

## **LOWER FINDHORN WOODS SPECIAL AREA OF CONSERVATION (SAC)**

### **CONSERVATION ADVICE PACKAGE**



Lower Findhorn Woods © NatureScot

## Site details

Site name:	Lower Findhorn Woods
Map:	<a href="https://sitelink.nature.scot/site/8310">https://sitelink.nature.scot/site/8310</a>
Location:	Highlands and Islands
Site code:	UK0030197
Area (ha):	177.14
Date designated:	17 March 2005

## Qualifying feature

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Tilio-Acerion forests of slopes, screes and ravines [H9180] (Mixed woodland on base-rich soils associated with rocky slopes) *	Unfavourable Declining	24 September 2012	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

[Lower Findhorn Woods Site of Special Scientific Interest \(SSSI\)](#), [Randolph's Leap SSSI](#), [Darnaway and Lethan Forest Special Protection Area](#)

## Key factors affecting the qualifying features

### 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 that then grade into other woodland types on level valley floors or slopes above.

The Lower Findhorn Woods represent Tilio-Acerion forest in the north-eastern part of its range in the UK. The River Findhorn flows through a deep gorge, the sides of which are cloaked in ancient semi-natural woodland, and there are some very good stands of the habitat scattered along the length of this site, wherever suitable topographic and soil conditions occur. The ground flora is species-rich with good floristic assemblages and several locally rare species, and the outstanding epiphytic lichen flora represents a highly continental type similar to that of dry mixed oak forests in southern Scandinavia.

The key management issue for this site, and the reason the site is considered to be in unfavourable condition, is the presence and level of regeneration of non-native species - principally beech but also sycamore and non-native conifers - which outcompete the native species. Such species can impact the habitat, shading out ground flora and epiphytes, and preventing natural regeneration of native tree and shrub species.

In the future new stresses to the feature, particularly from climate change, chalara ash-dieback and possibly other novel pests and pathogens, are anticipated.

Further information about this woodland habitat can be found [here](#).

### **Conservation Objectives for mixed woodland on base-rich soils associated with rocky slopes**

<b>1. To ensure that the qualifying feature of Lower Findhorn Woods SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status</b>
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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 Lower Findhorn Woods SAC is restored by meeting objectives 2a, 2b and 2c**

The aim at this SAC is to restore the mixed woodland on base-rich soils associated with rocky slopes habitat to 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 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 *Tilio-Acerion* forests of slopes, screes and ravines feature within the site has been estimated at 14.17 ha. The area figure is an estimate and has been taken from the Standard Data Form. Fundamentally however there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

Lower Findhorn Woods SAC consists of about 16 km of wooded gorges and valley slopes on the lower reaches of the River Findhorn and its tributaries, the River Divie and Dunearn Burn. Most of the woodland is ancient or long established and the diversity of the woodland is exceptional with extensive areas of several different woodland types. The SAC habitat is scattered along the length of the site, typically occurring in areas with nutrient-rich soils that have formed in association with base-rich rocks, and where there is base-rich flushing.

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. Herbivore impacts are not currently identified as a significant issue at this site.

### **2b. Restore 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, 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, oak, hazel, wych elm and cherry.

- 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. A wide range of other basiphilous herbs and grasses may occur within these stands. Many sites support notable bryophytes, in particular calcicoles associated with base-rich rock outcrops. This SAC has important assemblages of epiphytic lichens.

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

Non-native tree species, including beech, sycamore and non-native conifers are present on site, the cover of which has been found to exceed acceptable levels in some parts of the site.

### **2c. Restore 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*), wych elm (*Ulmus glabra*), gean (*Prunus avium*), bird cherry (*Prunus padus*)

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 ramsons *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 cleavers *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. Many sites support notable bryophytes, in particular calcicoles associated with base-rich rock outcrops. Some localities have important assemblages of epiphytic lichens (that grow on the surface of other plants).

At Lower Findhorn the woodlands are rich in vascular plants with at least 327 species - including several rare species such as bird's-nest orchid *Neottia nidus-avis*, wood fescue *Festuca altissima* and pale sedge *Carex pallescens*. The woodland lichen flora is well developed with one of the highest number of indicator species of old woodlands in eastern Scotland and the best example of the lichen community characterised by lungwort *Lobaria pulmonaria* in the north-east. The site supports a total of 166 bryophyte species which is a good total for a lowland, eastern site. The base-rich crags are the most important habitat for bryophytes with several rare liverwort species. These crags and rocks by the rivers and burns also support oceanic bryophytes.

The River Findhorn is amongst the richest examples of oligotrophic (water of low productivity), spating rivers in Britain in terms of diversity of habitats and aquatic vegetation. Two rare river lichens are found: the river jelly lichen *Collema dichotomum* and *Dermatocarpon meiophyllizum*

#### 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 in the UK 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.

Neither DED nor ADB is a major issue at this site at the time of writing, however for this woodland type the provision of ash-associated critical characteristics is at serious risk in the long term.

#### Invasive non-native species

A key issue for this site is the presence of invasive non-native tree species – principally beech but also sycamore and non-native conifers – which out-compete the native tree species, having a knock-on effect on ground flora and epiphytic lichens.

### **Conservation measures**

Lower Findhorn Woods is notified as a SSSI and management changes described on the list of Operations Requiring Consent must have prior consent from SNH (NatureScot).

### **Current and recommended management**

<b>Issue</b>	<b>Measure</b>	<b>Responsible party</b>
Control/removal of invasive non-native species	Discussions on options available to reduce the presence of non-native tree species, principally beech, sycamore and non-native conifers, and control of regeneration of these species; control removal of other invasive non-native species such as laurel, rhododendron and giant hogweed.	Land managers, NatureScot
Avoidance of introduction of known pathogens	Discussions on options available to avoid any introduction of known disease organisms.	Land managers, NatureScot

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. Of particular relevance are Dutch elm disease and ash dieback.</p> <p>This resilience work may also include further research to understand the vulnerabilities of the habitat.</p>	NatureScot Land managers
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