

East Crowden Moor Management Plan

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1 Introduction

The National Trust's High Peak Moors Vision, 2013 (HPMV) laid out an aspirational and overarching vision for the Dark Peak estate's SSSI moorlands. This management plan is designed to implement the vision on East Crowden moor, and is to be used in conjunction with the 'High Peak Estate Guiding Principles'. The plan adopts an Outcomes Approach (NE, 2015) as described in the Guiding Principles. This includes a review process to assess progress towards agreed outcomes. This review will then inform agreed updates to this plan.

1.1 Site description

East Crowden moor lies within the Dark Peak SSSI. This area has two international designations. It is included in the South Pennine Moors Special Area of Conservation (SAC) that is notified for the upland habitats it supports; particularly blanket bog, wet heath, dry heath, transition mires and woodland. It is also included in the Peak District Moors (South Pennine Moors Phase 1) Special Protection Area (SPA) that is notified for upland breeding bird populations. The Dark Peak SSSI qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European Importance of Golden Plover, Merlin and Short-eared owl.

East Crowden is located on the southern edge of the Kinder plateau, a relatively small moorland unit occupying the eastern side of Crowden Brook and part of the Kinder plateau (Edale Moor) to Crowden head. It occupies a range of habitats comprising blanket bog in the northern most section on the edge of the plateau to dwarf shrub heath on the steeper slopes and an acid grassland-heath mosaic stretching around the escarpment easterly toward Grindsbrook. Acid flushes and bracken stands also feature. The moor is bounded by Crowden Brook to the west, a boulder strewn stream with a steep gradient and step-pool sequence with high discharge in periods of heavy rainfall.

1.2 Site management

East Crowden has been managed under an Environmentally Sensitive Areas Scheme (ESA) agreement since the establishment of the North Peak ESA in 1988, and under a subsequent Higher Level Stewardship (HLS) agreement from 2013 (agreement AG00365875) ongoing to 30/04/2023. Capital works carried out under these plans have concentrated on the degraded blanket bog, with gully blocking beginning here with stone dams being installed in 2013/14 as part of the HLS Capital works program, alongside works to revegetate bare and eroding peat including heather brushing and successive lime, fertiliser and grass seed applications (2013-2015). The footpath across Grindslow Knoll underwent restoration work under an ESA Conservation Plan to prevent erosion in 2011. Bracken stands on the lower slopes have been treated by aerial and hand spraying.

Access for livestock to the moor top is prevented by a stock exclusion fence erected in 2012 which encircles the perimeter of the Kinder Plateau (the Kinder exclusion area), other than the exclusion fence there are no other fences bounding this moor and stock is not excluded from neighbouring moorland holdings. This lack of physical boundaries to control stock access does give rise to trespass grazing but at this time the impact of this is minimal due to complimentary management of the neighbouring ground. To the east and west the land is owned by two separate parties - each area has a HLS agreement in place with similar options and targets to reach favourable condition.

There is no sporting lease for East Crowden, although the adjacent (non NT-owned) Grindsbrook supports a grouse shoot.

1.3 Management Units

Figure 1.1 shows the site and infrastructure (a) and aerial image (2009) (b). The site is divided into 3 management units which represent the broad differences in habitat character and physical barriers such as fences and walls.

Figure 1.2a shows the predominant habitats present on the moor. Habitats were originally defined during the Environmentally Sensitive Areas scheme (ESA, 1998). During 2012-13 the ESA habitat map was updated using recent (2009) aerial photography, ground truthing surveys and the most recent SSSI condition assessments. This information was used to inform the Farm Environment Plan (FEP) as part of the moorland HLS application, which broadly defines habitat categories and now forms the 2013 baseline to the HPMV and HLS.

Blanket bog can be further defined by Natural England's Blanket Bog Restoration Strategy (2015) under 6 separate states, see the Guiding Principles for more information. The blanket bog states typically found on the High Peak Moors are also summarised in table 1.1, and those specific to East Crowden in figure 1.2b and table 1.2.

Table 1.1 Relationship between different habitat codes

FEP code	Blanket bog states	ESA code
MO6 – Blanket bog	State 2 – Bare peat	Bare Peat & Eroding Moorland
	State 3 – Dwarf shrub dominated bog	Dry bog heather dominated. Dry bog, non-heather dominated
	State 4 – Grass/sedge dominated	Cotton grass moorland
	State 5 – Modified bog	

Table 1.2 Site compartments and habitat types summarised together with their management schemes.

Site name	Management unit	Unit Code	Unit area (ha)	Scheme (options)	Main habitat types (FEP code) and Blanket Bog State	Area (Ha)
East Crowden Moor	East Crowden Moor	CROW01	85	UELS/HLS (EL6, UX3, UD13, A13, HL10, HL13, HL15, HL16,)	Blanket Bog (M06)	55
					State 2	8
					State 3	47
					Dry Heath (M04)	24
					Acid Grassland (M01)	5
	Rocks, Cliff & Scree (M07)	0.6				
	Crowden Clough	CROW02	53	UELS/HLS (EL6, UX3, UD13, A13, HL10, HL15, HL16, HR5, HR7)	Blanket Bog (M06)	2
					State 3	0.2
					State 4	2
					Wet Heath (M04)	2
					Dry Heath (M04)	12
	Acid Grassland (M01)	37				
Crowden Clough Woodland	CROW03	9	UELS/HLS (UX3, HR5, HR7) eWGS	Dry Heath (M04)	3	
				Acid Grassland (M01)	7	

2 Current status of main features

All habitats are in 'unfavourable recovering' condition according to Natural England's current assessment methods (JNCC, 2009). Features are described below under National Trust Land Outdoors and Nature (LON) themes.

2.1 LON Theme: Rich in Wildlife

2.1.1 Blanket bog

Unfavourable condition status is due to the low number of characteristic moorland plant species present in the blanket bog vegetation, along with the presence of bare and eroding peat. The peat on East Crowden is some of the deepest on the High Peak Moors, reaching over 4.5m deep in places, and some of the worst eroded. The majority of the blanket bog is heavily gullied, although active erosion is being curbed by revegetation interventions. A nurse crop of grasses and heath species are now established over much of the damaged area. It is anticipated that follow up re-vegetation work will be required and there is significant scope for further gully blocking work which will help to restore the water table where feasible.

2.1.1.1 *The Blanket bog states*

State 2: Bare inactive peat was present on the plateau but has now undergone successive re-vegetation treatments and the area of bare peat has been significantly reduced. **State 3:** largely inactive, dwarf shrub dominated dry bog is found in a large swathe across the plateau inside the exclusion fence. Potentially active **state 4** – cotton grass dominated bog, is found on the flat ground outside of the exclusion fence in a small area.

2.1.2 Dry Heath

Dry heath covers the lower slopes, in mosaic with acid grassland at the southernmost end where grazing pressure has been heaviest, dwarf shrub species diversity is low. Although the current condition is unfavourable, the most recent condition assessment (NE , 2015) has indicated that the situation has improved slightly since the recent exclusion measures and stocking rates were imposed in 2013.

2.1.3 Wet Heath

This habitat is very restricted on the High Peak, largely due to past erosion and historical drainage of moorland. It occurs in two small isolated patches below Grindslow Knoll.

2.1.4 Acid flushes

There are no flushes specifically noted or mapped on East Crowden moor by FEP or SSSI condition surveys. A walkover survey should be carried out to assess for these features, particularly within cloughs, and habitat maps updated accordingly.

2.1.5 Upland Oak and Birch woodland

There is no established clough woodland within Crowden clough, with only small numbers of scattered trees found in places alongside the stream. There is an old woodland enclosure to the south of East Crowden, at the bottom of the clough running to Crowden Brook. This was fenced and planted under the Woodland grants scheme (2002-12), and now contains some well-established trees. It has recently been extended and more trees planted under the current English Woodland Grants Scheme (eWGS) funded by the Forestry Commission.

Ongoing monitoring should be carried out to assess the speed of natural regeneration of trees and scrub within East Crowden's cloughs. If necessary, species should be planted in suitable areas at low density to support the spread of native woodland.

2.1.6 Species poor acid grassland

Mat grass (*Nardus*) dominated acid grassland is found across the southern slopes below Grindslow Knoll, in mosaic with dry heath (largely bilberry dominated although diversity is improving). This habitat is of value for grazing, but has low species diversity and structure. The aspiration is to manage acid grassland by grazing and shepherding actions in order to restore where possible to heath mosaic or species rich grassland swards.

2.1.7 Invasive species

Bracken can be found in stands throughout the southern section of East Crowden Moor, on slopes and within cloughs. Several of these stands have been treated by aerial and hand spraying under the HLS agreement, and will be followed up by rolling or hand-bashing to keep spread and density in check.

2.1.8 Important species

A search of local biological records centres found no records for BAP species or other species of conservation concern within the East Crowden boundary, but management actions within this plan will benefit a range of Peak District BAP and other priority species. In particular the clough is of value to ring ouzel and green hairstreak butterfly.

2.2 LON theme: Healthy

2.2.1 Soils & Geology

Acidic, poorly draining moorland peat soils typical of the Dark Peak underlay East Crowden Moor. There are no listed features of geological interest, although the gritstone bedrock is visible as outcrops at the edge of the Kinder plateau to the north, and below Grindslow Knoll further south – landscape features characteristic of the wider moorland area.

2.3 LON theme: Rich in culture

2.3.1 Archaeology and historical interest:

Features of archaeological interest typical of the Dark Peak moors and found on East Crowden include hollow ways, sheepfolds, boundary cairns and evidence of peat cutting. Archaeological features on the open moorland are generally at low risk of damage by scrub, tree or bracken encroachment due to the open nature of these habitats. Risks may arise within Crowden clough where archaeology is found alongside woodland or bracken stands. All archaeological features have been mapped and catalogued on the NT HBSMR database and an established system of monitoring and reporting will continue to inform management.

2.4 LON theme: Beautiful and Enjoyed

The landscape character of East Crowden is synonymous with the Dark Peak; open access land with stunning views across the Edale valley, a spirit of place that instils the wildness and foreboding of the open moors. The Peak District National Park was the first designated National Park, culturally significant as being at the heart of the open access and conservation movements (Kinder Scout mass trespass). The High Peak Moors receives large numbers of organised groups every year from mountain bike events to fell runs and large walking parties. East Crowden is of particular value to visitors as an access point to the open tracts of countryside on the higher moorland: a popular footpath runs up Crowden Brook to the plateau, while others cross from Grindslow Knoll, and from Grindsbrook clough, taking walkers across the Kinder plateau to meet the Pennine way at Kinder downfall.

2.5 LON theme: Productive

Grasslands, heath and bog are grazed by sheep and cattle herds, delivering High Nature Value Farming. Grouse Moor is managed to help deliver HPMV objectives. Ecosystem services including biodiversity, clean water, flood management, carbon management and recreational access are delivered by the range of conservation objectives outlined in this plan.

3 Management objectives

Land Outdoors and Nature theme – Rich in wildlife																							
3.1 Feature: Whole Moor																							
What are the factors that we need to manage?	Action	Attributes																					
3.1.1 Factor: Grazing – Stocking	<table border="1"> <thead> <tr> <th>Grazing units</th> <th>HLS Grazed Area (ha)</th> <th>Maximum Sheep numbers and timing</th> </tr> </thead> <tbody> <tr> <td>SK10861295</td> <td>52.82ha</td> <td>80 ewes over summer (0.08 LU per ewe). No stock over winter</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Month</th> <th>Maximum</th> <th>Minimum</th> </tr> </thead> <tbody> <tr> <td>January - April</td> <td>0 ewes</td> <td>0</td> </tr> <tr> <td>May - August</td> <td>80 ewes</td> <td>40 ewes</td> </tr> <tr> <td>Sept - October</td> <td>80 ewes</td> <td>0</td> </tr> <tr> <td>November - Dec</td> <td>0 ewes</td> <td>0</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 1. Remove redundant fence lines to facilitate even grazing, particularly in cloughs. 2. Monthly patrol monitoring visits recording location and number of stock seen. 3. Tenants' stocking records to be made available on a quarterly basis, including gathering numbers. 4. Stocking records to be made available to Natural England as per HLS agreement*. 5. Maintain Kinder exclusion fence to ensure stock exclusion from bare peat restoration areas (Kinder plateau)*. 	Grazing units	HLS Grazed Area (ha)	Maximum Sheep numbers and timing	SK10861295	52.82ha	80 ewes over summer (0.08 LU per ewe). No stock over winter	Month	Maximum	Minimum	January - April	0 ewes	0	May - August	80 ewes	40 ewes	Sept - October	80 ewes	0	November - Dec	0 ewes	0	<p><i>Attribute:</i> Compliance with grazing calendar*</p> <p>Lower limit: Stocking rates, livestock type and grazing periods should maintain the habitat mosaic in good condition in balance with natural grazers (birds and mountain hare).</p>
Grazing units	HLS Grazed Area (ha)	Maximum Sheep numbers and timing																					
SK10861295	52.82ha	80 ewes over summer (0.08 LU per ewe). No stock over winter																					
Month	Maximum	Minimum																					
January - April	0 ewes	0																					
May - August	80 ewes	40 ewes																					
Sept - October	80 ewes	0																					
November - Dec	0 ewes	0																					
3.1.2 Factor: Grazing – Shepherding	<ol style="list-style-type: none"> 6. Tenant to make regular weekly (minimum) shepherding visits to heft sheep to the moor top and away from cloughs to avoid over grazing of clough vegetation - Fig 3.1 7. Tenants to keep all records of shepherding activities and make these available on a quarterly basis 8. Shepherding records to be made available to Natural England as per HLS agreement*. 	<p><i>Attribute:</i> Shepherding records</p> <p>Lower limit: At least one shepherding visit per week to each grazing unit.</p> <p><i>Attribute:</i> Under/Over grazing</p> <p>Lower limit: Sheep evenly grazing the unit. No</p>																					

Project obligations

* HLS

	9. NT vegetation condition survey protocol will be used to assess grazing impacts eg, levels of flowering bilberry and heather consumption.	poaching or erosion from livestock.
3.1.3 Factor: Disturbance by vehicles	10. Low ground pressure vehicles may operate away from consented routes providing no damage occurs to the SSSI or archaeological features. 11. New track consents and significant repairs will require separate planning permission.	<i>Attribute:</i> Impacts from vehicle use Upper Limit: Any negative impacts to SSSI must recover within 12 months. Lower Limit: no damage to the SSSI or archaeological features
3.1.4 Factor: Access and Recreation – managing open access	12. There is an aspiration to monitor visitor numbers to see which part of the estate receives the highest visitor pressure; this information will help us to plan infrastructure maintenance accordingly. 13. The Trust is an active member of the Local Access Forum (LAF) and will continue to be represented to work with partner Access and Interest groups. 14. There are various activities that are not compatible with open access land (eg, illegal off-roading, mountain bike and horse access away from bridleways and on sensitive habitat) the Trust will continue to manage these activities with help from the LAF and with the Police.	<i>Attribute:</i> Monitor visitor numbers <i>Attribute:</i> Record all illegal open access use
3.1.5 Factor: Access and Recreation – managing events & organised groups	15. The Trust will maintain its part in the Events Notification Procedure as part of the LAF with the PDNPA. 16. The Trust will vet all applications for events. 17. The Trust will consult with NE and PDNPA to prevent damage to the SSSI and encourage events to use public rights of way and avoid the bird breeding season. 18. No damage to archaeology.	<i>Attribute:</i> Record all organised group applications <i>Attribute:</i> Monthly monitoring of footpath and boundary condition
3.1.6 Factor: Managing invasive species – bracken	19. Follow up all leading edges and patches sprayed under HLS agreement at bottom of Crowden clough following Guiding Principles, to ensure bracken spread is kept in check (fig. 3.2) – 2ha*. 20. Annual walkover of treated areas to determine frequency and cover of vegetation and guide follow up control. 21. Ground truth bracken density maps (developed based on aerial imagery and FEP information), to prioritise further treatment of bracken according to Guiding Principles.	<i>Attribute:</i> Bracken cover Upper Limit: <1% encroachment onto blanket bog in a SSSI unit. <10% cover on dry heath in a SSSI unit. <i>Attribute:</i> Bare ground (over grazing) Upper Limit: <10% disturbed bare ground in a SSSI

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		unit
3.1.7 Factor: Managing invasive species – conifer and rhododendron	<p>22. Continue to monitor non-native invasive species through NT vegetation condition monitoring</p> <p>23. Continue to remove seedlings on ad hoc basis across all habitats.</p>	<p><i>Attribute:</i> Cover of Conifer & Rhododendron</p> <p>Upper Limit: <1% cover of vegetation</p>
3.1.8 Factor: Managing encroachment outside cloughs by native trees and scrub	<p>24. Monitor frequency and abundance of broadleaf tree regeneration through ongoing NT vegetation condition monitoring.</p> <p>25. Heath, blanket bog and flushes: keep broadleaf tree regeneration within upper limits through the proposed grazing regime.</p> <p>26. Individual tree removal if required should include spot treatment with Glyphosate to prevent coppicing.</p> <p>27. No tree planting within 20m of flushes (ref. Clough Woodland guiding principles)</p>	<p><i>Attribute:</i> Cover of Native Trees and Scrub</p> <p>Upper Limit: <10% on blanket bog and flushes, <20% on heath</p>
3.2 Blanket Bog		
What do we want?		
<p>On the blanket bog, diverse areas of blanket bog vegetation with abundant <i>Sphagnum</i> mosses and sedges and high water table for most of the year. Small pools attract invertebrates like dragonflies and damselflies in the summer months and abundant crane flies provide food for birds in the autumn. Over time blanket bog vegetation will stabilise, eventually forming an uneven-aged and unevenly structured community. The competitive advantage of heather will be reduced by ending regular rotational burning on blanket bog. Vegetation stands will provide a habitat favourable to lower plants and invertebrates that need high humidity and shelter. Many of these species are uncommon and/or have poor powers of dispersal.</p> <p>The vision above describes blanket bog State 6 – active bog. See Guiding Principles, section 1: ‘what good looks like’ for blanket bog & reference milestones and trajectories table</p>		
What are the factors to manage?	Action	Attributes
3.2.1 Factor: Diversifying species composition	<p>1. Species diversification will be managed primarily through grazing outside of the exclusion area (see Whole Moor factors).</p> <p>2. ML 2020 will contribute approx. 1 ha of diversification and <i>Sphagnum</i> introduction within the exclusion area (fig 3.4a).</p> <p>3. Record area and location of all applications of seed and <i>Sphagnum</i></p>	<p><i>Attribute:</i> <i>Sphagnum</i> cover</p> <p><i>Attribute:</i> Species composition</p> <p>Lower limit: Compliant with the milestones and trajectories for the different blanket bog states.</p>
3.2.2 Factor:	4. Monitor bare peat cover in 10% of treated areas annually and re-survey every 3	<i>Attribute:</i> Cover of Bare peat in treated areas

Project obligations

* HLS

Revegetation of bare ground	years. 5. Follow up bare peat restoration where necessary within Kinder enclosure following the guiding principles (M2020 work plan to be confirmed). See fig 3.4b.	Lower limit: <10% bare ground in treated areas, refer to milestones and trajectories for timescale
3.2.3 Factor: Re-wetting	6. ML2020 installation of gully blocks: Plastic piling (200), Timber overlap (96), and Stone (100), fig. 3.4a. 7. Assess gully block function in 10% of HLS gully blocks annually (rolling programme). 8. Maintain dams as required to achieve 90% success rate*.	<i>Attribute: Gully block function</i> Lower Limit: Established gully blocks are functional and 90% hold water and/or silt behind them by year 10 of the agreement*.
3.2.4 Factor: Managing Wildfire	9. Fire risk will be managed primarily through the restoration of blanket bog vegetation. It may be necessary to implement fire breaks in areas of low wetness potential but this will be informed by ongoing monitoring - NT vegetation condition protocol (fig 3.4a). 10. Maintain public awareness of wildfire risk during high risk periods through use of signage and media campaigns with our partner organisations. 11. Maintain close involvement with the Fire Operations Group (FOG) and local partners.	<i>Attribute: Wildfire risk</i> <i>Attribute: Incidence of wildfire</i> Upper Limit: No catastrophic wildfire Lower limit: N/A
3.3 Feature: Dry Heath		
What do we want?		
<p>On heath, diverse areas of dwarf shrubs are present, in wet heath <i>Sphagnum</i> mosses and sedges form as layering stands. The amount of heather present may undergo pronounced cycles due to the stand passing through successive degenerate phases, while wetter conditions conducive to further layering slowly become established. Similar uneven aged stands of bilberry and heather develop in the cloughs with rowan, birch, holly and oak becoming scattered. Cattle and sheep graze here throughout the year, keeping some of these favoured grazing areas relatively open and rich in plant life. Grazing is closely managed to encourage efficient foraging and species diversity in the vegetation.</p> <p>There is an aspiration to increase the diversity of dwarf shrub species through the addition of species where appropriate. <i>Sphagnum</i> could also be introduced in suitable areas of high wetness potential to encourage a shift from dry to wet heath where opportunities exist although this is subject to financial limitations and to a large extent the results of current experimental <i>Sphagnum</i> introduction trials (MoorLIFE 2020).</p> <p>See Guiding Principles, section 1: 'what good looks like' for heath & reference milestones and trajectories table.</p>		
What are the factors that we need to manage?	Action	Attributes

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3.3.1 Factor: Diversifying species composition	<ol style="list-style-type: none"> 1. Species diversification will be implemented through grazing on the heath. 2. Monitor cover and frequency of indicator species in and re-survey every 3 years. Use NT vegetation condition protocol – see Guiding Principles. 	<i>Attribute: Species composition</i> Upper limit: 75% heather cover Lower limit: 2 dwarf shrub (+2 other) indicator species present
3.3.2 Factor: Managing Wildfire	<ol style="list-style-type: none"> 3. Fire risk will be managed through grazing on the heath. 4. Maintain public awareness of wildfire risk during high risk periods through use of signage and media campaigns with our partner organisations 5. Maintain close involvement with the Fire Operations Group (FOG) and local partners 	<i>Attribute: Wildfire risk</i> <i>Attribute: Incidence of wildfire</i> Upper Limit: No catastrophic wildfire
3.4 Wet heath		
<p>What do we want? Wet heath areas contain a diverse range of dwarf shrub species including frequent cross-leaved heath, sedges, heath rush and deer grass species and bog mosses (including Sphagnum). Heather is present but occasional. This species mix is maintained by a high water table for most of the year and supports a range of invertebrates and lower plants which benefit from high humidity and shelter.</p> <p>See Guiding Principles, section 1: ‘what good looks like’ for wet heath & reference milestones and trajectories table.</p>		
What are the factors that we need to manage?	Action	Attributes
3.4.1 Factor: Diversify species composition	<ol style="list-style-type: none"> 1. Species diversity will be increased primarily through grazing and shepherding prescriptions. 	<i>Attribute: Cover & frequency of indicator species</i> Upper limit: 75% heather cover Lower limit: 2 dwarf shrub (+2 other) indicator species present
3.4.2 Extent of wet heath	<ol style="list-style-type: none"> 2. Maintain extent of wet heath through grazing and shepherding prescriptions. 3. No burning on wet heath. 	<i>Attribute: Extent of wet heath</i> Upper limit: N/A Lower limit: No decrease in current range of wet heath.
3.5 Feature: Acid flush		
<p>What do we want? Acid flushes are at least seasonally waterlogged and will be dominated by sedges, cottongrasses, and diverse rushes. They will contain occasional wetland specialist plants like</p>		

Project obligations

* HLS

round leaved sundew, bogbean and butterwort and support abundant *Sphagnum* and other mosses. Acid flushes are diverse in specialist plants and are at risk of becoming dominated by rushes if damaged by over grazing and trampling.

See Guiding Principles, section 1: 'what good looks like' for acid flushes & reference milestones and trajectories table.

What are the factors that we need to manage?	Action	Attributes
3.5.1 Factor: Diversify species composition	<ol style="list-style-type: none"> 4. Survey to establish presence of flushes and their condition (NT rare plant survey protocol and vegetation condition assessments.) Update habitat baseline map as necessary. 5. Determine high priority flushes in need of restoration 6. Maintain low intensity grazing and good shepherding 	<p><i>Attribute:</i> Maintain extent of good quality flushes</p> <p><i>Attribute:</i> Cover & Frequency of indicator species</p> <p><i>Attribute:</i> Frequency of bog mosses, 'brown mosses' and sedges</p> <p><i>Attribute:</i> Cover & Frequency of rank species</p> <p>Upper limit: <10%</p> <p>Lower limit: N/A</p>

3.6 Feature: Acid grassland (and Heath mosaics)

What do we want?

Acid grasslands are typically species poor and tend to be dominated by fine leaved grasses and purple moor grass. Some of these (especially mat grass) are not palatable to sheep, have relatively low nutrient value and these tend to dominate as a result of past over grazing. Acid grassland is often the most important upland habitat for hill grazing and also supports important bird species such as hen harrier, short eared owl, meadow pipit and curlew. In some cases acid grasslands are former degraded heaths and have a heath component that can be restored (mosaics). They often have a mossy layer of acrocarpous and pleurocarpous mosses as well as forbs like heath bedstraw and tormentil.

The acid grassland should be diverse and support a range of fine leaved grasses (e.g. wavy hair grass, sheep's fescue, bents and sweet vernal grass). Single species dominance should be avoided and specifically mat grass and purple moor grass dominance. Vegetation structure should be varied and a range of mosses should be present as well as forbs being frequent, these will provide better nutrition for livestock. Livestock management will need to be flexible to accommodate restoration. On areas of heath mosaic dwarf shrub diversity should be encouraged and restoration as for dwarf shrub heath should be employed.

See Guiding Principles, section 1: 'what good looks like' for acid grassland / mosaics & reference milestones and trajectories table.

What are the factors that we need to manage?	Action	Attributes
3.6.1 Diversify species composition	<ol style="list-style-type: none"> 1. Species diversification will be achieved primarily through grazing and bracken treatment follow up – see the Whole Moor Factors for more details 	<p>There are currently no attributes assigned to this category</p>

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3.7 Feature: Clough woodland

What do we want?

To re-establish characteristic valley cloughs rich in dwarf shrubs, native trees and scattered scrub. The typically steep sided cloughs and slopes running to the higher moors have suffered from historical overgrazing, with livestock preferentially sheltering in these areas, resulting in a species poor sward of mat grass or dominant bracken stands with few shrub species present. With the correct stocking regime and shepherding practises, some parts of cloughs will recover with dwarf shrubs and native rowan, birch, holly and oak becoming scattered. Clough woodlands offer a transition between moor and valley woodland and provide shelter for breeding and feeding habitats for key bird species such as ring ouzel, forming a key part of the upland mosaic.

In the lower cloughs, and in particular in areas of dense bracken and mat grass dominance, the establishment of clough woodland through tree planting is preferential. This will be achieved through a mix of planting inside and outside of livestock exclusion areas as part of the English Woodlands Grants Scheme (eWGS) funded Clough Woodlands Project.

The actions below relate to moorland management units representing the upper reaches of cloughs and slopes fringing the moor, where the aim is for very scattered trees, maintained by the grazing and cutting regime on heath and blanket bog. Trees are not desirable on the blanket bog as they will dry out the peat and change this habitat. Rewetting actions will limit the spread of trees to these areas.

See Guiding Principles, section 1: 'what good looks like' for clough woodlands.

What are the factors that we need to manage?	Action	Attributes
3.7.1 Factor: Habitat extent	<ol style="list-style-type: none"> 1. eWGS <ol style="list-style-type: none"> a. Following the Clough woodland project guiding principles and eWGS 2013-23 grant, establish woodland in eWGS plots (Fig 3.5). b. Either by planting or through natural colonisation, on average there will be 18% at 1.5m spacing, 12% at 3m spacing, 30% at 10m spacing and 40% of the area retained as open ground. 2. HLS HC17 sites* <ol style="list-style-type: none"> a. Establish scattered trees and/or scrub in HC17 compartments (fig 3.5) 3. Candidate sites <ol style="list-style-type: none"> a. Determine the suitability of remaining candidate sites for woodland development (fig 3.5) 	<p>eWGS <i>Attribute: Area of woodland establishment</i> 3.3ha</p> <p>HLS HC17 sites* <i>Attribute: Area of woodland establishment</i> 3.2 ha 5% cover</p> <p>Candidate sites <i>Attribute: Area of woodland establishment</i> To be confirmed in 2018</p>
3.7.2 Factor: Structure	<ol style="list-style-type: none"> 4. eWGS <ol style="list-style-type: none"> a. Sites will be managed to ensure a stocking density of 1600 trees per hectare (960/ha including the 40% open ground requirement) including the maintenance of open ground. 	<p>eWGS <i>Attribute: Open ground</i> Lower limit 40%</p>

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	<ul style="list-style-type: none"> b. All trees will be suitably protected against herbivores for the duration of the grant period. c. Thinning of trees to be determined after 15-20 years by the site manager. <p>5. HLS HC17 sites*</p> <ul style="list-style-type: none"> a. Tree and/or scrub planting sufficient to establish 5% cover in 15-20 years <p>6. Candidate sites</p> <ul style="list-style-type: none"> a. On suitable sites establish average 5% cover scattered trees and scrub by 15-20 years after planting <p>7. Protect trees against herbivores</p> <p>8. Encourage establishment of self-set native trees using guards</p>	<p><i>Attribute: Tree density</i> Lower limit 1600 trees/ha (960/ha accounting for 40% open ground)</p> <p><i>HLS HC17 sites*</i> <i>Attribute: Tree density</i> Lower limit - 5% cover Upper limit – 20% cover</p> <p><i>Candidate sites</i> <i>Attribute: Sparse trees</i> Upper limit: 20% scattered trees Lower limit: average 5% cover</p>
<p>3.7.3 Factor: Species diversity</p>	<p>9. eWGS</p> <ul style="list-style-type: none"> a. Monitor and beat up where necessary to maintain established species mix <p>10. HLS HC17 sites*</p> <ul style="list-style-type: none"> b. Follow recommended species mix (Clough Woodlands Guiding Principles) for planted sites c. Monitor self-set trees and maintain and avoid single species dominance by thinning and planting where necessary <p>11. Candidate sites</p> <ul style="list-style-type: none"> d. Follow recommended species mix (Clough Woodlands Guiding Principles) for planted sites e. Monitor self-set trees and maintain and avoid single species dominance by thinning and planting where necessary <p>12. Maintain low intensity grazing and good shepherding practises (Whole Moor Factors).</p> <p>13. Monitor cover and frequency of ground flora indicator species and re-survey every 3 years.</p>	<p>HLS* and Candidate sites <i>Attribute: Presence of scattered trees and scrub</i> Upper limit: 20% scattered trees</p> <p><i>Attribute: Frequency and structure of dwarf shrub species</i> Upper limit: 75% heather cover Lower limit: 2 dwarf shrub (+2 other) indicator species present</p>
<p>3.8 Feature: Soils and Geology</p>		
<p>What do we want?</p> <p>To protect peat soils and minimise or halt peat (carbon) loss where practical, and to promote conditions where peat is actively forming. Soils should be healthy, stable and free from</p>		

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excessive erosion. Carbon should be stored in the variety of soil types under a diversity of species-rich, robust habitats. Regionally important geological features, including gritstone tors and sections of exposed geology along streams, should be preserved as visible and free from human induced disturbance and damage.		
What are the factors that we need to manage?	Action	Attributes
3.8.1 Factor: Access and Recreation – managing footpath erosion	<ol style="list-style-type: none"> 1. Visitor pressure is very high in some unprotected (unsurfaced) routes through the SSSI, the Trust will continue to monitor (informed by NT patrol monitoring) the condition of these routes and seek consent to repair/surface where necessary. 2. Encourage the use of surfaced routes. 3. Maintain footpaths and routes with appropriate materials to minimise impact of footfall and water drainage to prevent erosion of soil (following Guiding Principles) 4. Prioritise footpath and routes requiring repairs and maintenance Fig. 3.7 	<i>Attribute:</i> Condition of footpaths, bridleways and other routes
3.8.2 Soil hydrology	<ol style="list-style-type: none"> 5. Work with partners (MFF & Universities) to maintain hydrological monitoring equipment (dipwells, vegetation quadrats and catchment discharge weirs). 	<i>Attribute:</i> Soil water table <i>Attribute:</i> vegetation condition <i>Attribute:</i> catchment discharge
3.9 Feature: Archaeology		
<p>What do we want?</p> <p>The National Trust owns and manages thousands of archaeological sites, historic buildings and cultural landscapes throughout England, Wales and Northern Ireland. We will:</p> <ul style="list-style-type: none"> • sustain the maximum archaeological, historical and cultural significance of Moorland Archaeological sites; • inform conservation and manage change in the historic environment through identifying, recording, understanding and communicating its significance • share the archaeological and historical significance of our properties with members, visitors and stakeholders for all to appreciate and enjoy. <p>The archaeological heritage of the High Peak moors will be maintained as distinctive and visible features within the landscape, protected from damage or disturbance. A well-established monitoring scheme will continue to inform management actions on these features, with specific restoration works carried out as necessary under the specialist advice of an archaeologist. All features are catalogued within a database and accessible to all via a web portal, which continues to be updated to best inform the public / stakeholders of the archaeological interest and significance of the area.</p>		
What are the factors that we need to manage?	Action	Attributes
3.9.1 Factor: Disturbance	<ol style="list-style-type: none"> 1. No disturbance of archaeology by vehicles – see whole moor factors (Factor 3.1.3). 2. All machinery used for capital works, such as heather cutting, to avoid damaging archaeological features. Contractors to be made aware of sensitive archaeology when working. 	<i>Attributes:</i> Disturbance by vehicle / machinery use, recreational or vehicle access

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3.9.2 Factor: Access and recreation	<ul style="list-style-type: none"> 3. No disturbance of archaeology by access and recreation – see whole moor factors (Factor 3.1.4). 4. Continued bi-annual HART monitoring of archaeology. 	<i>Attribute: Condition of archaeological features along access routes</i>
3.9.3 Factor: Encroachment of trees, scrub or bracken	<ul style="list-style-type: none"> 5. Maintain visibility of archaeological features as set out in option UD13* (fig 3.8). 6. Bi-annual monitoring of all archaeological features by HART team. 	<i>Attribute: Maintain visibility of listed features*</i>

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* HLS