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Scotland's Nature Agency
Buidheann Nàdair na h-Alba

ARDGOUR PINEWOODS SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

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Site Details

Site name:	Ardgour Pinewoods
Map:	https://sitelink.nature.scot/site/8189
Location:	Highlands and Islands
Site code:	UK0013091
Area (ha):	1,645.96
Date designated:	17 March 2005

Qualifying Features

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Caledonian forest [H91C0]*	Unfavourable-No change	20 April 2018	Unfavourable-Bad
Alder woodland on floodplains [H91C0]*	Favourable Maintained	3 March 2008	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

Ardgour Pinewoods Site of Special Scientific Interest (SSSI) and Loch Shiel SSSI.

Key factors affecting the qualifying interests

Caledonian forest
Caledonian forest comprises relict, indigenous pine forests of Scots pine *Pinus sylvestris* var. *scotica*, 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. Caledonian forest 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 distort the natural structure and variation within the woodlands, producing a habitat that lacks a natural representation of intermediate life classes resulting in an abundance of old trees with very few younger ones. 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 feature has been assessed through NatureScot's site condition monitoring programme as being in unfavourable condition at this SAC due to grazing pressures, poorly developed under-storey and canopy cover, and limited woodland regeneration.

Alder woodland on floodplains

This habitat in this location is typical of the type. This habitat of riverine woods are often just narrow strips or lines of trees. This is due to clearance of woodland along rivers that has removed most of the true alluvial forests, leaving just fragments, many of which are relatively recent in origin. As such these residual alder woods on floodplains frequently occur in association with other woodland types or with other wetland habitats such as lochs and fens.

Alder woodland on floodplains comprises woods dominated by alder *Alnus glutinosa* and willow *Salix* species on flood plains in a range of situations from islands in river channels to low-lying wetlands along river channels and loch-sides. The habitat typically occurs on moderately base-rich, eutrophic soils subject to periodic inundation.

As this woodland habitat is dynamic in nature the structure and function are best maintained within a larger unit that includes the open communities, mainly fen and swamp, of earlier successional stages.

Key management issues that could affect this habitat include grazing, invasive non-native species and changes in local and catchment hydrology.

Further information about this SAC's protected habitats can be found on the JNCC website.

Conservation Priorities

There are no potential conflicts between these two features, due to the specific conditions required for each of the habitats. Alder woodlands on flood plains are confined to wet areas of the site along the riverside which is unlikely to support Caledonian pine wood which tends to grow on drier slopes.

Overarching Conservation Objectives for all habitat features

1. To ensure that the qualifying features of Ardgour Pinewoods 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 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 Ardgour Pinewoods is restored by meeting objectives 2a, 2b and 2c for each qualifying feature

The aim at this SAC is to maintain, or where appropriate restore, the protected habitats in 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 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 habitats' 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 Caledonian forests

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

Maintain approximately 329ha.

The area figure of the extent of the Caledonian forest feature 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.

This will include the avoidance of effects that could lead to a permanent reduction in the extent or distribution of the habitat such as medium or high levels of grazing or, minimising the risk of fire.

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, long lived (to >250 years) and grows 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, especially on pockets of richer soils
- has ground flora dominated by dwarf ericaceous shrubs, grasses, bryophytes and in places rare pinewood specialist species

This can be achieved through the presence of key tree species at all ages up to senescence and death, particularly Scots pine, birch species, hazel, rowan, alder, holly, oak, bird cherry and eared willow 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 and cone.

Grazing pressures caused by deer mean that the under-storey and canopy cover both need to be restored so that the woodland has a more natural structure. Measures are also needed to allow sufficient regeneration by native tree species. Not enough seedlings are growing through to young trees to maintain canopy density over the woodland as a whole (regeneration is sufficient within exclosures but not outside exclosures).

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. It is usually found on strongly-leached, acidic podzols, and these soil conditions are reflected in the ground flora, which typically includes the dwarf shrubs heather *Calluna vulgaris*, bilberry *Vaccinium myrtillus* and cowberry *V. vitis-idaea*, wavy hair-grass *Deschampsia flexuosa*, and the bryophytes *Dicranum scoparium*, *Hylocomium splendens*, *Pleurozium schreberi* and *Rhytidiadelphus loreus*. This type of woodland is noted for several rare northern species, including, chickweed wintergreen *Trientalis europaea,* lesser twayblade *Listeria cordata* and the moss *Ptilium crista-castrensis*.

The pinewoods support a nationally important assemblage of beetles, which includes the rare beetle *Bolitophagus reticulates* and the beetle *Cetonia cuprea*. The site is also important for its significant reptile assemblage, which includes common lizard and slow worm, and is particularly noteworthy for adders which are unusually abundant for this part of Scotland. The edges of the woodlands have created suitable habitat for nationally scarce chequered skipper *Carterocephalus palaemon* butterfly.

Grazing levels can impact the typical species of this site. Measures need to be put in place to allow sufficient regeneration of native tree species within the SAC and the under-storey and canopy cover both need to be restored.

Conservation Objectives for Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (Alder woodland on floodplains)

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

The extent of the alder woodland on floodplains feature, taken from the Standard Data Form, has been estimated at 14.81ha and represents the, often complex, yet limited, mosaic of several individual stands of habitat. This should be maintained and allowed to expand through natural regeneration.

There should be no measurable net reduction in the extent of the habitat and its distribution throughout the site. This will include the avoidance of effects that could lead to a permanent reduction in the extent or distribution of the habitat such as further agricultural reclamation, minimising the risk of fire and preventing the dumping of waste.

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

This habitat depends on hydrological conditions that lead to a high water table, wet conditions and sufficient variation to allow channel dynamics and vegetation succession to occur. This should allow for an abundance of key tree species that:

- Can colonise the floodplain substrate (wet, unstable) and thrive (tolerance of high water table)
- Can create important habitat structure for freshwater invertebrates and fish
- Can support a wide variety of terrestrial invertebrates, whilst overhanging the water surface (providing food for fish and other aquatic predators)
- Can provide leaf litter with a rapid decomposition rate, high levels of nitrogen, moderate levels of phosphorous and low levels of refractory carbon
- Provide moderate shade, especially over the water surface
- Can capture or fix nitrogen and make it accessible to other parts of the ecosystem

These conditions are achieved through maintaining the correct hydrological conditions that allow the river channels to move through the natural processes of erosion and deposition; 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 to flower and fruit (particularly important on drier margins).

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

Many alder woods on floodplains are dynamic, being part of a successional series of habitats. In the UK this Annex I habitat falls mainly within the following NVC types:
W5 *Alnus glutinosa – Carex paniculata* woodland
W6 *Alnus glutinosa – Urtica dioica* woodland
W7 *Alnus glutinosa – Fraxinus excelsior – Lysimachia nemorum* woodland

The key tree species found in this habitat are alder (*Alnus glutinosa*) and willow (*Salix* species). On the drier margins of these areas other tree species, downy birch (*Betula pubescens*), oak (*Quercus petraea*) and Hazel (*Corylus avellana*) may become abundant. In other situations the alder woods occur as a stable component within transitions to

surrounding dry-ground forest.

These transitions from wet to drier woodland and from open to more closed communities provide important ecological variation. The ground flora is correspondingly varied. Some stands are dominated by tall herbs, reeds and sedges, for example, common reed *Phragmites australis*, greater tussock-sedge *Carex paniculata*, and meadowsweet *Filipendula ulmaria* while others have lower-growing communities with common marsh bedstraw *Galium palustre* and alternate-leaved golden-saxifrage *Chrysosplenium oppositifolium.*

Conservation Measures

Ardgour Pinewoods 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 Caledonian forest and Alder woodland on floodplains

Issue	Measure	Responsible party
Herbivore impacts	Ensure that herbivore impacts on the feature are 'low' across the majority of the woodland based on the SLF/NatureScot Herbivore Impact Assessment Process	Land managers, NatureScot, Deer Management Groups
Muirburn	Ensure muirburn follows best practice and the Muirburn Code and does not occur in the woodland	Land managers
Invasion by non-native species.	Ensure that invasive non-natives (including non-native conifers and rhododendron) do not encroach and/or spread across the site.	Land manager
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	NatureScot, Universities, land managers

	review site-level resilience plans in the light of updated future threat projections.	

Contact details:
NatureScot
Torlundy
Fort William
PH33 6SW

01463 701 650

Approved on 09 March 2020 by:

Greg Mudge
Principal Advisor
International Designations

Graham Neville
Area Manager,
Northern Isles & North Highland