

MOORFOOT HILLS SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE



Site Details

Site name:	Moorfoot Hills
Map:	https://sitelink.nature.scot/site/8326
Location:	Eastern Scotland
Site code:	UK0030215
Area (ha):	8,558.00
Date designated:	17 March 2005

Qualifying Features

Qualifying feature	Assessed condition	SCM visit date	UK overall Conservation Status
Dry heaths	Unfavourable No change	30 July 2013	Unfavourable - Bad
Blanket bog*	Unfavourable Recovering	20 September 2009	Unfavourable - Bad

Notes:

Assessed Condition refers to the condition of the SAC feature assessed at a site level as part of NatureScot's [Site Condition Monitoring \(SCM\)](#) programme.

Conservation status is the overall condition of the feature throughout its range within the UK as reported to the European Commission under Article 17 of the Habitats Directive in 2019.

*Habitats Directive priority habitat

Overlapping Protected Areas:

[Moorfoot Hills Site of Special Scientific Interest \(SSSI\)](#)

Three tributaries of the [River Tweed SAC](#) form part of the boundary of the Moorfoot Hills SAC and run partly within the site.

Key factors affecting the qualifying interests

European dry heaths

In Scotland, European dry heaths are widely distributed although most extensively in the central and north western Highlands. With such a broad geographic range they can dominate the landscape but exhibit a considerable variation in their structure and form. They typically occur on freely-draining, acidic to almost neutral soils with generally low nutrient content. Ericaceous dwarf-shrubs dominate the vegetation but all heaths vary in their flora and fauna according to climate, altitude, aspect, soil conditions (especially base-status and drainage), maritime influence, and grazing and burning intensity. Nearly all dry heath is semi-natural, being derived from woodland through a long history of grazing and burning. Most dry heaths are

managed as extensive grazing for livestock (sheep, cattle and deer) or, in upland areas, as grouse moors.

In the Moorfoot Hills the main reasons that the habitat has been assessed as being in unfavourable condition are overgrazing, a high proportion of bracken in parts of the site, burning preventing older heather from developing and burning on steep slopes.

Blanket bogs

Blanket bogs are found in areas of moderate to high rainfall and a low level of evapotranspiration, allowing peat to develop over large expanses of undulating ground. Blanket bogs are considered active when they are supporting a significant area of vegetation that is peat-forming.

Generally in Scotland the key management issues include over and under-grazing, aspects of red deer pressure, burning, energy use, changes in the hydrology, non-native species, abiotic natural changes, air pollution, infrastructural development and outdoor recreation. Within the Moorfoot Hills the key issues are eroding peat and the species composition, which are effected by the management of the land by grazing, burning and other management activities.

Further information about these habitats can be found on the [JNCC website](#).

Conservation Priorities

Blanket bog is a priority habitat under the EU Habitats Directive. The site has blanket bog and dry heath, the management of each of these habitats is similar apart from burning which should not take place on the blanket bog. The habitats are separated by the geology of the site; generally the steeper gradients tend to have the dry heath as opposed to the 'flatter' areas having the blanket bog, however there are mosaics between the two habitats. If there is any doubt over the habitat, no burning should take place.

Overarching Conservation Objectives for both features

1. To ensure that the qualifying features of Moorfoot Hills SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.

Favourable Conservation Status (FCS) is considered at a European biogeographic level. When determining whether management measures may be required to ensure that the conservation objectives for this site are achieved, the focus should be on maintaining or improving the contribution that this site makes to FCS.

When carrying out appraisals of plans and projects against these conservation objectives, it is not necessary to understand the status of the feature in other SACs in this biogeographic region. The purpose of the assessment should be to understand whether the integrity of the site (see objective 2) would be maintained. If this is the case then its contribution to FCS across the Atlantic Biogeographic Region will continue to be met. Further details on how these assessments should be carried out in relation to maintaining site integrity is provided by objective 2 (including parts a, b and c). If broader information on the feature is available then it should be used to provide context to the site-based assessment.

Note that “appropriate” within this part of the conservation objectives is included to indicate that the contribution to FCS varies from site to site and feature to feature.

2. To ensure that the integrity of Moorfoot Hills SAC is restored by meeting objectives 2a, 2b and 2c for each qualifying feature.

The aim at this SAC is to restore the protected habitats to a favourable condition as a contribution to their wider conservation status. Therefore any impacts on the objectives shown in 2a, 2b, or 2c below must not persist so that they prevent the achievement of this overall aim.

When carrying out appraisals of plans or projects the focus should be on restoring site integrity, specifically by meeting the objectives outlined in 2a, 2b and 2c. If these are met then site integrity will be restored. Note that not all of these will be relevant for every activity being considered. Any impacts on the objectives shown in 2a, 2b or 2c below must not persist so that they prevent the restoration of site integrity. Temporary impacts on these objectives resulting from plans or projects can only be permitted where there is certainty that the features will be able to quickly recover.

This objective recognises that the qualifying habitat is exposed to a wide range of drivers of change. Some of these are natural and are not a direct result of human influences. Such changes in the habitat’s extent, distribution or condition within the site which are brought about by natural processes, directly or indirectly, are normally considered compatible with the site’s conservation objectives. An exception to this is when the favourable condition of a habitat is dependent on halting or managing natural succession. An assessment of whether a change is natural or anthropogenic, or a combination of both, will need to be looked at on a case by case basis.

Conservation Objectives for European dry heaths [H4030]

2a. Maintain the extent and distribution of the habitat within the site

Maintain to approximately 3166 ha. The area figure has been taken from the Standard Data Form, and is an estimate based on the fact that European dry heaths can form complex mosaics with habitats such as grasslands, wet heaths and bogs. However there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

The habitat is found on naturally freely-drained, nutrient-poor, acidic soils. This can determine the extent and distribution of the habitat throughout the SAC, although it is also dependant on heathland management to maintain its extent including:

- appropriate level of grazing, muirburn and heather cutting. Muirburn and heather cutting should be on long rotations to ensure that all growth phases are present within each holding within the site.
- avoidance of any loss of habitat through increased extent of successional or adjacent natural habitats, afforestation or invasion by non-native species.
- avoidance of negative effects of access and recreation

2b. Restore the structure, function and supporting processes of the habitat

European dry heaths are closely associated with scrub and woodland habitats, which would form the climax habitat without heathland management. Therefore maintaining dry heath is a fine balance between degrading to grasslands as a result of intensive management, and

succession to scrub or woodland from too low a level of browsing, grazing or burning.

The structure of the habitat is based around the presence of at least 25% cover of dwarf shrub heath species, but can be up to 90%. In particular heather (*Calluna vulgaris*), as a dominant species, should be present in all phases of growth (pioneer, building, mature and degenerative) to provide a wide range of ecological variety and conservation benefit to a variety of species. It is important that a proportion of the heather cover should be in the late mature/degenerative phase and not just the pioneer and building phases. Appropriate burning or cutting can contribute to the variation in age phase, but it is essential that this does not result in a monoculture of large areas of same age heather.

Further targets to achieve suitable habitat structure include:

Grazing/browsing

Less than a third of the last complete growing season's shoots of dwarf-shrub species (collectively but excluding dwarf birch (*Betula nana*)) should show signs of browsing. In some areas the grazing level of the habitat has been too high, which has resulted in excessive browsing of dwarf shrubs. Management measures should aim to reduce this where necessary.

Trampling/disturbance

The ground cover should be intact and should not include disturbed bare ground (i.e. where a substrate of bare humus, bare peat, bare mineral soil, bare gravel, or soil covered only by an algal mat, has its surface broken and imprinted by hoof marks, wallows, human foot prints, or vehicle and machinery tracks).

Invasive native and non-native species

- non-native species should be absent from the habitat.
- bracken coverage should be minimised – this has been identified as an issue in parts of the habitat, and targeted measures should be taken to address this and ensure recovery back to typical dry heath species.
- the vegetation cover can be made up of scattered native trees and scrub but this should not be common across the feature. The site has existing and cleuch (ravine) woodlands which are a feature of the SSSI designation and these should be maintained.

Note that interaction of burning and grazing is an important cause of loss of dwarf shrub cover.

2c. Restore the distribution and viability of typical species of the habitat

Typical species within the Moorfoot Hills are heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*) and crowberry (*Empetrum nigrum*).

The viability of these species can be improved on the site by ensuring that plants can flower and set seed. This can be achieved by:

- o A grazing regime that is not too high to allow for flowering and seed setting but not too low that rank vegetation becomes established.
- o Burning should be on a long rotation, only small strips and follows the muirburn code.

Typical associated vertebrates of this site are mountain hares (*Lepus timidus*), red grouse (*Lagopus l. scotica*), black grouse (*Tetrao tetrix*), golden plover (*Pluvialis apricaria*), merlin (*Falco columbarius*) and golden eagle (*Aquila chrysaetos*). The moorland breeding bird assemblage is a protected feature of the overlapping SSSI, along with golden plover. In addition there is significant invertebrate fauna, especially moths, of which nearly 100 species have been recorded on the site. The pearl-bordered fritillary butterfly has also been

recorded in recent years.

Conservation Objectives for Blanket bog [7130]

2a. Maintain the extent and distribution of blanket bog within the site

Blanket bog typically covers very large areas, forming complex mosaics with other wetland habitats as well as heath and grass habitats in drier areas. There should be no measurable net reduction in the extent of the habitat on the site such that the area of blanket bog is maintained at 2995 ha or more.

Extents, distributions and patterns of mosaics therefore need to be assessed in relation to the expectation for this site.

2b. Restore the structure, function and supporting processes of the habitat

The predominant requirement for blanket bog is to be actively forming peat, a process that relies on peat-forming species having suitable conditions to maintain growth. Blanket bog that is degraded through damage or drying is likely to resume active peat-forming function following suitable restoration. A covering of 'active' peat-forming vegetation will protect the peat surface and will be more resilient to climate change.

Blanket bog requires a high water table, and so restoring appropriate hydrology for blanket bog is critical. This will depend on management to prevent or reduce detrimental effects of drainage, including in the wider surrounding area and potentially at a distance from the habitat.

In addition, reducing negative impacts caused by burning, inappropriate grazing, trampling, vehicle tracks and nitrogen deposition is important; these are often combined and can make the habitat more vulnerable to more frequent and intense weather events. Wind and heavy rainfall can have dramatic impacts resulting in erosion or even landslips.

In drier areas invasion of scrub and non-native species can further reduce the water table, and so coverage of trees and non-peat forming grasses, bracken and other plants should be minimised. Any non-native species should be removed.

The main objectives for habitat structure and functioning for this SAC are:

- No burning on blanket bog.
- Restore all areas of currently eroding peat, re-establishing peat-forming vegetation to encourage new growth of bog vegetation.
- Maintain a natural, diverse and open sward of typical plant species by avoiding overgrazing that affects habitat condition, or undergrazing.
- Reduce active drainage through targeted ditch damming and peat reprofiling on the degraded areas.

2c. Restore the distribution and viability of typical species of the habitat

Typical species include the important peat-forming species, such as bog-mosses *Sphagnum* species and cotton grasses (*Eriophorum* spp.), or purple moor-grass (*Molinia caerulea*) in certain circumstances, together with heather (*Calluna vulgaris*) and other ericaceous species and forbs such as bog asphodel (*Narthecium ossifragu*) and the carnivorous sundews (*Drosera* spp).

In some areas of this site there is a lack of typical species due to the eroding bog, therefore conservation measures should aim to restore conditions suitable for these species. All characteristic bog species rely on a high water table, and are likely to benefit from measures to improve the bog's hydrological integrity, principally by damming of artificial drainage, and reprofiling hags. Healthy bog vegetation relies on light to moderate grazing by livestock and/or wild herbivores, sufficient to maintain a diverse open structure but without causing surface damage/erosion or loss of more grazing-sensitive species.

Conservation Measures

Moorfoot Hills SAC is notified as a Site of Special Scientific Interest and management changes described on the list of Operations Requiring Consent must have prior consent from SNH (NatureScot).

Current and recommended management for European dry heaths and blanket bog

Issue	Measure	Responsible party
Grazing & grazing levels	Manage grazing at an appropriate level as agreed with SNH. In some areas, grazing levels need to be reduced.	Land manager
Muirburn	Any burning to be carried out in accordance with the Muirburn Code, and avoid burning in sensitive areas. Burning should result in a mosaic of heather ages with some areas retained to become old and leggy. There should be no burning on blanket bog habitats.	Land manager
Vehicle tracks	Existing tracks (including informal tracks) should remain within original footprints and not result in bare peat.	Land Manager
Erosion	Areas of eroded peat or scree should not be burnt or grazed to allow for natural re-vegetation.	Land manager
Drainage/hydrology	Any drains within the moorland habitats should be blocked and allowed to re-vegetate. This could include, re-profiling of hags and gullies.	Land manager Funding authority
Afforestation	Afforestation adjacent to the site when felled and re-stocked should have a buffer between the site and the start of the forestry, to ensure no loss of extent through drying of the site and encroachment of seedlings.	Land manager Approving Authority
Recreation	Ensure that grouse butts do not result in creating bare ground / erosion. Tracks associated with this activity are covered above.	Land manager, Local Authority.

Contact details:

NatureScot
Anderson's Chambers
Market Street
Galashiels
TD1 3AF

Tel: 01738 457070

Approved on 25 March 2020 by:

Greg Mudge
Principal Advisor
International Designations

Denise Reed
Area Manager
Tayside and Grampian