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Scotland's Nature Agency
Buidheann Nàdair na h-Alba

BORDERS WOODS SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

Cragbank Wood © NatureScot.

Site Details

Site name:	Borders Woods
Map:	https://sitelink.nature.scot/site/8211
Location:	Eastern Scotland
Site code:	UK0030094
Area (ha):	54.08
Date designated:	17 March 2005

Qualifying features

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Mixed woodland on base-rich soils associated with rocky slopes [H9180]*	Favourable Recovered	11 June 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

Cragbank and Wolfehopelee Site of Special Scientific Interest (SSSI), Newtown St Boswells Woods SSSI and Lynnwood-Whitlaw Wood, Slitrig SSSI. Part of Whitlaw to Hardies Hill SSSI is effectively incorporated into Lynnwood-Whitlaw Wood, Slitrig SSSI.

Key factors affecting the qualifying feature

Mixed woodland on base-rich soils associated with rocky slopes
This habitat typically occurs in association with base-rich rocks in steep-sided immature river valleys, and is found on nutrient-rich soils that often accumulate in the shady micro-climates towards the bases of slopes and ravines. Such forests are not extensive, but fragmentary stands are widespread, grading into other woodland types on level valley floors or on the slopes above.

Key management issues for this woodland type can include grazing levels, problematic native and non-native species, air pollution and urban development.

The habitat requires low but not zero grazing. High levels of grazing can distort the structure and composition of the woodlands, especially leading to a species-poor ground flora, and restricting regeneration of the more palatable tree species such as ash. This eventually results in a woodland dominated by older trees, and by the less palatable species such as birch, and lacking normal representation of intermediate life classes. Too little grazing can result in a lack of structural diversity in the canopy and over shading which can impact negatively on important lichen and bryophyte communities.

Cragbank was grazed by livestock until the 1970s when the farm was sold to a forestry company. After this time, grazing was solely by deer and other wild mammals. Wolfehopelee has been grazed more regularly over the years, although the density of scrub restricted access to certain areas only. Livestock was excluded from Wolfehopelee through fencing as part of a Rural Development Contract in 2007.

Deer and small mammals will be present is all the woodlands, although recreation at Newtown St Boswells SSSI and Lynwood-Whitlaw, Slitrig SSSI will reduce grazing pressure. Cragbank & Wolfehopelee SSSI forms part of a much larger woodland and forestry landscape where deer numbers are likely to be higher.

The presence of non-native species such as Rhododendron, and exotic conifers, can also impact the habitat, shading out ground flora and epiphytes, and preventing natural regeneration of native tree and shrub species. Non-native species are not prevalent at any of the sites, although sycamore and beech have been a problem in the past. Newtown St Boswells SSSI and Lynwood-Whitlaw, Slitrig SSSI are on the edge of settlements where the threat of colonisation by garden escapes remains high, due either to fly-tipping of garden waste or natural seed migration from gardens.

Chalara is established in all three sites and could have a dramatic impact on the woodland structure in the coming years. In the future new stresses to the feature, particularly from climate change and possibly other novel pests and pathogens, are anticipated.

Further information about this habitat can be found on the JNCC website.

Conservation Objectives for *Tilio-Acerion* forests of slopes, screes and ravines (Mixed woodland on base-rich soils associated with rocky slopes)

1. To ensure that the qualifying feature of Borders Woods 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 Borders Woods SAC is maintained by meeting objectives 2a, 2b and 2c

The aim at this SAC is to maintain the habitat in a favourable condition as a contribution to its wider conservation status. Therefore any impacts to 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 maintaining site integrity, specifically by meeting the objectives outlined in 2a, 2b and 2c. If these are met then site integrity will continue to be maintained. 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 maintenance 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 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. Maintain the extent and distribution of the habitat within the site

The extent of the *Tilio-Acerion* forests of slopes, screes and ravines feature within the site has been estimated at 45.15ha. The area figure is an estimate and has been taken from the Standard Data Form. There should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

The habitat typically occurs on nutrient-rich soils that have formed in association with base-rich rocks, and where there is base-rich flushing. This type of woodland is represented throughout Borders Woods SAC, but Cragbank also supports flushed alder woodland across its slopes, which is now almost extinct in the Borders. The site also includes areas of open habitat, most notably calcareous grassland.

Impacts that could lead to a permanent reduction in the extent or distribution of the habitat should be avoided. In particular there should be no habitat loss from within or at the edge of the woodland and no habitat fragmentation. A lack of regeneration by native species, such as could occur through high herbivore impacts, will also lead to a long term decline in woodland extent.

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

This habitat depends on nutrient-rich and base-rich soils and shady micro-climates found towards the bases of slopes, coarse scree, cliffs, steep rocky slopes and ravines. It is characterised by tree cover that:

- Has a mixed forest structure including young, mature, dying and dead trees in dense

thickets and open glades with a range of shade cast on the woodland floor.

- Is made up of diverse broadleaved tree and shrub species, but most consistently and abundantly by species with the characteristics (shade, leaf decay, structure, bark pH and obligate/associated dependent species) of ash, hazel and wych elm.

- The slopes on which this woodland type develops are often unstable, leading to an element of dynamism in their structure. Whilst this adds to the diversity of the communities present, it also makes the woodland vulnerable to disturbance from human activities. If disturbance is too frequent, or present over too large an area, it may lead to loss of woodland area and typical species, and recovery might be slow.

The ground flora associated with the habitat is linked to variations in moisture and shade, or 'disturbance communities' associated with scree and cliff-bases.

These characteristics can be achieved by maintaining an abundance of key tree species, particularly ash, hazel and wych elm, an absence of invasive species which compromise the critical characteristics of the habitat, and light grazing levels that allow all species of trees, shrubs and ground flora to develop naturally and flower, fruit.

The various woodlands that comprise the Borders Woods SAC all benefit from proximity to other notable habitats. These include designated sites such as the River Tweed SAC, Whitlaw Bank to Hardies Hill SSSI and Tweedwood to Gateheugh SSSI but also non-designated areas of grassland, woodland and river valley. Maintaining or enhancing such areas is important in sustaining the wider landscape ecology of the SAC and thereby the interests of the site itself.

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

The main NVC types conforming to Tilio-Acerion forests are the 'western' forms of W8 *Fraxinus excelsior – Acer campestre-Mercurialis perennis* woodland, and the equivalent north-western community W9 *Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis* woodland.

The key tree species for this habitat are ash (*Fraxinus excelsior*), hazel (*Corylus avellana*) and wych elm (*Ulmus glabra*).

The ground flora can be very varied, but the following elements are usually present: fern banks (particularly hart's-tongue *Phyllitis scolopendrium*, soft shield-fern *Polystichum setiferum* and buckler-ferns *Dryopteris* species.); stands of wild garlic *Allium ursinum* in the moister zones; dog's mercury *Mercurialis perennis* and enchanter's-nightshade *Circaea* species on drier but still base-rich soils; wood avens *Geum urbanum*, and natural 'disturbance communities' comprising common nettle *Urtica dioica*, herb-Robert *Geranium robertianum* and sticky willie *Galium aparine* associated with scree and cliff-bases. A wide range of other basiphilous (preferring base-rich soil) herbs and grasses may occur within these stands and associated areas of open habitat.

Open habitats that support a range of plant species are notable in the SAC. Betony (*Stachys offinalis*) and rockrose (*Helianthemum nummularium*) are found in particular at Cragbank and Wolfehopelee SSSI. Maiden pink (*Dianthus deltoides*) is found most notably at Lynnwood-Whitlaw Wood, Slitrig SSSI.

Some localities have important assemblages of epiphytic lichens or bryophytes, most notably Cragbank, which supports *Lobaria pulmonaria* and other regionally rare lichens.

Invertebrate communities are significant. Beetles recorded on site include the rhinoceros beetle, a nationally scarce rove beetle (*Phyllodropa puberula*) and nationally notable leaf beetle (*Luperus flavipes*). Butterfly species recorded from the site include pearl bordered fritillary and Duke of Burgundy.

Red squirrels (*Sciurus vulgarus*) have been recorded in and around Cragbank & Wolfhopelee SSSI and Lynwood-Whitlaw Wood, Slitrig SSSI. Grey squirrels (*Sciurus carolinensis*) are known to occur at all three locations and have been controlled at Cragbank through the Saving Scotland's Red Squirrels project.

Adder (*Vipera berus*) and viviparous lizard (*Zootoca vivpara*) are both found at Cragbank Wood, primarily in the open areas. Local observations suggest that adders are no longer as common as they were, possibly due to forestry shading. A range of bird species are also recorded from each site, including spotted flycatcher (*Muscicapa striata*), tawny owl (*Strix aluco*) and willow warbler (*Phylloscopus trochilus*).

Tree Health Implications

Many of the characteristics of mature wych elm are reduced or absent in many locations due to Dutch elm disease (DED). However, it usually continues to persist as an 'auto-coppicing' understorey tree after the loss of the mature trees, so long as grazing impacts are low enough for it to continue to grow. Ash is beginning to show extensive infection from Ash Dieback (ADB). While the end point of the disease is not known, some level of resistance has been found in most populations, and the main threat to this is the prevention of regeneration by high herbivore impacts. Meanwhile, it is likely that a high proportion of the mature ash will be damaged, with a short-term increase in deadwood. Other trees, such as hazel, rowan, willow and aspen, support many of the species associated with ash, although their nutrient cycling properties differ somewhat. Probably the most important management requirement for this habitat is to ensure low enough herbivore impacts to allow all tree and shrub species present to regenerate. This will maximise the opportunity for ash to develop resistance to ash dieback, and allow other species to regenerate as well, to ensure a species-rich tree and shrub layer.

During the period of time that we will be without most of our ash trees, hazel and aspen can be considered reasonable native surrogates for a proportion of the species ash supports, as well as its characteristics, and functions. These species, and also oak, should be encouraged in each of the woodlands, with aspen and oak increasing in abundance in the higher canopy.

In addition, sycamore (*Acer psuedoplatanus*) can also provide some of the characteristics and functions of ash, including as host for associated lichens and bryophytes. As such, it is NatureScot's approach (as of December 2016, and subject to review) that sycamore will be accepted within Scottish protected areas including SACs. This will require careful monitoring, however.

Sycamore was previously recognised as a problem species in Newtown St Boswells Woods SSSI and in Lynwood-Whitlaw Wood, Slitrig SSSI. As part of a Life-funded project (2003-2005), sycamore and beech were clear-felled where possible in each woodland, with stumps treated with glyphosate to prevent re-growth. Follow up monitoring, however, reported that sycamore was regenerating strongly. Sycamore had never become a problem at Cragbank & Wolfehopelee SSSI due in part to a more sustained level of management intervention.

Currently, sycamore exists as isolated individuals in Cragbank & Wolfehopelee SSSI and in Lynwood-Whitlaw Wood, Slitrig SSSI. Although more abundant in Newtown St Boswells Woods SSSI, it still occupies a small proportion of the canopy, which is dominated by ash.

Sycamore also occurs in the vicinity of each of these sites, most particularly at the latter two woods.

As such, sycamore is likely to grow strongly as ash declines in abundance. Without management this could result in development of dense even-aged sycamore woodland; an outcome that would negate the ecological benefits sought from acceptance of sycamore. Furthermore, the impact of shade associated with a sycamore canopy could be exacerbated by north-facing slopes, most notably in Newtown St Boswells Woods. This could have a significant impact on the ground flora in sycamore-dominated areas.

Acceptance of sycamore in the canopy of the Borders Woods SAC will require monitoring and a greater level of management intervention than currently exists. Sycamore should be allowed to occupy a maximum of 30% of the canopy in any woodland, although a lower proportion may be appropriate, depending on the local impact of the species. Individual sycamores should be distributed through the various sites (as ash currently is) rather than being collected in a few locations. Monitoring should also examine the impact of the sycamore canopy on the ground flora, with necessary management carried out to minimise the impact of shading.

Conservation Measures

Sites comprising Borders Woods SAC are notified as Sites 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 *Tilio-Acerion* forests of slopes, screes and ravines

Issue	Measure	Responsible party
Grazing Control	Livestock are now excluded from all individual sites in the SAC. Ensure the impact of deer and other wild herbivores is "low" as defined in the HIA. Disturbance by walkers and dogs is helpful in this regard at Lynnwood-Whitlaw, Slitrig SSSI and Newtown St Boswells Woods SSSI.	Land manager
Sycamore management	Monitor regeneration of sycamore in each woodland and manage as necessary to ensure the species does not become dominant.	Land manager, NatureScot
Control of non-native species	Site condition could be affected by the presence of other non-native species, such as beech in the canopy, or snowberry in the shrub layer. Monitor the presence of such species and take action to eradicate where necessary.	Land manager, NatureScot
Restructuring of surrounding forestry	Lynnwood-Whitlaw, Slitrig SSSI and Cragbank & Wolfehopelee SSSI are adjacent to conifer plantations. Ensure that restructuring creates ecological buffers between SAC and conifer plantation and that habitat linkages to other native woodlands are created.	Land manager, Scottish Forestry, NatureScot
Management of non-woodland habitats	Manage areas of open habitat to maintain structural diversity across individual sites and to sustain their varied ecological interest.	Land manager, NatureScot

Future threats	A coordinated resilience planning process should be developed to respond to anticipated future threats to the habitat. Subsequent management actions, and site-level plans, should be implemented to anticipate future threats to the habitat on the site. This resilience work may also include further research to understand the vulnerabilities of the habitat.	NatureScot Land managers

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