Derwent and Howden Moor (middle heft) 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 Derwent and Howden 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

Derwent and Howden 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.

Derwent and Howden Moor, part of the National Trust's High Peak estate, was acquired by the National Trust in 1952. It is currently grazed by sheep and cattle and also managed as a grouse moor. The whole moor covers a 23 km^2 / 2,319 ha area above the Upper Derwent Valley, flanking the east and north of the Derwent and Howden reservoirs. The eastern boundary (and limit of the National Trust's land holding) for the northern section runs along Howden Edge, the watershed of the Derwent river, and along Derwent Edge in the south. The moors are comprised of a range of typical upland moorland habitats. Areas of blanket bog are found on the flatter ground to the east where the land rises to Howden and Derwent edges. Stretches of dry heath and acid grassland lie on shallower peat soils across the slopes and cloughs running down to the river Derwent and reservoirs. Bracken stands and acid flushes also feature.

This management plan is concerned with the middle heft of Derwent and Howden moor, comprising 908 ha between Abbey clough in the south, and Cranberry clough/ Bull clough to Margery Hill in the north. The north and southern sections of Derwent and Howden Moor are dealt with under separate plans.

1.2 Site management

Derwent and Howden Moor was 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 AG00399583) ongoing to 30/04/2023. Capital works carried out under these plans have included bracken control (aerial spraying), and gully blocking (135 dams were installed in 2014) with associated plug planting to improve the blanket bog at Robin Hood's Moss. Between 1989 and 2000 the middle heft was subject to extensive purple moor grass (*Molinia*) reversion trials, the results of which were reviewed in 2000 (PAA, 2001). Since 2013, in addition to the HLS agreement, the Clough Woodlands Project has been funded through the English Woodlands Grants Scheme (eWGS) to establish clough woodland in selected areas around the edges of the moor (table 1.2).

1.2.1 Grouse moor

Extensive areas of Derwent and Howden moor have been managed as grouse moors through the rotational burning of heather. Frequent burning has been used for many years as a method of vegetation control on the middle heft, to manage biomass and fuel load to reduce the risk of wildfire, to produce an 'early bite' of grass growth and to encourage the germination and regeneration of heather. The HPMV set out an aspiration to stop regular burning on blanket bog, to reduce the impact on the hydrology

and reduce heather dominance. The preferred means of management will be through cutting, with burning only employed on heath, and only permitted on blanket bog when consented separately as a special measure. See Guiding Principles for more information.

The current shooting tenant Geoff Eyre has been instrumental in carrying out large scale restoration trials involving herbicide treatment, burning and heather seeding to reduce *Molinia* and reinstate dwarf shrub moorland. Early work (from 1994 - 1999) focussed on the middle heft (Upper Hey and Nether Hey), with fencing erected to exclude stock and aid successful recovery (PAA, 2001). He continues to inform current restoration practice, developing seed and *Sphagnum* pellets for diversification work.

1.2.2 Grazing

Historically, the whole moor has suffered from overgrazing, and together with annual burning of the sward, led to a dominance of *Molinia*. Sheep numbers were reduced in the 1980's and trespass issues from the neighbouring land to the east were addressed to ensure levels were suitable for habitat recovery. The middle heft is divided from the rest of Derwent and Howden by fence lines, and further split by a fence line running roughly north – south, effectively separating the middle heft into separate grazing units (fig 1.1b). The Heys (DHM01) are separated from the rest of the moor by a fence and are currently grazed by cattle and sheep in accordance with HLS prescriptions. Robin Hood Moss & Cartilage Bents (DHM02) are grazed by sheep only: this unit is unfenced to the east and receives occasional trespass sheep from moorland neighbours, managed by effective shepherding.

In 2012 the farming tenant for the whole of the Derwent and Howden moors, and Old House Farm, retired. The North and South hefts have since been let through Farm Business Tenancies until 2023. The Middle Heft is currently managed in hand by the Trust through annual contract grazing agreements together with the in-bye holding of Old House. The aim is for exemplary conservation grazing as part of a sustainable agricultural system, with stock broadly grazing the moorland areas in the summer and moving more onto the in-bye for the winter months. The central driver of any management decisions will always be to maximise the species diversity of both the grassland and the moorland habitats across the whole holding, with grazing being a key tool to achieve this.

In 2017 the Trust plans to re-let the middle heft to a new tenant who will be instrumental in helping to deliver the shared outcomes of the HPMV and our partners.

1.3 Management Units

Figure 1.1 shows the site and infrastructure (a) and aerial image (2009) (b). The site is divided into 6 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 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 the middle heft 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	Compartment name	Compartment code	Compartment area (ha)	Scheme (options)	Main habitat types (FEP code) and Blanket Bog State	Area (Ha)
Derwent & Howden Middle Heft	The Heys (Upper and Nether Hey)	DHM01	255	UELS/HLS (EL3, EL6, UX2, UX3, UD13, A13, HL10, HL12, HL15, HL16, HR1, HR2, HR5, HR7)	Blanket Bog (M06) State 3 State 5	151 128 23
					Dry Heath (M04)	63
					Acid Grassland (M01)	35
					Acid Flush (M08)	0.6
					Bracken	4
	Robin Hood Moss & Cartilage Bents	DHM02	548	UELS/HLS (EL6, UX3, UD13, A13, HL10, HL12, HL13, HL15, HL16, HR5, HR7)	Blanket Bog (M06) State 3 State 4 State 5	344 211 ha 127 ha 6 ha
					Heath (M04)	151
					Acid Grassland (M01)	39
					Acid Flush (M08)	4
					Bracken	9
	Abbey Clough	DHM03	31	eWGS UELS (UX3)	Broadleaf semi-natural woodland (T08)	0.6
					Blanket Bog (M06)	1.2
					Dry Heath (M04)	13
					Acid Grassland (M01)	6
					Bracken	8
	Bosen Holes & Howden Clough	DHM04	32	eWGS UELS (UX3)	Broadleaf semi-natural woodland (T08)	1
					Blanket Bog (M06)	0.4
					Dry Heath (M04)	14
					Acid Grassland (M01)	10
					Bracken	6
					Scrub	0.8
					Mixed plantation (T06)	1
	Ronksley Wood	DHM05	9	WGS UELS (UX3)	Broadleaf semi-natural woodland (T08)	9
	Coldside Oaks & Cranberry Clough	DHM06	33	eWGS UELS (UX3)	Heath (M04)	15
					Blanket Bog (M06)	1

					Acid grassland (M01)	17

2 Current status of main features

All habitats are in 'unfavourable recovering' condition according to Natural England's current assessment methods (JNCC, 2009). A range of habitats are present across the eastern half of the moor which are considered favourable for merlin, golden plover, curlew, short eared owl and snipe. Features are described below under National Trust Land Outdoors Nature (LON) themes.

2.1 LON Theme: Rich in Wildlife

2.1.1 Blanket bog

Although recovering, there are generally low numbers of characteristic dwarf shrub species present, largely due to the dominance of heather. Past grazing and burning practice has contributed to this – a situation now improving due to HLS prescriptions for grazing (especially by cattle) and the cessation of burning. Across Nether and Upper Hey (DHM01) species composition is restricted mainly to evenly-aged heather with underlying feather mosses remnant areas of Molinia and mat grass and increasing levels of silver birch. Further east, on Robin Hood Moss (DHM02) species diversity is much higher reaching 9 species in some places. *Sphagnum* diversity is generally poor across the site, with the exception of localised flushes and gully systems.

2.1.1.1 The Blanket bog states

State 3: largely inactive, heather dominated dry bog is found in a large swathe across Featherbed Moss. Potentially active **state 4 –** cotton grass dominated bog, is found on the flat ground to the north of Featherbed Moss, and in areas fragmented by grassland and heath further south, towards Low Tor. **State 5**: Modified but more diverse, non-heather dominated dry bog can be found in small areas (top of Bents clough and south of Penistone stile). *Sphagnum* frequency is generally low, present in pools and gully edges at Robin Hood's moss, which has been the focus of gully blocking to date.

2.1.2 Dry heath

Non heather dominant dry heath can be found in large swathe up the centre of the middle heft, and around the edges of blanket bog areas. It is largely bilberry dominant, but with heather and crowberry locally abundant and some cross-leafed heath present in places. A large area of heather-dominant heath can be found on Nether Hey, although this habitat is a result of past restoration works and can be considered as transitional, as indicated by peat depth surveys (see Wet Heath, below).

2.1.3 Wet Heath

No wet heath has been recorded on the middle heft. However, there are areas indicated by GIS modelling that have high wetness potential where *Sphagnum* is occasional (figure 1.2). These areas may be suitable for restoration to wet heath. Surveys of peat depth on the Heys (Nether Hey in 2016, Upper Hey pending) have also demonstrated deeper (>40cm) peat, although this is not blanket bog in the classic sense, more akin to a valley mire. There is, therefore the potential in some of these areas to restore heather dominated areas on deep peat to an analogue of wet heath or functioning blanket bog habitats in some cases.

2.1.4 Acid flushes

Flushes are present generally species poor, with the exception of some diverse examples, particularly in the upper parts of Abbey Clough. Some of the flushes on the Heys have become dominated by soft rush but contain good amounts of *Sphagnum* mosses. Further surveys will add to the knowledge base of the floral interest.

2.1.5 Upland Oak and Birch woodland

Upland Oak and Birch woodland and scrub can be found in the bottoms of cloughs. These habitats are being extended by our Clough Woodlands Project, supported by eWGS funding. Elsewhere, further up cloughs towards the moor, there are few scattered trees. Dwarf shrub diversity is generally low within cloughs, with species poor grassland and dense bracken stands common features: a product of historical overgrazing. Birch regeneration is becoming more prevalent on parts of the Heys. To some extent this is considered to be complimentary to the Landscape Character of the Heys and the Trust are keen to retain a proportion of native broadleaf trees here providing it is not to the detriment of other SSSI/SAC/SPA features (specifically blanket bog or ground nesting raptors).

2.1.6 Species poor acid grassland

The largely mat grass or *Molinia* dominated grassland is largely restricted to cloughs and parts of the moor on the middle heft. This habitat is of value for grazing, but of little wildlife value due to its low species diversity and structure, although it does present good habitat for small mammals which in turn serve a healthy population of short eared owl. 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 is not considered a problem on the blanket bog, but forms dense beds within the western cloughs across the middle heft and spreading from here onto heath areas. Management units affected: DHM04, DHM05 and DHM06. In these areas bracken beds have been aerially sprayed between 2013 and 2015 under eWGS agreements as part of the clough woodland project, with associated leading edges sprayed under the HLS agreement to prevent encroachment onto the blanket bog. Stands of rhododendron and conifer can be found fringing the reservoir on land owned by Severn Trent Water, representing a seed source and an ongoing need to control to prevent establishment on other habitats.

2.1.8 Important species

A search of local biological records centres found 14 BAP species or other species of conservation concern within the boundary of Derwent and Howden. The middle heft has records that include hen harrier, mountain hare, water vole, common lizard, cloudberry, sundew, brown hare, common toad, violet oil beetle, marsh stitchwort and 4 BAP moth species.

2.2 LON theme: Healthy

2.2.1 Soils & Geology

Acidic, poorly draining moorland peat soils underlay the middle heft. Restoration of the degraded blanket bog aims to protect the carbon resource and move to a position where carbon is being sequestered. The extent of deep peat (>40cm) present across the Nether Hey has been shown to be greater than previously thought following a 2016 survey. A full investigation is also planned for Upper Hey, with maps to be updated and management updated accordingly, it is likely that this will affect the distribution of blanket bog and dry heath habitat currently perceived.

Several Regionally Important Geological Sites (RIGS) lie within the boundary of Derwent and Howden moor. Local RIGS fall into 2 broad groups, that of exposed rock features (cliffs, tors and outcrops typical of the Dark Peak moors) or stream sections of interest. Margery Stones and Low Tor are exposed gritstone outcrops, weathered to characteristic shapes. Several stream sections at Abbey Brook and Sheepfold clough consist of sandstone and gritstone outcrops, and exposed shales are visible at Bents clough RIGS site.

2.3 LON theme: Rich in culture

2.3.1 Archaeology and historical interest:

Features of archaeological interest typical of the Dark Peak moors can be found across the middle heft, from ancient trackways, quarry sites and shooting butts. Several charcoal burning platforms can be found at Coldside Oaks and Bosen Holes. These are likely to date from the 1700's and are common within the Upper Derwent's wooded valleys, reflecting the woodland management infrastructure from these times. On the most elevated ground, burial sites can be found – most notably a round Bronze Age hill cairn (a scheduled ancient monument) on Margery Hill. A prehistoric burial barrow marked by a large stone can also be seen on Upper Hey. The crossing at Slippery Stones is a restored packhorse bridge. All archaeological features have been mapped and catalogued on the NT HBSMR database.

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 cloughs, where much of the archaeological interest is found, alongside woodland and bracken stands. An established system of monitoring and reporting will continue to inform management.

2.4 LON theme: Beautiful and Enjoyed

The landscape character of the middle heft is synonymous with the Dark Peak; open access land with stunning views across the Derwent Valley. This spirit of place instils the wildness and foreboding of the 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). As such, the moorlands of Derwent and Howden are of great value to visitors for the freedom offered by the open tracts of countryside and stunning views.

The High Peak Moors receives large numbers of organised groups every year from mountain bike events to fell runs and large walking parties. The tracks and wider moors above the Derwent and Howden reservoirs are popular destinations, with visitors accessing the area via the busy Fairholmes Visitor Centre to make use of the many footpaths and bridleways around the reservoirs and leading onto the surrounding open access land. Several footpaths cross the middle heft of Derwent and Howden: along Abbey Brook to the south, up Howden clough and via Cut Gate track - a bridleway and ancient packhorse route running up to Derwent Edge to the east. Derwent edge is an iconic Peak District route giving excellent views across the high moors and taking in impressive gritstone rock formations.

2.5 LON theme: Productive

Grasslands, heath and bog are grazed by sheep and cattle, delivering High Nature Value Farming. Grouse moor is managed to help to 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

<table>
<tr><th>What are the factors that we need to manage?</th><th>Action</th><th>Attributes</th></tr>
<tr>
<td>3.1.1 Factor: Grazing – Stocking</td>
<td>
<table>
<tr><th></th><th></th><th></th></tr>
<tr><td>Grazing Unit
DHM01 The Heys (Middle heft)</td><td>HLS Grazed Area (ha)</td><td>Stock numbers and timing</td></tr>
<tr><td>SK18942356
(fenced area)</td><td>245 ha</td><td>SHEEP
80 ewes (0.08 LU per ewe) to graze for 12 weeks between 1st April and 31st October.

CATTLE
Cattle grazing is permitted between 1st April and 30th November, and for a minimum of 3 months. This must include 15th May to 15th July inclusive.

Total cattle, expressed as livestock units (LU) must be between 4LU and 9LU’s per calendar year. See Guiding Principles for more information.</td></tr>
</table>
<table>
<tr><th>Grazing unit Unit DHM02 Robin Hood Moss & Cartilage Bents (Middle heft)</th><th>HLS Grazed Area (ha)</th><th>Maximum Stock numbers and timing</th></tr>
<tr><td>SK18942356 (unfenced area)</td><td>541ha</td><td>150 ewes</td></tr>
<tr><td>Month</td><td>Upper limit
(Based on 0.08 LU per ewe / 0.06 LU per hogg.)</td><td>Lower limit
(Based on 0.08 LU per ewe / 0.06 LU per hogg.)</td></tr>
</table>
</td>
<td>Attribute: Compliance with grazing calendar*

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).</td>
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</table>

Project obligations

* HLS

<table>
<tr>
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<tr><td>January - March</td><td>150 ewes</td><td>0</td></tr>
<tr><td>April</td><td>0 ewes plus 50 hoggs</td><td>0</td></tr>
<tr><td>May</td><td>75 ewes plus 50 hoggs</td><td>35 ewes plus 25 hoggs</td></tr>
<tr><td>June 1st – 15th</td><td>75 ewes plus 50 hoggs</td><td>35 ewes plus 25 hoggs</td></tr>
<tr><td>June 16th – 30th</td><td>150 ewes plus 50 hoggs</td><td>75 ewes plus 25 hoggs</td></tr>
<tr><td>July - August</td><td>150 ewes plus 50 hoggs</td><td>75 ewes plus 25 hoggs</td></tr>
<tr><td>September 1st – 15th</td><td>150 ewes plus 50 hoggs</td><td>0</td></tr>
<tr><td>September 16th – 30th</td><td>150 ewes</td><td>0</td></tr>
<tr><td>October</td><td>150 ewes</td><td>0</td></tr>
<tr><td>November 1st – 10th</td><td>150 ewes</td><td>0</td></tr>
<tr><td>November 11th – 30th</td><td>0</td><td>0</td></tr>
<tr><td>December 1st -23rd</td><td>0</td><td>0</td></tr>
<tr><td>December 24th – 31st</td><td>150 ewes</td><td>0</td></tr>
</table>

Remove redundant fence lines to facilitate even grazing, particularly in cloughs
Monthly patrol monitoring visits recording location and number of stock seen.
Tenants’ stocking records to be made available on a quarterly basis, including gathering numbers.
Stocking records to be made available to Natural England as per HLS agreement*.

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<tr>
<td>3.1.2 Factor: Grazing – Shepherding</td>
<td>
<ol start="5">
Contract grazier/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
Tenant/grazier to keep all records of shepherding activities and make these available on a quarterly basis.
Shepherding records to be made available to Natural England as per HLS agreement*.
GPS collars will be used to gather detailed records of cattle movements on the Heys (DHM01).
NT vegetation condition survey protocol will be used to assess grazing impacts eg, levels of flowering bilberry and heather consumption.

</td>
<td>Attribute: Shepherding records
Lower limit: At least one shepherding visit per week to each grazing unit.

Attribute: Cattle movements
Lower limit: Annual pattern of cattle movements established

Attribute: Under/Over grazing
Lower limit: Sheep & cattle evenly grazing the unit. No poaching or erosion from livestock.</td>
</tr>
<tr>
<td>3.1.3 Factor: Disturbance by vehicles</td>
<td>
<ol start="10">
Low ground pressure vehicles & 4x4’s may use consented access routes providing routes are maintained in a sustainable manner (Fig 1.1a).
Tracks shown on Fig 1.1a will be maintained as per the Guiding Principles.
Low ground pressure vehicles may operate away from consented routes providing no damage occurs to the SSSI or archaeological features.

</td>
<td>Attribute: 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</td>
</tr>
</table>

Project obligations

* HLS

	13. New track consents and significant repairs will require separate planning permission.	
3.1.4 Factor: Access and Recreation – managing open access	14. 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. 15. 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. 16. 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.	*Attribute:* Monitor visitor numbers *Attribute:* Record all illegal open access use
3.1.5 Factor: Access and Recreation – managing events & organised groups	17. The Trust will maintain its part in the Events Notification Procedure as part of the LAF with the PDNPA. 18. The Trust will vet all applications for events. 19. 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. 20. No damage to archaeology.	*Attribute:* Record all organised group applications *Attribute:* Monthly monitoring of footpath and boundary condition
3.1.6 Factor: Managing invasive species – bracken	21. Follow up all leading edges sprayed under HLS agreement at Cranberry clough north, following Guiding Principles, to ensure bracken spread is kept in check (fig. 3.2) – 2.2ha* 22. Control bracken within eWGS tree planting areas to aid tree establishment and prevent spread: Bosen Holes and Coldside Oaks, following Guiding Principles (fig. 3.2) – 14.6 ha 23. Annual walkover of treated areas to determine frequency and cover of vegetation and guide follow up control. 24. Ground truth bracken density maps (developed based on aerial imagery and FEP information), to prioritise further treatment of bracken according to Guiding Principles.	*Attribute:* Bracken cover Upper Limit: <1% encroachment onto blanket bog in a SSSI unit. <10% cover on dry heath in a SSSI unit. *Attribute*: Bare ground (over grazing) Upper Limit: <10% disturbed bare ground in a SSSI unit
3.1.7 Factor: Managing invasive species – conifer and	25. Continue to monitor non-native invasive species through NT vegetation condition monitoring 26. Continue to remove seedlings on ad hoc basis across all habitats. 27. ML2020 project to fund at least 1 day of organised pulling in 2017-18	*Attribute:* Cover of Conifer & Rhododendron Upper Limit: <1% cover of vegetation

Project obligations

* HLS

rhododendron		
3.1.8 Factor: Managing encroachment outside cloughs by native trees and scrub	28. Monitor frequency and abundance of broadleaf tree regeneration on the Heys, and elsewhere through ongoing NT vegetation condition monitoring. 29. Heath, blanket bog and flushes: keep broadleaf tree regeneration within upper limits through the proposed grazing regime and cutting operations. 30. Individual tree removal if required should include spot treatment with Glyphosate to prevent coppicing. 31. No tree planting within 20m of flushes (ref. Clough Woodland guiding principles)	*Attribute:* Cover of Native Trees and Scrub Upper Limit: <10% on blanket bog and flushes, <20% on heath

3.2 Blanket Bog

What do we want?

On the blanket bog, diverse areas of blanket bog vegetation with abundant *Sphagnum* 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.
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

What are the factors to manage?	Action	Attributes
3.2.1 Factor: Cutting	1. Break the cycle of heather dominance by stopping the regular rotational burning of heather on blanket bog and replace with cutting. 2. Maintain varied vegetation structure and species diversity through heather management following Guiding Principles to cut and diversify the structure of heather dominant blanket bog. 3. Under the HLS agreement cut a minimum of 2.4 ha annually or at least 7.2 ha in a 3 year period to a height of approx. 10cm (fig. 3.3a)* 4. Record all cuts with GPS and maintain log of cutting operations	*Attribute:* Variation in vegetation height across the moor Upper limit: Retain 20% heather uncut to allow heather layering and provide sufficient tall vegetation for ground nesting birds *Attribute:* Area and location of cuts Lower limit: Cutting 2.4 ha heather dominated bog per year to manage fire risk (fig 3.3a)*.
3.2.2 Factor: Diversifying species	5. Introduce *Sphagnum* propagules to cuts in high wetness potential areas (fig. 3.4a). Other blanket bog indicator species may be used to achieve the desired outcomes 6. Record area and location of all applications of seed and *Sphagnum*.	*Attribute: Sphagnum* cover *Attribute*: Species composition

Project obligations
* HLS

composition	7. Monitor cover and frequency of indicator species in 10% of annual cuts and re-survey every 3 years. Use NT vegetation condition protocol – see Guiding Principles.	Lower limit: Compliant with the milestones and trajectories for the different blanket bog states.
3.2.3 Factor: Revegetation of bare ground	8. ML2020: Machine re-profiling of eroding gully sides on Robin Hood Moss (DHM02) in 2017-18. (See detailed plan of operations ML2020 and fig. 3.4b). 9. ML2020: associated re-vegetation work using heather brash and lime & seed application. (See detailed plan of operations ML2020 and fig. 3.4b). 10. Monitor bare peat cover in 10% of treated areas annually and re-survey every 3 years.	*Attribute: Cover of bare peat in treated areas* Lower limit: <10% bare ground in treated areas, refer to milestones and trajectories for timescale.
3.2.4 Factor: Re-wetting	11. ML2020: install peat and timber dams at Robin Hoods Moss. See detailed plan of operations (ML2020 & fig. 3.4a) 12. Assess gully block function in 10% of HLS gully blocks annually (rolling programme). 13. Maintain dams as required to achieve 90% success rate*	*Attribute: Gully block function* Lower Limit: Established gully blocks are functional and 90% hold water and/or silt behind them by year 10 of the agreement*.
3.2.5 Factor: Managing Wildfire	14. Fire risk will be managed through the cutting done under the HLS agreement. 15. Maintain public awareness of wildfire risk during high risk periods through use of signage and media campaigns with our partner organisations 16. Maintain close involvement with the Fire Operations Group (FOG) and local partners	*Attribute:* Wildfire risk *Attribute:* Incidence of wildfire Upper Limit: No catastrophic wildfire Lower limit: N/A

3.3 Feature: Dry Heath

What do we want?

On heath, diverse areas of dwarf shrubs are present, in wet heath *Sphagnum* 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.

There is an aspiration to increase the diversity of dwarf shrub species through the addition of species where appropriate. *Sphagnum* 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 *Sphagnum* introduction trials (Moorlife 2020).

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

Project obligations

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What are the factors that we need to manage?	Action	Attributes
3.3.1 Factor: Cutting & Burning	1. Maintain varied vegetation structure and species diversity through heather management following Guiding Principles to cut or burn and diversify the structure of heather dominant dry heath. 2. Cutting is permitted as per cutting map fig. 3.3a. 3. Under the HLS agreement burning is permitted on a 12 year rotation. Burning is restricted to areas shown in fig 3.3b and must be agreed in writing with the Trust annually, prior to any burning taking place. 4. Record all cuts or burns with GPS and maintain log of cutting/burning operations.	*Attribute:* Area of cut or burn *Attribute:* variation in vegetation height Upper limit: Retain 20% heather uncut or burnt to allow heather layering and provide sufficient tall vegetation for ground nesting birds.
3.3.2 Factor: Diversifying species composition	5. Species diversification will be implemented though grazing, and cutting or burning of heather dominant vegetation. 6. Monitor cover and frequency of indicator species in 10% of annual cuts or burns and re-survey every 3 years. Use NT vegetation condition protocol – see Guiding Principles.	*Attribute: Species composition* Upper limit: 75% heather cover Lower limit: 2 dwarf shrub (+2 other) indicator species present
3.3.3 Factor: Managing Wildfire	7. Fire risk will be managed through cutting to be done under HLS 8. Maintain public awareness of wildfire risk during high risk periods through use of signage and media campaigns with our partner organisations 9. Maintain close involvement with the Fire Operations Group (FOG) and local partners	*Attribute: Wildfire risk* *Attribute: Incidence of wildfire* Upper Limit: No catastrophic wildfire

3.4 Feature: Acid flush

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 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
3.4.1 Factor: Diversify species	1. Survey flushes for vegetation condition, rare and notable species – NT rare plant survey protocol and vegetation condition assessments. 2. Determine high priority flushes in need of restoration	*Attribute:* Maintain extent of good quality flushes *Attribute:* Cover & Frequency of indicator species *Attribute:* Frequency of bog mosses, 'brown

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composition	3. Maintain low intensity grazing and good shepherding	mosses' and sedges *Attribute:* Cover & Frequency of rank species Upper limit: <10% Lower limit: N/A

3.5 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
3.5.1 Diversify species composition	1. Species diversification will be achieved primarily through grazing and bracken treatment follow up – see the Whole Moor Factors for more details	There are currently no attributes assigned to this category

3.6 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.

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* HLS

The actions below relate to moorland management units DHM1, DHM2 – the Heys and Featherbed Moss / Cartilage Bents 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
3.6.1 Factor: habitat extent	1. eWGS 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* a. Establish scattered trees and/or scrub in HC17 compartments (fig 3.5) 3. Candidate sites a. Determine the suitability of remaining candidate sites for woodland development (fig 3.5)	*eWGS* *Attribute: Area of woodland establishment* 35.7ha *HLS HC17 sites** *Attribute: Area of woodland establishment* 2.7 ha 5% cover *Candidate sites* *Attribute: Area of woodland establishment* To be confirmed in 2018
3.6.2 Factor: Structure	4. eWGS 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. 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. 5. HLS HC17 sites* a. Tree and/or scrub planting sufficient to establish 5% cover in 15-20 years 6. Candidate sites d. On suitable sites establish average 5% cover scattered trees and scrub by 15-20 years after planting 7. Protect trees against herbivores 8. Encourage establishment of self-set native trees using guards	eWGS *Attribute: Open ground* Lower limit 40% *Attribute: Tree density* Lower limit 1600 trees/ha (960/ha accounting for 40% open ground) *HLS HC17 sites** *Attribute: Tree density* Lower limit - 5% cover Upper limit – 20% cover *Candidate sites* *Attribute: Sparse trees*

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		Upper limit: 20% scattered trees Lower limit: average 5% cover
3.6.3 Factor: Species diversity	9. eWGS a. Monitor and beat up where necessary to maintain established species mix 10. HLS HC17 sites* a. Follow recommended species mix (Clough Woodlands Guiding Principles) for planted sites b. Monitor self-set trees and maintain and avoid single species dominance by thinning and planting where necessary 11. Candidate sites a. Follow recommended species mix (Clough Woodlands Guiding Principles) for planted sites b. Monitor self-set trees and maintain and avoid single species dominance by thinning and planting where necessary 12. Maintain low intensity grazing and good shepherding practises (Whole Moor Factors). 13. Monitor cover and frequency of ground flora indicator species and re-survey every 3 years.	HLS* and Candidate sites *Attribute: Presence of scattered trees and scrub* Upper limit: 20% scattered trees *Attribute: Frequency and structure of dwarf shrub species* Upper limit: 75% heather cover Lower limit: 2 dwarf shrub (+2 other) indicator species present

3.7 Feature: Soils and Geology

What do we want?

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 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. We need to better understand the extent of blanket bog (peat over 40cm deep) to ensure appropriate management.

What are the factors that we need to manage?	Action	Attributes
3.7.1 Factor: Extent of blanket bog	1. Undertake a peat depth survey of Upper Hey following NT peat depth survey protocol to determine the correct habitat type (heath or blanket bog) and update habitat map and plan accordingly.	*Attribute:* The extent of blanket bog (>40cm deep)
3.7.2 Factor: Disturbance to	2. Maintain visibility of geological features – control encroaching scrub or trees as required (fig 3.6).	*Attribute:* condition of RIGS

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RIGS	3. At RIGS stream sections, leave any landslip material in-situ. 4. Ensure recreational activities do not damage geological features: promote their sensitive use by climbers and walkers. 5. Ongoing monitoring of RIGS by SAGT and PDNPA.	Upper limit: Changes to RIGS due to natural processes only Lower limit: Maintained visibility and no damage to RIGS by human activity.
3.7.3 Factor: Access and Recreation – managing footpath erosion	6. 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. 7. Encourage the use of surfaced routes. 8. Maintain footpaths and routes with appropriate materials to minimise impact of footfall and water drainage to prevent erosion of soil (following Guiding Principles). 9. Prioritise footpaths and routes requiring repairs and maintenance - Fig. 3.7	*Attribute:* Condition of footpaths, bridleways and other routes
3.7.4 Soil hydrology	10. Work with partners (MFF & Universities) to maintain hydrological monitoring equipment (dipwells, vegetation quadrats and catchment discharge weirs).	*Attribute:* Soil water table *Attribute*: vegetation condition *Attribute*: catchment discharge

3.8 Feature: Archaeology

What do we want?

The National Trust owns and manages thousands of archaeological sites, historic buildings and cultural landscapes throughout England, Wales and Northern Ireland. We will:

- 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.

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.

What are the factors that we need to manage?	Action	Attributes
3.8.1 Factor: Disturbance	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.	*Attributes:* Disturbance by vehicle / machinery use, recreational or vehicle access

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3.8.2	**Factor: Access and recreation**	3. No disturbance of archaeology by access and recreation – see whole moor factors (Factor 3.1.4). 4. Grouse butts to be maintained according to Guiding Principles 5. Prioritise Cut Gate path for repairs and maintenance, according to specifications developed with Regional Archaeologist – see fig. 3. 7, footpaths and tracks requiring maintenance/surfacing. 6. Continued bi-annual HART monitoring of archaeology.	*Attribute:* Condition of grouse butts *Attribute:* Condition of archaeological features along access routes
3.8.3	**Factor: Encroachment of trees, scrub or bracken**	7. Maintain visibility of archaeological features as set out in option UD13* (fig 3.8). 8. Bi-annual monitoring of all archaeological features by HART team.	*Attribute: Maintain visibility of listed features**
3.8.4	**Factor: Condition of Scheduled Ancient Monuments – Margery Hill**	9. Continued annual HART and PDNPA monitoring of Margery Hill (fig 3.8) with additional restoration work to be planned and carried out as necessary, under consent from English Heritage. 10. Control encroaching scrub or trees as required. 11. Ensure recreational activities do not damage the feature: promote their sensitive use by climbers and walkers.	Attribute: No damage to scheduled ancient monuments

Project obligations

* HLS