

## **CAWDOR WOOD SPECIAL AREA OF CONSERVATION (SAC)**

### **CONSERVATION ADVICE PACKAGE**

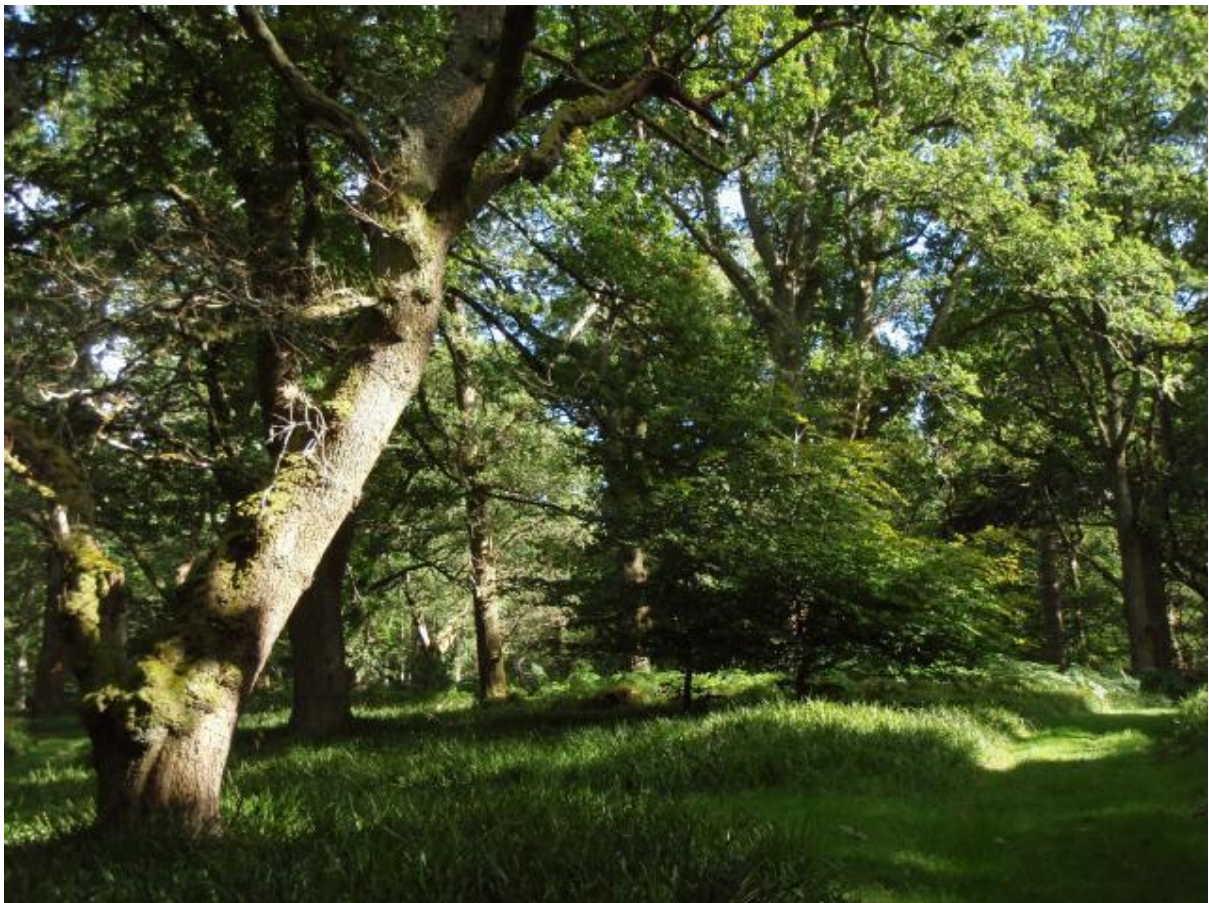


Image: Cawdor Wood SAC © NatureScot

## Site Details

Site name:	Cawdor Wood
Map:	<a href="https://sitelink.nature.scot/site/8222">https://sitelink.nature.scot/site/8222</a>
Location:	Highlands and Islands
Site code:	UK0030112
Area (ha):	161.68
Date designated:	17 March 2005

## Qualifying Features

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Western acidic oak woodland [H91A0]	Unfavourable No change	9 September 2014	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.

## Overlapping Protected Areas

[Cawdor Wood Site of Special Scientific Interest \(SSSI\)](#)

## Key factors affecting the qualifying features

### Western acidic oak woods

This habitat type comprises a range of woodland types dominated by mixtures of oak (*Quercus robur* and/or *Q. petraea*) and birch (*Betula pendula* and/or *B. pubescens*). Cawdor Wood SAC forms one of the largest oak woodland sites in north-east Scotland. Oak dominates much of the site with varying amounts of birch, rowan, holly, aspen, juniper and Scots pine, along with non-natives including Norway and Sitka spruce, Douglas fir, European larch, western hemlock and beech. Whilst the existing pine trees were planted, it has been suggested that the pine/ oak mixture has a natural origin. Greater woodrush and bluebell carpet the ground below the oaks, with wavy hairgrass and blaeberry in the more acidic areas, and both juniper and holly are present in the understory. The deep gorges, cutting into Moine schist and Old Red Sandstone, support ash and wych elm woodland, with hazel, rowan

and hawthorn. These areas correspond to *Tilio-Acerion* woodland. The site is unusual among western acidic oak woodlands in having a relatively dry continental climate, and this contributes to its outstanding lichen flora which has a suboceanic or continental nature. Across Britain there are few such ancient woodlands with a relatively dry climate that are not in regions that have suffered from atmospheric pollution.

The woodland is considered to be in unfavourable condition at this site due to the levels of non-native trees and shrubs present, and the level of grazing/ browsing. Regeneration of native species appears low and the regeneration that is taking place is mostly from non-native species such as beech, sycamore and some rhododendron. The presence of non-native species such as rhododendron, and exotic conifers, can impact the habitat, shading out ground flora and epiphytes, and preventing natural regeneration of native tree and shrub species.

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 oak. 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.

In the future new stresses to the feature, particularly from climate change and novel pests and pathogens, are anticipated.

Further information about western acidic oak woods can be found on the [JNCC website](#).

### **Conservation Objectives for old sessile oak woods with *Ilex* and *Blechnum* in the British Isles (western acidic oak woods)**

<b>1. To ensure that the qualifying feature of the SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status</b>
---

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 the SAC is restored by meeting objectives 2a, 2b and 2c**

The aim at this SAC is to restore the protected habitat in a 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 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.

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

The extent of the western acidic oak woodland feature has been estimated at 105.09ha. This should be maintained or allowed to increase through natural regeneration. There should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

To avoid any permanent reduction in the extent or distribution of the habitat no habitat loss should take place from within or at the edge of the woodland, for example through non-native forestry planting or dumping of waste. 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**

Woodlands are extremely complex ecosystems, and in order to maintain and enhance the structure, function and processes supporting the habitat the key elements that should be in place include:

- Mixed age classes of trees, canopy cover, deadwood/fallen trees, understorey, ground flora & epiphytic plants. At this site there are low levels of native tree species regeneration.
- Large, long lived trees with the characteristics of existing species, especially the defining species of oak (bark chemistry and structure, shade, leaf litter, fruiting, senescence and deadwood development).

- Low levels of herbivore impacts balancing fruiting, regeneration and growth of trees, shrubs, herbs and bryophytes and lichens, ground disturbance and structural variation. At this site browsing is likely to be contributing to the apparent lack of regeneration by native tree species.
- Levels of humidity capable of supporting characteristic bryophyte and lichen assemblages.
- Absence of invasive non-native species, especially *Rhododendron*. Within the woodland a combination of competition from non-native tree species and browsing is contributing to the apparent lack of regeneration by native tree species.
- Prevention of pathogen arrival, establishment and spread.

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

The habitat corresponds broadly to the 'western oakwoods' described in accounts of UK woodlands; the principle NVC types at this site are:

W10e *Quercus robur* – *Pteridium aquilinum* – *Rubus fruticosus* woodland, *Acer pseudoplatanus* – *Oxalis acetosella* sub-community

W16 *Quercus* species – *Betula* species – *Deschampsia flexuosa* woodland

The ground flora is variable. The W10e habitat is dominated by greater wood-rush *Luzula sylvatica* with small patches of creeping soft grass *Holcus mollis*, common wood-sorrel *Oxalis acetosella*, honeysuckle *Lonicera periclymenum*, bracken *Pteridium aquilinum*, bramble *Rubus fruticosus*, and greater stitchwort *Stellaria holostea*. Red campion *Silene dioica*, foxglove *Digitalis purpurea* and climbing corydalis *Ceratocarpus claviculata* occur locally. The W16 habitat is less rich in vascular plants; wavy hair-grass *Deschampsia flexuosa* and *Pteridium aquilinum* are the most consistent species. *L. periclymenum* and *R. fruticosus* also occur though they are not as abundant as in W10. *L. sylvatica* is locally abundant on steep slopes and blaeberry *Vaccinium myrtillus*, heather *Calluna* and *Erica* species are frequent in ungrazed stands.

Western acidic oak woodland supports an important component of Britain's oceanic bryophyte flora and lichen mycota. The distribution and viability of these assemblages should be maintained with particular focus on nationally rare, scarce and/or threatened species and on assemblages that indicate a long period of ecological continuity. Conditions needed for lichens include maintaining sheltered but open old-growth conditions where the impact of shade, due to regeneration and climber growth, is balanced at the site scale against the need for continued woodland regeneration. An imbalance in the age structure in the woodland, or failure of the range of tree species to regenerate, therefore not only threatens the long-term viability of the woodland but is also detrimental to the associated lichens that rely on continuity of canopy cover and the presence of oak trees. There is a lack of regeneration of native tree species at the site that is thought to be due to browsing and competition from non-native tree species.

Lichen species, including *Schismatomma graphidioides*, are found on beech trees at the site. However the presence of beech detracts from the overall lichen potential of the site, as it is a densely shade-bearing tree that inhibits regeneration of native trees (including oak), as well as reducing lichen potential on adjacent oak and in the ravine woodlands. It also has a

negative effect on bryophytes. It is a prolific seed-bearing tree, and is responsible for a flush of young beech regeneration seen at many places throughout the SAC

The lichen assemblage at the site is considered to be of international importance. 244 lichen taxa have been recorded, including 28 nationally scarce and 6 nationally rare species, of which three are Red Data Book species (*Lecanactis amylacea* (Vulnerable), *Schismatomma graphidioides* (Vulnerable) and *Buellia violaceofusca* (Near Threatened)). Oak is of particular importance to the lichen assemblage but other tree species including birch, pine and hazel also support a high number of lichens.

The bryophyte flora is less significant, although still rich for a woodland where the rock exposure is limited to steep shaded ravines. A 2002 survey found 92 moss and 47 liverwort taxa, including a large population of the Nationally Scarce moss *Seligeria donniana* on calcareous rocks in ravines, and the oceanic liverwort *Lejeunea lamarcerina* on acid rocks in the same ravines.

Typical vertebrate species present include red squirrel. The site supports a rich woodland bird community which includes redstart *Phoenicurus phoenicurus*, spotted flycatcher *Muscicapa striata*, and siskin *Carduelis spinus* with occasional blackcap *Sylvia atricapilla* and chiffchaff *Phylloscopus collybita*. Woodcock *Scolopax rusticola*, capercaillie *Tetrao urogallus*, Scottish crossbill *Loxia scotica* and great spotted woodpecker *Dendrocopos major* are present. The large trees provide excellent nesting habitat for birds of prey.

## Conservation measures

Cawdor Woods SAC also contains areas 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 western acidic oak woods

Issue	Measure	Responsible party
Hydrology	Ensure natural hydrological processes and levels of humidity are maintained to support characteristic bryophyte assemblages, especially in the ravines.	Landowner Land manager SEPA NatureScot
Herbivore impacts	Ensure that herbivore impacts are low based on the FCS/SNH (NatureScot) Herbivore Impact Assessment Process.  Grazing by deer is having an impact on the regeneration of native tree species at the site. However it is also likely to be slowing the spread of invasive species. The need for any additional deer management should be considered alongside the removal of invasive non-native species.	Land managers, NatureScot, Deer Management Groups
Non-native species	The key action required is the removal of the non-native species	Land manager NatureScot

	<p>rhododendron, beech, sycamore and hemlock.</p> <p>Woodland management should be carried out with reference to the management requirements for the lichen assemblage.</p>	
Future threats	<p>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.</p>	NatureScot Land managers
Climate change	<p>Discussions on options available and participation in available local, national and international initiatives</p>	Land manager, Local authority, Scottish/UK Government, NatureScot
Research and monitoring	<p>To identify emerging impacts on the habitat and their causes, in order to understand the long term issues, identify refugia, review site-level resilience plans in the light of updated future threat projections and to inform future management of the habitat across Scotland.</p>	NatureScot, Universities, land managers

Contact details: NatureScot  
Fodderty Way  
Dingwall Business Park  
Dingwall  
IV15 9XB  
United Kingdom

Telephone: 01463 701610

Approved on 20 April 2020 by:

**Greg Mudge**  
Principal Advisor  
International Designations

**Graham Neville**  
Area Manager  
Northern Isles & North Highland