

MONIACK GORGE SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE



Image: Green shield-moss © D Genney/NatureScot

Site Details

Site name:	Moniack Gorge
Site map:	https://sitelink.nature.scot/site/8325
Location:	Highlands and Islands
Site code:	UK0012583
Area (ha):	32.67
Date designated:	17 March 2005

Qualifying Natura Features	SCM Assessed Condition	SCM visit date	UK overall Conservation Status
Green shield-moss (<i>Buxbaumia viridis</i>)	Favourable Maintained	April 2006	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.

Overlapping protected areas

[Moniack Gorge SSSI](#)

Key factors affecting the qualifying feature

Green shield-moss is a scarce bryophyte. In the UK it is only found in parts of Scotland. It grows on damp, decaying dead wood either attached to live trees or on logs or stumps. It is found primarily on well-rotted Scot's pine, birch, rowan, willow, alder, juniper, oak and commercial conifer logs, however, it has also been found on Norway spruce cut down no more than ten years ago, old wood ant nests, old bracket fungi, and occasionally on organic soil.

The main factor that could affect the green shield-moss population at Moniack Gorge SAC is from competition with other mosses and liverworts through micro-habitat succession on occupied deadwood. Other threats and pressures include the removal of dead and dying trees, including debris, or forest management to reduce old growth forests, both of which would reduce the availability of suitable habitat. Increases or changes in precipitation due to climate change could also affect this species.

Further information about green shield-moss can be found on the JNCC website [here](#).

Conservation Objectives for Green shield-moss

1. To ensure that the qualifying feature of Moniack Gorge 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 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 Moniack Gorge SAC is maintained by meeting objectives 2a, 2b and 2c for the qualifying feature

The aim at this SAC is to maintain Green shield-moss 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 maintaining site integrity, specifically by meeting the objectives outlined in 2a, 2b and 2c. If these are met then site integrity will continue to be maintained. 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 maintenance 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 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

The conditions for the species’ long-term existence at Moniack Gorge SAC should be maintained.

Green shield-moss has been recorded within four 100m squares in the SAC. 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 green shield-moss

population through the direct destruction of plants, loss of decaying wood occupied by the species, lack of decaying wood to colonise or changes to the microclimate within the SAC.

- maintaining the species distribution within the site (see conservation objective 2b)
- maintaining the supporting habitats within the site (see conservation objective 2c)

Temporary short-term changes to green shield-moss due to anthropogenic influences may be considered not to compromise the conservation objectives within the site provided it can be demonstrated beyond reasonable scientific doubt that the population can fully recover. Recovery will need to be considered in the context of the species life history traits and the scale and duration of the impact being assessed. The moss occurs on ephemeral substrates so its population dynamics depend on a constant cycle of dispersal and colonisation of new substrates. Substrates are thought to remain viable for a window of 10-20 years. Recovery depends on the chance colonisation of new substrate by spores, which may be at low concentrations in isolated patches of habitat.

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

2b. Maintain the distribution of the species throughout the site

The distribution of the species within the site is dependent upon the availability of suitable habitat.

Current records of this species are in the more sheltered upper section of this site. However as a relatively small wooded site the moss could occur anywhere within the Moniack Gorge SAC. The population is also known to extend upstream of the SAC on the National Forest Estate at Wester Clunes. This is within Norway spruce plantation immediately to the west of the SAC, and in the nearby Craggach Wood to the north-east of the SAC.

2c. Maintain the habitats supporting the species within the site

Green shield-moss is found in a wide range of wooded habitats but primarily native pinewoods (on a number of tree species) and in older plantations of Norway spruce and other commercial/non-native conifers. It requires damp, decaying wood and other organic debris, usually on logs or stumps but sometimes on live trees. It is absent from dry dead trees typical of open pine woodland. It is found on well-rotted Scots pine, birch, rowan, willow, alder, juniper, oak, whitebeam, hawthorn, and conifer logs which are not pine. Although most sites are on well-rotted substrates, some recent sites have been found on logs of Norway spruce cut down no more than ten years ago. It also occurs on old wood ant nests and occasionally on organic soil.

The moss is also found where conditions are quite humid because of aspect, canopy cover or proximity to damp ground. This may be in close proximity to watercourses, often where they are incised.

Dead wood in woodland goes through successional changes and has a limited lifetime. Over time the dead wood will rot away. At this site there should be continuity of supply of suitable deadwood to ensure the continued survival of this species

Conservation Measures

Moniack Gorge is a SSSI, and changes to land management described on the list of Operations Requiring Consent must have prior consent from SNH (NatureScot).

Green shield-moss is listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly pick, uproot or destroy green shield-moss or to sell, offer for sale, possess or transport it for the purpose of sale unless a licence is issued to do so.

Current and recommended management for green shield-moss

Issue	Measure	Responsible party
Beneficial habitat management	Encourage management to increase the volume of dead wood present. Maintain continuity and retention of coarse woody debris of a range of tree species through the production and implementation of deadwood management plans	NatureScot/ land managers
	Maintain extent and continuity of sheltered native woodland within the site.	NatureScot/ land managers
	Where appropriate, retain Norway spruce logs under continuous canopy cover. If possible, remove side branches to ensure log rots to provide suitable green shield-moss habitat.	NatureScot/ land managers
Monitoring	Establish a rolling programme of re-survey to assess the number of occupied 100 metre squares within occupied hectads (or monads where more appropriate).	NatureScot
	Continue to survey previously unsurveyed habitat within the SAC.	NatureScot
	Continue to document the range of substrates this moss occurs on and update general management advice accordingly.	NatureScot and wider bryophyte recording community
Research	Develop and test DNA-based monitoring methods that do not require capsules to be present for survey.	NatureScot/ Royal Botanic Garden Edinburgh (RBGE)/Universities
	Research to better understand the lifecycle and population dynamics of green shield-moss.	NatureScot/ RBGE/ Universities

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