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

RUM SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

Site Details

Site name:	Rum
Map:	https://sitelink.nature.scot/site/8371
Location:	Highlands and Islands
Site code:	UK0012594
Area (ha):	10,839.74
Date designated:	17 March 2005

Qualifying features

Qualifying feature	Assessed Condition	SCM visit date	UK overall conservation status
Vegetated sea cliffs	Unfavourable Recovering	30 June 2009	Unfavourable - Bad
Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels	Favourable Maintained	31 August 2004	Unfavourable - Bad
Acid peat-stained lakes and ponds	Favourable Maintained	28 August 2009	Unfavourable - Bad
Wet heathland with cross-leaved heath	Unfavourable Recovering	15 May 2013	Unfavourable - Bad
Dry heaths	Unfavourable Recovering	19 June 2010	Unfavourable - Bad
Alpine and subalpine heaths	Unfavourable Recovering	19 June 2010	Unfavourable - Bad
Grasslands on soils rich in heavy metals	Favourable Maintained	15 May 2013	Unfavourable - Bad
Species-rich grassland with mat-grass in upland areas*	Unfavourable Recovering	19 June 2010	Unfavourable - Bad
Tall herb communities	Favourable Maintained	15 May 2013	Unfavourable - Bad
Blanket bog*	Favourable Recovered	15 May 2013	Unfavourable - Bad
Depressions on peat substrates	Unfavourable No change	2 October 2004	Unfavourable - Bad
Base-rich fens	Unfavourable No change	15 May 2013	Unfavourable - Bad
Acidic scree	Favourable Maintained	15 May 2013	Unfavourable - Inadequate

Base-rich scree	Favourable Maintained	15 May 2013	Unfavourable - Bad
Plants in crevices on acid rocks	Favourable Maintained	15 May 2013	Unfavourable - Bad
Plants in crevices on base-rich rocks	Favourable Maintained	19 June 2010	Unfavourable - Inadequate
Otter (Lutra lutra)	Favourable Declining	2 April 2011	Favourable

Notes:
Assessed Condition refers to the condition of the SAC feature assessed at a site level as part of NatureScot's Site Condition Monitoring (SCM) programme.
Conservation status is the overall condition of the feature throughout its range within the UK as reported to the European Commission under Article 17 of the Habitats Directive in 2019.
*Indicates Habitats Directive priority habitat

Overlapping Protected Areas:

Rum SSSI and Rum SPA

Key factors affecting the qualifying features

Vegetated sea cliffs
On Rum this habitat occurs on steep slopes and cliffs fringing the coasts, and supports a wide diversity of vegetation types with variable maritime influence. Exposure to the sea and wind, and in particular salt spray blown on to the cliff face and cliff top is a key determinant of the type of sea cliff vegetation. The most exposed areas support maritime vegetation dominated by a range of salt-tolerant plants. More sheltered cliffs support communities closely related to those found on similar substrates inland, such as grassland and heath, with only a minor maritime element in the flora.

The profile and stability of the cliff face is one of the major determinants of cliff vegetation. Near-vertical cliffs support specialist crevice communities, while ledges occupied by breeding seabirds may develop specialist nitrophilous communities comprising plant species which are able to cope with heavy guano deposition. On less extreme slopes, species tolerant of exposure to wind and salt spray and of thin soils can find a foothold. The cliff top vegetation included in this habitat comprises maritime grassland and maritime heath.

The habitat has been assessed as unfavourable on Rum because of the presence of ragwort which is locally frequent.

Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels
This habitat type comprises oligotrophic (nutrient-poor) lochs on Rum. The dominant substrates of oligotrophic waters are silt, sand, gravel, stones and boulders. The clear soft water, which characterises this habitat type, contains low to moderate levels of plant nutrients and supports characteristic assemblages of plant species. The vegetation community is characterised by amphibious short perennial vegetation

the marginal components of which can be exposed on the loch shores during summer.

Key management issues include changes to hydrology, invasive non-native species, surface water pollution and air pollution.

Acid peat-stained lakes and ponds

The dystrophic lochans (acid peat stained lakes or ponds) on Rum are present mainly at mid-altitude in areas of upland blanket bogs and wet heaths over Torridonian sandstone. These water bodies are very acidic and poor in plant nutrients. They are predominantly rain fed, and their water has a high humic acid content and is usually stained dark brown through exposure to peat. The pools are naturally species-poor often with a peaty bottom though notable scarce dragonfly species are associated with dystrophic lakes and ponds.

The health of these lochs is often closely linked with the surrounding bog. Key requirements for this habitat type are the maintaining of an appropriate hydrological regime and prevention of pollution.

Wet heathland with cross-leaved heath

Wet heath is the most extensive vegetation type on Rum, forming vast tracts of moorland on the lower slopes of major peaks, usually on acidic or nutrient-poor substrates, with impeded drainage. Wet heaths occur in several types of ecological gradient. On Rum they occur most frequently at low altitudes over virtually all of the gently sloping ground, with blanket bog more dominant at lower altitudes in river valleys, where there is significant peat accumulation.

At high altitude wet heaths occur in mosaics with Alpine and Boreal heaths; in these situations lichens and northern or montane species are well-represented.

The key issues on Rum are the nature and extent of deer pressure and associated impacts, grazing generally (including feral goats), historical burning and non-native species, which have led to the current unfavourable condition of the habitat.

Dry heaths

Dry heaths occur on freely-draining, acidic to almost neutral soils with generally low nutrient content. Dry heaths on Rum are limited in extent but widespread, ranging from the coast to its altitude limit on the Cuillin, as relatively extensive stands, or as small pockets, in areas with crags and rock outcrops. Ericaceous dwarf-shrubs dominate the vegetation but all heaths vary in their flora and fauna according to climate, altitude, aspect, soil conditions (especially base-status and drainage), maritime influence and grazing.

Nearly all dry heath is semi-natural, being derived from woodland through a long history of grazing and burning. On Rum dry heaths are managed through grazing mostly by deer but also cattle, ponies and feral goats.

The key issues leading to unfavourable condition on Rum are the nature and extent of browsing particularly from deer, and undesirable bracken cover that has been noted in localised areas.

Alpine and subalpine heaths

Alpine and subalpine heaths are locally abundant on summit slopes, windswept ridges and rock outcrops on the higher mountains. Exposure or snow-lie, which suppress the growth of dwarf-shrubs, also favour the growth of characteristic lichens and bryophytes. Alpine heaths develop above the natural altitudinal tree-line. Subalpine heaths develop below the tree-line as replacements for those subalpine woods lost due to grazing and burning. On lower slopes, subalpine heaths may grade into floristically-similar dry heaths.

Alpine and subalpine heaths that are rich in bryophytes and also juniper-rich heaths are particularly susceptible to disturbance, especially by fire. Similarly, lichen-rich heaths are susceptible to damage by fire or trampling. Rocky ground can be important in protecting heaths from fire.

The key issues on Rum leading to unfavourable condition of the habitat are the nature and extent of browsing particularly from deer and the impacts of trampling.

Grasslands on soils rich in heavy metals

This habitat occurs on soils that have levels of heavy metals, such as lead, zinc, chromium and copper that are toxic to most plant species. On Rum this habitat occurs on metamorphic serpentine soils in the Rum Cuillin, characterised by the presence of arctic sandwort *Arenaria norvegica* ssp. *norvegica* and northern rock-cress *Arabis petraea*.

This habitat can be highly variable in composition and structure. The defining characteristic is the substrate, which must be ultra-basic.

Key management issues include inappropriate levels of grazing and erosion.

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. This is a Habitats Directive Priority habitat.

The species rich grassland feature is located at Kilmory, Harris, Fionchra and around the ridges between the higher Cuillin.

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

The key issue on Rum leading to unfavourable condition is the nature and extent of browsing particularly from deer, cattle, ponies and feral goats. The main cause of the previous unfavorable assessment was overgrazing.

Tall herb communities

Tall herb communities are 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. On Rum SAC this feature is mostly restricted to north-facing cliffs in the western part of the island, on Bloodstone Hill, Fionchra and Sròn an t-Saighdeir with a few scattered stands on the cliffs above Atlantic Corrie and Glen Harris.

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

Blanket bogs

Blanket bogs are found in areas of moderate to high rainfall and a low level of evapotranspiration, allowing peat to develop over large expanses of undulating ground. On Rum SAC blanket bogs are largely rain-fed and restricted to level ground at lower altitudes, especially in river valleys, where there is significant peat accumulation. This is a Habitats Directive Priority habitat.

Key management issues include over-grazing, aspects of red deer pressure, burning, changes in the hydrology, non-native species, abiotic natural changes, and outdoor recreation.

Depressions on peat substrates

This habitat is found in complex mosaics on the edge of bog pools, particularly in wetter areas of blanket bogs and heaths, and so can be of a transitional nature depending on hydrological changes, direct and indirect. The vegetation is typically very open, usually characterised by an abundance of white beak-sedge *Rhynchospora alba*.

Key factors affecting this habitat are changes to hydrology that may alter the height of the water table, inappropriate grazing pressure and, disturbance e.g., through trampling or burning. On Rum there has been evidence of localised trampling and disturbed bare ground caused by deer leading to the unfavourable condition of the habitat.

Base-rich fens

Base-rich fen consists 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. This habitat is scattered on Rum and found mostly in the southern and eastern parts of the island, on slopes of the Cuillin ridge with especially good ones on Trollaval. The east-facing slopes of Ainshval in Glen Dibidil also have extensive stands of the community.

There is considerable variation between sites in the associated communities and the transitions that may occur. Such variation can be broadly classified by the geomorphological situation in which the fen occurs, namely: flood plain mire, valley mire, basin mire, hydroseral fen (i.e., as zones around open waterbodies) and spring fen. Another important source of ecological variation is altitude, with significant differences between lowland fens, which are rich in southern and continental species, and upland fens, which are rich in northern species.

Key factors affecting this habitat type are pollution to ground or surface water and inappropriate grazing pressure. On Rum excessive grazing and trampling by red deer has resulted in the unfavourable status of this habitat.

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 is vulnerable to disturbance naturally. Acidic screes are well developed on the slopes of Ard Nev and Orval in the west of the island and in a few corries in the Rum Cuillin to the east. They may occur at any altitude, but screes in the lowlands are excluded from the Annex I definition.

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 screes are well developed on Bloodstone Hill and Fionchra where fans of fine basalt have formed below small, eroding cliffs. Ultrabasic screes are widely distributed in the Rum Cuillin, ranging from small unstable fans of gravel to large stabilised boulder fields. The scree habitat consists of assemblages of calcicole and basiphilous species, the composition of which is heavily influenced by altitude.

Key factors affecting this habitat type include inappropriate grazing pressure from deer and feral goats and the associated trampling.

Plants in crevices on acid rocks

The chasmophytic (grows in the crevices of rocks) vegetation that colonises siliceous (silica based, acidic) rock faces and is widespread in upland areas. 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 and low nutrient availability. They can be sensitive to overgrazing and trampling although many sites are protected by inaccessibility. On Rum this habitat is widespread in the west and south and is also closely associated with acidic scree where the same rock type is also found forming the scree.

Plants in crevices on base-rich rocks

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. On Rum there are only a small number of confirmed locations for this habitat, including on the south side Askival and Minishal, the slopes above Papadil and at Fionnchra. It is also closely associated with base-rich scree where the same rock type is also found forming the scree.

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.

Otter

Otter require continued proximity to unpolluted open water either freshwater or coastal. There should be a plentiful food supply and features for providing shelter for both resting and breeding. They are wide ranging and normally occur at low densities.

Previous population declines in otters were primarily due to pollution and persecution.

Otters have been in favourable condition on Rum. The most recent survey however did not find any signs of breeding or resting sites, although that may be due to issues with the survey. No specific management measures were recommended.

Further information about these species and habitats can be found on the JNCC website.

Feature Priorities

Blanket bog and species-rich grassland with mat-grass in upland areas are both Habitats Directive Priority habitats. 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.

In practice, there is unlikely to be any conflict between management of the different features of Rum SAC, because habitat distribution is mainly determined by environmental conditions and grazing levels. Most habitats would benefit from a similar low herbivore population in the wider area, except species-rich grassland which requires a broader range of grazing levels (high to low). However, as species-rich grassland is limited in extent, and will attract herbivores due to its higher nutritional value, it is anticipated that a lower herbivore population can meet the conservation objectives for all habitat features without prioritisation. As under-grazed grassland recovers more readily through appropriate management than overgrazed heath or bog, a low herbivore density is desirable for this SAC. Specific grazing using livestock is part of the Rum NNR Habitat Management Plan, which could be used to focus grazing on under grazed grassland in accessible areas.

This SAC overlaps with part of Rum SPA. Any management of the SAC, or assessment of plans or projects, will also need to take account of the all of the SPA features.

Conservation Objectives

Overarching Conservation Objectives for all habitat features

1. To ensure that the qualifying features of Rum 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 Rum 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 Vegetated sea cliffs of the Atlantic and Baltic coasts [H1230] (Vegetated sea cliffs)

2a. Maintain the extent and distribution of the habitat within the site
Accurate measurement of the extent of this habitat is hard to achieve due to its location on

vertical or near vertical slopes but does include, where appropriate, the clifftop maritime vegetation. The figure within the SAC standard data form (217 ha) is therefore used as a guide, and the objective is that there should be no loss of the habitat within the SAC.

The extent of this habitat is largely determined by topography, being found on vertical or steeply sloping cliffs with exposure to salt spray and the wind. These factors limit the potential for expansion or loss of extent through natural processes. On Rum their greatest extent are on the cliff tops and coastal slopes of the south and north-west of the island.

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

The structure of the habitat is influenced by the geomorphological processes, degree of exposure to the wind and sea, and the associated salt spray on the cliff face and cliff tops. Exposed stretches of coast support salt-tolerant vegetation, while more sheltered areas support plant communities similar to those found inland such as grassland and heath.

The profile and stability of the cliff face is dependent on whether it is a 'hard' or soft' cliff. 'Hard' cliffs with vertical or very steep faces are characteristic of hard igneous, metamorphic and sedimentary rocks. 'Soft' cliffs have a sloping or slumped profile, often with a distinct 'undercliff'; they occur on a range of soft rocks, or on hard rocks interspersed with softer deposits. The more mobile soft cliffs occur where there are unstable soft deposits such as mudstones or glacial drift deposits. They may be subject to mudslides or landslips.

The structure and function of this habitat are dependent on natural marine processes and weather.

However, the natural processes of the sea cliffs and transition to the clifftop areas can be disrupted by coastal defences, roads and /or extraction of rock.

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

Maritime cliff vegetation (slope and cliff top) varies according to a number of physical and biological factors, but most important among these are climate, degree of exposure to sea-spray, geology and soil type, level of grazing, and the amount of seabird activity.

Typical species that colonise the cliff slope on this site, of which at least five should be at least occasional, are: Red fescue *Festuca rubra;* Thrift *Armeria maritima;* Sea campion *Silene uniflora;* Scot's lovage *Ligusticum scoticum;* Sea plantain *Plantago maritima;* Ribwort plantain *Plantago lanceolate;* roseroot *Sedum rosea;* wild angelica *Angelica sylvestris;* common sorrel *Rumex acetosa;* wild hyacinth *Hyacinthoides non-scriptus;* sea mayweed *Tripleurospermum maritimum;* sea spleenwort *Asplenium maritimum;* primrose *Primula vulgaris;* scurvygrass sp. *Cochlearia* sp.

Typical species on the clifftop maritime grassland dominated by red fescue *Festuca rubra* present are: Thift *Armeria maritima;* sea campion *Silene uniflora;* Yorkshire fog *Holcus lanatus;* sea plantain *Plantago maritima;* ribwort plantain *Plantago lanceolate;* buckshorn plantain *Plantago coronopus;* cocksfoot *Dactylis glomerata;* wild carrot *Daucus carota;* common sorrel *Rumex acetosa;* wild hyacinth *Hyacinthoides non-scriptus;* spring squill *Scilla verna.*

Appropriate grazing pressure and timing is generally required to allow flowering and fruiting of cliff top vegetation and maintain the maritime grassland.

Excessive tracking/trampling by livestock / visitors / vehicles can contribute to a deterioration in the habitat structure, leading to a reduction or loss in the typical/indicator species for this habitat and could lead to erosion of the cliff top vegetation.

Colonisation of the vegetated sea cliffs by invasive native species, such as creeping thistle *Cirsium arvense;* spear thistle *Cirsium vulgare;* perennial ryegrass *Lolium perenne;* broad-leaved dock *Rumex obtusifolius;* curled dock *Rumex crispus;* common ragwort *Senecio jacobaea;* white clover *Trifolium repens;* stinging nettle *Urtica dioica* could result in loss of the typical species. On Rum, feral goats maintain grazing on this habitat but have also contributed to soil disturbance, which is thought to have caused an increase in *Senecio jacobaea* on disturbed ground in some areas. Sustainable management of feral goats will help to restore and maintain this habitat.

This site supports a colony of breeding seabirds including guillemot and kittiwake.

Conservation Objectives for Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea [H3130] (Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels)

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

The extent of Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels habitat feature has been estimated at 98 ha.

The area figure has been taken from the Standard Data Form. Fundamentally there should be no measurable net reduction the extent of the habitat and, most importantly, its distribution throughout the site and the number of sites should be maintained.

This should include the total surface area, depth of water and type and distribution of loch substrate sediments.

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 structure and function of lochs are strongly influenced by activities within their catchment. Changes in land management or development can affect the integrity of the feature which will manifest itself in changes to the loch.

Physical Attributes
-Surface Area
Changes to surface area can indicate pressures on the structure and function of lochs. The surface area of a loch may fluctuate slightly naturally. However changes to surface area and the associated change to depth can adversely affect the character of the loch, particularly the edge vegetation. Artificial fluctuations to depth found in controlled water bodies such as reservoirs can adversely affect the vegetation.

Changes to the surface area may also indicate a number of pressures such as abstraction, regulation, construction, excessive sediment deposition and natural succession which may occur in the catchment.

-Hydrological regime
The hydrology of the loch affects both water level fluctuations and annual and within year flushing patterns. Flushing is important as it is strongly related to dilution and removal of nutrients and plankton. Changes to the flushing pattern can be caused by factors similar to those affecting area; abstraction, regulation, construction, excessive sediment deposition

and natural succession which may occur in the catchment.

-Loch substrate character
The type and distribution of sediment particles within a loch will affect the biology of the loch and the availability of habitats. Changes to the substrate character may also be indicative of changes to the area and hydrological regime. Reduction in area or flushing may affect the substrate character as finer sediments become trapped and there is increased input of leaf-litter from scrub encroachment.

-Natural sediment load
Accumulation of nutrient-rich sediment may have a strong effect on the water quality and biology of the loch. Increases in sediment loading may result from both changes in land management practice in the catchment or on the shoreline and short term events such as construction. Evidence is growing that an increase in storm events associated with climate change may increase the amount of sediment deposited in lochs.

-Connectivity between the loch and the surrounding area
While a loch is often perceived as a discrete entity the connections between it and the surrounding area are vital to its functioning as part of a natural system. These natural connections can be reduced or changed by, for example, hard engineering works on the shoreline or loch bed and anything that impedes the exchange of water either on the surface or with the underlying water table.

Water Quality
-Dissolved Oxygen
Oxygen is vital to respiration. An artificially high biomass caused by increased loadings of organic matter or algal blooms can create a heavy demand which causes low levels of dissolved oxygen. Dissolved oxygen is likely to be lowest in July and August. The target is dissolved oxygen >7.0mg/l for lochs classified as at Good Ecological Status (GES) under the Water framework Directive (WFD) or >9.0 Mg/l for lochs classified as High Ecological Status (HES) during July and August.

-pH
This influences many of the chemical processes in lochs such as the binding of phosphorus. Artificial changes through eutrophication or acidification can therefore have a significant effect. Oligotrophic lochs should have pH of 5.5 to 7 and Mesotrophic 6.5 to 8

-Chlorophyll a
Chlorophyll a is a good measure for phytoplankton abundance. Phytoplankton is an important part of the processes of a loch ecosystem affecting light penetration and oxygen demand. A high biomass is usually associated with nutrient enrichment and sedimentation of organic matter. Target Chlorophyll a can be calculated for each loch based on site specific targets related to alkalinity and depth. Where a site is in favourable condition current Chlorophyll a can be used to set a baseline.

-Total Phosphorus
Phosphorus is one of the main nutrients required for plant growth and there is strong correlation between TP concentration and phytoplankton biomass. The target for TP is based on an annual mean; for deeper lochs (mean depth >3m) 15ugP/l maximum annual mean TP, very shallow (Mean depth <3m) 20ugP/l.

-Total Nitrogen
Nitrogen is the other main nutrient important in loch ecosystems. It is generally less likely to be limiting than phosphorus because of the ability of some organisms to fix Nitrogen from the

atmosphere. The target for all lochs is that Annual Mean Total Nitrogen should not exceed 1.5mg/l. with no deterioration from baseline. For N limited lochs consideration may be given to setting site based targets.

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

The lochs of this type on Rum are oligotrophic with a low species diversity. However, some coastal lochs exhibit a strong maritime influence and, as a consequence, support a greater diversity and abundance of macrophytes. Typical species of oligotrophic lochs are detailed in The Flora of Rum (Pearman *et al* 2008) and include;

Litorella uniflora	shoreweed
Lobeliia dortmanna	water lobelia
Subularia aquatic	awlwort
Eriocaulon aquaticum	pipewort
Isoetes echinospora	spring quillwort
Isoetes lacustris	lake quillwort
Myriophyllum alterniflorum	
Potamogeton polygonifolius	
Juncus bulbosus	

Some species typical of mesotrophic lochs are also present;

Nitella spp	stonewort
Potamogeton praelongus	
Chara spp	
Sparganium angustifolium	

The viability of the characteristic species is determined by water quality and other conditions that support the plant community such as water clarity. Loss or reduction in frequency of species may therefore be an indicator of deteriorating or changing water quality or some other adverse impact.

Alien species can have direct effects upon the natural plant communities through competition. They may also have more subtle effects as the niche they fill is different and this may directly or indirectly affect the rest of the ecosystem. A list of high impact species has been agreed as part of the Water Framework Directive. Other species that may also affect the integrity of the site include *Elodea nutallii*, *E.canadensis* and *Crassula helmsii*.

Filamentous algae are indicative of high nutrient levels. This can create dense blankets reducing light and which can cause problems when they die and decay.

Some of these lochs are also used by breeding red-throated diver, a qualifying species of Rum SPA.

Conservation Objectives for Natural Dystrophic lakes and ponds [H3160] (Acid peat-stained lakes and ponds)

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

There should be no measurable net reduction to the extent of the habitat and its distribution throughout the site. The extent of the Acid peat-stained lakes and ponds has been estimated at 1ha.

In contrast to most loch habitats this habitat can be composed of many relatively small lochs

and lochans scattered throughout the site. Drainage and forestry could dry out the peat catchment associated with the lochs

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 structure and function of lochs are strongly influenced by activities within their catchment. Changes in land management or development can affect the integrity of the feature which will manifest itself in changes to the loch.

Physical Attributes
-Surface Area
Changes to surface area can indicate pressures on the structure and function of lochs. Because they tend to be small and rather shallow the surface area of dystrophic lochs may fluctuate naturally more than other lochs. However changes to surface area and the associated change to depth can adversely affect the character of the loch. Artificial fluctuations to depth from activities such as abstraction can adversely affect the vegetation.

Changes to the surface area may also indicate a number of pressures such as abstraction, regulation, construction, excessive sediment deposition and natural succession which may be caused by issues in the catchment.

-Hydrological regime
The hydrology of the loch affects both water level fluctuations and annual and within year flushing patterns. Flushing is important as it is strongly related to dilution and removal of nutrients and plankton. Changes to the flushing pattern can be caused by factors similar to those affecting area; abstraction, regulation, construction, excessive sediment deposition and natural succession which may occur in the catchment. The habitat is rain fed but may be affected by fluctuations in the water table of the surrounding bog.

-Loch substrate character
The type and distribution of sediment particles within a loch will affect the biology of the loch and the availability of habitats. Sediment type can be indicative of exposure. The substrate of the majority of dystrophic lochs is dominated by peat although there are rare examples on more mineral gravels. Changes to the substrate character may be indicative of changes to the area and hydrological regime. Reduction in area or flushing may affect the substrate character as finer sediments become trapped.

-Natural sediment load
Accumulation of nutrient-rich sediment may have a strong effect on the water quality and biology of the loch. Enrichment can be caused by the release of nutrients bound to silt. Increases in sediment loading may result from both changes in land management practice in the catchment or on the shoreline and short term events such as construction. Release of sediment from afforested catchments particularly during site preparation and harvesting is a particular issue. Eroding peat within the catchment may also be an issue for this type of loch. Evidence is growing that an increase in storm events associated with climate change may increase the amount of sediment deposited in lochs. Poaching of loch margins and feeder burns may also be important.

-Connectivity between the loch and the surrounding area
While a loch is often perceived as a discrete entity the connections between it and the surrounding area are vital to its functioning as part of a natural system. These natural connections can be reduced or changed by, for example, hard engineering works on the

shoreline or loch bed and anything that impedes the exchange of water either on the surface or with the underlying water table. Poaching of loch edges can damage or destroy the characteristic edges and marginal vegetation

Water Quality
-Dissolved Oxygen
Oxygen is vital to respiration. An artificially high biomass caused by increased loadings of organic matter or algal blooms can create a heavy demand which causes low levels of dissolved oxygen. Dissolved oxygen is likely to be lowest in July and August. The target is dissolved oxygen >7.0mg/l for lochs classified as at Good Ecological Status (GES) under the Water framework Directive (WFD) or >9.0 Mg/l for lochs classified as High Ecological Status (HES) during July and August.

-pH
This influences many of the chemical processes in lochs such as the binding of phosphorus. Artificial changes through eutrophication or acidification can therefore have a significant effect. Dystrophic lochs should have pH of less than 5. Careful consideration should be given to afforestation of catchments with low buffering capacity

Nutrients
Phosphorus (P) is one of the main nutrients required for plant growth and there is strong correlation between total phosphorus (TP) concentration and phytoplankton biomass. The target for TP is based on an annual mean; for deeper lochs (mean depth >3m) 15ugP/l maximum annual mean TP, very shallow (Mean depth <3m) 20ugP/l. Site specific targets may also be set where there are good records.

Nitrogen is the other main nutrient important in loch ecosystems. Although generally less likely to be limiting than phosphorus it can be limiting either on its own or co-limiting with P and nitrate has been found to adversely affect macropytes. Both Nitrogen and Phosphorus should be low. The target for all lochs is that Annual Mean Total Nitrogen should not exceed 1.5mg/l. with no deterioration from baseline.

-Filamentous algae
Filamentous algae is a negative indicator associated with high nutrient levels. Some species can form dense floating rafts or coat macrophytes. Filamentous algae should only generally be found at low levels in dystrophic lochs.

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

There should be a low to medium diversity and characteristic species with a macrophyte community typical of the lake type with appropriate species richness and a natural assemblage.

Dystrophic lochs vary greatly in their macrophyte communities some having none at all. The target species can be found from previous monitoring including notable species from each site. The target is no loss. The characteristic species on Rum SAC are detailed in The Flora of Rum (Pearman *et al* 2008) and include:
Juncus bulbosus
Menyanthes trifoliata
Sparganium angustifolium
Aquatic *Sphagnum* spp

There should be no loss or significant decline.

Conservation Objectives for Northern Atlantic wet heaths with *Erica tetralix* [H4010] (Wet heathland with cross-leaved heath)

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

Maintain to approximately 3263 ha. 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 areas of blanket bog, and in dryer areas dry heaths and grassland. Baseline surveys will include smaller areas of other habitats. The vegetation is very variable in composition. Dwarf shrub cover and structure is variable, similar to dry heath in some areas, and to blanket bog in other, usually wetter areas, particularly on degraded bog. At high altitudes wet heath can be found in mosaics with Alpine and subalpine Heath, usually in areas with some topographic shelter. However there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site. Wet heath is the most extensive vegetation type on Rum, forming vast tracts of moorland.

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

Wet heathland with cross-leaved heath is sensitive to inappropriate grazing or burning that may affect the habitat structure and function in two main ways. A combination of overgrazing and frequent burning can lead to creation of a grass sward if this is continued over many years. Overgrazing can also result in high levels of nutrient input and trampling. Under grazing or complete lack of burning can lead to the habitat type being colonised by species that are not typical of this habitat (such as trees) if this management is continued over many years. An appropriate level of grazing is therefore needed to maintain this habitat. Most of the grazing/browsing at Rum SAC is by red deer although there are feral goats on the island.

Wet heath on Rum SAC should be restored from the legacy of damage from past trampling, overgrazing and burning, as well as man-made drainage. The objectives of this are to:

- restore the height structure of the vegetation by reducing grazing/browsing by red deer 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, feral goats and livestock 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.
- Cover by species that are not typical of this habitat should not increase. Examples of inappropriate species are bracken, trees and non-native species such as Rhododendron.
- Active drainage should be minimised. No new drains should be dug and existing ones should be blocked.

Any burning on Rum SAC should follow the Muirburn Code to avoid damage to the structure, function and supporting processes of wet heath.

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

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. The distribution of typical plant species should be maintained throughout the habitat by appropriate red deer management and avoiding frequent burning (see Objective 2b). Whilst this habitat is important for maintaining the population of red deer on this site, high levels of herbivore use have damaged this habitat in the past and led to a reduction in the distribution of typical species. A low level of grazing and browsing is necessary to allow this habitat to recover and be maintained in future.

At Rum the typical species include:

Arctostaphylos spp	bearberry/Arctic bearberry
Calluna vulgaris	common heather
Erica cinerea	bell heather
Erica tetralix	cross leaved heath
Eriophorum angustifolium	common cottongrass
Cladonia spp	lichens
Racomitrium lanuginosum	woolly fringe-moss
Sphagnum spp	bog mosses
Trichophorum cespitosum	deer grass

In addition, typically associated birds include red grouse (*Lagopus l. scotica)*, golden plover (*Pluvialis apricaria*), dunlin (*Calidris alpina schinzii)*, greenshank (*Tringa nebularia*), golden eagle (*Aquilla chrysaetos*), merlin (*Falco columbarius*) and hen harrier (*Circus cyaneus*).

Conservation Objectives for European dry heaths [H4030]

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

Maintain to approximately 900 ha. The area figure has been taken from the Standard Data Form, and is an estimate based on the fact that European dry heaths can form complex mosaics with habitats such as grasslands, wet heaths and bogs. However there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

The habitat is found on freely-drained, nutrient-poor, acidic soils. This can determine the extent and distribution of the habitat throughout the SAC, although it is also dependant on heathland management to maintain its extent including:

- appropriate level of grazing.
- avoidance of any loss of habitat through increased extent of successional or adjacent natural habitats, afforestation or invasion by alien species.
- avoidance of negative effects of access and recreation

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

Maintaining dry heath is a fine balance between degrading to grasslands as a result of intensive management, and succession to scrub or woodland from too low a level of browsing, grazing or burning. On Rum SAC red deer are the main herbivores on dry heath, with feral goats, highland ponies and highland cattle also present. Appropriate management of their numbers and distribution across the site is important to maintain dry heath habitat whilst preventing habitat degradation from under/overgrazing or trampling. Currently, burning is not used as a management tool, although the site has been burnt historically, and

more recently from accidental wildfires.

The objectives for restoring dry heath on this site are to:

- restore the height structure of the vegetation by reducing grazing/browsing by red deer and sheep so that less than1/3 of the last complete growing season's shoots of dwarf-shrub species 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').

Additional objectives for the structure of the habitat are:

- 25-90% of vegetation should be dwarf shrub heath species. Heather *Calluna vulgaris* should remain the dominant species and should be present in all phases of growth (pioneer, building, mature and degenerative) to provide a wide range of ecological variety and conservation benefit to a variety of species.
- Current levels of disturbed bare ground should not be increased. Activities that might cause an 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. Examples of inappropriate species are bracken, trees and non-native species.
- Any burning on Rum SAC should follow the Muirburn Code to avoid damage to the structure, function and supporting processes of dry heath.

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

The dry heath at Rum SAC is dominated by heather *Calluna vulgaris*, blaeberry *Vaccinium myrtillus* and crowberry *Empetrum nigrum* with some bearberry *Arctostaphylos uva-ursi*.

In addition, typical, associated birds of upland heaths are red grouse *Lagopus l. scotica*, golden plover *Pluvialis apricaria*, twite *Carduelis flavirostris*, hen harriers *Circus cyaneus*, merlin *Falco columbarius* and golden eagle *Aquila chrysaetos*.

This habitat is important for maintaining populations of red deer *Cervus elaphus* on this site, although the deer themselves are not a feature of the site. High levels of herbivore use can damage dry heath, but a low level of grazing and browsing is necessary to maintain this habitat.

Conservation Objectives for Alpine and Boreal heaths [H4060] (Alpine and subalpine heaths)

2a. Maintain the extent and distribution of Alpine and Boreal heaths within the site

Maintain to approximately 217 ha. The area figure for this SAC has been taken from the Standard Data Form, and is an estimate based on the fact that both Alpine and subalpine heaths can grade into other heath types, especially the latter into floristically-similar dry heaths. However there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

Alpine and subalpine heaths are generally found on on acid rocks on mountains, both on exposed lower summits and ridges and on sheltered slopes where the dominant plants can cope with harsh climatic conditions such as high winds and prolonged snow cover. These conditions will largely determine the extent and distribution of the habitats throughout the SAC, although the habitat's long-term existence will also be affected by:

- an appropriate level of grazing

- habitat loss through increased extent of adjacent natural habitats, afforestation or invasion by alien species

- The effects of access and recreation

2b. Restore the structure, function and supporting processes of the Alpine and subalpine heath

Alpine and subalpine heaths are climax vegetation in exposed and extreme conditions which result in slow growth; they are therefore very sensitive to disturbance and are slow to recover.

As with several other habitats at Rum, maintaining Alpine and subalpine heaths is a fine balance between degrading to grasslands (which tends to happen if grazing/browsing and burning levels are too high) and succession to scrub/ woodland/ dense juniper thicket (which happens if browsing/grazing is too low).

On Rum SAC red deer are the main herbivores on alpine and subalpine heaths, with feral goats also present in some areas. The predominant requirement for restoring alpine and subalpine heaths is managing appropriate levels of browsing and trampling by deer and feral goats. This in turn allows typical plants (listed in 2c) to grow and set seed.

In popular walking areas bare ground can be disturbed by human trampling. Recreation management might be necessary if excessive trampling is affecting the structure and function of the habitat.

Additional objectives for the structure of the habitat are:

- Bracken *Pteridium aquilinum* should be kept to less than 10% of the ground cover.
- Less than 10% of the ground cover should be disturbed bare ground (the emphasis is on 'disturbed' rather than 'bare'.)

Alpine and subalpine heath should not be burnt to avoid damage to the structure, function and supporting processes of this habitat.

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

Previous surveys have found higher than desirable amounts of fine-leaved grasses which can be a symptom of chronic grazing impacts, however as these stands look natural their composition may be a consequence of climate change and nutrient enrichment of the sward in Manx shearwater colonies.

On Rum this habitat is mostly represented by the following alpine heath NVC types:

- *Calluna vulgaris – Racomitrium lanuginosum* heath
- *Calluna vulgaris – Juniperus communis* ssp. *nana* heath
- *Vaccinium myrtillus – Racomitrium lanuginosum* heath

and subalpine heath NVC types:

- *Calluna vulgaris – Erica cinerea* heath
- *Calluna vulgaris – Vaccinium myrtillus* heath

The dominant plants in UK examples of Alpine and subalpine heaths are usually dwarf-shrubs of heather *Calluna vulgaris*, bilberry *Vaccinium myrtillus* or juniper *Juniperus communis*, which are low-growing or prostrate owing to exposure to high winds or prolonged snow cover at moderately high altitudes.

On less-exposed, more sheltered ground at the lower altitudinal range of the habitat, *Calluna* generally dominates. *Calluna* is usually accompanied by other dwarf-shrubs, such as *V. myrtillus*, bell heather *Erica cinerea*, bearberry *Arctostaphylos uva-ursi* and crowberry *E. nigrum* ssp. *nigrum*. On more exposed and windswept ground, a range of dwarf-shrubs may dominate, forming an altitudinal progression. The first in the progression, and often the most extensive, are heaths dominated by *Calluna* growing in a prostrate form. Heather may also be combined with dwarf juniper *Juniperus communis* ssp. *nana* or (. At higher altitudes, where conditions are too extreme for heather, short or prostrate *Vaccinium* spp. and *E. nigrum* ssp. *hermaphroditum* dominate. On sheltered slopes where snow lingers, the dominant shrub is *V. myrtillus*, which is either the sole dominant or grows with *E. nigrum* ssp. *hermaphroditum*.

At Rum SAC woolly fringe-moss *Racomitrium lanuginosum*, bell heather *Erica cinerea* and Atlantic liverworts and mosses (especially the species of the northern Atlantic hepatic mat) may be abundant in *Calluna – Racomitrium*, *Calluna – Juniperus*, and *Vaccinium – Racomitrium* heaths. Different structural forms of heath also occur, owing to differences in exposure, giving rise to closed or open heaths with crescentic waves (wave-form).

In some stands of Alpine and subalpine heaths the action of solifluction (by creating unstable soils, which provide more plant nutrients and maintain open conditions) favours the growth of certain plants. These include mountain everlasting *Antennaria dioica*, carnation sedge *Carex panicea*, pill sedge *C. pilulifera*, sea plantain *Plantago maritima*, fir clubmoss *Huperzia selago* and viviparous sheep's-fescue *Festuca vivipara*, enriching the flora of the heaths.

Typical associated vertebrates of these high habitats are red deer (*Cervus elaphus*) and golden eagle (*Aquila chrysaetos*).

Conservation Objectives for Calaminarian grasslands of the *Violetalia calaminariae* [H6130] (Grasslands on soils rich in heavy metals)

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

Maintain to approximately 108 ha

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.

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

The structure and function of the habitat is most dependent upon the underlying peculiar and toxic soils. To maintain this habitat type it is important to avoid conversion of these soils to agricultural grassland and, avoid reclamation of spoil material. Restoration efforts also can negatively affect the habitat.

Appropriate levels of grazing, that will not negatively affect the structure, function or supporting processes of the habitat, can be measured as;

- For fens and flushes, at least 50% of live leaves and/or flowering shoots of vascular plants should more than 5 cm above the ground surface.
- For closed grassland swards, at least 25% of live leaves and flowering shoots of vascular plants should be more than 5cm above the ground surface and at least 25% should be less than 5cm above the ground surface (exclude grass inflorescences).

Appropriate levels of disturbance, that will not negatively affect the structure, function or supporting processes of the habitat, can be measured as;

- Less than 10% of the ground cover should be disturbed bare ground. Disturbed bare ground 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'.

- Less than 10% of the total feature area should show signs of active drainage, resulting from ditches or heavy trampling or tracking. Drainage should be considered active if it has altered, or is likely to alter, or remove, the original vegetation, and facilitate the removal of water from the site.

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

In Scotland soils derived from serpentine, having more magnesium than calcium, along with the generally plant-toxic nickel and chromium, and have a very distinctive flora. Such soils are typically species-poor but contain a number of species principally found in this habitat.

Rum is one of the best sites in the UK for open rocky Calaminarian vegetation characterised by the presence of arctic sandwort *Arenaria norvegica* ssp. *norvegica* and northern rock-cress *Arabis petraea*. The habitat, which represents Calaminarian grasslands of the *Violetalia calaminariae*, is developed on rocky areas of debris and erosion terraces on the peridotite of Ruinsival eastwards towards Sgurr nan Gillean. *A. norvegica* is the rare ultramafic species represented, while other uncommon basiphiles include purple saxifrage *Saxifraga oppositifolia*, mossy cyphel *Minuartia sedoides* and moss campion *Silene acaulis*. This is one of the most maritime-influenced sites of the series and the maritime species sea campion *Silene uniflora*, sea plantain *Plantago maritima* and thrift *Armeria maritima* are especially frequent.

Many metallophyte species that grow on this habitat type are shade intolerant. Care should be taken when assessing nearby activities that may cause shading e.g. forestry plantation.

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

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

Maintain to approximately 531 ha.

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 there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site.

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 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 may cause increase in unpalatable species i.e. *Prunella vulgaris, Cirsium* spp and mosses and local trampling to communities with *Lolium, Plantago* and *Poa*. This habitat on Rum is grazed by red deer, highland cattle, highland ponies and feral goats.

The predominant objective for restoring species-rich grasslands is to manage levels of grazing and trampling by deer, cattle, ponies and feral goats. 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 10% of the ground cover.
- Less than 10% of the ground cover should be disturbed bare ground (the emphasis is on 'disturbed' rather than 'bare'.)

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

Species present in the grassland tend to be 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.

On Rum SAC extensive herb-rich grasslands have developed below cliffs of ultra-basic rocks along the coast. The grasslands occur from near sea level to about 750 m. Both CG10 *Festuca ovina – Agrostis capillaris – Thymus praecox* grassland and CG11 *Festuca ovina – Agrostis capillaris – Alchemilla alpina* grassland are well-represented.

Many uncommon but characteristic species are present, including mountain everlasting *Antennaria dioica*, bitter-vetch *Lathyrus linifolius*, milkwort *Polygala vulgaris*, field gentian *Gentianella campestris*, small-white orchid *Pseudorchis albida*, pale sedge *Carex pallescens* and lousewort *Pedicularis sylvatica*. Arctic-alpine and northern species include alpine bistort *Persicaria vivipara*, alpine meadow-rue *Thalictrum alpinum*, alpine lady's mantle *Alchemilla alpina* and viviparous sheep's-fescue *Festuca vivipara*. There is a range of transitions to maritime grassland, calcareous grasslands, herb-rich 4030 European dry heaths and open communities on ultra-basic rocks.

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 1 ha.

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.

On Rum SAC this feature is mostly restricted to north-facing cliffs in the western part of the island, on Bloodstone Hill, Fionchra and Sròn an t-Saighdeir with a few scattered stands on the cliffs above Atlantic Corrie and Glen Harris.

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. Direct management of grazing pressure 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.

Tall herb communities should not be burnt to avoid damage to the structure, function and supporting processes of this habitat. Feral goats are present on Rum and as they are more agile than red deer they can increase browsing impacts in less accessible areas. Management of all herbivores is necessary to maintain this objective.

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.

Species typically found in tall-herb communities at Rum are:

Alchemilla spp.	lady's-mantles
Angelica sylvestris	wild angelica
Filipendula ulmaria	meadowsweet
Geum rivale	water avens
Luzula sylvatica	great wood-rush

Primula vulgaris	primrose
Ranunculus acris	meadow buttercup
Rhinanthus minor	yellow-rattle
Rubus saxatilis	stone bramble
Rumex acetosa	common sorrel
Saxifraga hypnoides	mossy saxifrage
Sedum rosea	roseroot
Succisa pratensis	devil's-bit scabious
Calluna vulgaris	common heather
Empetrum nigrum	crowberry
Erica spp.	heaths
Ferns (excluding bracken)	
Vaccinium spp.	

Conservation Objectives for Blanket bog [7130]

2a. Maintain the extent and distribution of blanket bog within the site

Blanket bog typically covers very large areas, forming complex mosaics with other wetland habitats as well as heath and grass habitats in drier areas. There should be no measurable net reduction in the extent of the habitat on the site such that the area of blanket bog is maintained to approximately 1453 ha.

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

The predominant requirement for blanket bog is to be actively forming peat, a process that relies on peat-forming species having suitable conditions to maintain growth. Blanket bog that is degraded through damage or drying is likely to resume active peat-forming function following suitable restoration. A covering of 'active' peat-forming vegetation will protect the peat surface and will be more resilient to climate change.

Blanket bog habitat requires a high water table, and so maintaining appropriate hydrology for blanket bog is critical. This will depend on management to prevent or reduce detrimental effects of drainage, including in the wider surrounding area and potentially at a distance from the habitat.

The objectives for maintaining blanket bog on Rum SAC are to:

- maintain the height structure of the vegetation by setting grazing/browsing by red deer and livestock so that less than 1/3 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.
- maintain the ground cover structure of the bog 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') or where more than 10% of the *Sphagnum* moss is crushed or pulled up.

Additional objectives for the structure of the habitat are:

- Current levels of disturbed bare ground should not be increased. Activities that might cause an increase include excessive use of vehicles (including ATVs), introducing heavier livestock such as cattle or increasing use of the habitat by red deer.
- Cover by species that are not typical of this habitat should not increase. Examples of inappropriate species are bracken, trees and non-native species.
- Active drainage should be minimised. No new drains should be dug and existing ones should be blocked.

Blanket bog should not be burnt as fire damages the structure, function and supporting processes of this habitat and is contrary to the Muirburn Code.

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

Typical species include the important peat-forming species, such as bog-mosses Sphagnum species and cotton grasses *Eriophorum spp*., or purple moor-grass *Molinia caerulea* in certain circumstances, together with heather *Calluna vulgaris* and other ericaceous species and forbs such as bog asphodel *Narthecium ossifragu* and the carnivorous sundews *Drosera spp*.

Other typical species include:

Arctostaphylos spp	bearberry
Carex bigelowii	stiff sedge
Erica spp.	heaths
Empetrum nigrum	crowberry
Menyanthes trifoliata	bogbean
Non-crustose lichens	
Pleurocarpous mosses	
Racomitrium lanuginosum	wooly hair moss
Rubus chamaemorus	cloudberry
Rhynchospora alba	white beak-sedge
Trichophorum cespitosum	deer grass
Vaccinium spp	

Conservation measures should aim to maintain or restore conditions suitable for these species. All characteristic bog species rely on a high water table, and are likely to benefit from measures to improve the bog's hydrological integrity, principally by damming of artificial drainage. Healthy bog vegetation relies on light to moderate grazing by livestock and/or wild herbivores, sufficient to maintain a diverse open structure but without causing surface damage or loss of more grazing-sensitive species.

This habitat supports populations of red deer *Cervus elaphus* on this site. Whilst high levels of herbivore use can be damaging, a low level of browsing and trampling is necessary to maintain this habitat. In addition, typically associated birds include red grouse (*Lagopus l. scotica)*, golden plover (*Pluvialis apricaria*), dunlin (*Calidris alpina schinzii)*, greenshank (*Tringa nebularia*), golden eagle (*Aquilla chrysaetos*), merlin (*Falco columbarius*) and hen harrier (*Circus cyaneus*).

Conservation Objectives for [H7150] Depressions on peat substrates

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

Maintain the extent of existing depressions on peat substrates at 1 ha.

This habitat is found in complex mosaics in wetter areas of bog and heaths and many sites support only very small (<1ha) extents and it is generally fragmented therefore 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. However, on certain sites this habitat is more extensive. On Rum SAC this habitat is widespread but local within wet heath and blanket bog vegetation.

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

This habitat is found in complex mosaics in wetter areas of bog and heaths. It is often found on the edge of bog pools and so can be of a transitional nature depending on hydrological changes.

The maintenance of appropriate hydrology for this habitat is important to retain the structure and functions. A high water table is required and this will depend on management to prevent or reduce detrimental effects of drainage, including in the wider surrounding area, potentially at a distance from the habitat.

Heavy trampling and/or tracking by deer (and potentially ATVs) can result in active drainage of the habitat. Drainage should be considered active if it has altered, or is likely to alter, or remove, the original vegetation, and facilitate the removal of water from the site. Heavy trampling can also cause ground disturbance, which can lead to erosion and inhibit vegetation growth.

Therefore the predominant objective for restoring and then maintaining this habitat is to manage appropriate levels of trampling by deer.

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

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

This habitat occurs in hollows and depressions in complex mosaics in wetter areas of bog and heaths and is mainly characterised by an abundance of white beak-sedge *Rhynchosporion alba* which is the key species.

Typical species for this habitat are those found in NVC types M1, M2, M17 and M18 such as the bog moss *Sphagnum denticulatum*, round-leaved sundew *Drosera rotundifolia* and, in relatively base-rich sites, brown mosses such as *Drepanocladus revolvens* and *Scorpidium scorpioides*. The Nationally scarce species brown beak-sedge *Rhynchospora fusca.*

Excessive grazing, browsing and trampling by deer and/or livestock can contribute to a deterioration in the habitat structure, leading to a reduction or loss in the typical species for this habitat. Due to the widespread, but local, distribution of this habitat herbivore densities need to be appropriate to help maintain the habitat within the context of wider site management.

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

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

Maintain the extent of existing base-rich fen at/to 1 ha.

However, due to the small 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. This habitat is scattered on Rum and found mostly in the southern and eastern parts of the island, on slopes of the Cuillin ridge with especially good ones on Trollaval. The east-facing slopes of Ainshval in Glen Dibidil also have extensive stands of the community.

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

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

Grazing at appropriate levels can be beneficial in helping to maintain species-richness and in preventing succession. However, over-grazing and excessive poaching is detrimental which can result in damage to the fragile tufa formations and/or 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'.

Heavy trampling and/or tracking by deer, livestock and ATVs can result in active drainage of the habitat. Drainage should be considered active if it has altered, or is likely to alter, or remove, the original vegetation, and facilitate the removal of water from the site.

Colonisation of this habitat by vigorous native species (common reed *Phragmites australis* and/or soft rush *Juncus effuses*), tree or scrub growth or invasive non-native species could led to irreversible habitat loss in the longer term, through conversion to other open-ground habitats or woodland.

This habitat is very sensitive to burning which should be avoided in these areas.

2c. Restore 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) of the following:

The most widespread NVC types on Rum SAC are M10 Carex *dioica – Pinguicula vulgaris* mire and M9 Carex *rostrata – Calliergon cuspidatum/giganteum* mire. These are characterised by tawny sedge *Carex hostiana;* carnation sedge *Carex panicea;* few-flowered spike-rush, *Eleocharis quinqueflora;* three-flowered rush *Juncus triglumis;* common butterwort *Pinguicula vulgaris;* black bog-rush *Schoenus nigricans;* chaffweed *Anagallis tenella;* broadleaved cottongrass*, Eriophorum latifolium.*

M11 is also present on the island, characteristic of a slightly more open, rocky flush type and has a more species rich flora including *Parnassus palustris* and *Saxifraga aizoides.*

Excessive grazing, browsing and trampling by deer and/or feral goats can contribute to a deterioration in the habitat structure, leading to a reduction or loss in the typical species for this habitat. Due to the widespread, but local, distribution of this habitat herbivore densities need to be appropriate to help maintain the habitat within the context of wider site management. In order to achieve this objective there should be a reduction in the herbivore browsing and trampling impacts.

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

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

The extent of the acidic scree feature has been estimated at 325 ha. 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 Rum SAC this habitat is found in around Orval, Ard Nev and locations in the Rum Cuillin, however, more careful work is required to confirm the distribution of this habitat on the island. It is also closely associated with 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.

Inappropriate grazing regimes have the potential to harm this feature through over-grazing and trampling damage. Agile herbivores such as feral goats could graze this habitat even in less accessible areas.

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

This habitat may be colonised by a range of pioneer species. It also provides shelter for many species sensitive to frost such as parsley fern *Cryptogramma crispa*, species requiring a humid microclimate such as Wilson's filmy-fern *Hymenophyllum wilsonii*, 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.

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. This habitat is also very sensitive to burning.

Colonisation or shading of this habitat by bracken, tree growth and/or woodland expansion can reduce or eliminate cover of typical species, including bryophytes.

Trampling from walkers can contribute to deterioration in the habitat structure, having harmful effects on the typical species.

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 (or where appropriate restore) the extent of existing base-rich scree at/to 108 ha, however it is likely that a much smaller area is actually present.

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 Rum the richest stands of this habitat are found on Fionchra and Ruinsival as well as on Hallival, but the true extent of base-rich scree on Rum needs to be investigated and mapped in more detail. Base-rich scree is also 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.

Inappropriate grazing regimes have the potential to harm this feature through over-grazing and trampling damage. Agile herbivores such as feral goats could graze this habitat even in less accessible areas.

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

The indicator species for this habitat on this site are referable to NVC type OV38 *Gymnocarpium robertianum – Arrhenatherum elatius*, and/or OV39 *Asplenium trichomanes-Asplenium ruta-muraria* community, OV40 *Asplenium viride-Cystopteris fragilis* community, CG14 *Dryas octopetala-Silene acaulis* ledge community.

Rum is representative of mildly calcareous and calcshist screes up to moderately high altitude in oceanic western Scotland. Rum has screes of various types, some of which are relatively small areas composed of ultra-basic rocks. Gravelly screes are widespread and unusual in supporting Scottish asphodel *Tofieldia pusilla*, which is usually associated with fens. Associated species include mountain everlasting *Antennaria dioica*, moss campion *Silene acaulis*, mossy cyphel *Minuartia sedoides*, thrift *Armeria maritima*, sea plantain *Plantago maritima* and purple saxifrage *Saxifraga oppositifolia*. Other species found in scree of larger rock fragments include northern rock-cress *Arabis petraea*, alpine penny-cress *Thlaspi caerulescens*, mountain sorrel *Oxyria digyna* and stone bramble *Rubus saxatilis*. Many ferns such as hay-scented buckler-fern *Dryopteris aemula*, northern buckler-fern *D. expansa* and male-fern *D. filix-mas* find a refuge from grazing animals in scree. Also there is a rich community of lower plants.

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

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

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 271 ha (area stated on the Standard Data Form). 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 Rum this habitat is widespread in the west and south and is also closely associated with acidic scree where the same rock type is also found forming the scree, and/or plants in crevices on base-rich 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.

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.

Inappropriate grazing regimes have the potential to harm this feature through over-grazing and trampling damage. However, some examples of this habitat are protected from herbivores by inaccessibility. Agile herbivores such as feral goats could graze this habitat even in less accessible areas.

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

This habitat typically comprises mixtures of a limited number of species, most of which may also occur in other adjacent habitats, with mosses and ferns often prominent. There are no indicator species for this habitat.

Excessive grazing, browsing and trampling by deer and/or livestock can contribute to a deterioration in the habitat structure, having harmful effects on the typical species. Therefore herbivore densities need to be appropriate to help maintain the habitat.

Colonisation or shading of this habitat by bracken, tree growth and/or woodland expansion can reduce or eliminate cover of indicator species, including bryophytes.

This habitat is very sensitive to burning which should be avoided in these areas.

Trampling from walkers can contribute to a deterioration in the habitat structure, having harmful effects on the typical species.

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 271 ha (area stated on the Standard Data Form). 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 Rum there are only a small number of confirmed locations for this habitat, including on the south side Askival and Minishal, the slopes above Papadil and at Fionnchra. It 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 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.

Inappropriate grazing regimes have the potential to harm this feature through over-grazing and trampling damage. However, some examples of this habitat are protected from

herbivores by inaccessibility. Agile herbivores such as feral goats could graze this habitat even in less accessible areas.

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

Plants in crevices on base-rich rocks is characterised by the presence of bryophytes such as *Tortella tortuosa*, *Anoectangium aestivum* 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.

The typical species for this habitat on this site are: Alpine lady's mantle *Alchemilla alpina;* flea sedge *Carex pulicaris;;* brittle bladder-fern *Cystopteris fragilis; Hieracium spp.;* purple saxifrage *Saxifraga oppositifolia;* roseroot *Sedum rosea;* lesser clubmoss *Selaginella selaginoides ;* moss campion *Silene acaulis;* lesser meadow-rue *Thalictrum minus;* wild thyme *Thymus polytrichus*

Excessive grazing, browsing and trampling by deer and/or livestock can contribute to a deterioration in the habitat structure, having harmful effects on the typical species, and therefore herbivore densities need to be appropriate to help 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 burning which should be avoided in these areas.

Trampling from walkers can contribute to deterioration in the habitat structure, having harmful effects on the typical species.

Conservation Objectives for Otter [S1355]

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

The aim at this SAC is to maintain the species in a favourable condition as a contribution to its wider conservation status. Therefore any impacts on the objectives shown in 2a, 2b, or 2c below must not persist so that they prevent the achievement of this overall aim.

When carrying out appraisals of plans or projects the focus should be on restoring site integrity, specifically by meeting the objectives outlined in 2a, 2b and 2c. If these are met then site integrity will continue to 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 species are exposed to a wide range of drivers of change. Some of these are natural (e.g. population fluctuations/ shifts or habitat changes resulting from natural processes) and are not a direct result of human influences. Such changes in the qualifying species' distribution and use of the site, which are brought about by natural processes, directly or indirectly, are normally considered compatible with the site's conservation objectives. An assessment of whether a change is natural or anthropogenic, or a combination of both, will need to be looked at on a case by case basis.

2a. Maintain the population of the species as a viable component of the site

An estimate of the number of otters occupying the site is not available and therefore there is no numerical baseline that can be given for the site. This conservation objective is considered to be met if the conditions for the species' long-term existence are in place. This includes:

- avoiding effects that could lead to a permanent reduction in the otter population through mortality, injury, or impacts caused by disturbance or displacement. This includes for example the effects caused by development, river engineering, water pollution, roads without adequate crossing provision for otters or suitable culverts, or entanglement in fishing gear.
- maintaining the species' ability to use all areas of importance within the site (to be considered under conservation objective 2b)
- maintaining access to, and availability of, undisturbed resting places
- maintaining access to, and availability of, supporting habitats and prey (to be considered under conservation objective 2c).

Otters are wide-ranging and highly mobile. The home range of an otter will vary depending on their sex, habitat quality and food availability. It will also vary between freshwater and coastal environments. In coastal areas otter densities may be as high as 0.5 - 0.7 animals/km. At this SAC otter will predominantly feed in coastal waters that lie outwith the boundary of the site. Males living in rivers and streams can have a mean linear range size of around 40km and females living in the same habitat can have a mean linear range of around 20km. When assessing the effects of any plan or project consideration should be given to whether impacts outwith the SAC could affect achievement of this conservation objective.

Temporary short-term changes to otter due to anthropogenic influences may be considered not to compromise the conservation objectives within the site provided it can be demonstrated beyond reasonable scientific doubt that the population can fully recover. Recovery will need to be considered in the context of the species life history traits and the scale and duration of the impact being assessed.

Otters are a European protected species (EPS) and it is an offence to deliberately or recklessly capture, injure, kill, harass or disturb them in certain circumstances, or to damage or destroy their breeding or resting places anywhere in Scotland unless a licence has been issued to do so. A licence can only be issued for particular purposes which the law

allows. Further, there must be no satisfactory alternative and no detrimental impact on the contribution to the maintenance of otter at a favourable conservation status for a licence to be issued. This assessment considers impacts on the otter population at a local and regional level. The licensing requirement is in addition to considering whether a plan or project will result in any impacts (including incidental impacts) to the otter population within the SAC.

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

Distribution of otters within the site can be affected by disturbance originating both within and outwith the site. Plans and projects that cause displacement and barrier effects to the species can also affect species distribution. Examples include use of night-time floodlighting of watercourses, road and bridge construction works and general disturbance from human activity (and dogs) by watercourses especially at dusk/night-time.

2c. Maintain the habitats supporting the species within the site and availability of food

Otters require suitable habitat for foraging, breeding and resting. In coastal areas their preferred habitat is rocky shore with abundant boulders, crevices and/or peat, or other cavity-forming features such as tree root systems to provide secure holt sites above high water. Dense scrub is also valuable for providing lie-ups and couches. These features should ideally be close to gently-shelving shallow inshore waters with good habitat for inshore fish species and crustaceans. Otters will primarily forage in adjacent coastal waters however will also feed on freshwater fish within the SAC. Ample sources of freshwater nearby are essential to enable animals to remove salt from their fur.

In freshwater environments abundant boulders, crevices and/or peat, or other cavity-forming features such as tree root systems are needed to provide secure holt sites above high water. Dense scrub is also valuable for providing lie-ups and couches. Suitable areas supporting a healthy fish population within a nearby watercourse or still water body are required within each otter's home range, to enable foraging for key prey species such as salmonids and eels. Access to ponds, ditches, reedbeds and wetlands is also important.

Changes to water flow and water quality can adversely affect otter habitat and prey on which they depend. Otters' food supply is normally associated with good water quality and therefore the water quality standards set out under the Water Framework Directive (2000/60/EC) should be met. Several streams run though the site, however these are below the size threshold for SEPA's freshwater classification system and so separate water quality monitoring is needed.

Conservation Measures

Rum is owned and managed by NatureScot as a National Nature Reserve (NNR). All SAC habitats are managed through the Rum NNR Management Plan and Rum NNR Habitat Management Plan which includes a deer management plan and a feral goat management plan.

Rum 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 Vegetated sea cliffs of the Atlantic and Baltic coasts

Issue	Measure	Responsible party
Grazing impacts	Ensure appropriate grazing and trampling required to allow flowering and fruiting of cliff top and cliff slope vegetation to prevent loss of typical species. Generally impacts should be low. Goat management is particularly relevant for this feature.	NatureScot
Excessive tracking/trampling by livestock / visitors / vehicles	Ensure trampling is minimal to prevent loss of typical species. This is achieved through the NNR goat and deer management plans.	NatureScot
Colonisation by vigorous native species [eg thistle, ragwort]	Ensure colonisation of this habitat by vigorous native species, such as, common ragwort, is minimal to prevent loss of the typical species.	NatureScot,

Current and recommended management for

- **Acid peat-stained lakes and ponds**
- **Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels**

Issue	Measure	Responsible party
Abstraction	Ensure timing and volume of abstraction is not damaging through discussions with regulator. Ensure that drought plans adequately address the interests of the site.	SEPA Scottish Water
Afforestation	Ensure that any additional woodland planting is not beyond the carrying capacity of the catchment and that design and management strictly follow the guidelines	NatureScot Funding Authority
Enrichment	Ensure no adverse impacts from diffuse or point sources	NatureScot SEPA
Sediment	Avoid damaging ATV use, especially near lochs, that can lead to bare peat which can increase sedimentation in the lochs.	NatureScot
Grazing and Trampling	Ensure deer and livestock levels are sufficiently low to avoid poaching of edges and peat erosion. Avoid related activities such as supplementary feeding and fencing close to lochs	NatureScot
Invasive species	Maintain surveillance for invasive species	SEPA

	and agree action with regulator. All anglers and other water users should follow the "Check, Clean, Dry" biosecurity procedures to prevent introduction of non-native species.	NatureScot

Current and recommended management for

- **Wet heathland with cross-leaved heath**
- **Dry heaths**
- **Alpine and subalpine heaths**
- **Depressions on peat substrates**
- **Blanket bog**
- **Grasslands on soils rich in heavy metals**

Issue	**Measure**	**Responsible party**
Grazing & grazing levels by livestock	The SAC is grazed by Highland cattle and Highland ponies. Ensure that herbivore impact on these features should be mostly 'low' based on Herbivore Impact Assessments as detailed in the Rum Habitat Management Plan.	NatureScot
Grazing & grazing levels deer and feral goats	Red deer and feral goats range over the SAC. Both are managed under specific management plans. As a guide to achieving the correct balance the herbivore impact on the features should be mostly 'low' based on Habitat Impact Assessments as detailed in the Rum Habitat Management Plan.	
Muirburn	Currently there is no managed burning on Rum SAC. Any burning would need to be carried out in accordance with the Muirburn Code.	NatureScot
Hydrology	These habitats should not be actively drained and natural hydrology should be restored by blocking existing drains where feasible.	NatureScot
Afforestation	Any expansion of native woodland onto these open habitats would need to ensure the conservation objectives for the site are met. Natural regeneration is likely to be restricted by grazing/browsing levels.	NatureScot, Scottish Forestry
Alien and invasive species	Alien and invasive species should not be introduced to the site	NatureScot
Habitat damage from vehicle use	Avoid vehicle use that damages habitats. Any vehicles used on these habitats should be low ground pressure ATVs and should avoid areas recovering from past damage.	NatureScot
Erosion	Activities that might cause erosion (such as vehicle use or deer management that	NatureScot

	encourages animals to concentrate in small areas) should be avoided. Areas of current erosion should be left undisturbed until the vegetation has recovered.	
Access tracks and paths	Existing tracks should be maintained within their existing footprint and without having significant effects on the surrounding hydrology. Use of drainage ditches should be minimised in flatter areas. Culverts should be used to allow streams to pass underneath existing tracks or paths. In steeper areas, water should be diverted from existing paths and tracks at regular intervals. This will prevent substantial amounts of water collecting on paths/tracks that can lead to deep erosion gullies.	NatureScot (Recreation interests)

Current and recommended management for Species-rich grasslands with mat-grass in upland areas

Issue	Measure	Responsible party
Grazing and browsing levels and stock type	Red deer, feral goats and in some places highland cattle and Highland ponies, contribute to the grazing of this habitat. A range of grazing pressure is required to create the variety of texture in the sward height, with both shorter swards and longer tufts of grasses. Grazing impacts should fall mostly in the range of 'low/medium' up to 'medium/high' in Habitat Impact Assessments. This means in areas of high grazing impacts herbivores should be reduced, and in areas of low grazing impact the addition of managed grazing with Highland cattle and/or ponies would be beneficial.	NatureScot
Habitat damage from vehicle use	Avoid vehicle use that damage habitats. Any vehicles used on these habitats should be low ground pressure ATVs and should avoid areas recovering from past damage.	NatureScot (Commercial developer)
Access tracks	Existing tracks should be maintained within their existing footprint.	Land manager

Current and recommended management for Tall herb communities

Issue	Measure	Responsible party
Grazing	The extreme sensitivity of this habitat to grazing pressure means this habitat requires very low grazing and trampling impacts. Grazing will be from red deer (although limited through inaccessibility) and feral goats. Deer and feral goats are managed on the SAC to maintain sustainable levels. Targeted culls near to sensitive habitats, especially for feral goats, could be beneficial.	NatureScot
Conversion to woodland	To maintain this habitat, conversion to woodland should be avoided. Natural regeneration is unlikely in most areas (due to limited seed source), and planting on inaccessible ledges is also unlikely.	NatureScot
Muirburn	Currently there is no managed burning on Rum SAC. Any burning would need to be carried out in accordance with the Muirburn Code.	NatureScot

Current and recommended management for

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

Issue	Measure	Responsible party
Herbivore impacts (grazing and trampling)	Red deer and feral goats are present in the higher parts of the site. Deer and feral goats are both managed on the SAC to maintain sustainable levels. These habitats all benefit from low levels of grazing and trampling.	NatureScot
Colonisation and/or shading by native and/or non-native species [eg bracken, trees]	Ensure colonisation or shading of these habitats by tree growth, woodland expansion or bracken is minimal to maintain cover of the typical species, including bryophytes.	NatureScot
Recreation activity	Ensure trampling by walkers is minimal to maintain cover of typical species.	NatureScot

Current and recommended management for Base-rich fen

Issue	Measure	Responsible party
Herbivore impacts (grazing and trampling)	Ensure that deer and feral goat herbivore impacts on the feature are ‘low’ to prevent poaching and/or loss of typical	NatureScot

	species.	
Heavy trampling and/or tracking	Trampling and/or tracking by herbivores, walkers or ATVs to be minimal to be prevent active drainage of this habitat.	NatureScot
Colonisation by native and/or non-native species (eg common reed, soft rush, trees)	Ensure colonisation of this habitat by vigorous native species, such as, (common reed *Phragmites australis* and/or soft rush *Juncus effuses*), tree or scrub growth or invasive non-native species is minimal to prevent loss of indicator species and conversion to other open ground habitats or woodland.	NatureScot

Current and recommended management for Otters

Issue	**Measure**	**Responsible party**
Ongoing species protection	Otter are a European protected species and therefore the species protection provisions of the Habitats Regulations apply.	All
Water quality monitoring	Implement and maintain monitoring of key water quality parameters as necessary.	NatureScot/SEPA
Ongoing site protection	Encouraging natural processes of stream flow and morphology, and recruitment and survival of otter prey, by a policy of non-intervention.	NatureScot

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