

# Derwent and Howden Moor (south 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 Dark Peak estate, was acquired by the National Trust in 1952. It is currently grazed by sheep and also managed as a grouse moor. The whole moor covers a 23 km<sup>2</sup> / 2,319 ha area above the Upper Derwent Valley, flanking the east and north of the Derwent and Howden reservoirs. 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 southern heft of Derwent and Howden moor, comprising 622 ha between Abbey Brook to the north (where a fence line divides this moor from the middle heft) and Dovestone clough and Ashes Farm in the south. The eastern boundary runs along Howden Edge, following the watershed of the Derwent river catchment, beyond which neighbouring privately owned moorlands continue to the east.

The middle and northern hefts of Derwent and Howden Moor are dealt with under separate plans.

## 1.2 Site management

Derwent and Howden Moor 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 AG00399583) ongoing to 30/04/2023. Capital works carried out under these plans on the southern heft have included Derwent Edge footpath revegetation work (brash and heather seed applications) from Back Tor to Salt Cellar under 2008-10 ESA Conservation Plan and HLS. Bracken control by aerial spraying has also been carried out in several places. Since 2013, in addition to the HLS agreement, the Clough Woodlands Project has been funded through the English Woodlands Grant 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 purple moor grass (*Molinia*) and reinstate dwarf shrub moorland. 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 southern heft is divided from the rest of Derwent and Howden by a fence line - unfenced to the east and receives occasional trespass sheep from moorland neighbours, managed by effective shepherding. The farming tenant for the whole of the Derwent and Howden moors retired in 2012. The North and South hefts have since been let out through Farm Business Tenancies until 2023.

### 1.3 Management Units

Figure 1.1 shows the site and infrastructure (a) and aerial image (2009) (b). The site is divided into 5 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 south 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	Management unit	Unit Code	Unit area (ha)	Scheme (options)	Main habitat types (FEP code) and Blanket Bog State	Area (Ha)
Derwent & Howden South Heft	South Heft	DHS01	547	HLS/UELS (EL6, UX3, UD13, A13, HL10, HL12, HL15, HL16, HR5, HR7)	Blanket Bog (M06)	153
					State 3	110
					State 4	43
					Dry Heath (M04)	286
					Acid Grassland (M01)	47
					Acid Flush (M08)	24
					Fragmented Heath (M02)	5
	Rocks, Cliff & Scree (M07)	2				
	Bracken	29				
	Mill Brook	DHS02	26	HLS (HC17)	Dry Heath (M04)	9
					Acid Grassland (M01)	0.8
					Acid Flush (M08)	0.04
					Fragmented Heath (M02)	0.2
					Mixed Plantation (T06)	4
					Coniferous Plantation (T07)	0.7
	Bracken	12				
	Greystones Clough	DHS03	3	eWGS UELS (UX2)	Dry Heath (M04)	2
					Acid Grassland (M01)	1
					Bracken	0.2
	Cogman Clough	DHS04	1	eWGS UELS (UX2)	Dry Heath (M04)	0.8
Acid Grassland (M01)					0.03	
Bracken					0.2	
Abbey Brook Woodland	DHS05	45	UX2, A13, HC17	Broadleaf semi-natural woodland (T08)	18	
				Acid Grassland (M01)	5	
				Dry Heath (M04)	13	
				Bracken	8	



## 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 themes.

### 2.1 LON Theme: Rich in Wildlife

#### 2.1.1 Blanket bog

Overgrazing and burning in the past has resulted in low diversity of dwarf shrubs, and (on blanket bog) areas of cotton grass monoculture. *Molinia* dominance has been addressed through restoration work on Little Howden moor / Howden Dean, and is now in recovery, with regenerating heather co-dominant with cotton grass. The blanket bog areas on the southern heft are generally found to be wet with frequent *Sphagnum*, particularly in flushes. *Sphagnum* can also be found within scrapes created for the benefit of waders. In general, on both the blanket bog and dry heath areas, grazing levels are deemed to be sufficient for continued recovery and species diversification over time.

##### 2.1.1.1 *The Blanket bog states*

**State 3:** largely inactive, dwarf shrub dominated dry bog is found in a large swathe across Greystones moss to Poynton bog and also along the high moor, following the watershed between Low Tor and Dovestone Tor. Potentially active **state 4** – cotton grass dominated bog, is found on the ground that flanks Lost Lad to Low Tor. *Sphagnum* frequency is generally moderate (especially in areas that have undergone restoration during the ESA period (in particular Poynton Bog).

#### 2.1.2 Dry heath

There are large areas of heather dominated dry dwarf shrub heath across the southern heft, often in mosaic with acid grassland, fragmented heath and bracken stands and with crowberry and heather also present throughout. The non-heather dominated stands are found in smaller patches and located within cloughs rather than across the open moor. These are similarly mixed with some cross-leafed heath present, though notably this is currently restricted to higher slopes.

#### 2.1.3 Acid flushes

Several flushes found in and around Far Deep clough, Green Sitches and the top of Sheepfold clough are lacking in diversity of mosses, sedges and flowering herbs, although there are some more diverse small flushes on steeper slopes and stream sides in these areas. There is a wide area across Green Sitches where flushes are relatively large and more open and diverse (found in mosaic with blanket bog), including flushes at the top of Far Deep clough, found to be quite rich with locally uncommon bryophytes, cranberry, sedges and *Sphagnum*. Further species surveys (carried out on the southern heft in 2016) have added to the knowledge base of these features.

#### 2.1.4 Upland Oak and Birch woodland

Abbey Brook contains the oldest and most extensive area of woodland in the valley – significant as remnant upland clough oak woodland, containing several diverse flush features and rare species including Ivy-leaved bellflower (Ros Tratt survey, 2012 and Penny Anderson, 2015). Above these established woodland areas, birch regeneration can also be seen on the bank south of Abbey Brook. Within Millbrook and Far Deep clough there are small areas of mixed plantation woodland, and further floral interest and flushes, which should be considered when planning management here.

These habitats are being extended by our Clough Woodlands Project, supported by eWGS funding in Greystones clough (DHS03) and Cogman clough (DHS04). Elsewhere, further up cloughs towards the heath and moorland habitats, there are few scattered trees.

### **2.1.5 Species poor acid grassland**

Areas of mat grass (*Nardus*) dominated grassland are found to the north west of Little Howden Moor / Abbey bank cloughs, a result of heavy grazing here, bilberry and bracken stands are also present. This habitat is of value for grazing, but of low wildlife value due to its 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.

### **2.1.6 Invasive species**

Dense bracken stands are found in Far Deep clough and Dovestone clough and on slopes running to Millbrook, which is difficult to treat without risking erosion to slopes. While this is not desirable, no significant increase in bracken cover was noted in 2011. Where bracken is overgrowing heath habitats to the south of John Field Howden it has been aerially sprayed under HLS and ESA agreements and will be followed up to keep spread in check here. Stands of rhododendron and conifer can be found fringing the reservoir, representing a seed source and an ongoing need to hand-pull these to prevent establishment on other habitats.

### **2.1.7 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 southern heft has species records that include mountain hare, common lizard, violet oil beetle and Ivy-leaved bellflower.

## **2.2 LON theme: Healthy**

### **2.2.1 Soils & Geology**

Acidic, poorly draining moorland peat soils typical of the Dark Peak underlay the southern heft. Several Regionally Important Geological Site (RIGS) lie within the boundary of Derwent and Howden moor's southern heft. These take the form of exposed gritstone rock features such as cliffs, tors and outcrops typical of the Dark Peak moors, found mainly along Derwent Edge – Back Tor, Howshaw Tor, Pikelow Stones and the iconic weathered Salt Cellar. There is also a large cliff section popular with climbers at Dovestone Tor.

## **2.3 LON theme: Rich in culture**

### **2.3.1 Archaeology and historical interest:**

A wide range of features occur in this area of moorland and the adjacent in-bye. Probably the most significant features are the scheduled Bronze Age burial mounds of Forest Knoll and Pike Low. Later settlement in this southern part of the Derwent Valley is evidenced by the extensive archaeology seen here, including and Dovestone Clough medieval settlement, an earthwork complex including house platforms, revetted banks, lynchets and kiln; a lead working site and associated quarry. There are also extensive peat workings and associated trackways/sledways occurring across the moorland.

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. 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 Derwent and Howden's southern 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 southern heft of Derwent and Howden running along the reservoir and up Abbey clough to Derwent edge - 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 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 unit 3 (Southern heft)</th> <th>HLS Grazed Area (ha)</th> <th>Maximum Sheep numbers and timing</th> </tr> </thead> <tbody> <tr> <td>SK19919694</td> <td>647.42ha</td> <td>300 ewes (0.08 LU per ewe) plus 100 hoggs (0.06 LU per hogg) during summer. 240 ewes plus 80 hoggs over winter.</td> </tr> </tbody> </table>	Grazing unit 3 (Southern heft)	HLS Grazed Area (ha)	Maximum Sheep numbers and timing	SK19919694	647.42ha	300 ewes (0.08 LU per ewe) plus 100 hoggs (0.06 LU per hogg) during summer. 240 ewes plus 80 hoggs over winter.			<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>																						
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#### Project obligations

\* HLS

<b>3.1.2 Factor: Grazing – Shepherding</b>	<p>5. 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</p> <p>6. Tenants to keep all records of shepherding activities and make these available on a quarterly basis</p> <p>7. Shepherding records to be made available to Natural England as per HLS agreement*</p> <p>8. NT vegetation condition survey protocol will be used to assess grazing impacts eg, levels of flowering bilberry and heather consumption.</p>	<p><i>Attribute:</i> Shepherding records Lower limit: At least one shepherding visit per week to each grazing unit.</p> <p><i>Attribute:</i> Under/over grazing Lower limit: Sheep evenly grazing the unit. No poaching or erosion from livestock.</p>
<b>3.1.3 Factor: Disturbance by vehicles</b>	<p>9. Low ground pressure vehicles &amp; 4x4's may use consented access routes providing routes are maintained in a sustainable manner, (fig 1.1a).</p> <p>10. Tracks shown on fig 1.1a will be maintained as per the Guiding Principles.</p> <p>11. Low ground pressure vehicles may operate away from consented routes providing no damage occurs to the SSSI or archaeological features.</p> <p>12. New track consents and significant repairs will require separate planning permission.</p>	<p><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</p>
<b>3.1.4 Factor: Access and Recreation – managing open access</b>	<p>13. 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.</p> <p>14. 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.</p> <p>15. 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.</p>	<p><i>Attribute:</i> Monitor visitor numbers <i>Attribute:</i> Record all illegal open access use</p>
<b>3.1.5 Factor: Access and Recreation – managing events &amp; organised groups</b>	<p>16. The Trust will maintain its part in the Events Notification Procedure as part of the LAF with the PDNPA.</p> <p>17. The Trust will vet all applications for events.</p> <p>18. 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.</p> <p>19. No damage to archaeology.</p>	<p><i>Attribute:</i> Record all organised group applications <i>Attribute:</i> Monthly monitoring of footpath and boundary condition</p>
<b>3.1.6 Factor: Managing invasive species –</b>	<p>20. Follow up all leading edges sprayed under HLS agreement, following Guiding Principles, to ensure bracken spread is kept in check at John Field Howden (fig. 3.2) – 1.8 ha*</p> <p>21. Annual walkover of treated areas to determine frequency and cover of vegetation</p>	<p><i>Attribute:</i> Bracken cover Upper Limit: &lt;1% encroachment onto blanket bog in a SSSI</p>

**Project obligations**

\* HLS

<b>bracken</b>	and guide follow up control. 22. Ground truth bracken density maps (developed based on aerial imagery and FEP information), to prioritise further treatment of bracken according to Guiding Principles.	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 unit
<b>3.1.7 Factor: Managing invasive species – conifer and rhododendron</b>	23. Continue to monitor non-native invasive species through NT vegetation condition monitoring 24. Continue to remove seedlings on ad hoc basis across all habitats. 25. ML2020 project to fund at least 1 day of organised pulling in 2017-18	<i>Attribute:</i> Cover of Conifer & Rhododendron  Upper Limit: <1% cover of vegetation
<b>3.1.8 Factor: Managing encroachment outside cloughs by native trees and scrub</b>	26. Monitor frequency and abundance of broadleaf tree regeneration through ongoing NT vegetation condition monitoring. 27. Heath, blanket bog and flushes: keep broadleaf tree regeneration within upper limits through the proposed grazing regime and cutting operations. 28. Individual tree removal if required should include spot treatment with Glyphosate to prevent coppicing. 29. No tree planting within 20m of flushes (ref. Clough Woodland guiding principles)	<i>Attribute:</i> Cover of Native Trees and Scrub  Upper Limit: <10% on blanket bog and flushes, <20% on heath
<b>3.2 Blanket Bog</b>		
<p><b>What do we want?</b></p> <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 &amp; reference milestones and trajectories table</p>		
<b>What are the factors to manage?</b>	<b>Action</b>	<b>Attributes</b>
<b>3.2.1 Factor: Cutting</b>	1. Break the cycle of heather dominance by stopping the regular rotational burning of heather on blanket bog and replace with cutting.	<i>Attribute:</i> Variation in vegetation height across the moor

**Project obligations**

\* HLS

	<ol style="list-style-type: none"> <li>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.</li> <li>3. Under the HLS agreement cut a minimum of 1.5 ha annually OR 4.5 ha in a 3 year period to a height of approx. 10cm (fig. 3.3a)*</li> <li>4. Record all cuts with GPS and maintain log of cutting operations</li> </ol>	<p>Upper limit: Retain 20% heather uncut to allow heather layering and provide sufficient tall vegetation for ground nesting birds</p> <p><i>Attribute:</i> Area and location of cuts</p> <p>Lower limit: Cutting 1.5 ha heather dominated bog per year to manage fire risk (fig 3.3a)*.</p>
<b>3.2.2 Factor: Diversifying species composition</b>	<ol style="list-style-type: none"> <li>5. Introduce <i>Sphagnum</i> propagules to cuts in high wetness potential areas (fig. 3.4a). Other blanket bog indicator species may be used to achieve the desired outcomes.</li> <li>6. Record area and location of all applications of seed and <i>Sphagnum</i>.</li> <li>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.</li> </ol>	<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>
<b>3.2.3 Factor: Re-wetting</b>	<ol style="list-style-type: none"> <li>8. Rewetting potential mapping (fig 3.4a) does indicate that there are areas which could benefit from gully and grip blocking (Poynton bog and Back Tor) but plans are yet to be developed for this.</li> </ol>	
<b>3.2.4 Factor: Managing Wildfire</b>	<ol style="list-style-type: none"> <li>9. Fire risk will be managed through the cutting done under the HLS agreement.</li> <li>10. Maintain public awareness of wildfire risk during high risk periods through use of signage and media campaigns with our partner organisations</li> <li>11. Maintain close involvement with the Fire Operations Group (FOG) and local partners</li> </ol>	<p><i>Attribute:</i> Wildfire risk</p> <p><i>Attribute:</i> Incidence of wildfire</p> <p>Upper Limit: No catastrophic wildfire</p> <p>Lower limit: N/A</p>
<b>3.3 Feature: Dry Heath</b>		
<b>What do we want?</b>		
<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>		

**Project obligations**

\* HLS

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.

What are the factors that we need to manage?	Action	Attributes
<b>3.3.1 Factor: Cutting &amp; Burning</b>	<ol style="list-style-type: none"> <li>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.</li> <li>2. Cutting is permitted as per cutting map fig. 3.3a.</li> <li>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.</li> <li>4. Record all cuts or burns with GPS and maintain log of cutting/burning operations.</li> </ol>	<p><i>Attribute:</i> Area of cut or burn  <i>Attribute:</i> variation in vegetation height</p> <p>Upper limit: Retain 20% heather uncut or burnt to allow heather layering and provide sufficient tall vegetation for ground nesting birds.</p>
<b>3.3.2 Factor: Diversifying species composition</b>	<ol style="list-style-type: none"> <li>5. Species diversification will be implemented through grazing, and cutting or burning of heather dominant vegetation.</li> <li>6. Monitor cover and frequency of indicator species in 10% of annual burns or cuts and re-survey every 3 years. Use NT vegetation condition protocol – see Guiding Principles.</li> </ol>	<p><i>Attribute: Species composition</i></p> <p>Upper limit: 75% heather cover  Lower limit: 2 dwarf shrub (+2 other) indicator species present</p>
<b>3.3.3 Factor: Managing Wildfire</b>	<ol style="list-style-type: none"> <li>7. Fire risk will be managed through burning/cutting to be done under HLS.</li> <li>8. Maintain public awareness of wildfire risk during high risk periods through use of signage and media campaigns with our partner organisations.</li> <li>9. Maintain close involvement with the Fire Operations Group (FOG) and local partners.</li> </ol>	<p><i>Attribute: Wildfire risk</i>  <i>Attribute: Incidence of wildfire</i>  Upper Limit: No catastrophic wildfire</p>

### 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.

#### Project obligations

\* HLS



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
<b>3.4.1 Factor: Diversify species composition</b>	<ol style="list-style-type: none"> <li>1. Survey flushes for vegetation condition, rare and notable species – NT rare plant survey protocol and vegetation condition assessments.</li> <li>2. Determine high priority flushes in need of restoration</li> <li>3. Maintain low intensity grazing and good shepherding</li> </ol>	<i>Attribute:</i> Maintain extent of good quality flushes <i>Attribute:</i> Cover & Frequency of indicator species <i>Attribute:</i> Frequency of bog mosses, 'brown mosses' and sedges <i>Attribute:</i> Cover & Frequency of rank species Upper limit: <10% Lower limit: N/A
<b>3.5 Feature: Acid grassland (and Heath mosaics)</b>		
<p><b>What do we want?</b></p> <p>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.</p> <p>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.</p> <p>See Guiding Principles, section 1: 'what good looks like' for acid grassland / mosaics &amp; reference milestones and trajectories table.</p>		
What are the factors that we need to manage?	Action	Attributes
<b>3.5.1 Diversify species composition</b>	<ol style="list-style-type: none"> <li>1. Species diversification will be achieved primarily through grazing and bracken treatment follow up – see the Whole Moor Factors for more details.</li> </ol>	There are currently no attributes assigned to this category.
<b>3.6 Feature: Clough woodland</b>		
<p><b>What do we want?</b></p> <p>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</p>		

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\* HLS

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
<b>3.6.1 Factor: Habitat extent</b>	<ol style="list-style-type: none"> <li>1. eWGS               <ol style="list-style-type: none"> <li>a. Following the Clough woodland project guiding principles and eWGS 2013-23 grant, establish woodland in eWGS plots (Fig 3.5).</li> <li>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.</li> </ol> </li> <li>2. HLS HC17 sites*               <ol style="list-style-type: none"> <li>a. Establish scattered trees and/or scrub in HC17 compartments (fig 3.5)</li> </ol> </li> <li>3. Candidate sites               <ol style="list-style-type: none"> <li>a. Determine the suitability of remaining candidate sites for woodland development (fig 3.5)</li> </ol> </li> </ol>	<p>eWGS <i>Attribute: Area of woodland establishment</i> 11.6ha</p> <p>HLS HC17 sites* <i>Attribute: Area of woodland establishment</i> 26.8 ha 5% cover</p> <p>Candidate sites <i>Attribute: Area of woodland establishment</i> To be confirmed in 2018</p>
<b>3.6.2 Factor: Structure</b>	<ol style="list-style-type: none"> <li>4. eWGS               <ol style="list-style-type: none"> <li>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.</li> <li>b. All trees will be suitably protected against herbivores for the duration of the grant period.</li> <li>c. Thinning of trees to be determined after 15-20 years by the site manager.</li> </ol> </li> <li>5. HLS HC17 sites*               <ol style="list-style-type: none"> <li>a. Tree and/or scrub planting sufficient to establish 5% cover in 15-20 years</li> </ol> </li> </ol>	<p>eWGS <i>Attribute: Open ground</i> Lower limit 40%</p> <p><i>Attribute: Tree density</i> Lower limit 1600 trees/ha (960/ha accounting for 40% open ground)</p> <p>HLS HC17 sites*</p>

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\* HLS

	6. Candidate sites <ul style="list-style-type: none"> <li>a. On suitable sites establish average 5% cover scattered trees and scrub by 15-20 years after planting</li> </ul> 7. Protect trees against herbivores 8. Encourage establishment of self-set native trees using guards	<i>Attribute: Tree density</i> Lower limit - 5% cover Upper limit – 20% cover  <i>Candidate sites</i> <i>Attribute: Sparse trees</i> Upper limit: 20% scattered trees Lower limit: average 5% cover
<b>3.6.3 Factor: Species diversity</b>	9. eWGS <ul style="list-style-type: none"> <li>a. Monitor and beat up where necessary to maintain established species mix</li> </ul> 10. HLS HC17 sites* <ul style="list-style-type: none"> <li>b. Follow recommended species mix (Clough Woodlands Guiding Principles) for planted sites</li> <li>c. Monitor self-set trees and maintain and avoid single species dominance by thinning and planting where necessary</li> </ul> 11. Candidate sites <ul style="list-style-type: none"> <li>d. Follow recommended species mix (Clough Woodlands Guiding Principles) for planted sites</li> <li>e. Monitor self-set trees and maintain and avoid single species dominance by thinning and planting where necessary</li> </ul> 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 <i>Attribute: Presence of scattered trees and scrub</i> Upper limit: 20% scattered trees  <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
<b>3.7 Feature: Soils and Geology</b>		
<b>What do we want?</b>		
<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 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.</p>		
<b>What are the factors that we need to manage?</b>	<b>Action</b>	<b>Attributes</b>

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\* HLS

<b>3.7.1 Factor: Extent of blanket bog</b>	1. Undertake a peat depth survey of Greystones moss and Poynton bog following NT peat depth survey protocol to determine the correct habitat type (heath or blanket bog) and update habitat map and plan accordingly.	<i>Attribute:</i> The extent of blanket bog (>40cm deep)
<b>3.7.2 Factor: Disturbance to RIGS</b>	2. Maintain visibility of geological features – control encroaching scrub or trees as required (fig 3.6). 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.	<i>Attribute:</i> condition of RIGS Upper limit: Changes to RIGS due to natural processes only Lower limit: Maintained visibility and no damage to RIGS by human activity.
<b>3.7.3 Factor: Access and Recreation – managing footpath erosion</b>	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.	<i>Attribute:</i> Condition of footpaths, bridleways and other routes
<b>3.7.4 Soil hydrology</b>	10. 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

### 3.8 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	Action	Attributes
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#### Project obligations

\* HLS

need to manage?		
<b>3.8.1 Factor: Disturbance</b>	<ol style="list-style-type: none"> <li>1. No disturbance of archaeology by vehicles – see whole moor factors (Factor 3.1.3).</li> <li>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.</li> </ol>	<i>Attributes:</i> Disturbance by vehicle / machinery use, recreational or vehicle access
<b>3.8.2 Factor: Access and recreation</b>	<ol style="list-style-type: none"> <li>3. No disturbance of archaeology by access and recreation – see whole moor factors (Factor 3.1.4).</li> <li>4. Grouse butts to be maintained according to Guiding Principles.</li> <li>5. Continued bi-annual HART monitoring of archaeology.</li> </ol>	<p><i>Attribute:</i> condition of grouse butts</p> <p><i>Attribute:</i> Condition of archaeological features along access routes</p>
<b>3.8.3 Factor: Encroachment of trees, scrub or bracken</b>	<ol style="list-style-type: none"> <li>6. Maintain visibility of archaeological features as set out in option UD13* (fig 3.8).</li> <li>7. Bi-annual monitoring of all archaeological features by HART team.</li> </ol>	<i>Attribute: Maintain visibility of listed features*</i>

**Project obligations**

\* HLS