Scottish Natural Heritage

WHITLAW MOSSES
Site of Special Scientific Interest

SITE MANAGEMENT STATEMENT

Site code: 1636

Anderson's Chambers
Market Street
Galashiels
TD1 3AF

Tel: 01896 756652
Fax: 01896 750427
e-mail: galashiels@snh.gov.uk

Purpose

This is a public statement prepared by SNH for owners and occupiers of the SSSI. It outlines the reasons it is designated as an SSSI and provides guidance on how its special natural features should be conserved or enhanced. This Statement does not affect or form part of the statutory notification and does not remove the need to apply for consent for operations requiring consent.

We welcome your views on this statement.

Description of the site

The four mosses (Murder Moss, Blackpool Moss, Beanrig Moss and Nether Whitlaw Moss) comprising Whitlaw Mosses Site of Special Scientific Interest (SSSI) lie between Selkirk and St Boswells. They developed in basins scooped out by the last ice age some 10,000 years ago. Originally lakes, these basins slowly filled with peat as plants growing around the fringes of the lake died and their remains accumulated and eventually filled each basin. Lime-rich water flowing into the basins, particularly from springs, has had a localised but profound influence on the type of vegetation which has developed.

Each moss has its unique suite of species which characterise the combinations of sedge fen, open water, moss lawns, reed swamp, lime-rich short sedge flushes, fringing tall herb meadow or wet woodland of willow or birch. Blackpool, Beanrig and Murder Mosses have vegetation rich in sedges and brown mosses (bryophytes) which depend on a high lime content. This is called "rich-fen". At Nether Whitlaw Moss, there is little lime in the water so it is more acid and there is a slightly different mixture of sedges with extensive lawns of bog mosses *Sphagnum* known as "poor fen".

Wetlands with fen vegetation are more extensive in England and Wales. The Whitlaw Mosses, whilst similar to these southern fens, are the best example in Great Britain of the northern type of fen in which plants with a distinctly northern distribution occur. In the Borders, the SSSI is also one of the most important fen basin complexes because it is safeguarded and managed appropriately.

The peripheral and island grasslands are not notified features of the SSSI but they are an important component of the transition between the permanently inundated wetland and the dry grasslands within and outside the SSSI. These grasslands support a diverse and locally very rich flora and invertebrate fauna. The whole suite of habitats makes a key

contribution to two of the Borders Habitat Action Plans (HAPS)[1].

Throughout Whitlaw Mosses, there is a diverse and rich ground flora reflecting the peculiar hydrochemical conditions of each basin. The nationally scarce vascular plants - holy grass, Scottish small reed, alpine rush, cowbane and coral root orchid - were found to be in unfavourable condition during SNH's 2002 site condition monitoring (SCM) assessment, but their populations are stable apart from coral root orchid, which has been declining since the peak in numbers in 1984. There are also a number of nationally scarce moss species such as woolly feather-moss and some liverworts, although these are not monitored apart from *Homalothecium nitens*, for which records are kept locally.

The basin fen feature was recorded as being in an unfavourable-recovering condition during the 2008 SCM assessment, mainly because of the pervasive presence of common reed which, despite the annual management, exceeds the target attribute, but recovering because of the positive management in place both on site and in the catchment.

The notified invertebrate features are the water beetle assemblage, which includes diving and whirligig species, and the sawflies *Nematus monticola,* which feeds on marsh cinquefoil, and *Phyllocolpa*, the larvae of which feed on willow leaves and form leaf rolls. The five Red Data Book (RDB) fly species are *Tetanocera freyi*; *Parhelophilus consimilis,* a hoverfly; *Oxycera dives; Scathophaga tinctinervis;* and the cranefly *Dicranomyia magnicauda.* The larvae of these species live variously in seepages or shallow water with fen or swamp vegetation. There is one RDB moth, *Aphelia unitana,* which was found in abundance around hemp agrimony on Nether Whitlaw Moss in 2004, although the other three sites were not surveyed at that time. All invertebrates were found to be in favourable condition during SCM assessments between 2002 and 2004, based partly on the presence of suitable habitat conditions and partly evidence of the insect's presence.

There are also a number of nationally scarce moss species such as woolly feather-moss and several liverworts. Over 450 species of invertebrates have been recorded, including butterflies, spiders, moths, flies, water beetles, dragonflies and damselflies.

The bird fauna breeding on the Mosses is usual for a wetland site with scrub woodland and includes water rail, mallard and snipe and summer migrants such as warblers.

The geological interest at Beanrig Moss derives from the layers of clay and other sediments found beneath the peat which fills the basin. The peat itself (with its fragments of plants, pollen grains and aquatic remains) provides a record of changes in the climate and the history of vegetation development in the area over more than 10,000 years. These undisturbed deposits have been well studied and are recognised as being of major importance. The 2002 SCM assessment of the geological feature found it to be in favourable condition with no disturbance to the peat body recorded.

[1] Local Biodiversity Action Plan HAPS: Fens, Marsh, Swamp and Reedbed; Grassland and Enclosed Farmland. See www.scotborders.gov.uk/life/environment/naturalheritage

Natural features of Whitlaw Mosses SSSI	Condition of feature (and date monitored)	Other relevant designations
Basin fen	Unfavourable - recovering (September 2008)	Whitlaw and Branxholme SAC Very wet mires often identified by an unstable 'quaking' surface
Vascular plant assemblage	Unfavourable – no change (August 2002)	
Beetles (Assemblage of water beetles)	Favourable - maintained (August 2002)	
Fly assemblage (4 RDB flies and 1 RDB cranefly)	Favourable – maintained (July 2003)	
Moth (*Aphelia unitana*) (RDB)	Favourable – maintained (June 2004)	
Sawflies, wasps and ants (3 RDB sawfly species)	Favourable – maintained (July 2003)	
Quaternary of Scotland	Favourable - maintained (February 2002)	

Bladderwort in a pool	Beanrig Moss bryophytes (Ros Tratt)
	

Whitlaw Mosses SSSI is an important component of the Whitlaw and Branxholme Special Area of Conservation (SAC). The SAC comprises three SSSIs: Branxholme Wester Loch, Slaidhills Moss and Whitlaw Mosses. The SAC was classified under the European Community Habitats and Species Directive for the habitat types 'Very wet mires often identified by an unstable 'quaking' surface', 'Base-rich fens' and the bryophyte (moss) 'Slender green feather-moss *Drepanocladus* (*Hamatocaulis) vernicosus*'. Branxholme Wester Loch (and Whitlaw Moss) is important for the habitat types which are part of the open water transition fen SSSI feature. Slaidhills Moss, east of Branxholme Wester Moss, is a small moorland site which is the primary location in the SAC for slender green feather-moss.

Features of overlapping Natura sites that are not notified as natural features of Branxholme Wester Loch SSSI	Condition of feature (date monitored)	Special Area of Conservation (SAC)
Very wet mires often identified by an unstable 'quaking' surface	Unfavourable, no change (October 2004)	Whitlaw and Branxholme SAC
Base-rich fens	Unfavourable, declining (September 2008)	Whitlaw and Branxholme SAC
Slender green feather-moss *Drepanaocladus* (*Hamatocaulis) vernicosus*	Unfavourable, declining (October 2008)	Whitlaw and Branxholme SAC

Past and present management

Following clearance of the post-glacial woodland that would have surrounded the mosses, grazing with domestic stock commenced. In the eighteenth century, the mosses, except for most of Beanrig Moss, were partly drained to allow extraction of peat and also marl, a type of lime-rich clay. This restored some open water and other habitats which had been lost as the vegetation developed, and effectively "set the clock back", allowing many species which require more open conditions to colonise and survive to this day. Light grazing of the mosses and their margins by sheep, cattle or horses continued until the mosses became a nature reserve when fences around each moss were erected. The fence on the north-east side of Blackpool Moss was extended around 1989, taking in part of Whitlaw Rig SSSI, in order to include the whole fen habitat for management.

The site is managed as a National Nature Reserve by SNH under 25 year Nature Reserve Agreements with the four owners of the SSSI. Low level promotion for public access and interpretation has been developing recently with new pedestrian gates installed at all but Nether Whitlaw Moss, where deep water makes this site the least safe.

The following management takes place on the site, primarily in order to prevent loss or deterioration of the sedge dominated fen habitats, the invertebrate fauna (where appropriate management is known) and the vascular plant assemblage.

1. The management of common reed on Murder Moss, Beanrig Moss and Blackpool Moss by cutting has taken place annually since 1989. Cutting takes place on the dense stands of reed situated on deposits of silt where the inflow streams enter the moss. These areas of reed were found to be expanding into the adjacent sedge fen in response to nutrients in the silt, particularly phosphate, which reed readily takes up. The reeds are cut in late July - early August and are left to dry and then burnt in mobile incinerators. By removing the ash from the incinerators and disposing of it off-site, some phosphate and other nutrients are removed from the fens. In the long term, this helps reduce the vigour and expansion of the reeds. Some weed wiping with herbicide also occurs, especially where reed is threatening rare plant species.

2. Willow and birch scrub woodland has been controlled since 1989 by pulling seedlings and felling and stump-treating the larger specimens to arrest succession to woodland

and maintain the important sedge habitats.

3. A silt trap installed in 1993 on the inlet stream of Murder Moss is emptied at least twice yearly. This reduces the silt inputs at the west end. Recent research has identified a need for an improved design of silt trap.

4. Mowing and baling occurs to maintain a varied structure and enhance species diversity of the peripheral species-rich grasslands.

5. Light grazing of Murder Moss with sheep occurs in the autumn.

6. Occasional construction of shallow open pools on Murder Moss.

Basin fens are highly vulnerable to agricultural activities within the surrounding catchment. Whitlaw Mosses has been affected by fertiliser and silt inputs, especially as a consequence of post war agricultural intensification. However, the Central Borders Environmentally Sensitive Area was established in 1988 and, with support of the local farming community, cultivation and fertiliser use ceased gradually on fields adjacent to the four sites. Similar catchment protection prescriptions have continued with all catchment owners and occupiers through SNH agreements, subsequently replaced by the Scottish Rural Development Programme (SRDP) from 2007.

Whitlaw Mosses is part of Whitlaw and Branxholme Special Area of Conservation (SAC). This places an additional responsibility in ensuring that the European habitat features (Very wet mires often identified by an unstable 'quaking' surface; calcium-rich spring water-fed fens which are integral parts of the Basin Fen SSSI feature) are prevented from deteriorating. The conservation objectives for the SAC are integrated into the SSSI management.

Objectives for Management (and key factors influencing the condition of natural features)

We wish to work with the owners and occupiers to protect the site and to maintain and, where necessary, enhance its features of special interest. SNH aims to carry out site survey, monitoring and research as appropriate to increase our knowledge and understanding of the site and its natural features and monitor the effectiveness of the management agreement.

The EU Habitats and Birds Directives oblige Government to avoid, in SACs and SPAs, the deterioration of natural habitats and the habitats of species, as well as disturbance of the species for which the areas have been designated, insofar as such disturbance could be significant in relation to the objectives of these Directives. The objectives below have been assessed against these requirements. All authorities proposing to carry out or permit to be carried out operations likely to have a significant effect on the European interests of this SSSI must assess those operations against the relevant Natura conservation objectives (which are listed on our website through the SNHi - SiteLink facility).

1. **To maintain and enhance through active management, as described above, the**

extent, structure, processes and function of the vegetation features, plant and invertebrate species through:

- Ensuring adequate water levels and low-nutrient water supplies to each site;
- Controlling invasive common reed and scrub expansion;
- Preparing new or clearing old pools for specialist water beetles;
- Limiting scrub development to protect notified features;
- Maintenance of small open pools for certain beetle species – e.g. *Hydroporus glabriusculus;*
- Maintenance of suitable conditions for Red Data Book invertebrates (details on requirements available in the cycle 1 condition monitoring form, available on request). Little is known about requirements for the moth species.

2. **To maintain access to the geological interests of Beanrig Moss.**

The geological interests need no management and will remain intact so long as the Moss's peat deposits are not dug out, cut over or otherwise seriously disturbed.

Other factors affecting the natural features of the site

1. **Water:** The plant and animal communities of the mosses depend on a stable supply of water from the surrounding catchment. It is the supply of this water, naturally high in lime but low in nutrients, which has created them. Water enters the mosses from a number of sources; springs, field drains, streams and the general seepage from the surrounding slopes of the catchment.

2. **Nutrients:** In the past 50 years, the increased use of fertiliser (notably phosphate) to raise soil fertility and the introduction of arable production in the fields surrounding the mosses has led to an increase in the level of nutrients entering the mosses. The mosses naturally have very low nutrient levels. Soil particles washed off the surrounding land is one important source of these nutrients.

3. **Changes in the vegetation:** The increased fertility has encouraged the development of plants such as common reed, soft rush and creeping bent grass which can grow rapidly in wet fertile conditions to the exclusion of other species. The expansion of reed is particularly widespread and has replaced considerable areas of fen. In the absence of grazing, scrub woodland has also expanded.

Management of these factors is outwith direct control of SNH but we shall continue to encourage agreements with land managers to safeguard the site as far as possible by influencing the management of the catchment and by early detection and aversion of potential threats both on and off site.

The Scottish Rural Development Programme (SRDP) which runs from 2007-2013 includes prescriptions under the Borders Rural Priorities for Biodiversity for protecting the catchment of the SSSI. It is anticipated that all land owners in the catchment will have gained approved agreements which help protect the SSSI by the end of 2010.

Date last reviewed: 11 August 2010