NatureScot
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

AIRDS MOSS
SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

Image: View towards Upper Heilar forest © NatureScot

Site Details

Site name: Airds Moss

Map: https://sitelink.nature.scot/site/8186

Location: South Western Scotland

Site code: UK0030218

Area (ha): 1,360.22

Date designated: 17 March 2005

Qualifying Features

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Blanket bog [H7130]*	Unfavourable No Change	30 August 2016	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.
*Active blanket bog is a Habitats Directive priority habitat

Other overlapping or linked protected areas

Muirkirk and North Lowther Uplands Special Protection Area (SPA)
Muirkirk Uplands Site of Special Scientific Interest (SSSI)

Key factors affecting the qualifying feature

Blanket bog
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.

Airds Moss represents one of the few remaining areas of relatively low-altitude blanket bog in south-west Scotland, where agricultural conversion and forestry have reduced the original extent. Blanket bog is a Habitats Directive Priority habitat. It is also our largest terrestrial carbon store, moderates run-off from storms, contains a historical environmental record and is highly valued for the range of land uses it

supports. It is therefore considered by the Scottish Government to be a priority for restoration.

Key management issues for this habitat in general include over and under-grazing, aspects of red deer pressure, burning, peat extraction, drainage, non-native species, abiotic natural changes, air pollution, infrastructural development and outdoor recreation.

At Airds Moss there has been extensive restoration management over approximately 50% of the site during the last decade, with ditch damming undertaken widely to restore peatland integrity, and sensitive grazing carried out to maintain or restore vegetation structure.

Nonetheless, the blanket bog is considered to be in unfavourable condition overall, chiefly because of localised overgrazing and peat erosion occurring at a single holding (and affecting c. 6% of the site). The continued existence of a conifer plantation on part of the site (c. 15% of the total area) also compromises the long-term potential for the natural ecological functioning of the blanket bog, and future management aspires to substantial restoration of open bog where trees currently occupy deep peat soils.

Further information about blanket bog can be found here.

Conservation Objectives

1. To ensure that the qualifying feature of Airds Moss SAC is in favourable condition and makes 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 restoring 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 appraisal 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 appraisals 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 appraisal. 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 Airds Moss SAC is restored by meeting objectives 2a, 2b and 2c
The aim at this SAC is to restore the blanket bog habitat to favourable condition as a contribution to its 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 they do not prevent the ability of a feature to recover and 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.

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

Restore, where feasible, the total extent of blanket bog from the current 992.96ha to include currently afforested land on peat soils.

The peatland retains more or less its natural extent over most of the site, being naturally bounded by mineral soil and watercourses in the north, east and south. At the western edge, however, the peatland has been much modified by historical mineral extraction and associated roads and spoil heaps. Extraction has probably destroyed some areas of former peatland, while roads and spoil heaps have disrupted hydrological connections within the SAC and also between the SAC and remnant areas of peat immediately to the west of the site boundary.

In addition, the large Upper Heilar forestry plantation largely occupies peat soil and has inevitably caused some loss of bog vegetation, natural soil structure and microtopography. The forest was included in the SAC at the time of designation to incorporate all of the hydrologically connected deep peat of Airds Moss, recognising the functional integrity of the whole area. It was known that areas of healthy bog remained in unplanted glades and rides, and the aspiration was to restore further open bog in future forestry rotations. It is these areas of afforestation on former blanket bog that should be the focus of restoration effort in order to meet this conservation objective.

A further, smaller area of conifer plantation around Tarmac Loch has now been partially restored to open bog as part of a conservation management plan, with trees removed and work ongoing to restore hydrology.

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 habitat requires a high water table, and so maintaining 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, potentially at a distance from the habitat.

In addition, reducing the negative impacts caused by burning, over-grazing, trampling 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.

Especially in drier areas invasion of scrub and non-native species can further reduce the water table, and so coverage of trees (with the exception of bog pines) and non-peat forming grasses, bracken and other plants should be minimised.

Most of the areas of open bog at Airds Moss are in good health. Most areas historically suffering from artificial drainage have now undergone restorative management by ditch-blocking, and there will be opportunities to restore hydrology further using the same methods.

There are scattered Sitka spruce seedlings and saplings encroaching onto the open bog locally, chiefly near the eastern edge of the Upper Heilar plantation.

On one property overgrazing and trampling by livestock, combined with historic drainage have caused erosion, with loss of vegetation in places and development of frequent erosion channels.

The main targets for habitat structure for Airds Moss SAC are:
- Restore all areas of currently eroding peat, re-establishing peat-forming vegetation.
- Further reduce active drainage through targeted ditch damming and peat reprofiling as appropriate.
- Manage grazing to maintain a natural, diverse and open sward of typical plant species; where overgrazing affects habitat condition, this will require reduction in livestock numbers; conversely, areas currently ungrazed may benefit from reintroduction of livestock.
- Restore afforested areas of deep peat soil to open bog, and remove self-seeded conifers from existing open bog.

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

The vegetation over some parts of the site has been modified by past drainage and mineral extraction. In most areas, however, typical bog vegetation occurs, dominated by mixtures of heathers (*Calluna vulgaris* and *Erica tetralix*), cotton-grasses (*Eriophorum vaginatum* and *E. angustifolium*) and deergrass *Trichophorum cespitosum*, all growing through a carpet of diverse bog mosses *Sphagnum* species.

Other characteristic bog plants include bog asphodel *Narthecium ossifragum*, cranberry *Vaccinium oxycoccos*, and round-leaved sundew *Drosera rotundifolia*. Airds Moss also supports bog plants of more restricted distribution, including bog rosemary *Andromeda polifolia*, white beak-sedge *Rhynchospora alba*, and oblong-leaved sundew *Drosera intermedia*.

Conservation measures should aim to maintain or 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. 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.

In particular, white beak-sedge and oblong-leaved sundew are localised within Airds Moss, and their distribution overlaps with parts of the site subject to overgrazing and peat erosion. Measures to address these impacts should therefore benefit these species.

Bog rosemary, meanwhile, occurs most abundantly in open areas within or close to the conifer plantation, and the species is likely to benefit from sensitive restoration of currently afforested areas to open bog.

Conservation Measures

Airds Moss is within Muirkirk Uplands SSSI, for which blanket bog is a notified feature. Land managers must apply to SNH (NatureScot) for consent to carry out certain management activities set out in the list of Operations Requiring Consent.

Issue	Measure	Responsible party
Hydrology (active drainage)	Restoration management (ditch damming) has already been carried out over approximately 40% of the site, with a further 10-20% of the open bog still affected by artificial drainage (not including the forestry plantations). Suitable conservation measures will include further ditch damming on all remaining areas of bog affected by active drainage.	Land managers NatureScot
Undergrazing	Reintroduce livestock to areas currently ungrazed, sufficiently to maintain healthy, open bog vegetation but without causing damage through overgrazing and erosion. Overgrazing mainly affects a single land parcel at the west end of the site, where grazing ceased approximately 5 years ago. Recent land tenure changes here are expected to lead to reintroduction of grazing at appropriate levels.	Land manager
Erosion	Reduce (or temporarily exclude) livestock from areas suffering erosion due to overgrazing and trampling. This issue is confined to part of one holding in the south of the site, affecting c. 6% of the SAC.	Land manager NatureScot SGRPID
Afforestation	Restore all areas of deep peat under the one remaining forestry plantation (Upper Heilar) to open bog following harvesting of planted conifers. Post-harvesting measures are likely to include brash removal, ditch blocking and/or reprofiling of forestry drains.	Landowner Forestry Commission Scotland NatureScot

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