GLENARTNEY JUNIPER WOOD SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

Site details

Site name:	Glenartney Juniper Wood
Map:	https://sitelink.nature.scot/site/8267
Location:	Eastern Scotland
Site code:	UK0030156
Area (ha):	101.45
Date designated:	17 March 2005

Qualifying Feature

Qualifying Feature	SCM Assessed condition	SCM visit date	UK overall Conservation Status
Juniperus communis formations on heaths or calcareous grasslands [H5130] (Juniper on heaths on calcareous grasslands)	Unfavourable No change	31 October 2016	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. Since reporting, it should be noted that this feature has undergone significant decline on many sites due to the presence of *Phytopthora austrocedrae* and so the conservation status may not reflect the current situation.

Other overlapping Protected Areas:

Glenartney Juniper Wood Site of Special Scientific Interest (SSSI)

Key factors affecting the Qualifying Feature

Juniper on heaths or calcareous grasslands

The composition and structure of the juniper habitat is influenced by factors such as the nutrient status of soils (particularly the amount of calcium), altitude, and the grazing regime. Juniper habitat may occur along a transition between other habitats, including grassland, dwarf-shrub heath and woodland, with the result that different types of juniper habitat may occur within an individual location.

Glenartney Juniper Wood lies on north facing slopes to the south of Comrie and is the largest juniper scrub woodland in Tayside. The juniper scrub here is scattered at varying densities across the whole site. In the more open areas it forms a mosaic with flushed grassland and heathland. Occasional birch, rowan and ash trees are interspersed with the juniper. There are signs of juniper regeneration occurring as *pioneer* scrub has recently been recorded.

The key factors affecting the juniper at this site are grazing management, bracken cover, water logging, and the pathogen *Phytophthora austrocedrae* has caused extensive dieback at this site.

Further information about the Juniper on heaths or calcareous grasslands habitat can be found here.

Conservation Objectives for Juniper on heaths or calcareous grasslands

1. To ensure that the qualifying feature of the SAC is in favourable condition and makes 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 improving 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 assessment 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 assessments 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 assessment.

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 for its qualifying feature.

The aim at this SAC is to restore the Juniper on heaths or calcareous grasslands 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 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

Maintain the extent of juniper to approximately 22ha. The area figure has been taken from the Standard Data Form, and is an estimate based on the fact that Juniper on heaths on calcareous grasslands is often transitional at lower levels into Caledonian forest or birch woodland and at upper levels extends into dwarf-shrub heaths in the alpine zone. The habitat extent and its distribution throughout the site should be maintained.

The primary issue affecting juniper at this site is dieback which has been caused by *Phytopthora austrocedrae.* The dieback has been extensive at this site. It was initially reported in 2002 and was formally confirmed as being caused by *P. austrocedrae* in 2012. No 'treatment' has been identified for this pathogen as yet. The current view is that recovery will rely on those plants which have a natural resistance to the infection.

Very few pioneer bushes had been recorded until recent years when several small bushes were found on site - 2017. The current view is that the recovery of the feature at this site will rely on pioneer growth of resistant plants which will multiply over time.

The extent and distribution of the habitat type could be reduced through actions that alter the conditions unfavourably such as liming and fertilising for agriculture or changes to land use such as afforestation or invasion by alien species.

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

Maintaining Juniper on heaths or calcareous grasslands requires moderate grazing levels which allow juniper scrub to be maintained in a mosaic with open heath or grassland. Too much grazing will reduce the extent of juniper by preventing natural regeneration, and too little grazing could lead to the habitat becoming woodland.

To ensure recruitment of new seedlings, and therefore maintain the appropriate structure, the following conditions should be met:

- Cover of "pioneer" bushes (less than 75cm tall) should be increasing over time with the aim that pioneer bushes should exceed cover of old ailing or dead bushes.
- Less than 10% of bushes should show evidence of bark stripping.
- Less than 33% of the current year's shoots (pale fawn to pale orange brown) should show evidence of having been browsed.
- Less than 33% of shoots should show evidence of having been browsed into shoot or stem material older than the current year's growth (mid-tone orange brown to dark brown).
- Less than 5% of the feature area should show severe disturbance (e.g. by heavy browsing and trampling or fire).

Management effort should therefore be directed to restoring species composition, vegetation transitions and ground/soil structure and integrity. This should also avoid surface erosion and deposition, introduction of alien and invasive species, excessive colonisation by trees, and habitat fragmentation.

The juniper habitat on this site could be affected by water logging, and if this is determined to be an ongoing issue it can be addressed through maintenance of the existing drains.

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

Juniperus communis is abundant and widespread on this site. In large areas it is present as scattered bushes in most of the other vegetation communities e.g. bracken, rush pasture and semi-improved pasture. There are areas dominated by more than 25% juniper cover which begins to resemble NVC type W19b *Juniperus communis-Oxalis acetosella* woodland, *Viola riviniana-Anemone nemorosa* sub-community. The following species are typical of this community in the site:

Silver birch *Betula pendula*
Ash *Fraxinus excelsior*
Rowan *Sorbus aucuparia*
Willow *Salix cinerea*
Bracken *Pteridium aquilinum*
Tamarisk Thuidium Moss. *Thuidium tamariscinum*
Hart's-tongue Thyme Moss, *Plagiomnium undulatum*
Common bent, *Agrostis capillaris*
Wood sorrel *Oxalis acetosella*
Red fescue *Fesuca rubra*

Bracken is found in the SAC. This can have a negative impact on the scope for natural regeneration of juniper and can limit the growth of established young trees.

For long-term viability of the habitat continuation of a sustainable grazing/browsing regime is paramount alongside prohibition of burning. Restoration at this site is largely dependent on the longer-term impact of *P. austrocedrae*.

Conservation Measures

Glenartney Juniper Wood SAC is also a SSSI and management changes described on the list of Operations Requiring Consent must have prior consent from NatureScot.

Current and recommended management for the site

Issue	Measure	Responsible party
Grazing and browsing levels	Recent browsing/grazing levels on the site have been broadly within acceptable targets, but grazing levels can vary across the site. The main herbivores have been sheep but some cattle grazing is desirable.	Land manager
Drainage	Previous drainage work has been carried out on the west of the site (under NatureScot management agreement to reduce waterlogging of juniper) which may require ongoing maintenance.	Land manager, NatureScot

Plant pests and diseases	Continue monitoring the impact of *Phytophthora austrocedrae* on the juniper. Aerial monitoring of the dieback has taken place in 2010 and 2017. Further assessment of the progress of the dieback could be undertaken with repeat aerial survey.	Land manager, NatureScot, Forest Research
Monitoring	Monitoring of the age structure of the juniper should be carried out, in particular, of the cover of pioneer bushes.	NatureScot, Forest Research
Invasive native species	Bracken cover should be monitored and if cover becomes too extensive then control should be considered.	Land manager, NatureScot

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