

BEN LUI SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE



Photo: Averis & Averis

Site Details

Site name:	Ben Lui
Map:	https://sitelink.nature.scot/site/8203
Location:	Stirling, Highlands and Islands
Site code:	UK0012900
Area (ha):	2,057.13
Date designated:	17 March 2005

Qualifying features

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Wet heathland with cross-leaved heath	Unfavourable Recovering	27 June 2016	Unfavourable - Bad
Mountain willow scrub	Unfavourable Declining	7 November 2005	Unfavourable - Bad
Montane acid grasslands	Favourable Recovered	17 August 2016	Unfavourable - Bad
Alpine and subalpine calcareous grasslands	Favourable Recovered	26 June 2016	Unfavourable - Bad
Species-rich grassland with mat-grass in upland areas *	Favourable Recovered	26 June 2016	Unfavourable - Bad
Tall herb communities	Favourable Maintained	17 August 2016	Unfavourable - Bad
Base-rich fens	Favourable Recovered	26 June 2016	Unfavourable - Bad
High-altitude plant communities associated with areas of water seepage *	Favourable Recovered	26 June 2016	Unfavourable - Bad
Acidic scree	Favourable Maintained	7 November 2005	Unfavourable - Inadequate
Plants in crevices on acid rocks	Favourable Maintained	26 June 2016	Unfavourable - Bad
Plants in crevices on base-rich rocks	Favourable Maintained	26 June 2016	Unfavourable - Inadequate

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

Other overlapping Protected Areas

[Ben Lui Site of Special Scientific Interest \(SSSI\)](#), [Glen Etive and Glen Fyne SPA](#).

Key factors affecting the qualifying features

Wet heathland with cross-leaved heath

Wet heath usually occurs on acidic, nutrient-poor substrates, such as shallow peats or sandy soils with impeded drainage. Wet heaths occur in several types of ecological gradient. In the uplands they occur most frequently in gradients between dry heath or other dry acid habitats and blanket bogs.

At Ben Lui wet heath is found on lower ground northwest of Cìochan Beinn Laoigh and in the extreme southwest of the SAC on moderately sloping ground close to the forest fence west of Meall nan Gabhar. It has been affected by historical grazing pressure, leading to reduced cover of dwarf shrubs and increased cover of *Molinia*; however sheep stocking levels have now been low for over 20 years and the habitat is now showing signs of recovery. Deer used to move out from the forestry to the west to browse the heathland. This problem was been addressed by repairing and maintaining fences in this area.

Further information about wet heathland with cross leaved heath can be found [here](#).

Mountain willow scrub

Mountain willow scrub is the UK's highest-altitude shrubby vegetation, occurring on moist, relatively base-rich soils in rocky situations on mountains. It is predominantly a natural habitat, with succession prevented by the harsh climate at the high altitudes at which it is found. It tends to be associated with the more sheltered areas of the upper subalpine and low alpine zones of mountains, and there may be a positive association with moderately late snow-lie.

This feature is in unfavourable condition at Ben Lui. The underlying cause is historical grazing pressure which has restricted its distribution to a few crags. Although grazing pressure is currently fairly low, it is still too high to allow this feature to spread, as willow scrub requires very low or absent grazing pressure. In addition, the populations are small and are not reproducing successfully. The plants produce catkins, but there are no young plants. Intensive intervention is likely to be required to achieve favourable condition of this feature, including fencing, ex-situ propagation and planting.

Further information about mountain willow scrub habitat can be found [here](#).

Montane acid grasslands

Montane acid grasslands are the most extensive type of vegetation in the high mountain zone, i.e. above an altitude of about 750 m. It characteristically forms large continuous tracts, covering summit plateaux and the tops of the higher summits and ridges. The habitat comprises a range of grassland types whose composition is influenced by contrasting extremes of exposure and snow-lie.

The habitat is vulnerable to nutrient inputs and physical damage such as that caused by dunging and urination of grazing animals, acid deposition, human and animal trampling. The acid grasslands at Ben Lui have a high cover of grasses and heath bedstraw in places, which may be related to historical grazing and dunging impacts; however these are not leading to unfavourable condition.

Further information about Montane acid grassland can be found [here](#).

Alpine and subalpine calcareous grasslands

This habitat occurs on lime-rich soils and consists of short, grazed, species-rich mixtures of arctic-alpine cushion herbs, grasses and sedges across a broad range of altitudes. This is one of the most important upland habitats in the UK for rare arctic-alpine plants and other rare montane or northern plants and animals.

At high altitude the grasslands are maintained, and succession prevented, by the harsh climate, though grazing may alter species composition.

Levels of grazing have been low for over 20 years at Ben Lui. The grassland habitats have recovered well from historical grazing impacts; however, as they require low-moderate grazing, they are now at risk of undergrazing

Further information about Alpine and subalpine calcareous grasslands can be found [here](#).

Species-rich grasslands with mat-grass in upland areas

This habitat tends 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.

This type of grassland is found up to 800 and 900 m.

This habitat is particularly susceptible to changed nutrient status e.g. from over and under-grazing, or from air pollution. The grazing level at Ben Lui has been appropriate for this habitat in recent years, although, as with the calcareous grasslands, it is now at risk of undergrazing. Although Ben Lui is a popular munro, recreational pressure does not have a significant negative impact on this feature.

Further information about Species-rich *Nardus* grasslands can be found [here](#).

Tall herb communities

Tall herb communities are typically found on ungrazed upland cliff ledges, extending on to open ground where grazing pressure is low enough, and is restricted to base-

rich substrates and somewhat sheltered situations. It provides a refuge for rare, grazing-sensitive, montane plants.

The tall herb communities on the site are largely free from grazing and in favourable condition. If very low levels of grazing continue, this habitat may spread out from the inaccessible ledges.

Further information about Tall-herb communities can be found [here](#).

Base-rich fens

Base-rich fens consist of a complex assemblage of vegetation types characteristic of sites where there is tufa and/or peat formation with a high water table and a calcareous base-rich water supply.

The base rich fens of conservation interest at Ben Lui are high altitude flushes and springs. This habitat type is very sensitive to trampling and grazing pressure; however, these pressures are low at Ben Lui and these habitats are in favourable condition.

Further information about base rich fens can be found [here](#).

High altitude plant communities associated with water seepage

High-altitude plant communities associated with areas of water seepage are flush mires that only occur 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 levels of grazing and trampling by livestock and deer and atmospheric pollution adding nitrogen. The flushes at Ben Lui are in favourable condition with low grazing pressure.

Further information about high altitude plant communities associated with water seepage habitat can be found [here](#).

Acidic scree

Scree habitats consist of rock fragments covering the frost-shattered summits of mountains or accumulating on slopes below cliffs. Scree is intrinsically unstable and rocks will frequently move, meaning that this habitat frequently disturbance. Acidic screes are made up of siliceous rocks such as quartzite, granite and sandstone. The main rock type at Ben Lui is mica schist.

This vegetation community is in good condition at Ben Lui.

A fuller account of the habitat can be found [here](#).

Plants in crevices on acid rocks (also known as siliceous 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. It is widespread in upland areas, but is localised and fragmentary in its occurrence according to the availability of suitable habitat. The type of plant community that develops is largely determined by the base-status of the rock face. Siliceous communities develop on acid rocks. A fuller account of the habitat can be found [here](#).

The plants in crevices are found in harsh and sometimes extreme conditions with limited soil development, but where there is some shelter and moisture. Chasmophytic plant species are adapted to the stresses of drought and low nutrient availability.

This vegetation community is in good condition at Ben Lui and has largely benefited from low levels of grazing, with tall herbs flowering in some places that are accessible to grazing animals. Some of the lower altitude stands have trees regenerating on them, which could shade out small plants in the long term; however, this is not a cause of unfavourable condition at present.

Plants in crevices on base-rich rocks (also known as calcareous rocky slopes with chasmophytic vegetation)

This vegetation type colonises base-rich rock faces. The type of plant community that develops is largely determined by the exact base-status of the rock face. Calcareous sub-types develop on lime-rich rocks such as limestone and calcareous schists. A fuller account of the habitat can be found [here](#).

As with the acid rock version of this vegetation type, this community is very vulnerable to overgrazing and trampling. However, grazing levels are very low on this community at Ben Lui and it is in favourable condition.

Conservation Priorities

Higher priority features

These are the higher priority features, chosen because Ben Lui is a key site for this habitat. Ben Lui scored an A or a B on the site data form for its overall importance to the conservation of that vegetation community. This list also includes two EU priority habitats (marked in bold) which are of particular conservation importance across their range.

4080 Mountain willow scrub

6170 Alpine and sub-alpine calcareous grasslands

6230 Species-rich grassland with mat-grass in upland areas

6430 Tall herb communities

7240 High-altitude plant communities associated with areas of water seepage

8210 Plants in crevices on base-rich rocks

The sub-arctic willow community does not need to be grazed and suffers if grazing pressure is any more than very low. This community cannot expand from the

inaccessible crags at current grazing pressure or at a level of grazing that can be realistically achieved - red deer are still present, even though the site has been largely de-stocked. The montane willow scrub populations need to expand onto more accessible crags to ensure their long term survival. In line with [advice](#) from the Montane Scrub Action Group, this community will probably require fencing and ex-situ propagation to improve condition.

High altitude plant communities associated with areas of water seepage, calcareous flushes and springwater-fed fens thrive with a low, but not absent, level of grazing. Springs and flushes are particularly sensitive to trampling damage. These habitats are currently in favourable condition at Ben Lui and no changes to management are required.

The alpine calcareous grassland and species-rich mat grass communities require a low to moderate level of grazing to maintain their species-richness. If grazing pressure falls too low, these grasslands will become tall herb communities, scrub or woodland, depending on their altitude. The level of grazing on these communities may need to be a little lower than optimal, in order to prevent damage to spring and flush features, although sheep may be preferentially attracted to the calcareous grasslands.

The tall herb ledge feature, and plants in crevices on base-rich rocks are currently in favourable condition and no changes to their management are required. Ben Lui has large areas of both habitats which are inaccessible to grazing animals. The tall herb ledge feature could expand its range across the site if grazing remained low on the more accessible base-rich crags.

The current low level of grazing that has been set over the whole SAC is helping to achieve favourable condition for all the higher priority features, except willow scrub. Different grazing regimes are not set for each habitat type. The impact of lower than ideal grazing on the grassland features is less than the impact of high grazing would be on the other high priority features or the lower priority features described below.

Lower priority features

4010 Wet heathland with cross-leaved heath

6150 Montane acid grasslands

7230 Base-rich fens

8110 Acidic scree

8220 Plants in crevices on acid rocks

These features are currently in favourable or unfavourable recovering condition. The montane acid grasslands are in favourable condition and are maintained as short, open habitats by the harsh mountain-top climate where they occur. Heathland and base-rich fens require a low level of grazing to maintain them. The other habitats do not require grazing. The plants in crevices on acid rocks, base-rich fens and acidic scree are in favourable condition and no changes to management are required.

Animals gather on the low ground and graze the dwarf shrubs of the wet heath in cold or snowy weather. The wet heath is Molinia-dominated and a poor example of

this habitat type. Dwarf shrub cover may continue to increase, if grazing impacts remain low, but is unlikely to become good quality wet heath.

Glen Etive and Glen Fyne Special Protection Area

Any plans or projects also need to consider the requirements of golden eagles in the overlapping Glen Etive and Glen Fyne Special Protection Area. Golden eagles require open ground or widely spaced trees to hunt. They nest on cliffs or in tall trees. None of the management measures proposed for Ben Lui are likely to have any significant negative impact on golden eagles. The ongoing low grazing pressure, leading to recovery of dwarf shrubs in Cononish glen and elsewhere, may have a small positive effect for eagles, by providing cover for prey species and increasing prey availability.

Conservation Objectives

Overarching Conservation Objectives for all features

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

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 the qualifying habitats are 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 habitats' 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 Wet heathland with cross-leaved heath (also known as Northern Atlantic wet heaths with *Erica tetralix* [H4010])

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

Maintain an extent of approximately 614 ha of wet heath at Ben Lui and to restore it to favourable condition. There should be no measurable net reduction in the extent of the habitat and its distribution throughout the site. The area figure has been taken from the Standard Data Form, and is an estimate. This is because wet heath typically covers large areas, forming complex mosaics with blanket bog, dry heath and grassland.

The habitat is found northwest of Ciochan Beinn Laoigh and in the extreme southwest of the SAC on moderately sloping ground close to the forest fence west of Meall nan Gabhar.

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

Northern Atlantic wet heath with *Erica tetralix* is sensitive to high levels of grazing, which can affect the habitat structure and function. At Ben Lui historical overgrazing, livestock trampling and nutrient input from dung have led to a low cover of dwarf shrubs, in favour of increased cover of grasses, particularly *Molinia*.

Wet heath on Ben Lui needs further positive management to recover from historical overgrazing. The objectives of this are to:

- restore the height structure of the vegetation by reducing grazing/browsing by red deer and sheep so that less than 1/3rd of the last complete growing season's shoots of dwarf-shrub species (collectively but excluding dwarf birch *Betula nana* and bog myrtle *Myrica gale*) show signs of browsing.
- restore the ground cover structure of the heath by reducing trampling by red deer and sheep so that less than 10% of ground cover is disturbed bare ground (with an emphasis on 'disturbed' rather than 'bare') and less than 10% of the *Sphagnum* moss is crushed or pulled up.

Additional objectives for the structure of the habitat are:

- The area of disturbed bare ground should not be increased. Activities that might cause this to increase include excessive use of vehicles, introducing heavier livestock such as cattle or increasing use of the habitat by red deer and sheep.
- Cover by species that are not typical of this habitat should not increase beyond 5% cover of habitat area on site. Examples of inappropriate species are bracken, trees and non-native species.

Some low impact grazing is needed to maintain wet heath. Undergrazing can lead to the heathland being colonised by trees and scrub, although this has not been an issue at Ben Lui.

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

At Ben Lui, this European habitat type all falls within the NVC community M15, with cross-leaved heath (*Erica tetralix*) and deer grass (*Trichophorum cespitosum*). This habitat tends to be 'grassy' at Ben Lui, with a high proportion of purple moor-grass (*Molinia caerulea*). Wet heath is an important habitat for a range of vascular plant and bryophyte species. Generally the vegetation is dominated by mixtures of cross-leaved heath, heather, grasses, sedges and *Sphagnum* bog-mosses.

Typically associated birds are red grouse (*Lagopus l. scotica*), golden plover (*Pluvialis apricaria*), dunlin (*Calidris alpina schinzii*) and greenshank (*Tringa nebularia*) golden eagle (*Aquila chrysaetos*), merlin (*Falco columbarius*) and hen harrier (*Circus cyaneus*). Increased dwarf shrub cover would improve feeding and nesting habitat for the associated bird species.

The dwarf shrub cover can be restored through an appropriate level of grazing, so that the coverage of *Erica tetralix* is increased.

Conservation Objectives for Mountain willow scrub (also known as Sub-Arctic *Salix* spp. Scrub [H4080])

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

This habitat is found on a few ungrazed, base-rich ledges on steep rocky slopes. It occurs only as small discrete stands or more scattered bushes (0.5ha or smaller).

The distribution of this habitat has almost certainly been reduced by historical grazing pressure, as there is no willow scrub in areas within reach of grazing animals. This community needs to increase in extent (estimated to be <1ha in total) and condition until there are robust, viable breeding populations of all the willow species present.

This habitat can only co-exist with very low to no grazing. It is likely that we will need to fence off the crags and carry out ex-situ propagation of the willows, followed by re-introduction, to increase the extent and viability of these populations.

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

This habitat is the UK's highest-altitude shrubby vegetation, occurring on moist, relatively base-rich soils in rocky situations on mountains. Over-grazing and browsing has severely restricted the distribution of this habitat to a few inaccessible crags. The populations are now very small and do not reproduce well, so even with reduced grazing pressure, they are not recovering.

The objectives for restoration of this habitat are that:

- At least 25% of vegetation cover should consist of the indicator arctic-alpine willow spp.: *Salix lapponum*, *S. myrsinites*, *S. arbuscula* and/or *S. lanata*.
- At least 1 bush of each of the indicator arctic-alpine willow spp. present should be producing seed
- At least as many young arctic-alpine willow plants should be present as dead or dying plants.
- The height, or length, of at least 50% of willow stems should be at least 40 cm.

- Restored stands that are accessible to grazing animals (no such stands are currently present) should have less than 33% of recent growth browsed.

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

This habitat consists of a mixture of willow species which have arctic-alpine and arctic-subarctic distributions in Europe. At Ben Lui, the willow scrub corresponds to the NVC type W20 *Salix lapponum* – *Luzula sylvatica* scrub. The following species are present:

downy willow	<i>Salix lapponum</i>
mountain willow	<i>S. arbuscula</i>
woolly willow	<i>S. lanata.</i>
net-leaved willow	<i>S. reticulata</i>
tea-leaved willow	<i>S. phylicifolia.</i>

The willows grow among dwarf shrubs, grasses, rushes and broad-leaved herbs, such as blaeberry *Vaccinium myrtillus*, tufted hair-grass *Deschampsia cespitosa*, great wood-rush *Luzula sylvatica*, and Alpine lady's-mantle *Alchemilla alpina*.

As willows are dioecious, to maintain a viable population, it is important that there is a suitably large population size with both male and female plants present. Populations of the dioecious species need to be large enough to reproduce successfully. As per the extent and distribution target, this habitat is likely to need fencing and ex-situ propagation, to increase its distribution and viability at Ben Lui.

Conservation Objectives for Montane acid grasslands (also known as Siliceous alpine and boreal grasslands [H6150])

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

Maintain approximately 148 ha of montane acid grassland at Ben Lui. This figure has been taken from the Standard Data Form and is an estimate. There should be no measurable net reduction the extent of the habitat and its distribution throughout the site.

This feature is widespread on the summit ridges of Ben Oss, Ben Lui, Beinn a' Chlèibh and Meall nan Gabhar, as well as in corries such as Coire an Lochain and Coire Gaothach on the side of Ben Lui.

As a nutrient-poor, mountain-top community, this habitat is particularly likely to be affected by nitrogen deposition, which favours more vigorous grasses to the detriment of other plant species. Climate change could also reduce habitat extent, as warmer mountain tops could favour more vigorous growth of species that are usually found at lower altitudes, which can out-compete montane species.

As Ben Lui is a popular mountain for walkers, small parts of this feature are affected by erosion from paths; however, this is not currently a cause of unfavourable condition. Montane acid grassland recovers slowly from disturbance.

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

These grasslands are some of the few near-natural habitats remaining in the UK. They are very sensitive to changes in current pressures, especially grazing and nutrient input.

Not all mountain top vegetation types need active management, as they are maintained by

the harsh climate, although some require light grazing to remove the build-up of thatch and dominant grasses. The levels of grazing at Ben Lui are appropriate for this feature type. They can be damaged by excessive grazing and associated manuring, which favours grasses over bryophytes. This feature shows some signs of having been affected by past grazing, which has altered the vegetation composition, but this is not severe enough to cause unfavourable condition.

Light levels of grazing/browsing should allow survival of component species of the habitat, and the structure, throughout the site, should meet the following conditions:

- Less than 5% of grass and sedge tillers uprooted
- Less than 5% of ground cover disturbed by human trampling and tracks.

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

Maintain the conditions for the typical species and communities that make up these montane habitats. The following NVC communities of montane acid grassland occur at Ben Lui. The distribution of different communities varies according to factors such as altitude, soil depth and aspect.

- U7 *Nardus stricta* – *Carex bigelowii* grass-heath
- U8 *Carex bigelowii* – *Polytrichum alpinum* sedge-heath
- U10 *Carex bigelowii* – *Racomitrium lanuginosum* moss-heath
- U11 *Polytrichum sexangulare* – *Kiaeria starkei* snow-bed
- U12 *Salix herbacea* – *Racomitrium heterostichum* snow-bed
- U14 *Alchemilla alpina* – *Sibbaldia procumbens* dwarf-herb community

Carex – *Racomitrium* moss-heath occurs on windswept ground blown clear of snow during winter and is the most extensive sub-type of the habitat across the SAC. This moss heath is dominated by mixtures of stiff sedge (*Carex bigelowii*), woolly hair moss (*Racomitrium lanuginosum*), lichens *Cladonia* spp and dwarf-shrubs such as, crowberry (*Empetrum nigrum* sbsp *hermaphroditum*). *Nardus stricta* dominated grasslands are more frequent on slopes or in less exposed locations and are typically dominated by mat grass (*Nardus stricta*) with *Carex bigelowii*, *Racomitrium lanuginosum* and some alpine lady's mantle (*Alchemilla alpina*) and then to *Carex* – *Polytrichum* sedge-heath where snow-lie is more prolonged. The longest lying snow-beds (*Polytrichum* – *Kiaeria* snow-bed, *Salix* – *Racomitrium* snow-bed and *Alchemilla* – *Sibbaldia* dwarf-herb community) are dominated by mosses and hardy herbs. These communities occur around the edges of high plateaux or near summits, where deep snow accumulates. The *Alchemilla* – *Sibbaldia* dwarf-herb community occurs where there is base-rich flushing.

Overall the habitat mostly consists of the following dwarf shrubs: *Alchemilla alpina*, *Carex bigelowii*, *Cetraria islandica*, *Cladonia arbuscula*, *Cladonia uncialis*, *Dicranum fuscescens*, *Empetrum nigrum* ssp. *hermaphroditum*, *Gnaphalium supinum*, *Juncus trifidus*, *Kiaeria starkei*, *Nardus stricta*, *Polytrichum alpinum*, *Ptilidium ciliare*, *Racomitrium lanuginosum*, *Rhytidiadelphus loreus*, *Salix herbacea*, *Sibbaldia procumbens*, *Vaccinium myrtillus*.

In addition grass species including the following are found within some of the communities described above: *Agrostis capillaris*, *Agrostis vinealis*, *Anthoxanthum odoratum*, *Deschampsia flexuosa*, *Festuca ovina* / *vivipara*, *Galium saxatile*, *Poa* spp. (other than *arctic-alpina* spp.) and *Potentilla erecta*.

The management required is to continue light grazing on grassier communities, but prevent damage from excessive grazing. Larger scale conservation measures to reduce nitrogen

deposition and climate change will also reduce the loss of these fragile montane communities.

Typical fauna in this habitat includes mountain hare, golden plover and ptarmigan.

Conservation Objectives for Alpine and subalpine calcareous grasslands [H6170]

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

Alpine and subalpine calcareous grasslands occur on lime-rich slopes at Ben Lui.

The objective is to maintain approximately 59ha of this habitat. The area figure has been taken from the Standard Data Form and is an estimate. There should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

This habitat is currently in Favourable condition at Ben Lui, but at risk of undergrazing. Under reduced grazing pressure, some areas of this habitat on the lower slopes would develop into tall herb communities and then woodlands. Therefore, if we wish to maintain the extent of this habitat, low-moderate grazing pressure is required.

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

The main elements that affect the habitat are under-grazing, over-grazing, trampling damage and encroachment of trees and scrub. Inappropriate grazing may facilitate creation of a grass sward.

Light levels of grazing should allow the habitat structure to meet these criteria:

- At least 25% of leaves or shoots of vascular plants (not grass inflorescences) should be MORE than 5cm tall; at least 25% of leaves or shoots of vascular plants (not grass inflorescences) should be LESS than 5cm tall.
- Less than 66% of live leaves of grasses with signs of having been grazed.

Additional objectives for the structure of the habitat are:

- More than 50% of the shoots of mountain avens *Dryas octopetala* at least 3 cm long.
- Less than 5% of ground cover should be disturbed bare ground.
- Dead plant litter forming a "thatch" or "felt" should be minimal (less than 10% of ground cover).

This feature should be maintained free of bracken, trees and shrubs. Coverage by daisy (*Bellis perennis*) and creeping buttercup (*Ranunculus repens*) should also be kept below 25%.

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

The following types of alpine and subalpine calcareous grasslands are found at Ben Lui:

- CG12 *Festuca ovina* – *Alchemilla alpina* – *Silene acaulis* dwarf-herb community
- CG14 *Dryas octopetala* – *Silene acaulis* ledge community

A distinctive characteristic of this habitat is the high proportion of dwarf forbs to grasses, accompanied by a relatively high proportion of mosses in the sward.

The *Dryas* – *Silene* ledge community dominated by mountain avens and moss campion occurs in areas that are out of reach of grazing animals. On open slopes, montane cushion herbs, such as moss campion *Silene acaulis*, alpine lady's-mantle *Alchemilla alpina* and cyphel, form a *Festuca* – *Alchemilla* – *Silene* dwarf-herb community. On most upland sites, Alpine and subalpine calcareous grasslands form mosaics with other upland Annex I habitats.

The main elements that affect the habitat are under-grazing, over-grazing, trampling damage and encroachment of trees and scrub. Inappropriate grazing may lead to a grass dominated sward.

Typical fauna in this habitat include mountain hare, golden plover and ptarmigan.

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

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

Maintain approximately 31ha of species-rich *Nardus* grassland at Ben Lui.

The area figure has been taken from the Standard Data Form, and is an estimate. There should be no measurable net reduction in the extent of the habitat, or its distribution throughout the site.

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

Species-rich *Nardus* grasslands require low to moderate levels of grazing. This community changes to tall herb vegetation when grazing is reduced. Overgrazing may cause increase in unpalatable species i.e. *Prunella vulgaris*, *Cirsium* spp and mosses and local trampling to communities with *Lolium*, *Plantago* and *Poa*.

The predominant objective for maintaining species-rich grasslands is to manage levels of grazing and trampling by deer and livestock. This habitat requires a range of grazing that allows typical plants (listed in 2c) to grow and set seed, while avoiding extremes (high or low) of grazing impacts and high levels of trampling.

Additional objectives for the structure of the habitat are:

- Bracken *Pteridium aquilinum* and trees/scrub should be kept to less than 5% of the ground cover.
- Less than 5% of the ground cover should be disturbed bare ground (the emphasis is on 'disturbed' rather than 'bare'.)

Undergrazing can also lead to a build-up of dead plant litter that forms a "thatch", which should be restricted to no more than 10% of ground cover.

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

These swards require grazing and consist of grasses, a wide variety of small herbs, with a layer of bryophytes underneath. The species composition of this habitat type varies according to altitude, aspect and soil moisture levels. This community grades into the tall herb communities where there are low grazing impacts.

The NVC communities at Ben Lui that fit with this European habitat description are CG10b *Festuca ovina* - *Agrostis capillaris* - *Thymus praecox* grassland, *Carex pulicaris*, *Carex panicea* subcommunity; CG11, *Festuca ovina* – *Agrostis capillaris* – *Alchemilla alpina* grass-heath; U4F *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile*, *Filipendula ulmaria* subcommunity; U5c *Nardus stricta* – *Galium saxatile*, *Carex panicea*-*Viola riviniana* subcommunity and U6 *Juncus squarrosus*– *Festuca ovina*, *Ranunculus acris*-*Thalictrum alpinum* sub-community.

The main species present in the range of different grasslands that are included within this habitat include: *Thymus polytrichus*, *Agrostis canina*, *Anthoxanthum odoratum*, *Galium saxatile*, *Prunella vulgaris*, *Linum catharticum*, *Campanula rotundifolia*, *Plantago lanceolata* and *Alchemilla glabra*, and the mosses *Racomitrium lanuginosum* and *Hylocomium splendens*. There are also many small herbs of damp or basic soils *Ranunculus acris*, *Selaginella selaginoides*, *Persicaria vivipara*, *Carex pulicaris* and *Galium boreale*. The mosses *Thuidium tamariscium*, *Polytrichum alpinum* and the oceanic *Breutelia chrysocoma* occur here. There are occasional records of *Carex capillaris*, *Galium sternerii*, *Luzula spicata*, the moss *Conostomum tetragonum*, *Coeloglossum vinde*, and the fern *Botrychicum lunaria*.

At higher altitudes there is a greater representation of arctic-alpine plants and this habitat grades into alpine and subalpine calcareous grasslands. Floristically richer areas develop where there is a concentration of base-rich or calcareous strata.

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

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

Maintain approximately 29 ha of tall herb communities at Ben Lui.

The area figure has been taken from the Standard Data Form, and is an estimate. As these communities are often found in steep rocky areas, it can be difficult to measure extent from aerial photos or on the ground. There should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

The extreme sensitivity of this habitat to grazing pressure is responsible for its scarcity. This habitat would have once been more abundant, but is now largely confined to areas inaccessible to grazers. It would be possible to expand the distribution of this habitat by further reduction of grazing pressure. Very low to absent grazing pressure would lead to the growth of woodland or scrub. The current level of grazing at Ben Lui is appropriate to maintain the current extent.

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

Maintaining a light level of grazing on this habitat is key to its management. The following conditions should be met when grazing/browsing is low enough to allow survival of component species of the habitat and to maintain the habitat's structure:

- At least 80% 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.
- Less than 10% of live flowering shoots of tall herbs should show evidence of

grazing.

- In addition very low levels of disturbance should be in place to allow for survival of component species of the habitat, with less than 1% of the ground cover being disturbed or bare ground.

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

The tall herb community corresponds to NVC type U17 *Luzula sylvatica* – *Geum rivale* tall-herb community. It is characterised by species-rich mix of tall, broad-leaved herbs, most of which are otherwise rare in the uplands owing to their sensitivity to grazing, including:

Alchemilla spp., *Angelica sylvestris*, *Cirsium heterophyllum*, *Crepis paludosa*, *Filipendula ulmaria*, *Galium boreale*, *Geranium sylvaticum*, *Geum rivale*, *Hieracium* spp., *Hypericum* spp., *Leucanthemum vulgare*, *Mercurialis perennis*, *Oxyria digyna*, *Rubus saxatilis*, *Rumex acetosa*, *Saussurea alpina*, *Sedum rosea*, *Silene dioica*, *Solidago virgaurea*, *Succisa pratensis*, *Trollius europaeus*.

This community at Ben Lui also has the following rare species: *Bartsia alpina*, *Asplenium vinde*, *Polystichum lonchitis*, *Cystopteris montana*, *Potentilla crantzii*, *Woodsia alpina*, *Carex vaginata*, *Arabis alpina* and *Draba incana*.

Conservation Objectives for Base-rich fens (also known as Alkaline fens [H7230])

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

Maintain 7.61 ha extent of existing base-rich fen at Ben Lui.

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.

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

This habitat is found where there are base-rich springs or seepages on peat or mineral soils. It can be found up to moderate altitudes, but generally below 600 m. Tufa deposition may occur.

Low levels of grazing can help to maintain species-richness and prevent succession. Over-grazing and excessive poaching should be avoided. The current level of grazing is appropriate for this feature, but the impacts of any changes in stocking densities or local deer populations should be monitored.

Less than 5% of the ground cover, of whole feature should be disturbed bare ground (scanned from sample points).

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

The core vegetation of this habitat is short sedge mire (mire with low-growing sedge vegetation). There are two main communities found on Ben Lui.

The only NVC type for this feature at Ben Lui is M10 *Carex dioica* – *Pinguicula vulgaris* mire (lower altitude type). This habitat is rich in sedges, with carnation sedge *Carex panicea*, yellow sedge *C. viridula*, dioecious sedge *C. dioica* and tawny sedge *C. hostiana* on a carpet of 'brown mosses'. Other species present at Ben Lui are common butterwort

Pinguicula vulgaris, alpine meadow-rue *Thalictrum alpinum*, lesser clubmoss *Selaginella selaginoides*, and purple saxifrage *Saxifraga oppositifolia* that grow in this base-enriched habitat.

A herb-rich *Carex nigra* mire community is quite common at Ben Lui on slopes flushed with calcareous water. This is a herb-rich counterpart of the small sedge *Carex-Sphagnum* mires. It is characterised by common sedge *Carex nigra* and star sedge *C. echinata* with sweet vernal grass *Anthoxanthum odoratum* and *Potentilla erecta*. The rare sedge *Carex vaginata* grows in one or two stands.

The habitat conditions described in section 2b, and the activities listed in that section will affect the viability of these typical species.

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

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 to 1.03ha.

It is difficult to estimate habitat extent for this habitat type, because it occurs in small fragments, as part of a mosaic of other habitats. This habitat is found on the higher slopes and the vegetation communities contain higher altitude species.

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

This habitat is maintained by harsh climatic and soil conditions. It varies according to differences in altitude, geographic location, length of snow-lie, nature of the substrate, and the amount of water flushing the communities.

The habitat usually consists of a delicate mat of algae and bryophytes on thin soil. It recovers slowly from disturbance. Over-grazing and excessive poaching/trampling can therefore be detrimental to the habitat by damaging vegetation and changing vegetation composition.

Objectives for this habitats are:

- Less than 5% of the ground cover, of whole feature should be disturbed bare ground.
- Less than 10% of the total feature area, should show signs of active drainage, resulting from ditches or heavy trampling or tracking.
- Less than 1% of tufa formations should have disturbance of any kind.

The grazing levels at Ben Lui are appropriate for this feature at present.

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

The vegetation consists of mixtures of small sedges, rushes, small herbs and bryophytes, and includes many arctic-alpine species. The following NVC communities, that fall within the definition of this habitat type are present at Ben Lui:

- M10a *Carex dioica* – *Pinguicula vulgaris* mire
- M11a *Carex demissa* – *Saxifraga aizoides* mire

- M12 *Carex saxatilis* mire

Species present in these habitats at Ben Lui:

Brown mosses; moss *Blindia acuta*, common butterwort *Pinguicula vulgaris*; alpine bistort *Persicaria vivipara*, yellow saxifrage *saxifraga azoidies* alpine meadow-rue *Thalictrum alpinum*; Scottish asphodel *Tofieldia pusilla*, greasewort *Aneura pinguis*; sharp-leaved *Blindia Blindia acuta*; scorched alpine-sedge *Carex atrofusca*; bristle sedge *Carex microglochin*; carnation sedge *Carex panicea*; russet sedge *Carex saxatillis*; flea sedge *Carex pulicaris*; sheathed sedge *Carex vaginata*; yellow sedge *Carex viridula*; mountain scurvygrass, hair sedge *Carex capillaris*, sheathed sedge *C. vaginata* and variegated horsetail *Equisetum variegatum*. *Cochlearia micacea*; alpine rush *Juncus alpinoarticulatus* (*J. articulatus* at lower altitudes); two-flowered rush *Juncus biglumis*; chestnut rush *Juncus castaneus*; three-flowered rush *Juncus triglumis*; Iceland purslane *Koenigia islandica*; false sedge *Kobresia simpliciuscula*;

Less than 1% of vegetation cover should consist of, collectively, sweet meadow grass *Anthoxanthum odoratum*, hairy willowherb *Epilobium hirsutum*, Yorkshire fog *Holcus lanatus*, creeping buttercup *Ranunculus repens*.

The distribution of species is best maintained through light grazing, which will prevent small sedges and herbs being overwhelmed by more vigorous species. In some cases, these habitats remain open naturally, due to their high water table and low level of nutrients

Conservation Objectives for Acidic scree (also known as Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [H8110])

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

The extent of the acidic scree feature has been estimated at 65Ha, this should be maintained. The current baseline estimates may not be very precise.

At Ben Lui, this habitat type is widely distributed on slopes and in corries. It is closely associated with the community plants in crevices on acidic 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 may be seen through herbivore grazing, trampling and recreation activities. There is also the possibility of colonisation, particularly of more stable scree, by other species, including trees and scrub, where there are seed sources.

Colonisation or shading of this habitat by bracken, tree growth and/or woodland expansion can affect habitat structure and reduce or eliminate cover of indicator species, including bryophytes. Fire is unlikely to spread easily in this habitat due to the sparse vegetation and rocky ground, however acidic scree should not be burnt to avoid damage to the structure, function and supporting processes of this habitat.

Trampling from walkers can contribute to deterioration in the habitat structure by moving stones more frequently than plants are able to recolonise the disturbed ground, this is exacerbated if walkers deliberately slide down the scree slopes.

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

This community is dominated by mosses, ferns and lichens, including some uncommon species. There are no NVC communities describing these communities.

Among the commonest species here are the mosses *Racomitrium lanuginosum*, *R sudeticum*, *R heterostichum*, *R fasciculare*, *Polytrichum alpinum*, *Dicranum scoparium* and *Andreaea rothii*, the liverwort *Diplophyllum albicans* and the lichens *Cladonia subcervicornis*, *Stereocaulon vesuvianum*, *Cladonia furcata* and *Cladonia chlorophaea*. In general, there is a rich bryophyte assemblage at Ben Lui, as described in the detailed NVC survey.

Sheep's fescue *Festuca ovina*, Fir clubmoss *Huperzia selago*, Tormentil *Potentilla erecta* and blaeberry *Vaccinium myrtillus* can occur, but in general soils are too poor, thin and patchy for vascular plants. It also shelter for species sensitive to frost, such as parsley fern *Cryptogramma crista*, species requiring a humid microclimate and species sensitive to grazing such as stone bramble *Rubus saxatilis*. It is important for its rich fern flora and act as refugia for a number of rare species.

Conservation Objectives for Plants in crevices on acid rocks (also known as Siliceous rocky slopes with chasmophytic vegetation [H8220])

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

The extent of the plants in crevices on acid rocks feature has been estimated at 72.1Ha. Estimates may not be very precise.

This habitat is widely distributed at Ben Lui, as cliff faces, but also on individual scattered rocks. It is closely associated with 'acidic scree', as the same rock type forms the scree and 'plants in crevices on base-rich rocks' as the calcareous bands of rock that support it are found within siliceous rock.

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

This habitat is usually scattered over rocky areas, where there is often very little soil, but some shelter and moisture; these plant communities can tolerate harsh conditions and drought.

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 typical species including bryophytes. Therefore less than 10% of ground cover should be made up of bracken and/or scattered native trees and scrub.

At Ben Lui this habitat is largely protected from grazing and trampling by inaccessibility. Deer and sheep tend to avoid the steep, rocky areas where this feature is present. However less than 20% of live leaves (forbs) or the shoots (dwarf shrubs) should show signs of having been grazed or browsed.

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

Siliceous rock crevice vegetation is poorly covered by the NVC, although some forms can be referred to U21 *Cryptogramma crista* – *Deschampsia flexuosa* community. The habitat type typically comprises mixtures of bryophytes and vascular plants, such as wavy hair-grass *Deschampsia flexuosa*, ferns and fir clubmoss *Huperzia selago*. There are no consistent indicator species for this habitat. Other typical species are as per the acidic scree feature type (please see above).

The level of grazing and browsing at Ben Lui is appropriate for this feature to allow for continued distribution and viability of these species within the site.

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

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 72.4Ha.

However, due to the localised and fragmentary nature of this habitat, the current baseline estimates may not be very precise. Any changes in extent as a result of new survey may not represent real change, but greater precision. This habitat is widely distributed on the cliffs and ledges at Ben Lui. It is 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 NZ 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. Colonisation with bracken, trees and scrub should be prevented if possible.

This habitat type is protected from grazing at Ben Lui, as it is mainly distributed in inaccessible areas. This habitat does not need grazing to maintain it, unless it is showing increasing occurrence of scrub and trees.

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

The typical non-vascular species of base-rich rocks are *Tortella tortuosa*, *Anoetangium aestivum*, *Isothecium myosuroides* and *Ctenidium molluscum*. Associated vascular plants include brittle bladder-fern *Cystopteris fragilis*, green spleenwort *Asplenium viride* and glaucous meadow-grass *Poa glauca*. However, floristic variation within the habitat type is influenced by geographical location, altitude and rock type. Some forms of the calcareous type correspond to NVC types OV39 *Asplenium trichomanes* – *Asplenium ruta-muraria* community and OV40 *Asplenium viride* – *Cystopteris fragilis* community, but other forms are not described by the NVC.

Typical species for this habitat: Alpine lady's mantle *Alchemilla alpina*; thyme-leaved sandwort *Arenaria serpyllifolia*; spleenworts *Asplenium* sp; hair sedge *Carex capillaris*; flea sedge *Carex pulicaris*; brittle bladder-fern *Cystopteris fragilis*; mountain avens *Dryas octopetala*; common rock-rose *Helianthemum nummularium*; hawkweed spp *Hieracium* spp.; crested hair-grass *Koeleria macrantha*; alpine bistort *Persicaria vivipara*; hard shield fern *Polystichum aculeatum*; holly fern *P. lonchitis*; soft shield fern *P. setiferum*; yellow saxifrage *Saxifraga aizoides*; purple saxifrage *Saxifraga oppositifolia*; biting stonecrop *Sedum acre*; lesser clubmoss *Selaginella selaginoides*; moss campion *Silene acaulis*; alpine meadow-rue

Thalictrum alpinum; wild thyme *Thymus polytrichus*.

Conservation Measures

Ben Lui SAC 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 Wet heathland with cross-leaved heath

Issue	Measure	Responsible party
Stock grazing	Ensure suitable low to moderate grazing pressure on the upland grasslands, whilst avoiding too much on the low ground habitats (which are more sheltered and attractive to grazers). This is being achieved through a 5 year agri-environment contract with the landowners.	Land manager
Deer grazing	Carry out active deer management in order to reduce herbivore impact. Deer numbers have risen slightly in recent years and this situation needs to be monitored and acted on by DMG, as required.	NatureScot, landowners, stalkers and Inverary and Tyndrum DMG.

Current and recommended management for Mountain willow scrub

Issue	Measure	Responsible party
Stock grazing	Montane willow scrub requires very low to no herbivore impact to thrive; therefore stock fencing of suitable crags is necessary, to balance the needs of the various features and to be realistic about how much herbivore impacts can be reduced by.	Land managers, NatureScot, Deer Management Groups
Deer grazing	Monitor deer impacts on this and other habitats once fenced. The willow scrub (and other habitats) may require an increased deer cull to allow this feature to recover.	Deer Management Groups, land manager, NatureScot.
Research and monitoring	Research has already been carried out on this population by the Montane Willow Group. Ex situ propagation and re-introduction, as well as fencing, are required. Royal Botanic Gardens Edinburgh and the Cairngorms Connect project have been involved in/are going to be involved in willow propagation and re-introduction projects. These organisations are potential partners for a project at Ben Lui.	NatureScot, propagation partners.

Current and recommended management for Montane acid grasslands

Issue	Measure	Responsible party
Grazing – stock	Sheep stocking rates have been low for over 20 years, with further destocking around 10 years ago. This habitat has been impacted by historical sheep stocking rates, but has recovered. It is currently in favourable condition. This habitat generally does not suffer from undergrazing, as it is found on the mountain tops and is kept short and sparse by the harsh climate. This habitat is sensitive to erosion and overgrazing and is slow to recover from damage. The stocking levels are unlikely to cause overgrazing; however, grazing impacts should be monitored on this habitat 5 years after the start (2019) of the new grazing regime.	Land manager

Current and recommended management for

- **Alpine and subalpine calcareous grasslands**
- **Species-rich grasslands with mat-grass in upland areas**

Issue	Measure	Responsible party
Grazing management - stock	Low-moderate grazing pressure needs to be maintained on these habitats. An agri-environment agreement has been put in place to ensure suitable stocking rates on site. The grazing impacts should be re-assessed after 5 years of the new management proposals (start 2019).	Land manager, NatureScot.
Grazing - deer	As sheep numbers have fallen, deer numbers are likely to increase, so the DMG need to monitor impacts and may need to increase the deer cull.	DMG, land manager, NatureScot.
Recreation (walkers)	There is a walkers' path that passes through some of the montane acid grasslands, but it is not currently the cause of unfavourable condition. The 'Mountains and the people' project built a path through parts of this habitat. This was beneficial, as it reduced braiding and erosion around the path. Maintenance of paths is essential to keep people on the path line.	Land manager, Local authority, NatureScot

Current and recommended management for

- Tall herb communities
- Base-rich fen
- High-altitude plant communities associated with areas of water seepage

Issue	Measure	Responsible party
Grazing	The current low level of deer and sheep grazing is appropriate for these features. The tall herb communities are largely inaccessible to grazing animals, but grazing impacts on more accessible habitats should be checked after 5 years (from 2019).	Land manager, NatureScot

Current and recommended management for

- Acidic scree
- Plants in crevices on acid rocks
- Plants in crevices on base-rich rocks

Issue	Measure	Responsible party
Herbivore impacts (grazing and/or trampling)	These habitats are partly inaccessible to grazing animals; however the current low levels of grazing by sheep and deer are appropriate.	Land managers, NatureScot, Deer Management Groups

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