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Scotland's Nature Agency
Buidheann Nàdair na h-Alba

DAM WOOD SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

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Site Details

Site name:	Dam Wood
Map:	https://sitelink.nature.scot/site/8239
Location:	Highlands and Islands
Site code:	UK0030129
Area (ha):	19.56
Date designated:	17 March 2005

Qualifying features

Qualifying feature	Assessed condition	SCM visit date	UK overall Conservation Status
Juniper on heaths or calcareous grasslands	Favourable Maintained	11 July 2006	Unfavourable-Bad
Base-rich fens	Favourable Maintained	9 July 2015	Unfavourable-Bad

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

Overlapping Protected Areas:

Dam Wood SSSI

Key factors affecting the qualifying features

Juniper on heaths or calcareous grasslands

The precise nature of the Juniper habitat is influenced by the calcareous or acidic substrate, altitude, the grazing regime and whether it is a transition between a range of habitats with the result that a range of scrub types may occur within an individual location.

Dam wood is a small relict of the extensive heathland which once covered much of this part of the Black Isle. Its small size means that ensuring adequate distribution of different growth phases is a challenge. Juniper occurs across much of the site though the distribution of the different growth faces is variable with some stands of mature juniper showing little regeneration and other areas showing high levels of regenerating juniper but with an absence of mature plants.

Much of the regeneration is occurring in the vicinity of the flushes and in particular *Erica tetralix* clumps (associated with base-rich fens habitat) that provide a nursery area for the juniper to establish.

Key management issues at Dam Woods are grazing, which takes the form of managed livestock grazing, and the plant disease Phytophthora. When last monitored in 2006, the habitat was found to be in favourable condition at this site. Since then, *Phytophthora austrocedri* has been found to be affecting the juniper, although it has not yet been deemed serious enough to be cause for a change in condition.

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. At this site the base-rich waters are emanating from and being influenced by the base-rich Old Red Sandstone strata.

There is considerable variation between sites in the associated communities and the transitions that may occur. At this site the habitat is present as 'spring fen' being found around springs or flushed slopes that are spread across the face of a slope on the west of the site amongst wet heath and scattered juniper.

Key factors affecting this habitat type are land use changes/development, pollution to ground or surface water and, grazing pressure that is too low to prevent succession or so high as to cause damage from poaching/disturbance of the ground. The habitat is considered to be in favourable condition at this site. When last monitored in 2015, there were no indications of excessive poaching or dunging in any of the flushes and no other pressures were noted.

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

Conservation priorities

Neither habitat is a priority habitat and so there should be no clear preference for management of one over the other.

In practice there is unlikely to be any conflict between management of the different features of Dam Wood SAC as habitat distribution is mainly determined by environmental conditions and grazing levels, with both habitats benefitting from a moderately low herbivore population.

Conservation Objectives

Overarching Conservation Objectives for both habitats at Dam Wood SAC

1. To ensure that the qualifying features of Dam Wood SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.
Favourable Conservation Status (FCS) is considered at a European biogeographic level. When determining whether management measures may be required to ensure that the conservation objectives for this site are achieved, the focus should be on maintaining or improving the contribution that this site makes to FCS. When carrying out appraisals of plans and projects against these conservation objectives, it is not necessary to understand the status of the feature in other SACs in this biogeographic region. The purpose of the assessment should be to understand whether the integrity of the site (see objective 2) would be maintained. If this is the case then its contribution to FCS across the Atlantic Biogeographic Region will continue to be met. Further details on how these assessments should be carried out in relation to maintaining site integrity is provided by objective 2 (including parts a, b and c). If broader information on the feature is available then it should be used to provide context to the site-based assessment. Note that "appropriate" within this part of the conservation objectives is included to indicate that the contribution to FCS varies from site to site and feature to feature.

2. To ensure that the integrity of Dam Wood SAC is maintained by meeting objectives 2a, 2b and 2c for each qualifying feature.
The aim at this SAC is to maintain the habitats in a favourable condition as a contribution to its wider favourable conservation status. Therefore any impacts on the objectives shown in 2a, 2b, or 2c below must not persist so that they prevent the achievement of this overall aim. When carrying out appraisals of plans or projects the focus should be on maintaining site integrity, specifically by meeting the objectives outlined in 2a, 2b and 2c. If these are met then site integrity will continue to be maintained. Note that not all of these will be relevant for every activity being considered. Any impacts on the objectives shown in 2a, 2b or 2c below must not persist so that they prevent the maintenance of site integrity. Temporary impacts on these objectives resulting from plans or projects can only be permitted where there is certainty that the features will be able to quickly recover. This objective recognises that the qualifying habitat is exposed to a wide range of drivers of change. Some of these are natural and are not a direct result of human influences. Such changes in the habitat's extent, distribution or condition within the site which are brought about by natural processes, directly or indirectly, are normally considered compatible with the site's conservation objectives. An assessment of whether a change is natural or anthropogenic, or a combination of both, will need to be looked at on a case by case basis.

Conservation Objectives for Juniperus communis formations on heaths or calcareous grasslands [H5130] (Juniper on heaths or calcareous grasslands)

2a. Maintain the extent and distribution of the habitat(s) within the site
Maintain to approximately 7.82ha.The area figure has been taken from the Standard Data Form, and is an estimate. However there should be no measurable net reduction in the extent of the habitat and its distribution throughout the site. The extent and distribution of the habitat type could be reduced through actions that alter the

conditions unfavourably such as liming and fertilising for agriculture or changes to land use such as afforestation or, invasion by alien species and plant pathogens.

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

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

Maintaining juniper on heaths or calcareous grasslands is a fine balance between degrading to open heath or grassland with intensive grazing/browsing or burning and succession to scrub/woodland where the level is too low.

To ensure recruitment of new seedlings and reduce the main threats from over–grazing/browsing, trampling damage and burning damage, and therefore maintain the appropriate structure, the following conditions should be met:

- Cover of "pioneer" bushes (less than 75cm tall) should exceed the cover of old, 'ailing' or dead bushes (full-grown, well-branched but losing branches with thin or incomplete canopy usually more than 100 years old).
- Less than 10% of bushes should show evidence of bark stripping.
- Less than 33% of the current year's shoots (pale fawn to pale orange brown) should show evidence of having been browsed.
- Less than 33% of shoots should show evidence of having been browsed into shoot or stem material older than the current year's growth (mid-tone orange brown to dark brown).
- Less than 5% of the feature area should show severe disturbance (e.g. by heavy browsing and trampling or fire).

Moderate levels of grazing and associated ground disturbance are required to maintain the habitat. Previous management plans have been at densities of 10 cattle or 40 sheep from August to Mid-April however this should be kept under review to ensure it is still appropriate.

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

All the above targets were met when Dam Wood was monitored in 2006. Medium levels of browsing was recorded from 20% of the samples, while the remaining 80% showed low or no browsing. The spread of different stages of juniper across the site is uneven, but all are present at appropriate levels. Berries were recorded at 50% sample points, often in profusion. *Phytophthora austrocedri* has since been found at the site, but has not yet been deemed serious enough to be cause for a change in condition.

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

At Dam Wood, unlike most sites in northern Scotland, the juniper occurs in a complex mosaic with open habitats. These comprise acid grassland (U4 *Festuca ovina – Agrostis capillaris – Galium saxatile* grassland), dry heath (H10 *Calluna vulgaris – Erica cinerea* heath, H12 *Calluna vulgaris – Vaccinium myrtillus* heath), wet heath (M15 *Scirpus cespitosus – Erica tetralix* wet heath, M16 *Erica tetralix – Sphagnum compactum* wet heath)

and base-rich fens (M10 *Carex dioica – Pinguicula vulgaris* mire).

The vegetation is unusual, containing plant communities characteristic of both acidic and basic soils in intimate juxtaposition, as well as species more normally found in upland plant communities such as globe flower *Trollius europaeus* and alpine bistort *Polygonum viviparum*, together with melancholy thistle *Cirsium heterophyllum*, water avens *Geum rivale*, and several orchids including coralroot orchid *Corallorhiza trifida*, fragrant orchid *Gymnadenia conopsea*, Lesser Butterfly-orchid *Platanthera bifolia*, marsh orchids *Dactylorhiza* spp, twayblade *Neottia ovata* and lesser twayblade *Neottia cordata*.

For long-term maintenance continuation of the existing grazing/browsing regime (10 cattle or 40 sheep from Mid-April to August) is paramount alongside prohibition of burning.

Other typical species this habitat supports are mutliple invertebrates – especially moths - including the narrow-bordered bee hawk moth *Hemaris tityus*, a nationally rare species, and the chestnut-coloured carpet moth *Thera cognate* whose larvae feed on juniper. Bird species such as yellowhammer are also present on the site.

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 0.58ha.

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. On Dam Wood SAC this habitat is found in association with runnels and seepages emanating from the calcium-rich Old Red Sandstone rocks. The water that forms these calcium rich habitats emanates from springs in a plantation outside the SSSI. This plantation has recently been felled and will now be managed to protect the water source.

Ensuring development or other activities do not alter the hydrology of the site, or negatively impact the water quality on the site, is key to ensuring the extent and distribution is maintained.

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 600 m. 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’.

Moderate levels of grazing and associated ground disturbance are required to maintain the habitat. Previous management plans have recommended grazing at densities of 10 cattle or 40 sheep from August to Mid-April however this should be kept under review to ensure it is still appropriate.

Heavy trampling and/or tracking 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 muirburn and should be avoided in these areas.

This habitat was found to be in favourable condition when last monitored in 2015. The grazing management has been beneficial for maintaining the condition of the springs and flushes and every effort should be made to continue with current grazing practices. The flush vegetation has been kept open by the grazing management, with a good range of sedges and other mire-associated species found in all of the quadrats. There were no indications of excessive poaching or dunging in any of the flushes and no other pressures were noted.

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

The wet heath is dominated by ling *Calluna vulgaris*, bell heather *Erica cinerea* and cross leaved heath *Erica tetralix*. Purple moor grass *Molinia caerulea* is locally abundant.

Various brown moss species are present and form a key part of the vegetation. The bryophytes on this site are very poorly recorded, but include *Palustriella commutata, Scorpidium revolvens* and *S. scorpioides*.

The percentage cover and range of sedge species and brown mosses is very good. Typical short sedge mire species present on the site include dioecious sedge *Carex dioica,* glaucous sedge *Carex flacca,* tawny sedge *Carex hostiana,* yellow sedge *Carex viridula,* carnation sedge *Carex panicea,* flea sedge *Carex pulicaris,* jointed rush *Juncus articulatus,* fairy flax *Linum catharticum,* common butterwort *Pinguicula vulgaris,* devil's-bit scabious *Succisa pratensis* marsh arrowgrass *Triglochin palus*tris, spike-rush *Eleocharis spp.,* cottongrass *Eriophorum spp.,* bogbean *Menyanthes trifoliata,* purple moor-grass *Molinia caerulea,* yellow saxifrage *Saxifraga aizoides,* black bog-rush *Schoenus nigricans*.. For the base-rich fen on this site the relevant NVC type is M10 *Carex dioica – Pinguicula vulgaris* mire

Excessive grazing/browsing/trampling by deer and/or livestock can contribute to a deterioration in the habitat structure, leading to a reduction or loss in the typical/indicator species for this habitat and should be only be done in a controlled, appropriate manner that helps maintain the habitat. Roe deer *Capreolus capreolus* are known to use this site, entering from surrounding plantations which provide cover. Both the common frog *Rana temporaria* and common lizard *Zootoca vivipara* are also found on the site as well as over 320 species of invertebrates including the rare solitary was species *Pemphredon wesmaeli*.

Conservation Measures

Dam Wood 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 Juniper on heaths or calcareous grasslands

Issue	Measure	Responsible party
Herbivore impacts (grazing and/or trampling)	Ensure that herbivore impacts on the feature are 'low' based on the SF/NatureScot Herbivore Impact Assessment Process to prevent poaching and/or loss of typical species. Some grazing is required to maintain the habitat however. In the absence of adequate deer populations or a grazing tenant it may become necessary to manage vegetation by mowing.	Land managers, NatureScot, Deer Management Groups
Muirburn	Under the current land managers there is little interest in carrying out muirburn. As the habitat is very vulnerable to such activities it is important that this activity is actively discouraged.	Land manager
Afforestation and inappropriate woodland development	Neighbouring areas of plantation have been restocked with Sitka spruce on the principle it would be easier to deal with any seeding onto the designated site. Monitoring for this/removal of self-seeded Sitka will be required.	Land manager Funding authority
Alien and invasive species.	*Phytophthora austrocedri* is present on the site and affecting some of the juniper. Heritable resistance to this disease is present in most populations so it is not of great concern although, when twinned with other	Land manager SISI (NatureScot)

	stressors to the plants, could be and so disease prevalence/health of juniper should be monitored.	
Recreation	This site is currently managed as a reserve by Scottish Wildlife Trust. Recreation has not been recorded as a pressure on the site however should this increase management of the site to prevent damage from trampling could be required due to the fragility of the habitat.	Land manager, Local authority, NatureScot

Current and recommended management for Base-rich fen

Issue	Measure	Responsible party
Herbivore impacts (grazing and/or trampling)	Ensure that herbivore impacts on the feature are 'low' based on the SF/NatureScot Herbivore Impact Assessment Process to prevent poaching and/or loss of typical species. Some grazing is required to maintain the habitat however. In the absence of adequate deer populations or a grazing tenant it may become necessary to manage vegetation by mowing.	Land managers, NatureScot, Deer Management Groups
Colonisation by native and/or non-native species [e.g. common reed, soft rush, Sitka spruce]	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.	Land managers, NatureScot
Hydrology	The continued inflow of a sufficient volume of lime-rich water is crucial to the maintenance of this site. Many of the springs originate in land to the North, outwith the SAC boundary. Clear felling of a buffer zone around the reserve has been carried out to protect the hydrology. Continuation of this protection is important.	Landowner (FS)

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Approved on 28 October 2020 by:

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