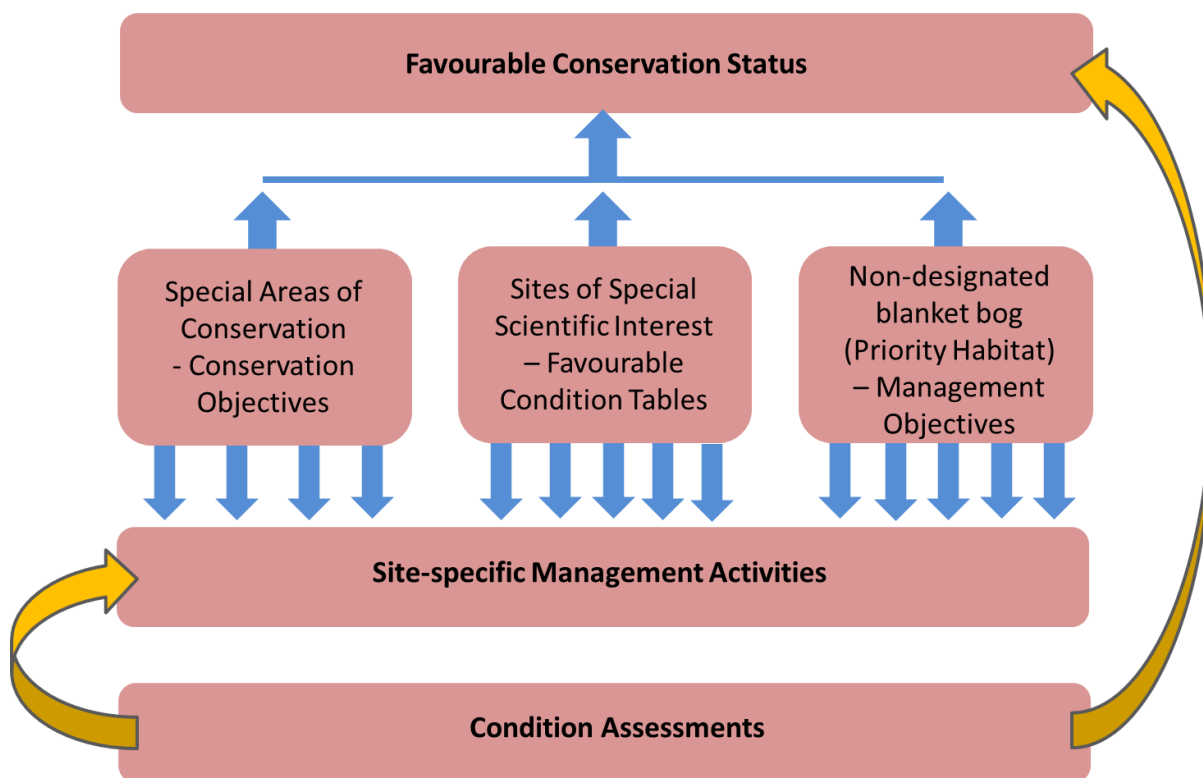


Figure 3 A schematic representation of the relationship between FCS, site based conservation objectives, management activities and condition assessments.

5.14 A Favourable Condition Table for blanket bog will include a range of biotic and abiotic characteristics. Figure 4 outlines some of the key features of a blanket bog FCT. Site-specific tailoring of FCTs is essential as no two sites are the same. Site-specific tailoring of FCTs takes into account the geographical, ecological, climatic, cultural, historic and current land management variations.

<ul style="list-style-type: none"><input type="checkbox"/> Habitat Extent<ul style="list-style-type: none">✓ Maintain extent <input type="checkbox"/> Hydrological functioning<ul style="list-style-type: none">✓ Maintain high water tables with water close to the surface✓ Presence of surface water forming permanent and ephemeral bog pools with micro-topographical features such as hummocks and hollows <input type="checkbox"/> Carbon storage<ul style="list-style-type: none">✓ Bog holds good and extensive populations of <i>Sphagnum</i> moss building species and/or other peat forming plants✓ Protect against the creation of areas of bare peat✓ Protect against peat erosion✓ Protect peat resource from wildfire✓ The peat is measurably active. <input type="checkbox"/> Peat structure/chemistry<ul style="list-style-type: none">✓ Protect against peat erosion✓ Peat chemistry is within acceptable limits eg pH is within expected acidic range, peat soils are anoxic✓ Atmospheric deposition of pollutants such as Nitrogen are not having an impact on soil chemistry <input type="checkbox"/> Vegetation<ul style="list-style-type: none">✓ Maintain or enhance the higher plant and bryophyte (especially <i>Sphagnum</i>) community (number of positive indicator species present)✓ Maintain vegetation composition (% cover of indicator species)✓ Maintain the structural diversity of vegetation ensuring a range of successional states✓ Maintain the presence of species of particular importance✓ Prevent the establishment or spread of non-native species <input type="checkbox"/> Typical species<ul style="list-style-type: none">✓ Maintain the presence and population of key species✓ Maintain the assemblage of breeding and wintering birds

Figure 4 Generic FCT Objectives for Blanket Bog

Habitat Condition

5.15 There is acknowledged variation in condition on blanket bogs. This can be described as six separate states, though in reality there is a continuum across many. These definitions will help in gaining consensus around the current situation on a site. This is a key step in agreeing an appropriate suite of outcomes with stakeholders. The definitions are intended to be a convenient and helpful tool to aid decision-making, to prioritise restoration and to explain the approach to land managers.

5.16 Where bog restoration projects are in train, it may be difficult to describe blanket bog in these terms as the system will be in transition. A simple example would be where nurse crops are already being used to stabilise exposed bare peat.

5.17 In order, from most degraded to best functioning, the states are:

1. **Afforested bog (inactive)** Bogs which have been planted with trees, usually for commercial reasons, and are not functioning as blanket bog.
2. **Bare peat bog:** Little or no vegetation with areas of exposed bare peat and extensive gullying and haggging. Unlikely to support representative peatland communities. Small patches of dwarf shrubs (heather) may exist.
3. **Dwarf-shrub dominated blanket bog with other species scarce or absent (largely inactive):** largely inactive, severely modified bogs where dwarf shrub cover exceeds 75% of the canopy and other typical mire species such as bog mosses and even cotton grass are rare or absent. It may have moderate to severe gullying and haggging. Occurs often on 'drier' peats and the more easterly moors.
4. **Grass and/or sedge dominated blanket bog (potentially active):** May be active or have potential to become so. Vegetation is dominated by graminoids such as purple moor-grass, cotton grass or deer grass with *Sphagnum* bog mosses scarce or absent. Does not include the post-burn grass or sedge dominated areas of modified bogs of state 5 below. Unlikely to be extensively drained and usually with few gullies or hagsgs.
5. **Modified blanket bog with high dwarf shrub cover but with *Sphagnum* and other mire species (active):** Dwarf shrub cover is high, often reaching 50-75%, and *Sphagnum* cover tends to be lower. Cotton grass is abundant or frequent as an understorey and becomes dominant in the years following fire. Moderately active, with peat formation likely to be slower than in state 6. It may be drained, but usually with few gullies or hagsgs. Characteristic of much of the Pennines for example.
6. **Active hummock/hollow/ ridge blanket bog (active):** This is un-modified or little modified, *Sphagnum*-rich blanket bog, which is peat-forming (active) often with hummocks and hollows. There may be basin or valley mire components. Typically neither heather nor cotton grass achieve high abundance and there is usually a good *Sphagnum* understorey. It meets, or is close to meeting favourable condition attributes.

How to Assess Habitat Condition

5.18 Knowing the condition of SSSIs is a vital step in being able to protect and enhance them. Accurate information on condition, coupled with an understanding of the history of management on the site, will help advisers support landowners and managers to amend management practices where necessary to meet the objectives of their SSSI. Site condition information also helps landowners access a range of financial support for necessary management changes.

5.19 The condition of SSSIs (and therefore also SACs) is monitored using the Common Standards Monitoring methods (JNCC, 2006).

5.20 The condition assessment is made across the criteria set out in the FCT. Some features, for example soil chemistry, identified in the FCT are not routinely monitored through the Common Standards Monitoring methods because to make that

assessment would require specialist skills. Assessing the full range of factors is clearly very important when considering management and restoration.

- 5.21 The condition assessment will assign each SSSI unit into one of five categories – Favourable, Unfavourable Recovering, Unfavourable No Change, Unfavourable Declining, (Part) Destroyed. The policy objectives for SSSI condition in Biodiversity 2020 are for 50% of SSSIs by area to be recorded as Favourable whilst 95% of SSSIs are Unfavourable Recovering (or better). It is recognised that relatively small areas¹³ of blanket bog which are not currently assessed as favourable will become so by 2020 given the timescales for restoration of this habitat. However, blanket bog is such an extensive habitat within the SSSI series that it has a significant influence in achieving the target to maintain at least 95% of SSSIs in unfavourable recovering condition within Biodiversity 2020. Therefore, positive management action on blanket bogs to achieve tangible progress on the recovery trajectory is very important to Biodiversity 2020 Outcome 1A.

The Current Situation

- 5.22 The current Favourable Conservation Status (FCS) for blanket bog in the UK is unfavourable - bad declining according to the most recent 'Article 17' report from the UK Government to the European Commission (JNCC, 2013)¹⁴. It is assessed as being in unfavourable bad condition for structure & function, future prospects and current conservation status.

- 5.23 Only 12% of blanket bog in SSSIs in England is in Favourable condition. The majority of the rest of the blanket bog in SSSIs, is currently assessed as Unfavourable Recovering condition. This should mean that appropriate management mechanisms are in place with the expectation that they will lead, in time, to Favourable condition being achieved. This will be reviewed as sites become due for their next Condition Assessment or as sites are put forward to be progressed under this Strategy.

- 5.24 The condition of this blanket bog is summarised in Figure 5 below¹⁵.

¹³ Estimated at 25,000ha maximum improvement to Favourable for blanket bog SSSIs

¹⁴ FCS arises from the European Directives and therefore refers to the UK as a whole. A collation of data at the England level was made to inform the process however, it is UK assessment which is the formal submission.

¹⁵ These data were correct as at November 2014.

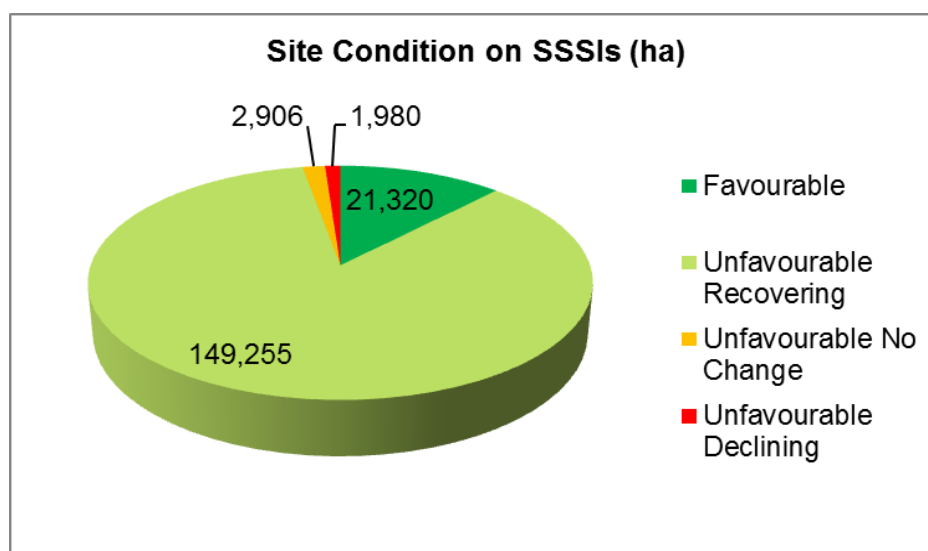


Figure 5: The current habitat condition of blanket bogs on English SSSIs

6. The Outcomes Approach – how will this strategy make a difference on the ground?

6.1 The Defra Upland Stakeholder Forum has worked to develop a common understanding of how an Outcomes Approach might work in practice. To support the approach Natural England and Defra produced an ‘Upland Outcomes Framework’¹⁶. This Strategy seeks to adopt and build upon the approach outlined in that document.

Site by Site Approach

6.2 The approach to blanket bog restoration will seek to work with landowners and managers on a site-by-site basis. For the purposes of this Strategy, a site may be a landholding or a protected site (SSSI or SAC) where a number of landowners elect to engage in this work together. The first step for any site will be to agree the scope of the partnership which will work collaboratively to achieve multiple objectives.

6.3 For each site, the partnership will use the outcomes approach to:

- Identify and agree the components on the ground;
- Consider the historic land management activities which have shaped the site;
- Understand the current land management activities which are influencing the site;
- Clearly define the multiple outcomes relevant for each site;
- Cross-reference these to the England-level FCS definition to ensure they are appropriate;
- Agree the steps required to get there;
- Agree timescales for restoration, the milestones and monitoring measures;
- Plan for integrated action by developing an over-arching Site Restoration Plan.

¹⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/273800/pb14111-uplands-outcome-framework.pdf

The Restoration Trajectory

- 6.4 Blanket bog restoration is likely to take many years. In some cases, there will be a time lag between actions on site and the ecological responses. In most cases, the timescales required to restore blanket bog, implement management changes and facilitate the business adaptations which are at the heart of this Strategy's vision exceed the duration of an agri-environment agreement. Multiple consecutive management agreements may be required to achieve and sustain the full suite of objectives and the Indicators of Success for each agreement will need to reflect the appropriate milestone on the trajectory.
- 6.5 For this reason, the Strategy will adopt a "trajectory" approach. At each site the partnership will identify the clear actions required, the timescales over which restoration will take place and set measurable milestones and monitoring such that progress can be demonstrated.
- 6.6 Working on a site-by-site basis and seeking to gain consensus around timescales and milestones will inevitably mean that different sites will progress along the recovery trajectory in different ways and at different rates. Figure 6 shows how this may vary with one landholding able to implement much greater site management changes from the outset and therefore there will be fewer milestones than another where a longer-term approach is required to facilitate the changes necessary.

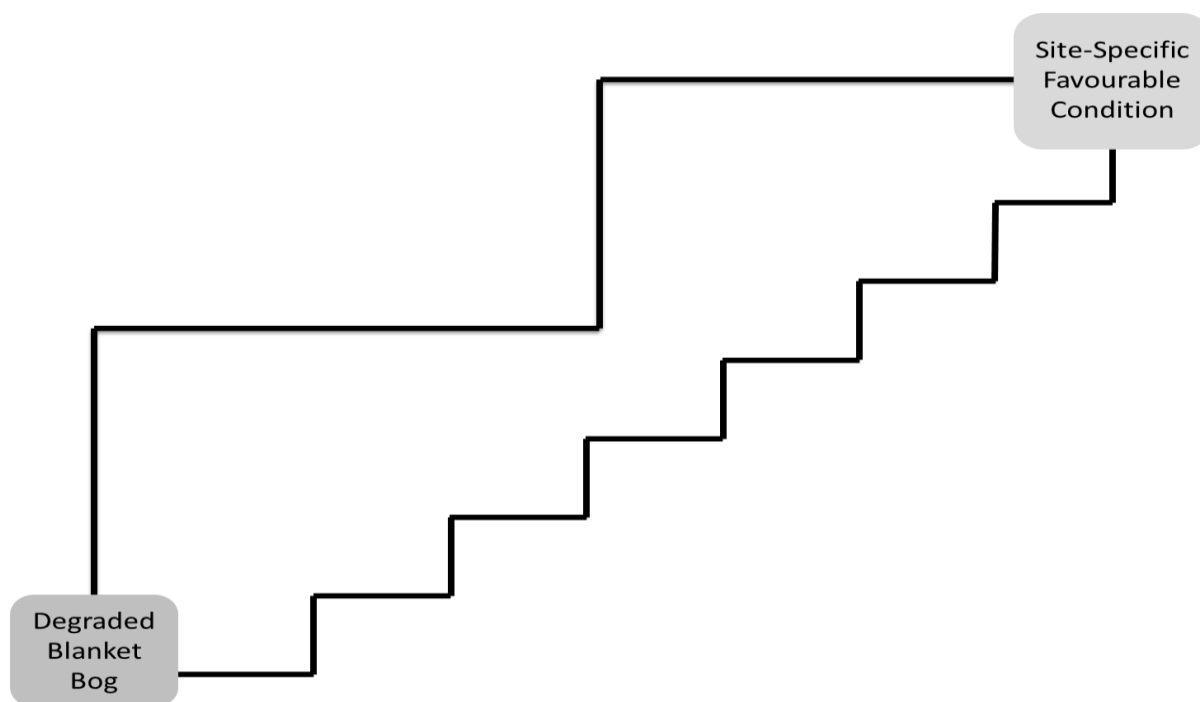


Figure 6 Schematic Representation of the Trajectory Approach in action on two different upland estates.

Action Planning, Delivery and Management

- 6.7 For each site, a Site Restoration Plan will be agreed by the partnership; this is the over-arching, long-term plan. It will then be delivered through a range of mechanisms including amendments to existing HLS agreements, new Countryside Stewardship agreements, specific capital projects and protected sites consents. In addition, Defra

is currently exploring a Peatland Restoration funding bid to the EU LIFE Programme which might potentially support a range of measures taken under this Strategy.

6.8 The Site Restoration Plan will be developed between Natural England and the landowner with input from other parties if appropriate. Each Site Restoration Plan will enable decisions to be taken locally and will reflect the desired suite of outcomes tailored to the specific circumstances on site. The Plan will set out:

- The local context including identification of the various states of blanket bog present on site, ecological position, hydrological status, peat depths, slope, feature condition, current management, historical management and events (e.g wildfire damage) and contribution to ecosystem services;
- Clear objectives, milestones and timescales for each of the agreed suite of outcomes for the site;
- A well-defined trajectory for delivering Favourable Condition of the blanket bog;
- Management measures to maintain bogs which are already fully functioning or to restore those where there are clear opportunities, and necessary land management changes to prevent deterioration with clearly defined timescales to facilitate this business adaptation;
- The contribution to and impact of management interventions in delivering restoration;
- Appropriate monitoring measures to demonstrate that recovery is taking place as anticipated and to evaluate the effectiveness of certain activities
- Monitoring measures to improve our collective understanding of how long restoration takes and to inform future restoration projects.

6.9 Natural England will work with landowners firstly to build consensus around the overarching Site Restoration Plan and subsequently to agree and provide advice and support around the agreements and measures which will deliver it. This will be informed by the good consensus that came out of the 'bogathon' work.

6.10 Each partnership will reconvene regularly to assess progress and mutually agree any required amendments to management measures or milestones. These will be incorporated into the Site Restoration Plan or the management agreements which deliver the objectives of the Site Restoration Plan as required.

7. Blanket Bog Restoration Work Programme

- 7.1 In order to turn this Strategy into action will require significant levels of collaborative working across many sites. To provide clarity to all parties about which sites are being prioritised, a Blanket Bog Restoration Work Programme will be established in discussion with stakeholders through the Defra Upland Stakeholder Forum. Stakeholders are encouraged to identify willing landowners who wish to be at the forefront of this innovative Programme.
- 7.2 The Work Programme will seek to profile the work such that all necessary Site Restoration Plans are developed and agreed and action is progressing by the end of 2024 in line with commitments made to the European Commission to ensure legal obligations are met.
- 7.3 The Work Programme will seek to profile all the sites across this 10-year timescale and minimise the risk of slippage to later years. Monitoring will determine if further interventions are necessary beyond the initial 10 year timeframe
- 7.4 The Blanket Bog Restoration Work Programme will be centred around embedding the outcomes approach at the site and estate levels using available evidence and site knowledge. Identification of sites to work on will be informed by stakeholder recommendations. Ideally the sites selected in the early years of the Programme will include a range of land management practices, habitat types, and geographic locations as this will raise the profile of the approach and ensure a wide range of experiences which can be used to inform work in subsequent years.
- 7.5 The work programme in Year 1 will encompass two key elements. The first is a series of “Bogathon” type events which are designed to raise awareness of the outcome approach and gain support and engagement to build a forward work programme. The second element is active engagement on a suite of sites where positive relationships already exist or are developing and/or there is a significant opportunity to improve the condition of a site in the short term. These pilots will be important in demonstrating the benefits on the ground and also in refining the approach and potentially revealing further evidence needs.
- 7.6 In future years, the Blanket Bog Restoration Work Programme will be determined on a site by site basis using a combination of local and national priorities. This will reflect levels of risk and opportunity, the views of stakeholders and the need to meet statutory objectives.
- 7.7 Within the wider programme are nested objectives towards achieving Biodiversity 2020 and compliance with the UK’s statutory duties. Additional work to meet these, including the Review of existing Consents on European Sites, will be carried out alongside the collaborative exercises and integrated into the outcomes approach work to achieve the required changes. Phase 1 of the Review of Consents work will identify all relevant consents in the 10 SACs with blanket bog and screen those against the site’s Conservation Objectives. Consents which pose no risk will be affirmed. Phase 1 will be completed by December 2015. Sites which are identified as risky will be the subject of further assessment. Depending on the conclusion of that assessment, the consent will be affirmed or identified as needing modifying or revoking. In these cases the site involved will be scheduled into the Work Programme on a timescale which reflects its degree of risk to the SAC. Discussions regarding these consents will then form a key element in developing the Site Restoration Plan alongside the other

identified outcomes. Should agreement not be possible then the formal revocation (regulatory) route may be required but will signal a failure of the overall approach between the partners.

- 7.8 The criteria which will be used to prioritise site based work are summarised below. Consideration will be given to the scale of the site and the area of benefit, which may extend well beyond the site itself. Stakeholders will play a key role in identifying estates to engage early with this Programme.

8. Prioritisation Criteria

- 8.1 The criteria to support prioritisation of the Blanket Bog Restoration Strategy can be categorised as opportunity, risk and logistics. In practice a combination will be used to determine the annual Work Programme.
- 8.2 Opportunity Led – The potential exists for agreeing voluntary change to achieve sustainable social, economic and environmental outcomes and facilitating business change. Stakeholders will play a key role in identifying these opportunities.
- Synergy with the work of partners (e.g water companies). Work may already be identified under other drivers (e.g Water Framework Directive) through good site knowledge.
 - Estates keen to engage with the approach.
 - Multiple adjacent landholdings willing to work collaboratively using the outcomes approach to facilitate changes across the landscape
 - Impending changes provide an opportunity to revisit the existing management regime e.g agri-environment agreement break clauses, applications for new agri-environment agreements, applications for a new consent, land ownership change, business restructuring.
 - Potential to draw in external funding bids (e.g EU Life Peatland)
- 8.3 Risk Driven – Sites which are identified by stakeholders concerned about a perceived threat. Damage has happened or there is a risk that damage will occur and there is the potential for infraction should all parties not be able to collaborate to implement changes.
- Existing consents are identified as of risk and need modifying or revoking.
 - Priority will be given based on an assessment of the level and immediacy of risk informed by site size, current condition and the activity consented
 - Where a condition assessment shows that the site is falling out of Unfavourable Recovering Condition and additional work or changes to the management regime on the site are required to set the site back into Unfavourable Recovering Condition.
 - Where actions are required now given the long timescales to achieve Favourable Condition
- 8.4 Logistical Factors – The Work Programme can benefit from scheduling sites based on a range of logistical factors.
- Where there is enthusiasm on behalf of a number of adjacent landowners to realise the potential to improve a whole SSSI.
 - Geographic balance (to manage resource demands)
 - Different estate / management types to maximise the opportunities for knowledge transfer.

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Appendix I

General evaluation matrix for assessing the conservation status of a habitat. From Annex E of the Explanatory Notes & Guidelines provided to EU Member States for the 2007-2012 Article 17 Reporting

Parameter	Conservation Status			
	Favourable ('green')	Unfavourable – Inadequate ('amber')	Unfavourable - Bad ('red')	Unknown (insufficient information to make an assessment)
Range	Stable (loss and expansion in balance) or increasing <u>AND</u> not smaller than the 'favourable reference range'	Any other combination	Large decrease: Equivalent to a loss of more than 1% per year within period specified by MS OR More than 10% below 'favourable reference range'	No or insufficient reliable information available
Area covered by habitat type within range	Stable (loss and expansion in balance) or increasing <u>AND</u> not smaller than the 'favourable reference area' <u>AND</u> without significant changes in distribution pattern within range (if data available)	Any other combination	Large decrease in surface area: Equivalent to a loss of more than 1% per year (indicative value MS may deviate from if duly justified) within period specified by MS OR With major losses in distribution pattern within range OR More than 10% below 'favourable reference area'	No or insufficient reliable information available
Specific structures and functions (including typical species)	Structures and functions (including typical species) in good condition and no significant deteriorations /	Any other combination	More than 25% of the area is unfavourable as regards its specific structures and functions (including typical species)	No or insufficient reliable information available
Future prospects (as regards range, area covered and specific structures and functions)	The habitats prospects for its future are excellent / good, no significant impact from threats expected; long-term viability	Any other combination	The habitats prospects are bad, severe impact from threats expected; long-term viability not assured.	No or insufficient reliable information available
Overall assessment of CS	All 'green' OR three 'green' and one 'unknown'	One or more 'amber' but no 'red'	One or more 'red'	Two or more 'unknown' combined with green or all 'unknown'

