Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdair air fad airson Alba air fad

**CALGARY DUNES**
**Site of Special Scientific Interest**

**SITE MANAGEMENT STATEMENT**

**Site code: 296**

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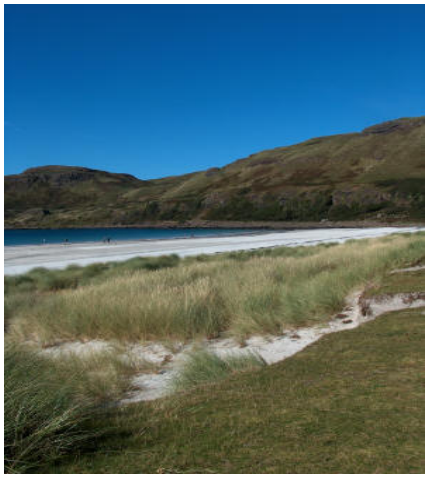
## Purpose



This is a public statement prepared by SNH for owners and occupiers of the SSSI. It outlines the reasons it is designated as an SSSI and provides guidance on how its special natural features should be conserved or enhanced. This Statement does not affect or form part of the statutory notification and does not remove the need to apply for consent for operations requiring consent.

We welcome your views on this Statement.

This Statement is available in Gaelic on request.

| Natural features of Calgary Dunes SSSI | Condition of feature (date monitored) | Other relevant designations |
|---|---|---|
| Machair | Unfavourable, declining (August 2001) | |

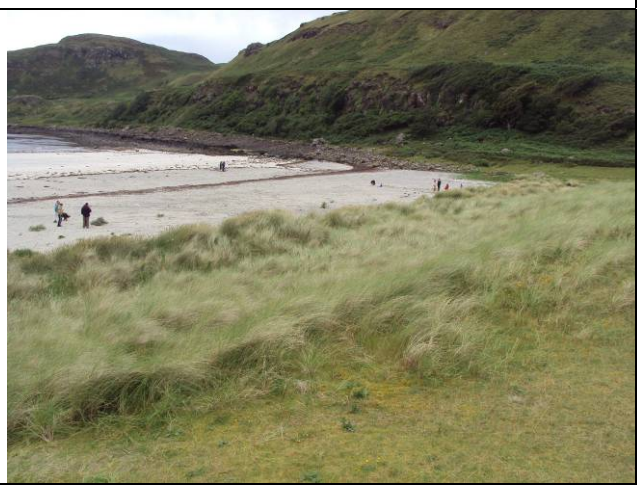
## Description of the site

Calgary Dunes Site of Special Scientific Interest (SSSI) lies approximately 5 miles west of Dervaig in Northwest Mull, and is the best example of machair habitat on the Island. It consists of a wide, highly calcareous shell sand beach backed by a low, gently undulating machair surface, which contrasts to the predominantly rocky coastal fringes of Mull.

Dune landforms and associated habitats are absent although they probably did exist in the past. This is a result of the continuous forces of wind and wave erosion and the ever increasing depletion of the sand supply from off shore, most of which has been deposited on the machair surface inland. The transition through time from a beach dune/machair system to one without dunes is entirely natural and typical of many beaches in the Northern and Western Isles of Scotland. Frontal erosion and blow outs, which are largely part of the natural system, continue to affect the machair edge.

The machair plateau is dominated by a wide range of locally scarce grasses, most notably sheep's fescue, sweet vernal-grass, Yorkshire-fog, and perennial rye-grass. Herbaceous flowers are also abundant, the most conspicuous of which are wild thyme, common bird's-foot-trefoil, cat's ear, and eyebright. Other typical machair flowers occurring are fairy flax, mouse-ear hawkweed, autumn hawkbit, lesser meadow-rue, harebell, red clover, heath milkwort, wild pansy and common stork's-bill. This locally unusual assemblage of grasses and flowers are fragile and sensitive to both natural and human processes.

The last cycle of site condition monitoring at Calgary Dunes (August 2001), revealed the condition of the machair to be 'Unfavourable, declining.' The site achieved this result due to low sward height and the inability of most machair flowers to set seed. These negative indicators were the result of over-grazing by sheep and rabbits, coupled with disturbance from recreational activities on the machair and foredune area.

| Machair flowers at Calgary Dunes | Marram grass foredune area |
|---|---|
|  |  |

**Past and present management**

Past human activity such as sand extraction (which is now prohibited), trampling, excessive vehicular usage, and over-grazing by sheep and rabbits has exacerbated and amplified the natural effects of wind and wave erosion at this site. The floral diversity of the lime-rich machair grassland, for which the site has been designated, has largely being suppressed by numerous contributory variables such as recreational pressures and sheep grazing. The grassland has also affected by burrowing by the resident rabbit population.

The SSSI machair grassland has primarily been used for domestic stock grazing in the past and rabbits have inhabited this area since the 16th century. Grazing at Calgary Bay appears to have followed the traditional methods; carrying only cattle until the late 1940s (though rabbit grazing would also have been present during this period). Since the cattle were removed, the machair has since been grazed by sheep. This switch follows the typical switch from cattle to sheep which has been observed throughout the range of the machair habitat in Scotland.

Also, due to the sandy beaches and attractive flat grassland, the site has long been popular for recreation amongst local people and tourists. The influence of recreational usage of the site has proven difficult to quantify, however as early as 1971 visiting botanists had observed that trampling and compaction were altering or damaging the composition of the flora. Damage such as rutting tracks caused by vehicles on some parts of the machair can of course be incontrovertibly attributed to unsustainable public usage, but such damage has been reduced more recently.

The intensity of the utilisation of this area for recreation coupled with the increasing awareness of conservation issues and sustainable land-use, prompted sand stabilisation projects in the 1970s. These projects consisted of chestnut paling fences combined with infilling with brushwood, sand and soil, the addition of grass seed mixtures in conjunction with slow release fertiliser in partially eroded areas of machair grassland and the use of a stabilisation spray Unisol 91. A fence was also constructed at the south end of the machair in 1973 which prevented cars from running across the grassland and causing erosion.

Sand stabilisation and visitor management projects run by Argyll and Bute Department of Physical Planning and then the Argyll and Bute Department of Environmental Sciences, continued into the 1990s with excellent results. In 1989 a car park and board walk was constructed to manage visitors and minimise their impacts on the machair grassland, and followed up in 1992 with more sand stabilisation work. These projects have largely proved successful at mitigating damage to the biological interest and ecological system within the SSSI.

Management of Calgary Dunes took a step forward as a result of the formation of Friends of Calgary Bay (FOCB); a sub-group of the Mull & Iona Community Trust (www.mict.co.uk). The FOCB work in close partnership with owners, occupiers and Scottish Natural Heritage to manage the site. FOCB made significant progress in collecting information regarding recreational use of the site, and between 2005-2009 implemented visitor management of the site. FOCB also committed to continued management of sand dune stability. The FOCB management plan has two phases of activities, as follows:

Phase 1: Improvements and Infra-structure

Phase 2: Protection, Conservation and Education

Present Management of the SSSI at Calgary has continued primarily with implementing and monitoring the two-phase management plant. In particular, emphasis has continued to be focused on monitoring the success of the sand stabilisation projects and the continuing effects of natural, recreational and grazing pressures on the site. Considerable progress has been made as the FOCB plan nears the end of its second phase.

A site visit in 2008 confirmed that rabbit burrowing on the site is in places fragmenting machair vegetation. The erosion of the un-vegetated areas surrounding the burrows may additionally be exacerbated by wind action creating a feedback effect between natural and human-induced processes. A further site visit in July 2010 however revealed significant improvements in the condition of the site, with a much increased sward height and abundant flowering (e.g. bedstraw, hare-bell, autumn hawkbit, thyme) across much of the machair. Several rabbit burrows and areas of degraded machair were still found, but overall the site condition has improved since the last visit in 2008.

In 2009, a local grazier erected a fence preventing sheep access from the north (at his own expense). As a result of this change, sheep now only have access via hill slopes and the road to the south. This has considerably reduced grazing pressure on the machair, confirmed by a site visit in July 2010, when encouraging signs of recovery were noted. It was agreed that Argyll and Bute Council would formalise an agreement with the grazier in summer 2010, giving them written permission to graze the SSSI. This would incorporate a grazing break each year to allow flowering and seed setting of the machair plant assemblage.

Overall, the recent (post 2005) management of the site has improved as a result of FCOB's collaborative work, since their first-hand knowledge of the issues facing Calgary Dunes coupled with connections to local graziers has already proven to be of great value to the condition of the site. In light of the site visit observations made in 2010, it is suggested here that the site management has improved enough to merit a change in site condition from 'Unfavourable, declining' to 'Unfavourable, recovering,' but this will be formally assessed at the next site condition monitoring visit.

**Objectives for Management** (and key factors influencing the condition of natural features)

We wish to work with the owners and occupiers to protect the site and to maintain and where necessary enhance its features of special interest. SNH aims to carry out site survey, monitoring and research as appropriate, to increase our knowledge and understanding of the site and its natural features and to monitor the effectiveness of its management.

**1. To restore the spatial extent and condition of the machair sward to favourable levels by long–term management of stock grazing.**

Over-grazing has been identified as one of the key aspects of the current land-use which is causing the machair to be in Unfavourable Condition. Over-grazing by sheep results in a reduction of the floral diversity and a shift from herb rich to more weed based grazing tolerant communities. Trampling and rubbing by sheep promotes wind scour of machair surfaces and edges, and over-grazing can also reduce the sward height of the machair grassland which in turn reduces its sand trapping capability.

Complete exclusion of casual stock grazing could be considered to allow the development of a denser sward. Exclusion should not be of a period that would allow the development of rank species or lead to loss of low growing rosette species. Annual monitoring of the sward should inform any decision as to the timing of stock reintroduction. The inclusion of an annual summer grazing break will help to restore the sward back to favourable condition through less pressure from grazing and trampling livestock. SNH will work with land managers to ensure that a long-term grazing agreement is in place to encourage sward restoration.

**2. To reduce erosion and associated fragmentation of the machair by introducing a program of rabbit control.**

Rabbits have been observed to have a damaging impact on the condition of the site, burrowing in such numbers as to cause areas of discontinuous machair in some parts of the site (as noted during site visits in 2008 and 2010). In addition, the exposed sandy soils surrounding the burrows are prone to enhanced erosion by the wind, and by dogs further excavating the holes. A survey of rabbit numbers in the vicinity of the site is needed, to be followed up by an appropriate control program to reduce exacerbated dissection and erosion of the machair surface. SNH will work with land managers to assess the requirement for rabbit control in the future.

**3. To increase the likelihood of regeneration of the sward by further implementation of visitor management techniques.**

Addressing the over-grazing issue as per Management Objectives 1 and 2 would aid quantification of the impacts of recreation at the site. In addition, the FOCB conducted surveys of recreational use (specifically camping) during 2005-2008. Evidence from site visits suggests that recreational use of the site can exacerbate frontal erosion and blowouts, as well as interfering with sand stabilisation efforts. Vehicular access to the site may require further management and users of the site could perhaps be reminded of responsible access to the site via improved signage as per the Scottish Outdoor Access Code; particularly regarding fires and use of motorised vehicles.

The site could be better marketed and publicised. Many of the issues arising at the site may stem from a lack of public awareness of the issues facing the site. In conjunction with the sand stabilisation, grazing, rabbit and visitor management programs, it may be beneficial to have panels / pamphlets for the site. These would not only highlight and encourage support

for the projects in motion to protect the site, but could also have the effect of show-casing the wider work of SNH and its partners on Mull (Friends Of Calgary Bay and Mull and Iona Community Trust). SNH will continue to work with these partners in addition to land managers to improve visitor management at the site.

**4. To maintain the general stability of the site by continued dune management.**

The site remains prone to natural processes of wind scouring and sand redistribution, as well as possible occasional damage by waves during storm surges. Overall, the site is stable, with erosion largely confined to two embryonic blowouts at the mouth of the river. Fixed point photography shows that early attempts to stabilise these have had some success, with stabilisation occurring in the immediate vicinity, but have not re-seeded and spread to neighbouring areas of bare sand. Further blowout stabilisation could utilise two approaches: (a) changes in the angle of the erosional edge to reduce aerodynamic funnelling of the blowout, and (b) planting of marram grass. Both of these have been done before, but could be done again, perhaps more in tandem with Management Objectives 1-3 for optimum results.

**Other factors affecting the natural features of the site**

1. Natural processes affecting the machair site and mature dune system do not operate at a fixed rate or magnitude. Trends in storm patterns in the North Atlantic could potentially have an impact on the condition of the site in the future. The beach was however little affected by the storms of January 2005, unlike many other west facing beaches in the north and west of Scotland. Nonetheless, the threat of climatic change is a potential factor which cannot be omitted in consideration of future management.

Date last reviewed: **11 March 2011**