

RHIDORROCH WOODS SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE



Site Details

Site name:	Rhidorroch Woods
Map:	https://sitelink.nature.scot/site/8352
Location:	Highlands and Islands
Site code:	UK0014729
Area (ha):	737.75
Date designated:	17 March 2005

Qualifying features

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Wet heathland with cross-leaved heath [H4010]	Unfavourable No change	13 July 2012	Unfavourable - Bad
Caledonian forest [H91C0]*	Unfavourable Declining	25 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

[Rhidorroch Woods Site of Special Scientific Interest \(SSSI\)](#)

Key factors affecting the qualifying features

Wet heathland with cross-leaved heath

Wet heath is the most extensive habitat within the SAC. It develops characteristically on shallow peat or acid mineral soils which are seasonally waterlogged. This heathland tends to be a mix of dwarf shrubs such as the cross leaved heath, (which is often the dominant species); grasses including deer grass; mosses including the bog moss *Sphagnum capillifolium* and lichens of the *Cladonia* genus. Flushed wet heaths are especially frequent in areas of high rainfall, and occur as topogenous fens, usually in channels within heath or grassland vegetation.

The key management issues for this habitat are the nature and extent of deer pressure, grazing generally, burning, forestry, non-native species, air pollution and habitat loss for development.

The feature is considered to be in an unfavourable condition at this site due to overgrazing and trampling by herbivores.

Caledonian forest

Caledonian forest comprises relict, indigenous pine forests of Scots pine *Pinus sylvestris* var. *scotica*, and associated birch *Betula* species and juniper *Juniperus communis* woodlands of northern character. Self-sown stands naturally regenerated from stock of genuinely native local origin recorded in the Caledonian Pinewood Inventory (Forestry Commission 1998) are included. It is usually found on strongly-leached, acidic podzols, and these soil conditions are reflected in the ground flora.

A key factor affecting this habitat is inappropriate grazing by herbivores. The habitat requires low, but not zero, levels of grazing to sustain it. High levels of grazing can lead to a simplified structure and species composition, dominated by older trees without regeneration or intermediate life classes, and lacking more palatable tree species. Insufficient grazing impacts can include excessive regrowth leading to changes in microclimates such as light and humidity levels.

Other potential management issues include impacts from forestry and woodland management, burning and recreational impacts. Further pressures on the habitat are also anticipated, particularly from the effects of climate change (drought, waterlogging, windblow etc.), and of novel pests and pathogens (such as *Dothistroma* needle blight).

The woodland is considered to be in unfavourable condition at this site due to overgrazing.

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

Conservation Priorities

Caledonian forest is a priority feature and is currently in unfavourable condition. In order to restore this feature, it is possible that projects will include fencing areas of wet heath where these occur as a mosaic with the existing woodland. It is therefore possible that some areas of wet heath may be subject to natural regeneration of woodland. However it is not anticipated that this will affect the current global grading of wet heath due to the nature of the habitats on site making other areas (e.g. dry heath and grassland) more suitable for tree regeneration.

Conservation Objectives

Overarching Conservation Objectives for all features

1. To ensure that the qualifying features of Rhidorroch Woods SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.
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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 Rhidorroch Woods SAC is restored by meeting objectives 2a, 2b and 2c for each qualifying feature
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The aim at this SAC is to restore the habitats to a favourable condition as a contribution to their 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 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 habitats are 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 wet heathland with cross-leaved heath (also known as Northern Atlantic wet heaths with *Erica tetralix*)

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

Maintain to approximately 371.83 ha. The area figure has been taken from the Standard Data Form, and is an estimate. This is because wet heath typically covers large areas, forming complex mosaics with areas of blanket bog, and in dryer areas dry heaths and grassland. Baseline surveys will include smaller areas of other habitats. The vegetation is very variable in composition. Dwarf shrub cover and structure is variable, similar to dry heath in some areas, and to blanket bog in other, usually wetter areas, particularly on degraded bog. At high altitudes wet heath can be found in mosaics with Alpine and Boreal Heath, usually in areas with some topographic shelter. Action to expand woodland areas within Rhidorroch SAC may mean a small loss of wet heath but this will not affect the overall distribution throughout the site.

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

Wet heathland with cross-leaved heath is sensitive to inappropriate grazing or burning that may affect the habitat structure and function in two main ways. A combination of overgrazing and burning can lead to creation of a grass sward if this is continued over many years. Overgrazing, by livestock, can also result in high levels of nutrient input and trampling. Under grazing can lead to the habitat type being colonised by non-typical species if this management is continued over many years. An appropriate level of grazing is therefore needed to maintain this habitat.

Wet heath on Rhidorroch SAC should be restored from the legacy of damage from past trampling and overgrazing. The restoration objectives are to:

- restore the height structure of the vegetation by reducing grazing/browsing by deer and sheep so that less than 1/3rd of the last complete growing season's shoots of dwarf-shrub species (collectively but excluding dwarf birch *Betula nana* and bog myrtle *Myrica gale*) show signs of browsing.
- restore the ground cover structure of the heath by reducing trampling by deer and sheep so that less than 10% of ground cover is disturbed bare ground (with an emphasis on 'disturbed' rather than 'bare') and less than 10% of the Sphagnum moss is crushed or pulled up.

Additional objectives for the structure of the habitat are:

- The area of disturbed bare ground should not be increased. Activities that might cause this to increase include excessive use of vehicles, or increasing use of the habitat by deer and sheep.
- Active drainage should be minimised. No new drains should be dug and existing ones should be blocked.

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

At Rhidorroch the NVC type *Scirpus cespitosus* – *Erica tetralix* wet heath is found. This is the typical form of wet heath in the north and west of the UK. Cross-leaved heath *E. tetralix* and heather *Calluna vulgaris* are typically accompanied by abundant deergrass *Trichophorum cespitosum* and purple moor-grass *Molinia caerulea*. Bell heather *Erica cinerea* and woolly fringe-moss *Racomitrium lanuginosum* are also characteristic, along with an abundance of Atlantic bryophytes.

The distribution of typical plant species should be maintained throughout the habitat by appropriate deer and livestock management and avoiding frequent burning. A low level of

grazing and browsing is necessary to allow this habitat to recover and be maintained in future.

Typically, associated vertebrates are red deer (*Cervus elaphus*), red grouse (*Lagopus l. scotica*), golden plover (*Pluvialis apricaria*), dunlin (*Calidris alpina schinzii*), greenshank (*Tringa nebularia*), golden eagle (*Aquila chrysaetos*), merlin (*Falco columbarius*) and hen harrier (*Circus cyaneus*).

In summary the indicator species for wet heathland with cross-leaved heath are:

<i>Arctostaphylos</i> species	
<i>Betula nana</i>	dwarf birch
<i>Calluna vulgaris</i>	common heather
<i>Carex</i> species	sedges
<i>Drosera</i> species	sundews
<i>Empetrum nigrum</i>	crowberry
<i>Erica</i> species	heaths
<i>Eriophorum angustifolium</i>	common cottongrass
<i>Myrica gale</i>	sweet gale
<i>Narthecium ossifragum</i>	bog asphodel
Non-crustose lichens (lichens)	
Pleurocarpous species	(mosses)
<i>Racomitrium lanuginosum</i>	woolly hair moss
<i>Rhynchospora alba</i>	white beak-sedge
<i>Rubus chamaemorus</i>	cloudberry
<i>Salix repens</i>	creeping willow
<i>Sphagnum</i> species	(mosses)
<i>Trichophorum cespitosum</i>	deer grass
<i>Vaccinium</i> species	(heaths)

Conservation Objectives for Caledonian forests

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

The extent of the Caledonian forest feature within the site has been estimated at 25.08 ha. The area figure is an estimate and has been taken from the Standard Data Form. This should be maintained or allowed to increase through natural regeneration. Fundamentally however there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

The Caledonian Forest at this site represents the North biochemical region of Scots pine in Scotland, and is part of a larger mosaic with upland birchwood, which adds to the interest. Virtually the complete range of woodland types characteristic of the north-west Scottish Highlands is found here, centred on the unmodified Rhidorroch river system and interspersed with areas of heathland, peatland and semi-natural grassland. The diversity of the ground flora reflects the diversity of conditions. Species include serrated wintergreen *Orthilia secunda* and creeping lady's-tresses *Goodyera repens*.

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

Caledonian pinewoods are found on soils dominated by low nutrient status, strongly-leached acidic podzols, ranging from well drained to very wet and boggy often over short distances. The habitat is characterised by vegetation that:

- has a diverse 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 mostly evergreen and coniferous, with long lived trees (to >250 years) which grow to large dimensions with a variety of niches including furrowed bark, rot-holes, large slow-decaying snags and deadwood
- has small proportions of diverse broadleaved trees and shrubs (and juniper), especially on pockets of richer soils
- has ground flora dominated by dwarf ericaceous shrubs, grasses, bryophytes and in places rare pinewood specialist species

These characteristics can be achieved through the presence of key tree species at all ages up to senescence and death, particularly Scots pine, juniper, birch species, and aspen providing continuous cover of young, mature and old trees, dead and dying trees throughout the site; an absence of invasive species which compromise the critical characteristics of the habitat; and grazing levels that allow trees, shrubs and ground flora to develop naturally and flower, fruit &c.

A Woodland Profile Survey and herbivore impact assessment carried out in 2008 found successful establishment of birch, rowan and Scots pine within exclosures, but continued heavy browsing was suppressing tree regeneration outside the exclosures. The survey found that woodland cover and tree species diversity had declined over a long period. The distribution of dead pine stumps provide evidence of previous woodland cover, and the strongly skewed life-class distribution suggests that tree regeneration has been extremely limited for many decades. The woodland is dominated by mature and overmature trees, with few young trees and very few saplings outside of exclosures. Regeneration of more palatable species, including bird cherry, hazel, holly and willow, is absent.

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

Caledonian forest comprises relict, indigenous pine forests of Scots pine *Pinus sylvestris* var. *scotica*, and associated birch *Betula* species and juniper *Juniperus communis* woodlands of northern character. At this site the pine woods occur in a mosaic with birch-dominated woodland which adds to the interest. There is a diverse range of tree species, including rowan *Sorbus aucuparia*, wych-elm *Ulmus glabra*, holly *Ilex aquifolium*, hazel *Corylus avellana*, aspen *Populus tremula* and alder *Alnus glutinosa*.

The ground flora includes several uncommon species indicative of long-established ancient woodland including creeping lady's tresses orchid *Goodyera repens*, serrated wintergreen *Orthilia secunda*, chickweed wintergreen *Trientalis europaea* and wood vetch *Vicia sylvatica*.

The lichen and bryophyte flora of the site is not well known, but casual records were collected during the Woodland Profile Survey in 2008, and include several nationally scarce and near threatened lichens, with a specialist pinewood flora and notable *Lobarion* species.

The woods also support ancient woodland invertebrate species including the hoverfly *Callicera rufa*, which is only found in Caledonian Scots pinewoods, where the larvae occur in rot holes and natural bowls collecting water on the trees. It is the only known Scottish site for the nationally rare false click beetle *Microrhagus pygmaeus*, which needs a continual supply of standing and fallen dead wood in varying conditions of humidity and exposure. Whilst not features of the SAC in their own right, these species are important as typical species of the

habitat, and management proposals should consider the impact on them and their habitat. Non-plant typical species of this habitat include red deer *Cervus elaphus*.

The relict Caledonian Forest sites have Scots pine populations with a local genetic distinctiveness, especially in the Wester Ross sites. We value this distinctiveness in its own right, as well as in terms of adaptation to current local conditions, and current practice protects it. We do not know how the anticipated long term changes and potential threats will interact with this genetic distinctiveness and the variation within it. Further work should help us better understand these interactions, but for now we recommend that natural regeneration should be the default option for woodland expansion. Planting of pine is discouraged, to reduce the risk of introducing disease, especially *Dothistroma* needle blight. Any planting or replanting of Scots pine should only be undertaken after very careful consideration, and should use locally collected and grown stock.

Approximately one third of the wooded areas are fenced through previous woodland grant schemes. Previous surveys have found no naturally regenerating pines outwith the exclosures and the woodland field layer of dwarf shrubs including heather and blueberry found to be heavily grazed and trampled in places. Within the fenced areas, regeneration is occurring, though there is, to a lesser extent, some undergrazing with the field shrub layer, suppressing tree seedling growth and regeneration. The pinewood species creeping ladies tresses orchid, a species indicator of good woodland condition, was only found growing within the exclosures. Management action outwith fences is necessary to prevent the woodland declining further, such as enhanced deer control or the erection of further exclosures. Some management may also be required within the fences, such as controlled cattle grazing, to ensure that the ground flora does not impede further regeneration after the first pulse. Consideration should also be given to removing fences that have been successful in allowing regeneration to get away.

Conservation Measures

Rhidorroch Woods 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 wet heathland with cross-leaved heath

Issue	Measure	Responsible party
Herbivore impacts (grazing and/or trampling)	<p>Rhidorroch Woods is currently managed for sporting and farming interests and therefore there are impacts from both livestock and deer.</p> <p>Management of deer should be at a level where the habitats do not erode faster than vegetation can recolonise, and the vegetation can flower, set seed, and the seedlings survive, and so that heather and other heath species are not suppressed. This is measured by Site Condition Monitoring, and informed by Herbivore</p>	<p>Land manager NatureScot North Ross Deer Management Group RPID</p>

	<p>Impact Assessments (HIA). There is currently a Section 7 agreement in place for the west and central areas of the North Ross Deer Management Group area, and cull targets are set for this wider area (including Rhidorroch Woods), based on the information provided by HIA and SCM, since deer are a wide ranging species and management needs to be at a population level.</p> <p>For livestock, there is currently sheep and cattle on site and this can contribute to the overall grazing pressure. Generally, the aim would be to manage the number so that to achieve favourable condition for each feature in Site Condition Monitoring. Aim to ensure that herbivore impacts on the feature are 'low' based on the SNH (Naturescot) Herbivore Impact Assessment Process. The overall aim is the same as with deer impacts above.</p>	
Muirburn	At present this site is not burnt, and this is benefiting the features.	Land manager
Afforestation	Previous woodland improvement schemes have allowed some limited planting on open ground to allow the woodland feature to recover. Any future planting should ensure that the site is still able to make a proportionate contribution to the restoration / maintenance of the habitat in favourable conservation status in Scotland.	Land manager Funding authority
Alien and invasive species	The introduction of non-native species should be avoided in all habitats. If invasive species become established, they should be controlled as early as possible after introduction.	Land manager SISI (SNH (NatureScot))
Vehicle and access tracks	Proposals for new or upgraded access tracks should be subject to Habitats Regulations Appraisal to ensure they would not adversely affect the integrity of the SAC. ATVs should be used in accordance with best practice to minimise tracking or erosion. Where present, footpaths that are maintained to a high quality helps to minimise trampling and path braiding by people.	Land Manager SNH (NatureScot) Planning authority

Current and recommended management for Caledonian forest

Issue	Measure	Responsible party
Herbivore impacts (grazing and/or trampling)	<p>Ensure that herbivore impacts on the feature are 'low' based on the FCS (Scottish Forestry) /SNH (NatureScot) Herbivore Impact Assessment Process, and do not prevent the regeneration of the full range of site native tree species, or restrict the growth of the ground flora, shrub layer and canopy cover.</p> <p>For the woodland habitats currently within fenced exclosures, these areas would benefit from the introduction of some light grazing, e.g. cattle.</p>	Land managers, NatureScot, Deer Management Groups, Scottish Forestry
Invasion by non-native species	A few bushes of rhododendron and cotoneaster were found during the last survey. We recommend that these should be removed to prevent the spread of these invasive non-native species.	Land manager
Avoidance of introduction of known pathogens	<p>The main pathogen of concern in relation to pine is Dothistroma. Native scots pine appears to have considerable resistance to this pathogen, except where growing in the vicinity of non-native pine species.</p> <p>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, and to avoid planting pine, which would carry the risk of introducing pests and diseases, including novel strains of Dothistroma.</p>	Land managers, NatureScot
Future threats	A coordinated resilience planning process should be developed to respond to anticipated future threats to the habitat. Management actions arising from the resilience planning process, 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

Research and monitoring	To identify emerging impacts on the habitat and their causes, in order to understand the long term issues, identify refugia, and review site-level resilience plans in the light of updated future threat projections.	NatureScot, Forest Research, Universities, land managers
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