NatureScot
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

BEINN IADAIN AND BEINN NA H' UAMHA SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

Site Details

Site name:	Beinn Iadain and Beinn na h' Uamha
Map:	https://sitelink.nature.scot/site/8199
Location:	Highlands and Islands
Site code:	UK0012864
Area (ha):	523.48
Date designated:	17 March 2005

Qualifying features

Qualifying feature	Assessed condition	SCM visit date	UK overall Conservation Status
Species-rich grassland with mat-grass in upland areas*	Unfavourable Declining	12 July 2012	Unfavourable-Bad
Tall herb communities	Favourable Maintained	19 July 2013	Unfavourable-Bad
High-altitude plant communities associated with areas of water seepage*	Favourable Maintained	19 July 2013	Unfavourable-Bad
Base-rich scree	Favourable Maintained	22 August 2004	Unfavourable-Bad
Plants in crevices on base-rich rocks	Favourable Maintained	19 July 2013	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.
* Indicates a Habitats Directive Priority Habitat

Overlapping Protected Areas:

Beinn Iadain and Beinn na h-Uamha SSSI

Key factors affecting the qualifying features

Beinn Iadain and Beinn na h'Uamha SAC is situated near the centre of the Morvern peninsula. It contains the basalt summits of two hills, Beinn Iadain and Beinn na h'Uamha, which rise to about 500m. These hills are of geological significance and are particularly notable for their Tertiary basalt montane vascular flora, with some component species at their only locality in mainland Lochaber.

Species-rich grasslands with mat-grass in upland areas

Species-rich grassland with mat-grass in upland areas tend to develop where there is flushing through base-rich strata on siliceous bedrock. These may include moderately base-rich metamorphic and igneous rocks. The soils have an acidic pH (<7.0 and mainly <6.0) and are derived from bedrocks with at least some silica.

The altitudinal range of this habitat generally varies from near sea level to an upper limit of between 800 and 900 m. On Beinn Iadain and Beinn na h'Uamha, Species-rich *Nardus* grasslands are the most abundant qualifying habitat. These grasslands occur on steep hill slopes of Tertiary basalt, from around 250m up to the 500m summit plateaus, in mosaics with other grassland and among screes and cliffs.

This habitat is particularly susceptible to changed nutrient status eg agricultural improvement, burning over and under-grazing, forestry, air pollution and damage from recreational pressure. On Beinn Iadain and Beinn na h' Uamha, long term over grazing by sheep and deer has been the main negative pressure, though some areas where sheep have been excluded show signs of undergrazing.

Tall herb communities

Tall herb communities habitat is typically found on ungrazed upland cliff ledges, occasionally extending on to open ground, and is restricted to base-rich substrates and somewhat sheltered situations. It provides a refuge for rare, grazing-sensitive, montane plants.

Variation within the habitat type is related chiefly to geographical position, altitude, and soil conditions and rock type.

Key management issues include ensuring only low/no grazing from domestic stock and deer and invasion by other species

High altitude plant communities associated with water seepage

High-altitude plant communities associated with areas of water seepage is a type of flush mire that occurs only at high altitude. The characteristic plant communities colonise open substrates that are constantly flushed by surface seepage of cold, base-rich water. They are amongst the few remaining natural plant communities in the UK and are maintained by harsh climatic and soil conditions.

The vegetation consists of mixtures of small sedges, rushes, small herbs and bryophytes, and includes many arctic-alpine species.

Key factors affecting this habitat include high to moderate levels of grazing by deer and livestock and, atmospheric pollution adding nitrogen.

Base-rich scree

Scree habitats consist of rock fragments covering the frost-shattered summits of mountains or accumulating on slopes below cliffs. Base-rich scree consists of base-rich rocks including limestone, calcareous-schists and the more basic igneous rocks, such as serpentine and basalt.

Base-rich scree consists of assemblages of calcicole and basiphilous species, the composition of which is heavily influenced by altitude. Characteristic species at high altitude include purple saxifrage *Saxifraga oppositifolia,* holly-fern *Polystichum lonchitis* and *alpine meadow-grass Poa alpina,* while at lower altitude limestone fern *Gymnocarpium robertianum, herb-robert Geranium robertianum* and wall lettuce *Mycelis muralis* are more usual. A large number of calcicolous mosses occur in the habitat type. The habitat is important for its rich fern flora and act as refugia for a number of rare species.

Key factors affecting this habitat type include high to moderate grazing pressure from deer/livestock and associated trampling.

Calcareous rocky slopes with chasmophytic vegetation
Chasmophytic (grows in the crevices of rocks) vegetation consists of plant communities that colonise the cracks and fissures of rock faces and is widespread in upland areas but is localised and fragmentary in its occurrence. The type of plant community that develops is largely determined by the base-status of the rock face. Calcareous sub-types develop on lime-rich rocks such as limestone and calcareous schists.

The plants in crevices are found in harsh and sometimes extreme conditions with limited soil development, but where there is some shelter and moisture, and so plants are sparse and scattered. Chasmophytic plant species are adapted to the stresses of drought but can be sensitive to overgrazing and trampling although many sites are protected by inaccessibility. The base-richness of calcareous rocks may encourage competition from more vigorous native species, or non-native invasives such as New Zealand willowherb.

Further information about this SAC's protected habitats can be found on the JNCC website.

Conservation Priorities

Higher priority features
These are the higher priority features, chosen because Beinn Iadain and Beinn na h'Uamha is a key site for these habitats.

6230 Species-rich grassland with mat-grass in upland areas
8210 Plants in crevices on base-rich rocks
7240 High-altitude plant communities associated with areas of water seepage

Beinn Iadain and Beinn na h'Uamha scored an A on the site data form for its overall importance to the conservation of the following vegetation communities: Species-rich grassland with mat-grass in upland areas; and Plants in crevices on base-rich rocks.

Species-rich grassland with mat-grass in upland areas is also an EU priority habitat, as is High-altitude plant communities associated with areas of water seepage. These

two habitats (marked in bold) are of particular conservation importance across their range and so are both included here as higher priority features on this site.

Priority should be given to priority habitats and features that are in unfavourable condition, should any conflict between management of different habitats or species arise.

Current trends in grazing

For species-rich mat grass communities, a range of impacts from low to high is appropriate and moderate grazing impacts are likely to give rise to the highest diversity of characteristic flora and invertebrates and are likely to maintain habitat condition. If grazing pressure falls to very low, these grasslands are likely to become tall herb communities, scrub or woodland, depending on their altitude.

Site Condition Monitoring in 2012 found that on Beinn Iadain and Beinn na h'Uamha SAC both overgrazing and undergrazing were present in different areas: overgrazing in the area originally used by sheep and deer and undergrazing on steep slopes and areas only accessible to deer. However, further investigation 2015, which drew on geomorphological and upland habitat advice, concluded that the erosion evident on both of the hills was of much greater extent and severity than might be expected to occur incidentally to an appropriate level of herbivore pressure. These levels of erosion have probably resulted in some loss of extent of the species-rich mat grass habitat and further loss appeared likely. It was concluded that the condition of the feature was Unfavourable – declining.

Since 2015 sheep have been removed from both the hills and a deer cull has commenced (the Rahoy Hills Reserve previously had a long history of no deer culling).

There is, therefore, a current trend on this site towards lower grazing impacts. Due to the history of sheep grazing and uncontrolled deer grazing on the site, which has exacerbated the erosion issues described above, this reduction in grazing is expected to lead to recovering condition of the Species-rich grassland with mat-grass in upland areas.

The higher priority feature High altitude plant communities associated with areas of water seepage is currently in favourable condition on this site, but disturbed bare ground has been noted as a negative indicator. The current management is likely to benefit this habitat, which thrives with a low, but not absent, level of grazing.

The higher priority feature Plants in crevices on base-rich rocks is currently in favourable condition on this site and no change to management is required. Both Beinn Iadain and Beinn na h'Uamha have large areas of this habitat which is mostly inaccessible to grazing animals. Reduction in grazing pressure may lead to some expansion of this habitat.

Tall herb communities on this site are inaccessible to large herbivores and are currently in favourable condition, so the ongoing changes in grazing management are unlikely to affect the current stands of this habitat, though it may be expected to expand onto more accessible areas if grazing pressure is reduced.

Base-rich scree also tends to occur in places that are at least partially inaccessible to large herbivores and generally has low impact levels. It is currently in favourable condition and the current management is likely to be appropriate to maintaining this. Reduction in grazing pressure may lead to some expansion of this habitat.

Therefore, the current level of grazing that has been set over the whole SAC is helping to achieve favourable condition for all the features.

<u>Longer term trends in grazing and possible conflict with adjacent high priority features</u>

Beinn Iadain and Beinn na h-Uamha Site of Special Scientific Interest (SSSI) is 'split' into two adjacent SACs, Beinn Iaidain and Beinn na h'Uamha SAC described here, and also Morvern Woods SAC which incorporates the woodland component of Beinn Iadain and Beinn na h-Uamha SSSI (along with other coastal woodland SSSIs in Morvern). The woodland on Beinn Iadain and Beinn na h-Uamha SSSI is present on low ground along the north shore of Loch Arienas at the foot of Beinn na h'Uamha. The Morvern Woods features present here are:

H91A0 Western acidic oak woodland
H9180 Mixed woodland on base-rich soils associated with rocky slopes
S1355 Otter (Lutra lutra)

The Morvern Woods Conservation Advice Package sets out the conservation priorities, objectives and measures for that site. Any management at Morvern Woods SAC must be cognisant of Beinn Iaidain and Beinn na h'Uamha SAC, and vice versa. This will ensure that management at these two connected sites is complementary and consistent.

Conservation Objectives

Overarching Conservation Objectives for all habitat features of Beinn Iadain and Beinn na h' Uamha SAC

1. To ensure that the qualifying features of Beinn Iadain and Beinn na h' Uamha 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 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 Beinn Iadain and Beinn na h' Uamha SAC is restored by meeting objectives 2a, 2b and 2c for all qualifying features

The aim at this SAC is to maintain, or where appropriate restore, the protected habitats in a favourable condition as a contribution to their 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 each 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 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.

Conservation Objectives for Species-rich *Nardus* grassland, on siliceous substrates in mountain areas [H6230] (Species-rich grasslands with mat-grass in upland areas)

2a. Restore the extent and distribution of the habitat within the site

Restore to approximately 261.74ha.

The area figure has been taken from the Standard Data Form, and is an estimate based on the fact that Species-rich *Nardus* grasslands can grade into sub-maritime, Alpine and subalpine calcareous grasslands or, next to limestone areas, form transitions to Semi-natural dry grasslands and scrubland on calcareous substrates. However the habitat extent and its distribution throughout the site should be restored.

Erosion is the main driver for losses in the extent of this habitat. This is at least in part due to herbivore pressure.

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

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

As with many upland habitats maintaining Species-rich grasslands with mat-grass in upland areas is mainly reliant on appropriate low to moderate levels of grazing. Reduction in grazing may cause a change towards tall herb communities or, at higher altitudes, towards *Dryas octopetala* vegetation. Overgrazing or burning/muirburn may cause increase in unpalatable species i.e. *Prunella vulgaris, Cirsium* spp and mosses and local trampling to communities with *Lolium, Plantago* and *Poa*.

As such any proposed herbivore management should take this into consideration.

The key factors affecting the habitat type and measures to assess whether or not they are causing damage are given below;

- For overgrazing/browsing
  - At least 25% of the tips of live leaves and/or flowering shoots of vascular plants should be more than 5 cm above the ground surface.
  - at least 25% of the tips of live leaves and/or flowering shoots of vascular plants should be less than 5 cm above the ground surface.

- For colonisation by other species
  - Less than 10% of vegetation cover should be made up of bracken and/or scattered native trees and scrub.

- For trampling
  - Less than 10% of ground cover should be disturbed bare ground.

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

Species-rich *Nardus* grassland on this site consists of *Festuca ovina - Agrostis capillaris - Thymus polytrichus* grassland on steep, well drained slopes and also on the more gentle upper slopes of both hills, and *Festuca ovina - Agrostis capillaris - Alchemilla alpina* grassland particularly on the very thin soils and steep slopes amongst basalt cliffs and screes.

Swards are closely grazed and consist of a complex mosaic of grasses, small herbs and bryophytes. The species composition of this habitat type will be affected by factors such as altitude and soil moisture levels.

At high altitude there is a greater representation of arctic-alpine plants, and the habitat can be transitional floristically to and grade into Alpine and subalpine calcareous grasslands. Floristically richer areas develop where there is a concentration of base-rich or calcareous strata, giving suitable conditions for the rarer base- or calcium-loving species.

In the west, where oceanic influences predominate, communities are characterised by the presence of Atlantic or sub-Atlantic species, including both vascular plants and bryophytes. Some examples contain maritime species, and may show transitions to sub-maritime grasslands.

On this site there are frequent occurrences of the more common and widespread arctic-alpine and northern species, including alpine lady's-mantle *Alchemilla alpina*, the lady's-mantles *A. glabra* and *A. filicaulis*, mossy saxifrage *Saxifraga hypnoides*, mountain everlasting *Antennaria dioica*, alpine meadow-rue *Thalictrum alpinum*, northern bedstraw *Galium boreale* and viviparous sheep's-fescue *Festuca vivipara*. A sub-maritime form with sea plantain *Plantago maritima* also occurs. On shady slopes there is a mossy form with the Atlantic bryophytes *Breutelia chrysocoma*, *Racomitrium ellipticum*, *Scapania gracilis* and *Plagiochila spinulosa*, as well as the scarce *Lophozia obtusa*.

Indicator species for species-rich grassland with mat grass in upland areas are:

Alchemilla alpina	alpine lady's mantle
Alchemilla glabra	smooth lady's mantle
Campanula rotundifolia	Harebell
Carex caryophyllea	spring sedge
Carex panicea	carnation sedge
Lotus corniculatus	common bird's-foot-trefoil
Succisa pratensis	devil's bit scabious
Thymus polytrichus	wild thyme
Veronica officinalis	heath speedwell

Whilst this habitat requires moderate to heavy grazing to be maintained, at this site both overgrazing and undergrazing have unfavourably altered the composition of species of this habitat type and prevented it from achieving favourable status.

Non-plant typical species of this habitat include large herbivores, red deer *Cervus elaphus*, and various bird species including golden plover *Pluvialis apricaria*, ring ouzel *Turdus torquatus*, and ptarmigan *Lagopus muta*.

Conservation Objectives for Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [H6430] (Tall herb communities)

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

Maintain to approximately 0.99ha

The area figure has been taken from the Standard Data Form, and is an estimate based on the amount and complex, yet often limited, mosaic of several different high altitude communities. Fundamentally however there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site. Where possible opportunity should be taken to restore and/or extend this habitat.

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

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

The extreme sensitivity of this habitat to grazing pressure is responsible for its scarcity. Whilst this habitat would have once been more abundant it is now largely confined to areas inaccessible to grazers. Introduction of additional grazing pressure, especially from highly agile species such as goats, has the ability to cause major losses. Direct management of grazing pressure to the low levels which benefit the habitat has the ability to restore or extend this scarce habitat.

Where appropriate levels of grazing/browsing are in place to allow survival of component species of the habitat the structure, throughout the site, should meet the following conditions:

- At least 50% of tall herb stems should be more than 20 cm tall, or there should be few observable signs of grazing on tall herbs or ferns, and most tall herb species should be flowering or showing signs of being able to flower. (Qualifier: include flowering stems, other than those of *Luzula sylvatica* which can be hard to see clearly from a distance and do not tend to form a distinct stratum.) assessed against visual estimate at individual stand scale.

- Less than 50% of live flowering shoots of indicator tall herbs (see below in 3 for list) should show evidence of grazing.

The structure of this habitat can also be impacted by succession from tall-herb communities to woodland.

Where appropriate levels of disturbance are in place, that allow for survival of component species of the habitat, throughout the site, then the following conditions should be met:

- Less than 25% of the ground cover, of each patch or stand, should be disturbed bare ground*.
- Over the whole feature scanned from sample locations, less than 10% of the ground cover should be disturbed bare ground*. Assessed against the aggregate of visual estimates for as much of the feature as is visible while standing at all sample locations.

* The emphasis is on 'disturbed' rather than 'bare'. Exclude distinct and clearly defined paths or tracks.

Furthermore, muirburn negatively impacts upon this habitat type.

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

The Tall herb communities habitat is a species-rich habitat corresponding to NVC type *Luzula sylvatica – Geum rivale* tall-herb community.

It is characterised by the abundance of a species-rich mix of tall, broad-leaved herbs, most of which are otherwise rare in the uplands owing to their sensitivity to grazing. It occurs on the cliffs on Beinn Iadain and Beinn na h-Uamha, particularly cliffs on north facing slopes.

In summary indicator species for Tall-herb communities are:

Alchemilla spp.	lady's-mantles
Angelica sylvestris	wild angelica
Crepis paludosa	marsh hawk's-beard
Filipendula ulmaria	meadowsweet
Geum rivale	water avens
Luzula sylvatica	great wood-rush
Orchis mascula	early purple orchid
Primula vulgaris	primrose
Ranunculus acris	meadow buttercup
Sedum rosea	roseroot
Solidago virgaurea	goldenrod
Succisa pratensis	devil's-bit scabious
Trollius europaeus	globe-flower
Calluna vulgaris	common heather
Erica spp.	heaths
Ferns (excluding bracken)	

Non-plant typical species of this habitat include golden eagle *Aquila chrysaetos* and ring ouzel *Turdus torquatus.* Tall herb ledges are not generally accessible to large herbivores.

Conservation Objectives for Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* [H7240] (High altitude plant communities associated with water seepage)

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

Maintain the extent of existing High-altitude plant communities associated with areas of water seepage at 0.99ha.

However, since this habitat usually forms mosaics and shows complex transitions to other upland habitat types, and due to the small and fragmentary extent of the habitat current baseline estimates may not be very precise and any changes in extent estimates as a result of new survey may not represent real change but greater precision. On Beinn Iadain and Beinn na h'Uamha this habitat is found in places flushed with base enriched water, in mixed mire mosaics at lower altitude and on the upper slopes and summit plateau of Beinn Iadain.

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

This habitat usually forms mosaics and shows complex transitions to other upland Annex I habitat types and is maintained by harsh climatic and soil conditions. There is variation in this habitat because of differences in altitude, geographic location, length of snow-lie, nature of the substrate, and the amount of water flushing the communities.

Over-grazing and excessive poaching/trampling can be detrimental to this habitat which can result in disturbed bare ground. This is where a substrate of bare humus, bare peat, bare mineral soil, bare gravel, or soil covered only by an algal mat, has its surface broken and imprinted by hoof marks, wallows, human foot prints, or vehicle and machinery tracks. The emphasis is on 'disturbed' rather than 'bare'.

There is not a clear specific relationship between this habitat type and appropriate levels of grazing rather appropriate levels will vary between and within sites. Consideration at an individual site level is needed to ensure the maintenance of the high-altitude plant communities associated with areas of water seepage within the wider habitat structure and function across the whole of the site. At this site it appears the habitat can tolerate grazing from a light to at least a moderate intensity. And so grazing, by sheep cattle or deer, should be managed to remain within this level. Recent surveys have shown signs of overgrazing on this habitat type and so correct grazing levels may be slightly lower than current levels.

This habitat is very sensitive to muirburn and should be avoided in these areas.

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

This habitat is characterised by the presence of a number of rare species. On this site these include three-flowered rush *Juncus triglumis* and purple stonecrop *Sedum villosum* There is a range of calcicolous mosses, some of which are rare.

A number of commoner species are also characteristic of the habitat. These include yellow sedge *Carex viridula*, carnation grass *C. panicea*, jointed rush *Juncus articulatus*, common butterwort *Pinguicula vulgaris*, yellow saxifrage *Saxifraga aizoides*, , alpine meadow-rue *Thalictrum alpinum* and the moss *Blindia acuta*.

The indicator species for this habitat are:
Brown mosses*;* greasewort *Aneura pinguis;* sharp-leaved Blindia *Blindia acuta;* carnation sedge *Carex panacea;;* yellow sedge *Carex viridula;;* three-flowered rush *Juncus triglumis;* common butterwort *Pinguicula vulgaris;* alpine meadow-rue *Thalictrum alpinum.*

Excessive, above low-moderate, grazing/browsing/trampling by deer and/or livestock can contribute to a deterioration in the habitat structure, leading to a reduction or loss in the typical/indicator species for this habitat and should be only be done in a controlled, appropriate manner that helps maintain the habitat within the wider site management.

Non-plant typical species of this habitat include large herbivores, red deer *Cervus elaphus*, and various bird species including golden plover *Pluvialis apricaria*, dunlin *Calidris alpina*, and ptarmigan *Lagopus muta*.

Conservation Objectives for Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*) [H8120] (Base-rich scree)

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

Maintain the extent of existing base-rich scree at 52.35ha.

However, due to the localised and fragmentary nature of this habitat current baseline estimates may not be very precise and any changes in extent estimates as a result of new survey may not represent real change but greater precision. On this site there are many areas of basalt scree among the cliffs and grasslands on the steep slopes of Beinn Iadain and Beinn na h-Uamha. They are mainly unvegetated but do contain a sparse scatter of plants. This habitat is closely associated with plants in crevices on base-rich rock where the same rock type is also found forming the scree.

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

Scree is intrinsically unstable and rocks will frequently move so this habitat is vulnerable to disturbance naturally.

Additional disturbance through herbivore grazing, trampling and recreation activities may need to be managed if excessive. There is also the possibility of colonisation, particularly of more stable scree, by other species, including trees and scrub when there are seed sources.

Colonisation or shading of this habitat by vigorous native species, such as bracken, tree growth or invasive non-native species can reduce or eliminate cover of indicator species including bryophytes.

This habitat benefits from low levels of grazing with moderate to high levels of grazing and trampling having the potential to harm the feature.

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

This habitat consists of assemblages of calcicole and basiphilous species, the composition of which is heavily influenced by altitude. *Characteristic species found in this habitat are herb-Robert Geranium robertianum;* dog's mercury *Mercurialis perennis;* wood-sorrel *Oxalis acetosella;* green spleenwort *Asplenium viride;* northern hollyfern *Polystichum lonchitis;* yellow saxifrage *Saxifraga aizoides;* purple saxifrage *Saxifraga oppostifolia;* mountain avens *Dryas octopetala* and wild thyme *Thymus polytrichus.*

A large number of calcicolous mosses occur in the habitat type. It is important for its rich fern flora and act as refugia for a number of rare species.

The indicator species for this habitat on this site are referable to NVC types OV38 *Gymnocarpium robertianum – Arrhenatherum elatius*, of which at least two should be present and/or **OV39** *Asplenium trichomanes-Asplenium ruta-muraria* community, **OV40** *Asplenium viride-Cystopteris fragilis* community, CG14 *Dryas octopetala-Silene acaulis*

ledge community, of which at least four should be present.

Non plant typical species of this habitat include red deer *Cervus elaphus* however excessive grazing/browsing/trampling by deer and/or livestock can contribute to a deterioration in the habitat structure, having harmful effects on the typical species, and should be only be done in a controlled, appropriate manner that helps maintain the habitat. Birds such as ring ouzel *Turdus torquatus* also utilise this habitat.

Conservation Objectives for Calcareous rocky slopes with chasmophytic vegetation [H8210] (Plants in crevices on base-rich rocks)

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

The extent of the plants in crevices on base-rich rocks feature has been estimated at 52.35ha. This should be maintained.

However, due to the localised and fragmentary nature of this habitat current baseline estimates may not be very precise and any changes in extent estimates as a result of new survey may not represent real change but greater precision. On this site the habitat is found on the steep rocky slopes of both Beinn na h'Uamha and Beinn Iadain and is also closely associated with base-rich scree where the same rock type is also found forming the scree, and/or plants in crevices on acid rocks where calcareous bands of rock are found within siliceous rock.

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

This habitat is found in harsh and sometimes extreme conditions with limited soil development, but where there is some shelter and moisture, and so plants are sparse and scattered. Chasmophytic plant species are adapted to the stresses of drought.

However, the base-richness of calcareous rocks may encourage competition from more vigorous native species, such as bracken and/or scattered native trees or scrub; or non-native invasives such as New Zealand willowherb. Colonisation or shading of this habitat by vigorous native species, tree growth or invasive non-native species can reduce or eliminate cover of indicator species.

Low levels of grazing are required with moderate to high levels of grazing, as well as trampling (including by people), having the potential to harm this feature. However, some examples of this habitat are protected from herbivores by inaccessibility.

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

Plants in crevices on base-rich rocks are influenced by geographical location, altitude and rock type.

The indicator species for this habitat on this site, of which at least four should be present are:

Vascular species including Alpine lady's mantle *Alchemilla alpina,* northern rock-cress *Arabis petraea,* maidenhair spleenwort *Asplenium trichomanes,* kidney vetch *Anthyllis vulneraria,* brittle bladder-fern *Cystopteris fragilis,* mountain avens *Dryas octopetala, Dryopteris dilatata, Galium boreale, Festuca vivipara, F. rubra, Geranium robertianum, Gymnocarpium dryopteris,* hawkweed spp *Hieracium* agg., wood sorrel *Oxalis acetosella, Phegopteris connectilis, Plantago maritima, Polystichum aculeatum,* holly fern *P. lonchitis, Potentilla erecta, Saxifraga hypnoides, S. oppositifolia, S. aizoides, S. stellaris, Sedum rosea,* moss campion *Silene acaulis, Solidago virgaurea,* wild thyme *Thymus polytrichus* and dog-violet *Viola riviniana.*

Bryophytes are common on these basalt cliffs, and include the mosses *Andreaea rupestris, Anoectangium aestivum, Amphidium mougeotii, A. lapponicum, Anomobryum filiforme, Antitrichia curtipendula, Bartramia pomiformis, Blindia acuta, Campylopus atrovirens, Ctenidium molluscum, Dicranum scoparium, Fissidens adianthoides, Hypnum cupressiforme, H. lacunosum, Isothecium myosuroides, Mnium hornum, Molendoa warburgii, Orthothecium rufescens, Pogonatum urnigerum, Ptychomitrium polyphyllum, Racomitrium spp* and *Tortella tortuosa,* and the liverworts *Colura calyptrifolia, Diplophyllum albicans, Frullania tamarisci, Gymnomitrion crenulatum, G. obtusum, Harpalejeunea molleri, Herbertus stramineus, Lejeunea patens, Lophozia ventricosa, Marsupella emarginata, Pellia epiphylla, Plagiochila porelloides, P. spinulosa, Preissia quadrata, Radula aquilegia, R. complanata, Scapania gracilis* and *Tritomaria quinquedentata.*

Non plant typical species of this habitat include red deer *Cervus elaphus* however excessive grazing/browsing/trampling by deer and/or livestock can contribute to a deterioration in the habitat structure, having harmful effects on the typical species, and should be only be done in a controlled, appropriate manner that helps maintain the habitat.

Colonisation or shading of this habitat by tree growth and/or woodland expansion can reduce or eliminate cover of indicator species, including bryophytes. This habitat is very sensitive to muirburn and should be avoided in these areas.

Conservation Measures

Beinn Iadain and Beinn na h' Uamha is notified as a Site 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 Species-rich grasslands with mat-grass in upland areas

Issue	Measure	Responsible party
Grazing and browsing levels, stock type and seasonality of grazing	Sheep have recently been taken off Beinn Iadain and Beinn na h'Uamha and a red deer cull has commenced to reduce grazing impacts. Species-rich *Nardus* grasslands should be monitored and deer culls adapted to ensure the appropriate grazing is achieved for this habitat (moderate intensity).	Land managers, with advice from NatureScot
Trampling	Sheep have recently been taken off Beinn Iadain and Beinn na h'Uamha and a red deer cull has commenced to reduce trampling impacts and associated erosion.	Land managers

Vehicle tracks	There are no built tracks on the site, but argo tracks are used for deer extraction. These should be routed and managed to ensure no damage to the habitat.	Land Manager
Recreation	These hill are remote and attract very few visitors. SWT promote the Rahoy Hills reserve to visitors and manage this effectively.	Land manager, Local authority, NatureScot
Colonisation and/or shading by native and/or non-native species [eg bracken, trees – state species	Ensure colonisation or shading of this habitat by tree growth; woodland expansion; bracken; is minimal to maintain cover of the typical species, including bryophytes.	Land Managers, NatureScot
Habitat Management	SWT and Ardtornish Estate jointly manage the site as (which makes up part of the Rahoy Hills Reserve) and are currently drawing up a Management Plan that will ensure the Species-rich *Nardus* grassland feature is restored.	Land manager

Current and recommended management for:

- **Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels;**
- **Calcareous rocky slopes with chasmophytic vegetation;**
- **Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)**

Issue affecting the feature	**Measure**	**Responsible party**
Grazing	Ensure that herbivore impacts are 'low' based on the FS/NatureScot Herbivore Impact Assessment Process.	Land manager
Colonisation and/or shading by native and/or non-native species [eg bracken, trees – state species	Ensure colonisation or shading of this habitat by tree growth; woodland expansion; bracken; is minimal to maintain cover of the typical species, including bryophytes. New Zealand willowherb is present on Beinn na h'Uamha – future monitoring should check for invasion onto these habitats.	Land Managers, NatureScot

Habitat Management	SWT and Ardtornish Estate jointly manage the reserve and are currently drawing up a Management plan that will ensure these features are maintained in favourable condition.	Land manager
Research and Monitoring	To identify emerging impacts on the habitat and their causes, in order to understand the long term issues, and to inform future management of the habitat across Scotland. In particular, to better understand the observed decline in some Arctic-alpine species.	NatureScot

Current and recommended management for High-altitude plant communities associated with areas of water seepage

Issue affecting the feature	**Measure**	**Responsible party**
Herbivore impacts (grazing and/or trampling)	Sheep have recently been taken off Beinn Iadain and Beinn na h'Uamha and a red deer cull has commenced to reduce grazing impacts. Ensure that deer impacts on the feature are 'low' based on the FS/NatureScot Herbivore Impact Assessment Process to prevent poaching and/or loss of typical species.	Land managers, NatureScot, Deer Management Groups
Heavy trampling and/or tracking	Trampling and/or tracking by deer to be minimal to be prevent disturbed ground within this habitat.	Land managers, NatureScot, Deer Management Groups
Habitat Management	SWT and Ardtornish Estate jointly manage the reserve and are currently drawing up a Management plan that will ensure this feature is maintained in favourable condition.	Land manager

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