



**ACTING ON THE OUTCOMES OF THE FAVOURABLE  
CONSERVATION STATUS REPORT**

**UK Annex I terrestrial and freshwater habitats - an assessment of  
priorities for increased conservation action**

JNCC, September 2009

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### **1 Background**

In 2007 the UK government and JNCC submitted the second UK Report on implementation of the Habitats Directive, which included an assessment of the conservation status of all UK habitats and species of Community Interest.<sup>(1)</sup> Since then JNCC, working through its networks of specialists in the four country conservation agencies, has identified a need to highlight the main actions required to address the UK-based threats to Europe's most threatened and protected habitats.

### **2 Aim and audience**

The principal aim is to bring to the attention of decision-makers, actions which will need to be carried out in the UK so that in the reporting round in 2013 we can demonstrate real conservation progress, as required by the Directive. A secondary aim is to organise the recommendations so as to support implementation.

It is desirable that Biodiversity Action Plan (BAP) actions help to contribute to reaching Favourable Conservation Status (FCS) for Annex I habitats and this summary paper and spreadsheet of actions are intended to be a useful catalyst and tool.

The decision-making bodies to which this advice is commended include: country and UK BAP groups; Conservation Agencies (CCW, NE, NIEA, SNH); UK and devolved Governments; other bodies with nature conservation responsibilities.

### **3 Broad scope**

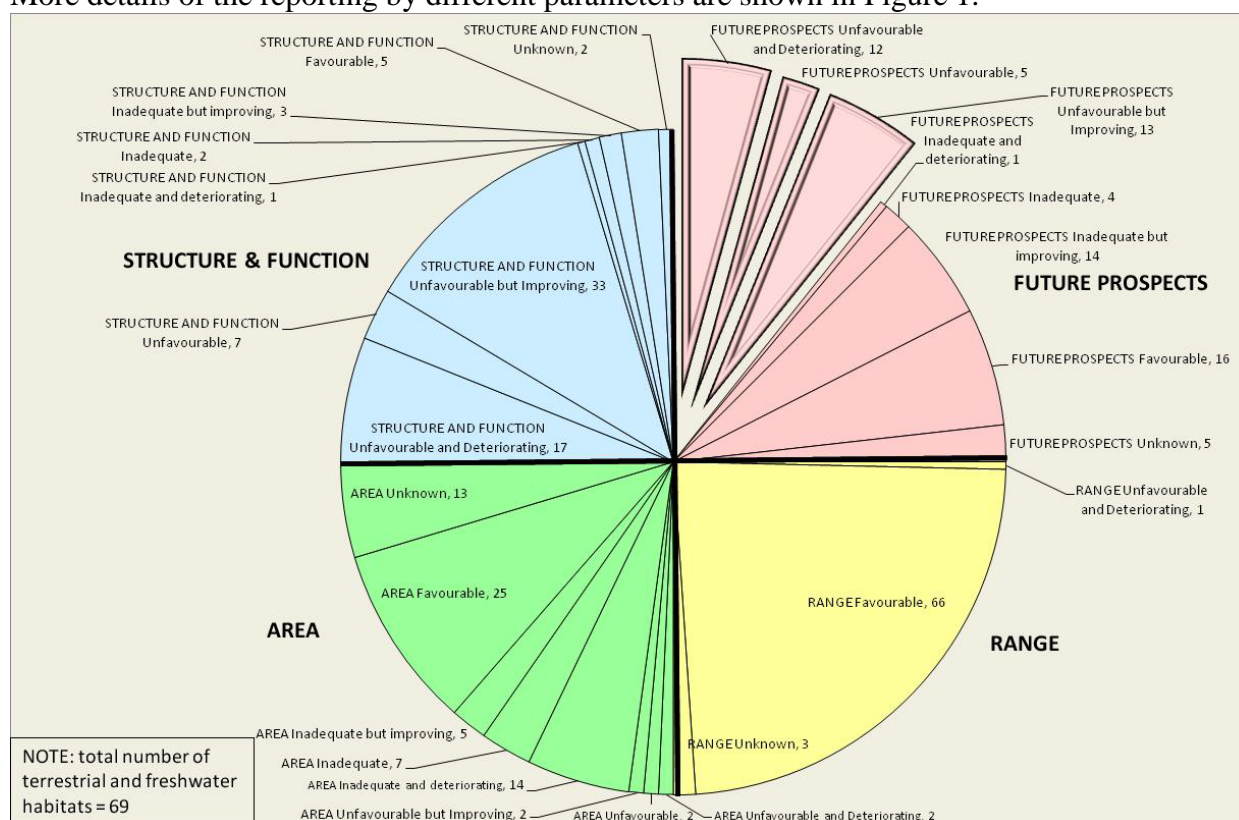
The study covers the United Kingdom. Species and marine habitats are not covered - a pragmatic decision based on the greater proportion of habitats requiring action compared to species, the different stakeholders and mechanisms for marine actions, and resources.

### **4 Methods**

#### ***Habitats***

The study covers those terrestrial and freshwater habitats whose future prospects were reported as 'Unfavourable'. This means that "The habitat's prospects are bad, severe impact from threats expected; long-term viability not assured"; long-term viability was taken to mean up to 2020.<sup>(2)</sup> We did not cover all of the habitats (57 in number) which were judged overall (i.e. for any of the four parameters range, area, specific structures and functions or future prospects) to be 'Unfavourable'. 'Future prospects' was selected as the most important

parameter, because this exercise is aimed at improving the habitats' condition in the future. More details of the reporting by different parameters are shown in Figure 1.



**Figure 1. Numbers of habitats in each reporting category by parameter, showing the 'future prospects – unfavourable' subset covered by this study**

### Judgements

The same inter-agency team of at least 63 specialists which worked on the 2007 reporting was asked to contribute to this project. Habitat specialists were asked to answer structured questions about their habitat and to supply the top five to ten priority actions for their habitats.

A working group<sup>a</sup> met to combine and edit the results from all the habitats and to brigade the actions in ways which would be helpful for decision-makers, including by the main type of action, and the main issue which would be addressed by each action. Differences between the habitats in terms of the level of precision of the actions were preserved where it was felt that this reflected meaningful differences in the approach needed.

### Link with UK BAP Priority Habitats

Since BAP is now the principal mechanism for biodiversity conservation in the wider countryside throughout the UK, the Annex I habitats have been linked to equivalent BAP priority habitats using information from the NBN dictionary of habitat correspondences,<sup>(3)</sup> and proposals made as to where the Annex I habitats could fit in the new BAP governance structures in the UK and countries. This study does not address details of how habitat definitions translate between BAP and the Habitats Directive.

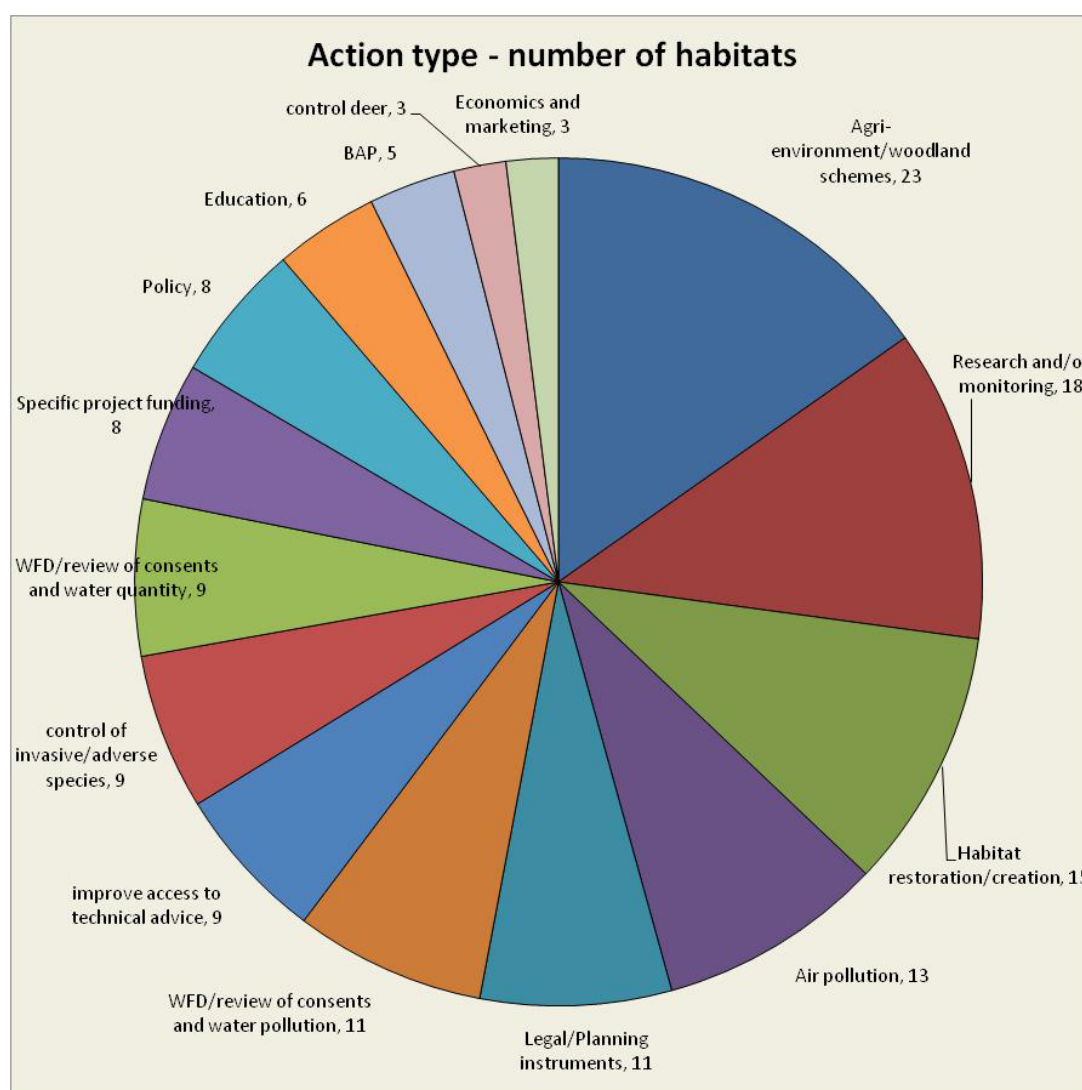
<sup>a</sup> The working group comprised staff from JNCC, NE and SNH.

The results of the 2008 BAP reporting<sup>(4)</sup> were consulted and, for those habitats which equal a relevant Annex I habitat, were checked for consistency with our conclusions.

## 5 Results

The full results are available on JNCC's website<sup>(5)</sup> and are only summarised here. The full results should be consulted for details of the actions, the countries in which each habitat is found, the parameter which caused its future prospects to be bad, the types and subjects of actions, and how the habitats link to BAP. They also contain some further interpretation. Out of the 69 terrestrial and freshwater habitats of community interest in the UK, 31 habitats met our criterion.<sup>b</sup> They are listed in Table 1.

An abridged version of the actions is in Annex 1.



**Figure 2. This shows how many habitats need actions by the main types of action.**

<sup>b</sup> This includes one habitat (H3140 *Chara* lakes) which, on review since reporting, was agreed to have unfavourable-bad future prospects.

The actions addressed 31, usually cross-cutting, issues. Of these the top five were: grazing (21 habitats), burning (5), funding (5), habitat dynamics and management (5) and habitat restoration/creation (5).

28% of the actions would best be taken at the site level and 28% at the landscape level. The rest (44%) are activities such as education, developing markets for biodiversity products, or legal/policy adjustments, which could be addressed at a wider scale.

Table 2 summarises the relationships of the habitats to BAP priority habitats and includes proposals for integration of the EU Habitat Directive habitats into the BAP UK Habitat groups. Table 3 summarises the BAP reporting results for three habitats which exactly match BAP priority habitats, for comparison with our results.

## **6 Constraints**

- Our advice is a collation of the views of a large group of proficient experts, but does not necessarily represent the views of the governing boards of the country agencies.
- There has been some inconsistency in the level of detail and precision of the specialists' responses. The working group has addressed this where possible by editing the actions and internal consultation.
- Not all the actions have a specified mechanism. This may be because a number of mechanisms are needed depending on the site (for example, to address under or over-grazing); or because there is more than one policy option to achieve the outcome.
- There is a tendency for the solutions offered to be 'tried and tested' rather than innovative.

## **7 Discussion**

The actions and issues which have been identified are recognisably 'mainstream' and emphasise known conservation challenges such as tackling undergrazing and overgrazing, targeting agri-environment schemes to the most vulnerable biodiversity, or control of invasive species.

Throughout the UK, the Biodiversity Action Plan is a principal mechanism for delivery of biodiversity conservation and all of the actions are of relevance to BAP implementation. The evolving BAP methodology is likely to include the use of targets for priority habitats<sup>6</sup> and for this reason we propose a set of actions for specific BAP targets to focus on the Annex I habitats (five habitats).

It is clear from the 2008 BAP reporting of successes<sup>(7)</sup> that much relevant and effective activity is already underway. The FCS status of 'future prospect unfavourable-bad' means however that despite the existing actions, the expert judgement of the habitat specialists of the UK conservation agencies is, that further action will be needed if these habitats are to attain favourable status by 2020.

Most of the actions will in some way increase the resilience of the habitats to climate change. However some, such as coastal realignment or actions to address habitat fragmentation or

burning management, will have a direct effect on the ability of habitats to adapt. Twenty habitats are covered by such actions. Three coastal habitats of soft sediments have actions proposed which may come into conflict with climate change mitigation measures, and at least one, blanket bogs, has the potential to make significant contributions to mitigation, given appropriate actions.

It is the view of the working group that the actions we have identified are of the highest priority for the conservation of some of Europe's most vulnerable habitats and that it will be essential to tackle them if the UK is to be able to submit a more positive report in 2013.

We also recommend that in addition, innovative methods to protect these habitats and to secure extra resources are considered. Examples are likely to include support for a carbon market or carbon pricing to genuinely incentivise the conservation or expansion of peat-based habitats. Successful policies to reduce air pollution would improve the prospects of 13 habitats.

## References

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<sup>1</sup> <http://www.jncc.gov.uk/page-4096>

<sup>2</sup> Joint Nature Conservation Committee. 2007. *Assessing Conservation Status: The UK Approach*. Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Peterborough: JNCC. View at: [www.jncc.gov.uk/PDF/FCS2007\\_ukapproach.pdf](http://www.jncc.gov.uk/PDF/FCS2007_ukapproach.pdf)

<sup>3</sup> JNCC (2009) *Relationships between Annex I habitats and BAP Priority Habitats*. Unpublished spreadsheet. Earlier version downloadable from <http://www.jncc.gov.uk/page-1425>

<sup>4</sup> For reported threats: <http://www.ukbap-reporting.org.uk/search/threats.asp?C=3&X=&P=&F=&T1=&submitted=1&txtLogout=&flipLang=>

<sup>5</sup> Link to Googlegroup for draft; website for final. See spreadsheet on <http://groups.google.co.uk/group/lcn-list/web/priority-projects?hl=en> – readers are advised to look at the page titled ‘READ ME’ first.

<sup>6</sup> <http://www.ukbap.org.uk/library/UKSC/UKSC08-02bUKhabitatgroupsToR.pdf>

<sup>7</sup> <http://www.ukbap-reporting.org.uk/plans/national.asp>

**TABLE 1: Habitats covered**

Habitat code & short 'working' name	Habitat full name
H1210 drift lines	Annual vegetation of drift lines
H1310 Salicornia	Salicornia and other annuals colonising mud and sand
H1320 Spartina swards	Spartina swards ( <i>Spartinion maritimae</i> )
H1330 salt meadows	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )
H2130* grey dunes	Fixed dunes with herbaceous vegetation ("grey dunes")
H2150* decalcified dunes	Atlantic decalcified fixed dunes ( <i>Calluno-Ulicetea</i> )
H2170 Salix dunes	Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salicion arenariae</i> )
H2190 dune slacks	Humid dune slacks
H21A0 machairs	Machairs
H2250 juniper dunes	Coastal dunes with <i>Juniperus</i> spp.
H3140 Chara lakes	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.
H3150 eutrophic lakes	Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation
H3180* turloughs	Turloughs
H3260 Ranunculus rivers	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation
H4010 wet heaths	Northern Atlantic wet heaths with <i>Erica tetralix</i>
H4030 dry heaths	European dry heaths
H4060 alpine and Boreal heaths	Alpine and Boreal heaths
H4080 sub-arctic willow scrub	Sub-Arctic <i>Salix</i> spp. scrub
H6150 siliceous alpine and boreal grasslands	Siliceous alpine and boreal grasslands
H6170 upland calcareous grassland	Alpine and subalpine calcareous grasslands
H6230* species-rich <i>Nardus</i> grassland	Species-rich <i>Nardus</i> grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)
H6510 wet hay meadows	Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )
H7130* blanket bogs	Blanket bogs
H7140 transition mires and quaking bogs	Transition mires and quaking bogs
H7210* <i>Cladium</i> fens	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>
H7220* tufa springs	Petrifying springs with tufa formation ( <i>Cratoneurion</i> )
H7230 alkaline fens	Alkaline fens
H7240* Alpine pioneer formations	Alpine pioneer formations of the <i>Caricion bicoloris-atrofuscae</i>
H8210 calcareous rocky slopes	Calcareous rocky slopes with chasmophytic vegetation
H8240* limestone pavements	Limestone pavements
H91A0 sessile oak woods	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles

KEY: The sign \* indicates priority types under the habitats Directive.

**Table 2: Relationships of BAP to Annex I habitats and proposed responsibilities of UK habitat groups**

BAP Priority Habitat type ↓	Annex I habitat → UK Habitat Group ↓	H1210	H1310	H1320	H1330	H2130	H2150	H2170	H2190	H21A0	H2250	H3140	H3150	H3180	H3260	H4010	H4030	H4060	H4080	H6150	H6170	H6230	H6510	H7130	H7140	H7210	H7220	H7230	H7240	H8210	H8240	H91A0	Total
		drift lines	Salicornia	Spartina swards	salt meadows	grey dunes	decalified dunes	Salix dunes	dune stacks	machairs	juniper dunes	Chara lakes	eutrophic lakes	turloughs	Ranunculus rivers	wet heaths	dry heaths	alpine and boreal heaths	sub-arctic willow scrub	siliceous alpine and boreal grasslands	upland calcareous grassland	species-rich Nardus grassland	wet hay meadows	blanket bogs	transition mires and quaking bogs	Cladium fens	tufa springs	alkaline fens	Alpine pioneer formations	calcareous rocky slopes	limestone pavements	sessile oak woods	
Aquifer fed naturally fluctuating water bodies	Freshwater												b	b																			2
Blanket bog	Uplands																							a	?								2
Coastal and floodplain grazing marsh	Wetlands																						b										1
Coastal saltmarsh	Coastal		b	b	b																												3
Coastal sand dunes	Coastal					b	b	b	b		b																						5
Coastal vegetated shingle	Coastal	b																															1
Eutrophic standing waters	Freshwater												b																				1
Inland Rock Outcrop and Scree Habitats	Uplands																													b			1
Limestone pavements	Uplands																													a			1
Lowland fens	Wetlands																							b	b	b	b						4
Lowland heathland	Lowland Farmland														b	b																	2
Lowland meadows	Lowland Farmland																																1
Machair	Coastal									a																							1
Mountain Heaths and Willow Scrub	Uplands																	b	b	b													3
Ponds	Freshwater												?	?																			2
Rivers	Freshwater														b																		1
Upland birchwoods	Woodlands																			b												b	1
Upland flushes, fens and swamps	Uplands																								b								4
Upland heathland	Uplands														b	b																	2
Upland mixed ashwoods	Woodlands																																1
Upland oakwood	Woodlands																														a		1
Wood-pasture and parkland	Woodlands															?	?	?													?		5
Upland calcareous grassland	Uplands																				a		b										2
Mesotrophic lakes	Freshwater											b																					1
Oligotrophic and Dystrophic Lakes	Freshwater											?																					1
<b>Total</b>		1	1	1	1	1	1	1	1	1	1	3	3	1	1	3	3	2	1	1	1	1	3	1	3	1	2	2	1	1	2	3	49
<b>UK habitat group(s) with interest in Annex I habitat</b>		Coastal	Coastal/marine	Coastal/marine	Coastal/marine	Coastal	Coastal	Coastal	Coastal	Coastal	Coastal	Freshwater	Freshwater	Freshwater	Freshwater	Lowland Farmland/Uplands	Lowland Farmland/Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Lowland Farmland	Uplands/Wetlands	Wetlands/Uplands	Wetlands	Wetlands/Uplands	Wetlands/Uplands	Uplands	Uplands	Uplands	Woodlands	
<b>KEY TO RELATIONSHIPS</b>		a is equal to, or a is probably equal to					b BAP habitat contains Annex I habitat, or b may overlap with, or b overlaps with, or b BAP probably contains Ann. I					? some connection, but scope unknown																					

**Table 3. 2008 BAP reporting: abridged results**

		Action plan process	Communication	Funding and incentives	Partnership	Policy, legislation and designation	Research, survey and information	Species and habitat management
<b>Blanket bog</b>	<b>constraint</b>			√			√	
	<b>success</b>				√		√	√
<b>Limestone pavements</b>	<b>constraint</b>			√	√	√	√	√
	<b>success</b>	√	√					
<b>Upland oakwood</b>	<b>constraint</b>			√		√		
	<b>success</b>			√	√	√	√	

## **Annex 1. Abridged results by type of action**

**Note:** to see the data displayed as an abridged matrix, with the habitats as the row headings and the action types as column headings, look at the project spreadsheet, available on-line.<sup>c</sup>

### **Agri-environment/woodland schemes**

H2130, H21A0: targeting /take-up of agri-environment schemes.

H2150, H2170, H2250: Appropriate levels of grazing.

H3140: Better resourced/Improved targeting of AE schemes to reduce nutrient and sediment input.

H3180: Control locally intensive sheep and cattle grazing (4 sites).

H4010, H4030: more effective livestock management to address: over-grazing (uplands); under-grazing (lowlands).

H4060, H6230, H7220: maintain stock grazing levels compatible with the long-term maintenance of the habitat.

H4080: reduce livestock levels to encourage regeneration on to open slopes.

H6510: refine and increase funding for higher level options for this habitat.

H7130: Increase agri-environment funding to cover large areas of this habitat.

H7140, H7210, H7230: AE schemes in catchment – to tackle drainage, under-grazing and eutrophication.

H7240: maintain stock grazing to levels which maintain the characteristic rare species.

H8210: continue reductions in grazing levels to allow the poorer stands to recover and species to re-colonise.

H8240: Implement management to address overgrazing and undergrazing as appropriate and to facilitate cattle grazing.

H91A0: More support for appropriate woodland management/control of grazing and for new woodland development in appropriate places.

### **BAP**

H1210, H6510, H7140, H7210: BAP targets specifically for this component of the BAP priority habitat.

H2130: Better delivery of LBAP targets.

### **Habitat restoration**

H1310, H1330, H3140: Adaptive response to climate change - ensure creation of habitat keeps pace with or exceeds losses.

H2130: Removal of plantations.

H2150: target dune heath expansion to adjoin existing sites.

H2250: Restore all scattered occurrences to a minimum of 0.5ha.

H3260: A more strategic, larger scale approach to river restoration.

H4010, H4030: Habitat restoration/creation at landscape or catchment scale; management (including tree/scrub cutting) to reverse abandonment.

H4080: Plant willow saplings.

H6170: Plant rare species where numbers have decreased below viability.

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<sup>c</sup> Link to Googlegroup for draft; website for final. See spreadsheet on <http://groups.google.co.uk/group/lcn-list/web/priority-projects?hl=en> – readers are advised to look at the page titled 'READ ME' first.

H6510: Continued restoration and expansion, targeted to expand existing fragments.  
H7140, H7210, H7230: Habitat restoration at the landscape or catchment scale.

### **Control of invasive/adverse species**

H1310, H1320: Targeted management of invasive species.  
H2150: Targeted management of invasive species/removal of species such as rhododendron on dune heath.  
H2190: Remove planted/self-sown trees/scrub to reduce impact on dune hydrological processes.  
H3140, H3150, H3260: Control and eradication of invasive species.  
H4060, H4080, H7240: Reduce deer numbers.  
H8240: Eliminate invasive aliens.  
H91A0: Support for management of invasive species.

### **Specific project funding**

H4060: Ensure any footpaths crossing sensitive areas of this habitat are well marked to keep people on a defined track.  
H4080: Erect fences where necessary to exclude sheep and deer.  
H6150: Site specific action, such as fencing animals out of specific areas for several years to effect recovery, where the habitat is severely threatened and cannot be protected by general grazing reductions. Ensure any footpaths crossing sensitive areas of this habitat are well marked to keep people on a defined track.  
H6170: Site specific action, such as fencing animals out of specific areas for several years to effect recovery, where the habitat is severely threatened and cannot be protected by general grazing reductions.  
H6510: Continue/expand projects for hay-cropping and aftermath grazing such as GAP, PONT.  
H7140, H7230: Improve grazing by initiatives such as the Grazing Animals Project & PONT. Support machinery rings.  
H7210: Improve access to project funding to restore derelict sites and get them to a state where maintenance management by grazing is possible. Support machinery rings.

### **Economics and marketing**

H4010, H4030: Develop premium markets for meat and milk from biodiverse systems.  
H6510: promote ecosystem services through marketing.

### **Education**

H4010: Promote awareness of the value of heathlands.  
H4030: work with Fire brigades, local authorities and schools to reduce arson.  
H6510: promote ecosystem services.  
H7130: Promote biodiversity and carbon benefits.  
H7220: Promote the Heather and Grass Burning Code / Muirburn Code Best Practice guidelines.  
H8240: Raise awareness about the impact of mechanical disturbance of limestone pavement.

## **Improve access to technical advice**

H1210, H1330: Disseminate management advice.

H2170, H2250: Make better use of Natura models.

H21A0; Improve dissemination of agricultural management advice.

H4010, H4030, H4060, H7130: Promote the Heather and Grass Burning Code / Muirburn Code Best Practice guidelines.

## **Legal/planning instruments**

H1210: Meet obligations under NERC Act s40 (biodiversity duties).

H1330: Planning restrictions at local level to enable managed realignment.

H3150: Improve fisheries management/stocking.

H4010, Ensure management agreements follow the Heather and Grass Burning Code / Muirburn Code. Implement development planning controls to meet WFD requirements.

H4030: Ensure management agreements follow the Heather and Grass Burning Code / Muirburn Code. Increase co-ordination of planning and regulation of development pressures.

H4060: Ensure management agreements follow the Heather and Grass Burning Code / Muirburn Code and control the use of ATVs.

H6150: Ensure management plans control the use of ATVs.

H6510: Designate more SSSI; strengthen implementation of EIA regs.

H7130: Secure any necessary revisions to Heather and Grass Burning Code / Muirburn Codes in light of research on carbon management. If existing incentive schemes are insufficient to conserve peat bogs, there may be a necessity for future regulation/legislation to secure appropriate management.

H7220: Ensure management agreements follow Heather and Grass Burning Code / Muirburn Code.

H8240: Bracken control to be undertaken by hand-cutting/pulling ONLY. Use legislation to prevent illegal mechanical disturbance.

## **Policy**

H1210: Policy framework to prevent damaging development on/near coastal systems.

Minerals policy to clearly identify and protect sediment requirements for coastal habitats.

H1310: Effective application of Integrated Coastal Zone Management principles to link Marine and coastal land use planning and River Basin Management Plans; ensure that the UK Marine policy statement and other planning policy statements identify the needs of Annex I coastal habitats. Ensure policy for renewable energy does not lead to losses of intertidal habitat or affect functionality of estuary systems.

H1320: Ensure policy for renewable energy does not lead to losses of intertidal habitat or affect functionality of estuary systems.

H1330: Ensure flood and coastal erosion policy promotes better functionality of coastal systems and that managed realignment and sediment availability are fully incorporated into coastal management decisions. Ensure policy for renewable energy does not lead to losses of intertidal habitat or affect functionality of estuary systems.

H2130: Clearer UK/country policy guidance on dune scrub and its management.

H2170, H21A0: Policy framework for protected sites to ensure long term protection and adaptation to climate change.

H3140: Improve fisheries management.

## **WFD/review of consents and water quantity**

H1210: Existing permissions for mineral extraction reviewed/revoked.

H2190: Limit/reduce water abstraction from dune systems.

H3150: Ameliorate hydrological pressures via review of abstractions from ground and surface waters.

H3180: Maintain the hydrological integrity of the supporting aquifers (4 sites).

H3260: Define ecologically acceptable levels of impact on hydrological regimes in rivers, as a basis for abstraction management.

H6510: Restore appropriate hydrological regime.

H7140, H7210, H7230: Define and implement ecologically acceptable levels of impact on hydrological regimes in the catchment, as a basis for abstraction management.

## **WFD/review of consents and water pollution**

H1310, H1320: Pollution impacts - implementation of WFD via River Basin Management Planning for Transitional and Coastal waters.

H2190: Pollution impacts - implementation of WFD via River Basin Management Planning for Transitional and Coastal waters, and ground water.

H3150: Improved catchment management to tackle nutrient enrichment from diffuse and especially point sources.

H3180: Control nutrient inputs from fertiliser applications to improve water quality (4 sites).

H3260: Improve and integrate catchment management to tackle nutrient enrichment from diffuse and point sources. Implement better control of sheep-dip pollution, which may involve the prohibition of synthetic pyrethroids or greater restrictions on conventional dipping practices.

H6510: Reduce eutrophication of surface waters.

H7140, H7210, H7230: Improved and integrated management of surface water quality to tackle nutrient enrichment from point source.

H7220: Ensure the Water Framework Directive is fully implemented to protect relevant sites.

## **Air pollution**

H2130, H2170, H2190, H3180, H4010, H4030, H4060, H4080, H6150, H6170, H6230, H7130, H7140: Reduce Air Pollution, particularly by Nitrogen compounds.

## **Research and/or monitoring**

H1210, H2170: Research into dynamics of habitat and influencing processes.

H1320: Research into dynamics of habitat and influencing processes. Research in to causes of decline, develop knowledge base to enable reintroduction/translocation.

H2150: Research into the impacts of climate change and sea level rise. Research into changes in nutrient status on dune heath.

H2190: Research into hydrological conditions in dunes.

H21A0: Research into the impacts of climate change and sea level rise. Research to develop ways to integrate recreational access with protection of habitats.

H2250: Research into dynamics of habitat and influencing processes. Evaluate knowledge of upland juniper for application in coastal sites. Continue site-specific monitoring of juniper dynamics. Research in to likely/potential causes of decline/develop knowledge base to enable reintroduction/translocation.

H3140: Research, monitoring and data collection to improve understanding and management of the habitat.

H3150: Research on the effect of nitrogen enrichment upon lake ecosystems, the relative importance of phosphorus and nitrogen inputs and to establish relevant thresholds.

H3260: Hydrological interventions to identify innovative solutions to reducing water demand/abstraction stress, particularly during summer months.

H4010, H4030: Research and monitoring of the impact and management of problematic species.

H6170: Sample monitoring of *Epilobium brunnescens*.

H6510: Research into the role of flooding.

H7140, H7210: Improved baseline and on-going survey and preparation of habitat inventories.

H7240: Monitor for impacts of global warming and develop management responses.

H91A0: Work out how we deal with long-term gradual attrition of the quality of sites from pollution and the gradual changes from climate change.