Birchinlee 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 Birchinlee 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

Birchinlee 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.

Birchinlee Moor covers a 1,476 ha area, a long narrow moor lying between the Alport and Derwent valleys, with Alport Dale to the west and the river Westend which drains to the Derwent reservoir in the east. The Bleaklow plateau lies to the north. The moor has historically been managed as a grouse moor through rotational heather burning. Drainage grips have been installed across Rowlee and Birchinlee pastures further south to improve the drainage during the 1950-70's, it is desirable to block these grips as part of the hydrological restoration of the blanket boog in these areas. Typically dwarf shrub heath and acid grassland is found where the ground slopes to the east and western boundaries and within cloughs that dissect the higher moorland, containing acid flushes. The steep slopes of the Alport Valley to the west contain the Alport Valley and Alport Castles (an impressive geological landslip), both Geological Conservation Review (GCR) sites - notable geological features exposing the underlying gritstone. Land fringing the Derwent and Howden reservoirs to the east is owned by Severn Trent Water and comprises largely of plantation woodlands. To the west, the Alport Valley is owned by The National Trust and managed by the Forestry Commission in a long term partnership with to restore to native woodland. The Forestry Commission also own a large area of conifer plantation in the Westend valley.

1.2 Site management

Birchinlee Moor has been managed under an ESA agreement since the establishment of the North Peak ESA in 1988, and under a subsequent HLS agreement from 2013 (agreement AG00369343) ongoing to 30/04/2023. Capital works carried out under these plans have included gully blocking at Grinah stones and Mirey clough under the 2008-2010 ESA conservation plan, with further dams installed at Swains Greave under the 2012-2015 MoorLIFE project, which also funded revegetation works to bare peat in this area, within the fenced northern section of this moor. Further HLS gully blocking was carried out at Black clough, with associated cottongrass plug planting behind dams to aid gully recovery. 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)

1.3 Grouse moor

Extensive areas of Birchinlee moor have been managed as grouse moor 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 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.

1.4 Grazing

Historical overgrazing, particularly within cloughs and to the south of Birchinlee, is evident from condition assessments for this moor. Today, a stock exclusion fence cuts across the north of Birchinlee moor, enclosing Westend Head to Grinah Stones. It was erected in 2003 to exclude stock from the bare peat restoration areas of the Bleaklow plateau further north. Outside the fence the moor is now grazed with sheep in accordance with Higher Level Stewardship (HLS) prescriptions.

1.5 Management Units

Figure 1.1 shows the site and infrastructure (a) and aerial image (2009) (b). The site is divided into 4 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 Birchinlee 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)
Birchinlee Moor	Birchinlee Moor	BIRCH01	1042	UELS/HLS (EL5, EL6, UX3, UD13, UL17, A13, HL10, HL12, HL13, HL15, HL16, HR5, HR7)	Blanket Bog (M06)	777
					State 3	275
					State 4	446
					State 5	56
					Dry Heath (M04)	95
					Wet Heath (M04)	2
					Acid Grassland (M01)	109
					Acid Flush (M08)	0.8
					Fragmented Heath (M02)	27
					Broadleaf semi-natural woodland (T08)	1
					Rocks, Cliff & Scree (M07)	3
					Bracken	27
	Birchinlee - Bleaklow exclosure	BIRCH02	306	UELS/HLS (EL5, EL6, UX3, UD13, UL17, A13, HL10, HL15, HL16)	Blanket Bog (M06)	279
					State 2	14
					State 3	142
					State 4	53
					State 5	70
					Dry Heath (M04)	19
					Acid Grassland (M01)	2
					Fragmented Heath (M02)	3
					Bracken	3
	Alport Valley	BIRCH03	53	eWGS UELS (UX3, UD13)	Dry Heath (M04)	17
					Fragmented Heath (M02)	24
					Acid Flush (M08)	0.04
					Broadleaf semi-natural woodland (T08)	0.2
					Bracken	12
	Fagney Clough	BIRCH04	71	eWGS	Blanket Bog (M06)	2

	to Foxes Piece			UELS (UX3, UD13)	State 3 State 5	2 0.03
					Dry Heath (M04)	43
					Acid Grassland (M01)	4
					Scrub	0.1
					Broadleaf semi-natural woodland (T08)	20
					Acid Grassland (M01)	4
					Bracken	16

2 Current status of main features

The units comprising Birchinlee moor are all in 'unfavourable recovering' condition, according to Natural England's current assessment methods (JNCC, 2009), with the exception of one (unit 146) to the east of Rowlee pasture which was assessed in 2015 as unfavourable declining: this is an area of tussocky purple moor grass (*Molinia)* and cotton grass where past fire damage has been exacerbated by grazing. Restoration (including rewetting interventions, particularly targeting old grips and *Sphagnum* application) is required here to improve condition. 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

Blanket bog areas are cottongrass dominated in large swathe through the higher central plateau. A good range of dwarf shrubs are present in the north, becoming more species poor to the south across Rowlee pasture. Wetness is variable across the moor: small *Sphagnum* pools and good breeding grounds for Dunlin are noted in places, but the peat mass is drained elsewhere by erosion gullies – some of which (Black clough) have been blocked since the 2010 assessment was made so conditions should have improved, although earlier dams installed at Mirey clough were noted as not as successful. Generally *Sphagnum* cover was assessed as absent or occasional across the moor. Blanket bog becomes drier and more heather dominated across Birchinlee pasture to the south and above Black clough and Ravens clough further north. Species diversity and vegetation structure are generally good in these areas although *Sphagnum* is notably low and rewetting interventions, including the blocking of old drainage ditches where possible (east of Birchinlee pasture) could improve conditions. Erosion caused by vehicle tracks on blanket bog is noted in several areas. Severely degraded bog on the high plateau areas in the north has undergone successive revegetation treatments and gully blocking (Swaines Greave) where stock are excluded to facilitate recovery: while active erosion has been reduced, these restoration areas remain relatively dry with *Sphagnum* rare.

2.1.1.1 The Blanket bog states

State 2: is noted inside the Bleaklow exclusion area although restoration treatments have reduced this state considerably. **State 3**: largely inactive, heather dominated dry bog is found to the west of Grinah Grain but predominantly across Birchinlee Pasture to Foxes Piece. Potentially active **state 4** – cotton grass dominated bog, is found across the deeper peat on the higher plateau to the north. **State 5**: Modified but more diverse, non-heather dominated dry bog can be found in small areas across the moor.

2.1.2 Dry heath

Dry heath habitats are located largely around the edges of the blanket bog and within cloughs. These are mainly bilberry dominated and supressed by historical overgrazing. Smaller areas of heather dominated dry heath can be found around the eastern edges of Birchinlee pasture (Foxes piece).

2.1.3 Wet heath

There is a small area of wet heath present amongst acid grassland, fragmented heath and cottongrass blanket bog, at the top of Ditch clough. Species present include deer grass, cross-leafed heath and cowberry, adding to the diversity of the wider moorland mosaic.

2.1.4 Acid flushes

Numerous small and sometimes diverse flushes can be found in Westend valley and around Rowlee pasture, although others (Fagney clough and Westend Head) are in less good condition due to soft rush cover and lack of diversity. A recent survey of flushes in Alport Dale (Penny Anderson, 2016) found many support small sedges, mosses, horsetails with a higher floristic interest including (rare) Bog Asphodel and *Sphagnum*, marsh arrowgrass and a large population of butterwort (200+ plants in Alport Dale). Further species surveys will add to the knowledge base regarding the condition of these features. Localised trampling is occurring and in some cases over grazing. Further species surveys are required to add to the knowledge base of these features. Clough woodland planting in Alport Dale has been informed by these recent surveys. In addition, in 2015 the NT Biosurvey team conducted an assessment of Alport Dale although this report was not available at the time of writing.

2.1.5 Upland Oak and Birch woodland

Upland Oak and Birch woodland and scrub can be found in the bottoms of cloughs; small amounts of natural regeneration can be found. These habitats are being extended by our Clough Woodlands Project, supported by eWGS funding, in Fagney clough, Ditch Clough and Alport Dale and on the fringes of Foxes Piece (Chapel plantation). Elsewhere, on HLS agreement areas further up cloughs, towards the heath and moorland habitats, there are few scattered trees. Dwarf shrub diversity is also generally low within cloughs, with species poor grassland and dense bracken stands common features: a product of historical overgrazing. Improvements should be seen under HLS stocking regimes with effective shepherding.

2.1.6 Species poor acid grassland

Mat grass *(Nardus)* dominated grassland is widespread within the cloughs of Birchinlee moor - a product of historical overgrazing within these sheltered areas, specifically Green clough, Fagney clough and Alport Dale as well as the western slopes of Birchinlee and Rowlee pastures. This habitat is of value for grazing, but of 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 is not considered a problem on the blanket bog or heath, but forms dense beds within cloughs – typically associated with species poor acid grassland as a result of historical overgrazing. Control by aerial spraying has been carried out preceding clough woodland tree planting in Fagney clough and Alport Dale, and leading edges treated on moorland across the eastern side of Birchinlee pasture where stands were spreading onto heath areas. Dense bracken is present elsewhere but treatment has been limited by the risk of erosion: encroachment from these areas onto heath habitats will need to be monitored. Stands of conifer and rhododendron can be found on the Forestry Commission land fringing the moor, representing a seed source and an ongoing need to hand-pull these to prevent establishment on other habitats.

2.1.8 Important species

A search of local biological records centres found records for 12 BAP species or other species of conservation concern within the Birchinlee boundary, including Peregrine Falcon (Alport Castles), Mountain hare, Water vole, Common lizard, Cloudberry, Common cuckoo, Brown hare, Violet oil beetle, Small heath and Pipistrelle bat.

2.2 LON theme: Healthy

2.2.1 Soils & Geology

Acidic, poorly draining moorland peat soils of varying depth underlay the majority of Birchinlee Moor. A small amount of deep, well drained fine and loamy soil is also found across slopes at the south easterly edges of this moor. There are two GCR sites on Birchinlee. GCR site 2861, Alport Valley, spans the boundary between Birchinlee and Alport moors, a steep sided valley designated for its range of characteristic upland river channel features. GCR site 327 / 802, Alport Castles, is an extensive and dramatic landslip, running along the eastern side of Alport Dale. It has been designated a GCR under two categories, for its interest as a mass movement feature (the largest inland landslide in England), and for the mid-Carboniferous sedimentology that can be seen in the layers of sandstones and gritstones in the exposed rock. Alport Castles is also one of few regularly successful Peregrine Falcon nest sites in the Peak District.

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 Birchinlee, including peat cuttings and associated hollow-ways, quarries and a sheepfold. Some possible prehistoric features occur on this land including: a small cairn field and an earthwork bank. 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 archaeological features may be 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 Birchinlee is synonymous with the Dark Peak; a spirit of place instilling the wildness and foreboding of the open moors. Few footpaths cross Birchinlee moor, although there is a route between the visually impressive Alport Castles over the moor to Howden reservoir. 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, Birchinlee moor is of great value to visitors for the freedom offered by the vast tracts of open access countryside and stunning views.

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

<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>Grazing units</th><th>HLS Grazed Area (ha)</th><th>Maximum Sheep numbers and timing</th></tr>
<tr><td>SK 1392 9665
SK 1490 9401
SK 1589 5070</td><td>1348.07ha</td><td>448 ewes (0.08 LU per ewe) plus 112 hoggs over summer (0.06 LU per hogg). 426 ewes over winter</td></tr>
</table>
<table>
<tr><th>Month</th><th>Maximum</th><th>Minimum</th></tr>
<tr><td>January - March</td><td>426 ewes</td><td>0</td></tr>
<tr><td>April</td><td>448 ewes plus 112 hoggs</td><td>0</td></tr>
<tr><td>May – August</td><td>448 ewes plus 112 hoggs</td><td>224 ewes plus 56 hoggs</td></tr>
<tr><td>September - Oct</td><td>448 ewes plus 112 hoggs</td><td>0</td></tr>
<tr><td>November - Dec</td><td>426 ewes</td><td>0</td></tr>
</table>
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 by on a quarterly basis, including gathering numbers.
4. Stocking records to be made available to Natural England as per HLS agreement*.
5. Maintain Bleaklow fence to ensure stock exclusion from bare peat restoration areas*.
</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></tr>
<tr><td>3.1.2 Factor: Grazing – Shepherding</td><td>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*.
9. 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: Under/Over grazing
Lower limit: Sheep evenly grazing the unit. No poaching or erosion from livestock.</td></tr>
</table>

Project obligations

* HLS

3.1.3 Factor: Disturbance by vehicles	10. Low ground pressure vehicles & 4x4's may use consented access routes providing routes are maintained in a sustainable manner (Fig 1.1a). 11. Tracks shown on Fig 1.1a will be maintained as per the Guiding Principles. 12. Low ground pressure vehicles may operate away from consented routes providing no damage occurs to the SSSI or archaeological features. 13. New track consents and significant repairs will require separate planning permission.	*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
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 on Birchinlee pasture, following Guiding Principles, to ensure bracken spread is kept in check (fig. 3.2) – 13 ha* 22. Control bracken within eWGS tree planting areas to aid tree establishment and prevent spread: Fagney clough and Alport Dale, following Guiding Principles (fig. 3.2) – 9 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	*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

Project obligations

* HLS

	Principles.	
3.1.7 Factor: Managing invasive species – conifer and rhododendron	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 2019-20	*Attribute:* Cover of Conifer & Rhododendron Upper Limit: <1% cover of vegetation
3.1.8 Factor: Managing encroachment outside cloughs by native trees and scrub	28. Monitor frequency and abundance of broadleaf tree regeneration 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
3.1.9 Factor: Managing impacts on breeding birds	32. Annual siting of bird hide above Alport Castles to help minimise disturbance to nesting Peregrine Falcon and provide an in unobtrusive nest watch point (Fig 3.6).	*Attribute:* No disturbance to nesting birds *Attribute:* Successfully fledged chicks

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	*Attribute:* Variation in vegetation height across the moor Upper limit: Retain 20% heather uncut to allow heather layering and provide sufficient tall

Project obligations
* HLS

	heather dominant blanket bog. 3. Under the HLS agreement cut a minimum of 2.2 ha annually OR 6.6 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	vegetation for ground nesting birds *Attribute:* Area and location of cuts Lower limit: Cutting 2.2 ha heather dominated bog per year to manage fire risk (fig 3.3a)*.
3.2.2 Factor: Diversifying species composition	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 seed and *Sphagnum*. 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.	*Attribute: Sphagnum* cover *Attribute*: Species composition Lower limit: Compliant with the milestones and trajectories for the different blanket bog states.
3.2.3 Factor: Revegetation of bare ground	8. Plan additional follow up revegetation treatments as necessary on treated bare ground within Bleaklow enclosure (M2020 work plan to be confirmed). See fig 3.4b. 9. Produce and agree a plan with NE to restore degraded *Molinia* dominant areas of Rowlee pasture where runnels are causing erosion. 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: Ridgewalk Moor - install gully blocks, plastic piling (200), Timber (48) and stone (50), according to Guiding Principles. Fig. 3.4a. 12. Additional ML2020 Project gully blocking to be confirmed by Moors for the Future. 13. Assess gully block function in 10% of HLS gully blocks annually (rolling programme). 14. 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	15. Fire risk will be managed through the cutting done under the HLS agreement. 16. Maintain public awareness of wildfire risk during high risk periods through use of signage and media campaigns with our partner organisations 17. 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?		

Project obligations

* HLS

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.

What are the factors that we need to manage?	Action	Attributes
3.3.1 Factor: Cutting	1. Areas of Dry Heath on Birchinlee are not considered suitable for burning either because they are on steep slopes, are bracken dominated, or have encroaching bracken (fig 1.2a), therefore no burning is consented (fig 3.3b). If burning is required then it will follow the Guiding Principles and will not be undertaken without prior written authorisation from the Trust. 2. Dry heath can be cut (fig 3.3a) as this is considered suitable management to control bracken. 3. Record all cuts with GPS and maintain log of cutting operations annually.	*Attribute:* Area of cut *Attribute:* variation in vegetation height Upper limit: Retain 20% heather uncut/burnt to allow heather layering and provide sufficient tall vegetation for ground nesting birds.
3.3.2 Factor: Diversifying species composition	4. Species diversification will be implemented though grazing, and cutting or burning of heather dominant vegetation. 5. 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	6. Fire risk will be managed through burning or cutting to be done under HLS. 7. Maintain public awareness of wildfire risk during high risk periods through use of signage and media campaigns with our partner organisations. 8. Maintain close involvement with the Fire Operations Group (FOG) and local partners.	*Attribute: Wildfire risk* *Attribute: Incidence of wildfire* Upper Limit: No catastrophic wildfire

Project obligations

* HLS

3.4 Wet heath

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.

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

What are the factors that we need to manage?	Action	Attributes
3.4.1 Factor: Diversify species composition	1. Species diversity will be increased primarily through grazing and shepherding prescriptions.	*Attribute:* Cover & frequency of indicator species Upper limit: 75% heather cover Lower limit: 2 dwarf shrub (+2 other) indicator species present
3.4.2 Extent of wet heath	2. Maintain extent of wet heath through grazing and shepherding prescriptions. 3. No burning on wet heath.	*Attribute: Extent of wet heath* Upper limit: N/A Lower limit: No decrease in current range of wet heath.

3.5 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
3.5.1 Factor: Diversify species composition	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. 3. Maintain low intensity grazing and good shepherding.	*Attribute:* Maintain extent of good quality flushes *Attribute:* Cover & Frequency of indicator species *Attribute:* Frequency of bog mosses, 'brown mosses' and sedges *Attribute:* Cover & Frequency of rank species

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		Upper limit: <10% Lower limit: N/A

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	Monitoring methods and attributes
3.6.1 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

3.7 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 representing the upper reaches of cloughs and slopes fringing the moor, where the aim is for very scattered trees, maintained

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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	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. Candidate sites a. Determine the suitability of remaining candidate sites for woodland development (fig 3.5)	*eWGS* *Attribute: Area of woodland establishment* 65.3ha *Candidate sites* *Attribute: Area of woodland establishment* To be confirmed in 2018
3.7.2 Factor: Structure	3. 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. 4. Candidate sites a. On suitable sites establish average 5% cover scattered trees and scrub by 15-20 years after planting 5. Protect trees against herbivores 6. 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) *Candidate sites* *Attribute: Sparse trees* Upper limit: 20% scattered trees Lower limit: average 5% cover
3.7.3 Factor: Species diversity	7. eWGS a. Monitor and beat up where necessary to maintain established species mix 8. 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	Candidate sites *Attribute: Presence of scattered trees and scrub* Upper limit: 20% scattered trees *Attribute: Frequency and structure of dwarf shrub species*

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	9. Maintain low intensity grazing and good shepherding practises (Whole Moor Factors). 10. Monitor cover and frequency of ground flora indicator species and re-survey every 3 years.	Upper limit: 75% heather cover Lower limit: 2 dwarf shrub (+2 other) indicator species present

3.8 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.

What are the factors that we need to manage?	Action	Attributes
3.8.1 Factor: Disturbance to GCR's	1. Maintain visibility of geological features – control encroaching scrub or trees as required (fig 3.6). 2. No removal of rocks or soils (including specimen collection for research) from within the GCR without prior consent. 3. Leave any landslip material in-situ. 4. Continued monitoring (SAGT and PDNPA). 5. Ensure recreational activities do not damage the feature: promote their sensitive use by climbers and walkers.	*Attribute:* condition of CGRs Upper limit: Changes to CGR due to natural processes only. Lower limit: Maintained visibility and no damage to GCR by human activity.
3.8.2 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 footpath repair and maintenance - Erosion of peat along footpath from Alport Castles to trig point and across west of Rowlee pasture. Fig. 3.7	*Attribute:* Condition of footpaths, bridleways and other routes
3.8.3 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

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3.9 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
3.9.1 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
3.9.2 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. Continued bi-annual HART monitoring of archaeology.	*Attribute:* condition of grouse butts *Attribute:* Condition of archaeological features along access routes
3.9.3 Factor: Encroachment of trees, scrub or bracken	6. Maintain visibility of archaeological features as set out in option UD13* (fig 3.8). 7. Bi-annual monitoring of all archaeological features by HART team.	*Attribute: Maintain visibility of listed features*

Project obligations

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