LOCH LOMOND WOODS SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

Image: Ross Wood – Loch Lomond Woods SAC and Rowardennan Woods SSSI
Henry Lima/NatureScot

Site Details

Site name:	Loch Lomond Woods
Map:	https://sitelink.nature.scot/site/8298
Location:	Eastern Scotland, South Western Scotland
Site code:	UK0013573
Area (ha):	1,440.20
Date designated:	17 March 2005

Qualifying features

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Western acidic oak woodland	Unfavourable Declining	27 June 2002	Unfavourable-Bad
Otter (Lutra lutra)	Favourable Maintained	25 August 2012	Favourable

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.

Other overlapping Protected Areas

Rowardennan Woodlands Site of Special Scientific Interest (SSSI), Pollochro Woods SSSI, Craig Royston Woods SSSI, Glen Falloch Woods SSSI, Inchtavannach and Inchconnachan SSSI, Glen Loin SSSI, West Loch Lomondside Woodlands SSSI, Inchlonaig SSSI, Conic Hill SSSI, Endrick Mouth and Islands SSSI.

Key factors affecting the qualifying features

Western acidic oak woodland
This habitat type comprises a range of woodland types dominated by mixtures of oak and birch. It is characteristic of base-poor soils in areas of at least moderately high rainfall. A key feature of importance within this habitat type is the well-developed Atlantic bryophyte communities it can support.

Western oak woodland is in unfavourable declining condition with increasing pressures from over grazing, invasive non-natives, recreation, disease and climate change.

A key factor that can affect this habitat is inappropriate levels of grazing. The habitat requires low but not zero grazing. High levels of grazing can distort the natural structure of the woodlands (especially within the oak populations) leading to woodland dominated by older trees and lacking normal representation of intermediate life classes. In areas with high herbivore impact such as on some of the islands, Pollochro Wood, Craig Royston Wood and Rowardennan Wood there is a lack of woodland structure. There is little ground flora made up of palatable species, almost no shrub layer and mostly only mature and dying trees. Most of the damages by grazing are due to fallow, red and roe deer or goats, but on Inchtavannach they are due to high levels of livestock grazing in the woodland.

The presence of non-native species such as Rhododendron can also impact the habitat and prevent natural regeneration. Rhododendron competition is particularly damaging north and south of Inversnaid and is also on some of the islands and parts of Rowardennan. Non-native conifers are also impacting on the woodlands especially on Inchtavannach, Rowardennan and Craig Royston, where old forestry plantations of mixed conifers are now reseeding throughout the woodland and causing damage to the structure and function of the existing wood.

There is potential for large scale conifer removal at Ptarmigan Ridge which could greatly increase the extent of native woodland in the wider area if replanted. If the conifer removal project is approved then the existing West Highland Way track will be utilized for extraction but it will need considerable alterations. The impact from this alteration could cause considerable impact to the woodland feature.

New stresses to the feature from climate change are likely and novel pests and pathogens are anticipated. Ash die back disease has already killed a proportion of the ash.

Recreation has affected areas close to the core paths due to braiding of these paths. This is especially damaging at Pollochro Wood.

Further information about Western acidic oak woods can be found here.

Otter

Otter require continued proximity to unpolluted open water either freshwater or coastal. There should be a plentiful food supply and features for providing shelter for both resting and breeding. They are wide ranging and normally occur at low densities.

Previous population declines in otters were primarily due to pollution and persecution. The population of otters is now increasing.

Further information about otters can be found here.

Conservation Priorities

There are no likely conflicts between the priorities for management for western oak woodland and those for otter.

Conservation Objectives

Conservation Objectives for western acidic oak woodland (also known as Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0])

1. To ensure that the qualifying features of Loch Lomond Woods 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 Loch Lomond Woods SAC is restored by meeting objectives 2a, 2b and 2c for each qualifying feature
The aim at this SAC is to restore the Western acidic oak woods habitat to 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 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 western acidic oak woodland feature, taken from the Standard Data Form, has been estimated at 1440.2ha. 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.

Opportunities exist for significant increase in extent of the western acidic oak woodland through clearance of non-native conifer plantation both within and surrounding the SAC.

The woodland is made up of a mosaic of woodland habitat types including wet woodland and upland ash woodland, scrub and open spaces. These other supporting habitats should be maintained and allowed to extend into areas that are planted with non-native conifers.

Further increases in extent could be made by reduction in the ground dominated by rhododendron, Japanese knotweed and other invasive non-natives.

To avoid any permanent reduction in extent or distribution of habitats no further agricultural reclamation, non-native forestry planting, or dumping of waste should take place.

This conservation objective is considered to be met if the conditions to ensure the habitat's long-term existence are in place.

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

This habitat type comprises a range of woodland types dominated by mixtures of oak. It is found in areas of base-poor soils with at least moderately high rainfall, and is characterised by tree cover that:

- Has a high 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. Some western oceanic locations may be of smaller and scrub-dimensions.
- Is dominated by variable proportions of species with the characteristics (shade, leaf decay, structure, bark pH and obligate/associated dependent species) of oak and birch, with holly and in some places hazel as a lower shrub. The high forest types include long lived trees growing to large dimensions with a variety of niches including furrowed bark, rot-holes, large slow-decaying snags and deadwood.

At Loch Lomond Woods this characteristic woodland structure has been affected in many locations by decades of over grazing so that there are few seedlings or saplings leaving an aging woodland dominated by mature and dying trees. This in turn affects the ability of the woodland to support other species.

The field layer is generally species-poor, characterised by ericoid shrubs, bracken and grasses. In the more oceanic and wetter parts of the range as we have here, the diversity of ferns and particularly lichens and bryophytes dominates the species interest. In most locations within Loch Lomond Woods the shrub layer has been grazed out or is supressed from the impacts of 3 deer species, goats and livestock. Several of the fern species are also severely grazed.

The appropriate structure of this habitat can be achieved by ensuring an abundance of key tree and shrub species, and absence of invasive species such as rhododendron, non-native conifers and appropriate low grazing levels that allow trees, shrubs and ground flora to develop naturally to allow flowering and seed set for regeneration.

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

The habitat corresponds broadly to the western oakwoods described in previous accounts of UK woodlands, particularly NVC types:

- W10e Quercus robur – Pteridium aquilinum – Rubus fruticosus woodland, Acer pseudoplatanus – Oxalis acetosella sub-community
- W11 Quercus petraea – Betula pubescens – Oxalis acetosella woodland
- W16b Quercus spp. – Betula spp. – Deschampsia flexuosa woodland, Vaccinium myrtillus – Dryopteris dilatata sub-community
- W17 Quercus petraea – Betula pubescens – Dicranum majus woodland

The key tree species found in this habitat are oak (*Quercus robur* and/or *Q. petraea*) and birch (*Betula pendula* and/or *B. pubescens*). There is significant variation between individual stands of the habitat in domination by either oak or birch. Inchconnachan and Inchlonaig are dominated by birch rather than oak. Parts of Rowardennan and Craig Royston are mosaics with wet and ash woodland and Pollochro is a mosaic of wet woodland and oak birch woodland. Holly and hazel are also important components of the habitat. At Rowardennan there are large areas of pure stands of hazel.

The ground flora is variable but key species may include dominant grasses such as Agrostis capillaris/canina bent grass, Anthoxanthum odoratum sweet vernal grass in less acidic soils and Deschampsia flexuosa wavy hair grass in more acidic soils. There is also a diverse fern assemblage including several Dryopteris spp buckler ferns, Blechnum spicant hard fern and the Oceanic Wilson's filmy fern Hymenophyllum wilsonii. Key bryophytes species include hypnoid moses such as Dicranium majus, Pleurozium schreberi, Rhytidiadelphus loreus and Polytricum formosum. The scrub layer may be absent or often dominated by ericoid scrubs such as Calluna vulgaris heather and Vaccinium myrtillis blaeberry along with Rubus fruticosus, Oxalis acetosella, Potentilla erecta and Galium saxatile.

Natural regeneration of the typical species of the habitat is being prevented in many parts of the SAC by the presence of non-native species. Rhododendron competition is particularly damaging north and south of Inversnaid and is also on some of the islands and parts of Rowardennan. Non-native conifers from old forestry plantations are also reseeding throughout the woodlands especially on Inchtavannach, Rowardennan and Craig Royston. Removal of these non-native species is needed to ensure that the distribution of the typical oakwood species throughout the SAC is not compromised.

There are large numbers of moths in this area and they often feed on the oak leaves. The caterpillars are important food for several bird species in this area including redstart, pied flycatcher and wood warbler. The oak also supports populations of red squirrel and this in turn supports populations of pine martens.

Conservation Objectives for Otter [S1355]

1. To ensure that the qualifying features of Loch Lomond Woods 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 Loch Lomond Woods SAC is restored by meeting objectives 2a, 2b and 2c for each qualifying feature

The aim at this SAC is to maintain Otters 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 continue to 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 species are exposed to a wide range of drivers of change. Some of these are natural (e.g. population fluctuations/ shifts or habitat changes resulting from natural processes) and are not a direct result of human influences. Such changes in the qualifying species' distribution and use of 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 population of the species as a viable component of the site

An estimate of the number of otters occupying the site is not available and therefore there is no numerical baseline that can be given for the site. When considering the impacts of a plan or project this conservation objective is considered to be met if the conditions for the species' long-term existence are in place. This includes:

- avoiding effects that could lead to a permanent reduction in the otter population through mortality, injury, or impacts caused by disturbance or displacement. This includes for example the effects caused by development, river engineering, water pollution, roads without adequate crossing provision for otters or suitable culverts, or entanglement in fishing gear.
- maintaining the species' ability to use all areas of importance within the site (to be considered under conservation objective 2b)
- maintaining access to, and availability of, undisturbed resting places
- maintaining access to, and availability of, supporting habitats and prey (to be considered under conservation objective 2c).

Otters are wide-ranging and highly mobile. The population at Loch Lomond Woods SAC is reliant on suitable habitat in the surrounding wider countryside and is unlikely be viable (capable of functioning) in isolation. The home range of an otter will vary depending on their sex, habitat quality and food availability. It will also vary between freshwater and coastal environments. Males living in rivers and streams can have a mean linear range size of 48km

and females living in the same habitat can have a mean linear range of 21km. Males have been known to range as far as 80km. When assessing the effects of any plan or project consideration should be given to whether impacts outwith the SAC could affect achievement of this conservation objective.

Otters are a European protected species (EPS) and it is an offence to deliberately or recklessly capture, injure, kill, harass or disturb them in certain circumstances, or to damage or destroy their breeding or resting places anywhere in Scotland unless a licence has been issued to do so. A licence can only be issued for particular purposes which the law allows. Further, there must be no satisfactory alternative and no detrimental impact on the contribution to the maintenance of otter at a favourable conservation status for a licence to be issued. This assessment considers impacts on the otter population at a local and regional level. The licensing requirement is in addition to considering whether a plan or project will result in any impacts (including incidental impacts) to the otter population within the SAC.

2b. Maintain the distribution of the species throughout the site
Distribution of otters within the site can be affected by disturbance originating both within and outwith the site. Plans and projects that cause displacement and barrier effects to the species can also affect species distribution. Examples include use of night-time floodlighting of watercourses, road and bridge construction works and general disturbance from human activity (and dogs) by watercourses especially at dusk/night-time.

2c. Maintain the habitats supporting the species within the site and availability of food
Otters require suitable habitat for foraging, breeding and resting. In freshwater environments abundant boulders, crevices and/or peat, or other cavity-forming features such as tree root systems are needed to provide secure holt sites. Dense scrub is also valuable for providing lie-ups and couches. Suitable areas supporting a healthy fish population within a nearby watercourse or still water body are required within each otter's home range, to enable foraging for key prey species such as salmonids and eels. Access to ponds, ditches, reedbeds and wetlands where amphibians may breed is also important. Changes to water flow and water quality can adversely affect otter habitat and prey on which they depend. Otters' food supply is normally associated with good water quality and therefore the water quality standards set out under the Water Framework Directive (2000/60/EC) should be met. Several streams run though the site, however these are below the size threshold for SEPA's freshwater classification system and so separate water quality monitoring is needed.

Conservation Measures

There are 10 underlying SSSIs within the SAC, and changes to land management described on the lists of Operations Requiring Consent must have prior consent from SNH (NatureScot).

Current and recommended management for Western acidic oak woods

Issue	Measure	Responsible party
Herbivore impacts	Ensure that herbivore impacts are low based on the FCS/SNH (NatureScot) Herbivore Impact Assessment. Current herbivore impacts are high across much	Land managers, NatureScot, Deer Management Groups

	of the SAC. Increased culling effort is in progress in most areas for all species monitored including red, fallow and roe deer, goats and wallaby. Further HIA surveying is recommended at 2 year intervals.	
Hydrology	Ensure natural hydrological processes are maintained where they support significant populations of typical wooded ravine bryophytes and lichens.	Landowner SEPA NatureScot
Trampling (human, stock & wild mammal) and other mammalian plant damage	Over grazing by cattle and horses has damage the structure of the woodland at Inchtavannach over approximately 30% of the island. NatureScot is currently working with land managers to address this. Core paths through Pollochro Wood are severely braided in some places and there is damage to the ground flora and potential for sediment to enter the waterways over <1% of the area. We recommend that the path route on the WHW is clear to restore braided areas through discussions with land managers.	Land manager Local authority
Invasion by non-native species	Non-native conifer plantations are interspersed around the SAC within the native woodland. Removal of these would allow the native woodland to expand its extent. NatureScot have mapped their locations at Rowardennan and provision for their clearance can be discussed with FLS. Rhododendron encroachment is widespread and damaging to the woodland. There is ongoing clearance by The Loch Lomond and the Trossachs National park, Forest and Land Scotland and several land owners who have funding support and plans for invasive plant removal. Also present and currently being removed are Japanese Knotweed at Rowardennan, American Skunk cabbage at Gartfairn Wood, Stranvaesia/Photinia davidiana at Sallochy and Sasa palmatum bamboo on Torrinch. There are other species.	Land manager
Future threats	A coordinated resilience planning process is recommended to respond to anticipated future threats to the habitat.	NatureScot Land managers

	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. Threats include tree diseases, further invasive non-natives, changes in habitat due to climate change for example increased bracken coverage.	
Research and monitoring	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.	NatureScot, Universities, land managers

Current and recommended management for Otters

Issue	Measure	Responsible party
Ongoing species protection	Otter are a European protected species and therefore the species protection provisions of the Habitats Regulations apply.	All
Water quality monitoring	Implement and maintain monitoring of key water quality parameters. We recommend that all development, forestry operations and septic works abide by SF and SEPA guidelines when working near water.	NatureScot/SEPA

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Approved on 16 December 2019 by:

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