

Site Improvement Plan

Border Mires and Kielder-Butterburn

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 sites (IPENS). Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.

The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

The SIP consists of three parts: a Summary table, which sets out the priority Issues and Measures; a detailed Actions table, which sets out who needs to do what, when and how much it is estimated to cost; and a set of tables containing contextual information and links.

Once this current programme ends, it is anticipated that Natural England and others, working with landowners and managers, will all play a role in delivering the priority measures to improve the condition of the features on these sites.

The SIPs are based on Natural England's current evidence and knowledge. The SIPs are not legal documents, they are live documents that will be updated to reflect changes in our evidence/knowledge and as actions get underway. The information in the SIPs will be used to update England's contribution to the UK's Prioritised Action Framework (PAF).

The SIPs are not formal consultation documents, but if you have any comments about the SIP or would like more information please email us at IPENSLIFEProject@naturalengland.org.uk, or contact Natural England's Responsible Officer for the site via our enquiry service 0300 060 3900, or enquiries@naturalengland.org.uk

This Site Improvement Plan covers the following Natura 2000 site(s)

UK0012923 Border Mires, Kielder-Butterburn SAC

Site description

The SAC, with a total area of 11,851.77 ha, straddles Cumbria and Northumberland and contains some of the best examples of deep peat lenses in England.

Annex 1 qualifying features are:

4010 Atlantic Wet Heath

4030 European Dry Heath (together 18% of the SAC area)

7130 Blanket bog

7140 Transition Mire and Quaking bog, and

7220 Petrifying springs with tufa formation, rare in the UK and with significant presence here.

Much of the land has been afforested, although significant areas of high quality original bog remain throughout the forested expanse and these have been selected to represent this habitat type in northern England. The climate is wetter here than in some other parts of northern England, and this is reflected in the composition of the vegetation, which is dominated by species of cottongrass *Eriophorum* and a reduced cover of heather *Calluna vulgaris*. The SAC contains very good examples of the Sphagnum-rich cross-leaved heath *Erica tetralix* and *Sphagnum papillosum* vegetation type.

Plan Summary

This table shows the prioritised issues for the site(s), the features they affect, the proposed measures to address the issues and the delivery bodies whose involvement is required to deliver the measures. The list of delivery bodies will include those who have agreed to the actions as well as those where discussions over their role in delivering the actions is on-going.

Priority & Issue	Pressure or Threat	Feature(s) affected	Measure	Delivery Bodies
1 Hydrological changes	Pressure	H7130 Blanket bogs, H7140 Very wet mires often identified by an unstable `quaking` surface	Restore appropriate hydrological functionality	Forest Enterprise, Forestry Commission, Ministry of Defence (MoD), Natural England, Northumberland National Park Authority, Northumberland Wildlife Trust
2 Forestry and woodland management	Pressure	H7130 Blanket bogs, H7140 Very wet mires often identified by an unstable `quaking` surface	Manage conifer regeneration to sustain an open mire habitat	Forestry Commission, Ministry of Defence (MoD), Natural England, Northumberland National Park Authority, Northumberland Wildlife Trust
3 Change in land management	Threat	H4010 Wet heathland with cross-leaved heath, H4030 European dry heaths, H7130 Blanket bogs, H7140 Very wet mires often identified by an unstable `quaking` surface, H7220 Hard-water springs depositing lime	Review and negotiate appropriate Agri-Environment agreements with landowners	Natural England

4 Air Pollution: impact of atmospheric nitrogen deposition	Pressure	H4010 Wet heathland with cross-leaved heath, H4030 European dry heaths, H7130 Blanket bogs, H7140 Very wet mires often identified by an unstable `quaking` surface, H7220 Hard-water springs depositing lime	Reduce the extent of atmospheric air pollution	Not yet determined
5 Species decline	Threat	H4030 European dry heaths, H7130 Blanket bogs, H7140 Very wet mires often identified by an unstable `quaking` surface	Develop sustainable populations of important vulnerable species	Forest Enterprise, Forestry Commission, Ministry of Defence (MoD), Northumberland National Park Authority, Northumberland Wildlife Trust

Issues and Actions

This table outlines the prioritised issues that are currently impacting or threatening the condition of the features, and the outstanding actions required to address them. It also shows, where possible, the estimated cost of the action and the delivery bodies whose involvement will be required to implement the action. Lead delivery bodies will be responsible for coordinating the implementation of the action, but not necessarily funding it. Delivery partners will need to support the lead delivery body in implementing the action. In the process of developing the SIPs Natural England has approached the delivery bodies to seek agreement on the actions and their roles in delivering them, although in some cases these discussions have not yet been concluded. Other interested parties, including landowners and managers, will be involved as the detailed actions are agreed and delivered. Funding options are indicated as potential (but not necessarily agreed or secured) sources to fund the actions.

1 Hydrological changes

Afforestation of the moorland landscape to create Kielder Forest between 1926 and 1980 left islands and peninsulas of unplanted or partially planted peat lenses, and a large block of open moorland at Kielder Head and Emblehope Moors. Since designation, much has been done to re-establish the open mire lenses and their hydrology by removing trees and raising water levels through grip blocking on the important mires. This became possible on a more significant scale as a result of LIFE+ funding in 1998, and Defra funding in 2004. Forestry is the dominant land use, and there may be specific mires where appropriate buffer zones have not been investigated or designated. There may also be examples of important mire types and hydrologically linked peat within the diversity of the mire complex where restoration is still required, and where designation would be beneficial.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
1A	Investigate and identify the extent of possible hydrological impacts and other threats to the SAC. This includes impacts from non-designated ground where there are implications for SAC features.	£80,000	2014-16	Investigation / Research / Monitoring	Defra, EU Life	Natural England	Forest Enterprise, Forestry Commission, Ministry of Defence (MoD), Northumberland National Park Authority, Northumberland Wildlife Trust
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
1B	Ensure re-naturalisation of peatland hydrology through practical ground works to address identified pressures and threats, on both designated and impacting non-designated ground. For example: implement out-standing grip blocking, apply the Open Habitats Policy where required.	£200,000	2015-20	Mechanism not identified / develop mechanism	Defra, EU Life, Natural England, Forestry Commission	Natural England	Forest Enterprise, Forestry Commission, Ministry of Defence (MoD), Northumberland National Park Authority, Northumberland Wildlife Trust

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
1C	Following investigations and local site knowledge, consider re-designation of SSSI/SAC boundaries where appropriate. Also, consider whether important undesignated mires would benefit from the protection of designation, where they would add to the value and progress of good ecological condition for the SAC as a whole.	£80,000	2016-20	Designation strategy (SSSI)	Defra, EU Life	Natural England	Forest Enterprise, Forestry Commission, Ministry of Defence (MoD), Northumberland National Park Authority, Northumberland Wildlife Trust
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
1D	For each mire (and Kielderhead and Whitelee), continue to increase our understanding of the hydrological and other habitat requirements to meet favourable condition. Address uncertainties by appropriate monitoring and investigation.	£100,000	2015-20	Investigation / Research / Monitoring	Defra, EU Life, Natural England, Forestry Commission	Natural England	Forest Enterprise, Forestry Commission, Ministry of Defence (MoD), Northumberland National Park Authority, Northumberland Wildlife Trust

2 Forestry and woodland management

Conifer regeneration into the moorland and open mires will always be an issue while the Border Mires remains such an important area for timber production. The major landowners and partners have management plans to prioritise control of regeneration within a manageable rotation that does not impact on hydrology. Time resources and budgets are a limiting factor, and vegetation surveys are important to prioritise this work.

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
2A	Manage conifer regeneration within a threshold that is supported by evidence to have limited impact on mire hydrology. Ensure there is adequate funding committed to this work annually.	£150,000	2015-25	Non-Natural England funded site management plan	EU Life, Forestry Commission, Ministry of Defence (MoD)	Forestry Commission	Ministry of Defence (MoD), Northumberland National Park Authority, Northumberland Wildlife Trust

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
2B	As above, on privately owned farm holdings.	£50,000	2015-25	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Natural England	Natural England	n/a

3 Change in land management

Historically, outwith the forested areas there have been attempts to drain sites for agriculture, and this threat still persists. Agri-environment agreements are short term, but contain sensitive management practices important to the SAC features, such as grip blocking, zero winter sheep grazing, extensive summer cattle grazing. Continued identification of necessary measures, funding and negotiation with landowners is required to ensure favourable management of moorland and mires within agricultural holdings.

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
3A	Monitor existing Agri-environment agreements through the aftercare programme to ensure delivery of outcomes.	Staff time	2014-19	Rural Development Programme for England (RDPE): Environmental Stewardship Higher Level Scheme (HLS)	Natural England	Natural England	n/a

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
3B	Negotiate new Agri-environment schemes on land not under agreement where management is required for favourable condition.	£100,000	2016-25	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Natural England	Natural England	n/a

4 Air Pollution: impact of atmospheric nitrogen deposition

Nitrogen deposition exceeds site relevant critical loads.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
4A	Control, reduce and ameliorate atmospheric nitrogen impacts.	Not yet determined	2014-20	Site Nitrogen Action Plan	Not yet determined	Not yet determined	Not yet determined

5 Species decline

Betula nana (a blanket bog positive indicator species) and *Salix herbacea* (a feature of montane heath) occur on the SAC, but neither species are setting seed and are therefore rare and vulnerable to loss from the site. One female *S. herbacea* plant now remains at Deadwater and *B. nana* only occurs in one location. Both species are vulnerable to grazing. Action is required to investigate the cause of this decline and secure an increase in population size and extent.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
5A	Write a recovery plan to identify additional intervention required in order for these important species to have self sustaining populations in future.	Staff time	2015-16	Partnership agreement	Staff time	Forestry Commission	Forest Enterprise, Forestry Commission, Ministry of Defence (MoD), Northumberland National Park Authority, Northumberland Wildlife Trust
5B	Implement the recovery plan.	£10,000	2016 onwards	Partnership agreement	Natural England	Forestry Commission	Forest Enterprise, Forestry Commission, Ministry of Defence (MoD), Northumberland National Park Authority, Northumberland Wildlife Trust

Site details

The tables in this section contain site-relevant contextual information and links

Qualifying features

#UK Special responsibility

Border Mires, Kielder-Butterburn SAC	H4010 Northern Atlantic wet heaths with <i>Erica tetralix</i>
	H4030 European dry heaths
	H7130# Blanket bogs
	H7140 Transition mires and quaking bogs
	H7220# Petrifying springs with tufa formation (<i>Cratoneurion</i>)

Site location and links

Border Mires, Kielder-Butterburn SAC

Area (ha) **11851.77** Grid reference **NT684013**

[Map link](#)

Local Authorities

Cumbria; Northumberland

Site Conservation Objectives

[European Site Conservation Objectives for Border Mires, Kielder- Butterburn SAC](#)

European Marine Site conservation advice

[n/a](#)

Regulation 33/35 Package

[n/a](#)

Marine Management Organisation site plan

[n/a](#)

Water Framework Directive (WFD)

The Water Framework Directive (WFD) provides the main framework for managing the water environment throughout Europe. Under the WFD a management plan must be developed for each river basin district. The River Basin Management Plans (RBMP) include a summary of the measures needed for water dependent Natura 2000 sites to meet their conservation objectives. For the second round of RBMPs, SIPs are being used to capture the priorities and new measures required for water dependent habitats on Natura 2000 sites. SIP actions for non-water dependent sites/habitats do not form part of the RBMPs and associated consultation.

Border Mires, Kielder-Butterburn SAC

River basin	Northumbria RBMP
WFD Management catchment	Tyne
WFD Waterbody ID (Cycle 2 draft)	GB102076073982, GB102076074070, GB102076074080, GB102076074090, GB102076074110, GB102077074270, GB102077074290, GB103023074840, GB103023074930, GB103023074970, GB103023075290, GB103023075310, GB103023075340, GB103023075550, GB30327568
River basin	Solway Tweed RBMP
WFD Management catchment	Eden and Esk
WFD Waterbody ID (Cycle 2 draft)	GB102076073982, GB102076074070, GB102076074080, GB102076074090, GB102076074110, GB102077074270, GB102077074290, GB103023074840, GB103023074930, GB103023074970, GB103023075290, GB103023075310, GB103023075340, GB103023075550, GB30327568

Overlapping or adjacent protected sites

Site(s) of Special Scientific Interest (SSSI)	
Border Mires, Kielder-Butterburn SAC	River Eden & Tributaries SSSI
	Kielder Mires SSSI
	Lampert Mosses SSSI
	Spadeadam Mires SSSI
	Caudbeck Flow SSSI
	Butterburn Flow SSSI
	Muckle Moss SSSI
	Kielderhead & Emblehope Moors SSSI
National Nature Reserve (NNR)	
Border Mires, Kielder-Butterburn SAC	Kielder Mires NNR
	Kielderhead NNR
	Muckle Moss NNR
	Whitelee Moor NNR
Ramsar	
Border Mires, Kielder-Butterburn SAC	Irthinghead Mires
Special Areas of Conservation (SAC) and Special Protection Areas (SPA)	
Border Mires, Kielder-Butterburn SAC	n/a

<i>Version</i>	<i>Date</i>	<i>Comment</i>
1.0	12/12/2014	

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