

Cape Wrath SSSI – Site Condition Monitoring of alpine heath 2015





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RESEARCH REPORT

Research Report No. 1065

Cape Wrath SSSI – Site Condition Monitoring of alpine heath 2015

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SCM Reports

This report was commissioned by SNH as part of the Site Condition Monitoring (SCM) programme to assess the condition of special features (habitats, species populations or earth science interests) on protected areas in Scotland (Sites of Special Scientific Interest, Special Areas of Conservation, Special Protection Areas and Ramsar sites). Site Condition Monitoring is SNH's rolling programme to monitor the condition of special features on protected areas, their management and wider environmental factors which contribute to their condition.

The views expressed in the report are those of the contractor concerned and have been used by SNH staff to inform the condition assessment for the individual special features. Where the report recommends a particular condition for an individual feature, this is taken into account in the assessment process, but may not be the final condition assessment of the feature. Wider factors, which would not necessarily be known to the contractor at the time of the monitoring, are taken into consideration by SNH staff in making final condition assessments.



RESEARCH REPORT

Summary

Cape Wrath SSSI – Site Condition Monitoring of alpine heath 2015

Research Report No. 1065

Project No: 013952

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Cape Wrath; Site Condition Monitoring; alpine heath

Background

The alpine heath at Cape Wrath Site of Special Scientific Interest (SSSI) was last surveyed in 2006. Scottish Natural Heritage (SNH) commissioned this Site Condition Monitoring (SCM) survey of the alpine heath at Cape Wrath SSSI in 2015.

The alpine heath at Cape Wrath grows at a low altitude due to the combination of exposure to wind and the northern location of the site. The feature was confirmed from the Sgrìbhis-bheinn plateau and the exposed south and west-facing slopes. Due to the extremely exposed location the vegetation forms tight, prostrate carpets of dwarf shrubs with shoot tips growing away from the prevailing wind. This tends to create 'ripples' of heath with bare, stony ground between. The abundance of bare ground in these situations is considered acceptable in climax vegetation of these extremely exposed locations as it is not 'disturbed'. There was, however, evidence of excessive erosion and recent loss of *Juniperus juniperus ssp nana* of great age outwith assessed plots.

Main findings

- Current Site Condition Monitoring indicates that Cape Wrath SSSI alpine heath feature is in an improved condition compared to the previous survey carried out in 2006.
- This is indicated by a decrease in the number of targets not met from three not met in 2006 down to two targets not met in 2015.
- It is suggested that the condition overall is assessed as Unfavourable – recovering.

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1. INTRODUCTION

Haycock and Jay Associates were commissioned to undertake Site Condition Monitoring (SCM) of alpine heath at Cape Wrath SSSI on 29 July 2015. This represents the second SCM survey for this feature, the first survey having been undertaken in 2006 (during Cycle 2 of SNH's Site Condition Monitoring programme).

1.1 Cape Wrath SSSI

Cape Wrath SSSI is a large site on the north coast of Scotland where the latitude and exposed location allow alpine heath to develop at relatively low elevations (approximately 290–371 m AOD). In the previous SCM survey the alpine heath was identified as confined to exposed slopes in the Sgribhis-bheinn-An Lèim area in the east of the SSSI.

Table 1. List of features assessed in 2015 for Cape Wrath SSSI

Site name	Feature
Cape Wrath SSSI	Alpine heath

1.2 Previous survey information

Previous survey information on the alpine heath feature at Cape Wrath SSSI was available from the Birks and Ratcliffe habitat map and in a report with supporting photographs from the 2006 survey.

2. METHODS

2.1 Site Condition Monitoring

The methodology detailed in Common Standards Monitoring Guidance for Upland Habitats (JNCC, 2009) was followed with targets for each attribute assessed for 13 survey points identified in the previous survey. Data to support assessment is attached at Annex 1. A variety of texts were referred to aid habitat interpretation, species identification and background to the site (e.g. Atherton *et al.*, 2010; Averis *et al.*, 2004; Rodwell, 1991; MacDonald *et al.*, 1998; O’Hanrahan, 2007; and Stace 2010).

In addition photographs were taken at each way point aiming to replicate photographs taken in the previous survey where these were available. Photographs presented in this report are offered with eight figure grid reference and direction of view to facilitate future SCM.

Survey was undertaken by Gordon Haycock BSc (Hons) MSc CEnv MCIEEM.

2.2 Constraints

Due to the nature of the terrain and inaccuracy of GPS readings (either during first survey recording or during the current survey (or both!)), a number of survey point locations were found not to support alpine heath. In these cases, a new survey point was established in the nearest available area of alpine heath.

Weather was showery with sunny intervals, and windy with generally high cloud and good visibility.

3. RESULTS

Results are tabulated in a spreadsheet attached at Annex 1. Data was recorded at each survey point.

Photographs are presented at Annexes 2 and 3. Annex 2 compares photographs provided from the 2006 SCM survey with the current photographs at the same survey point. Annex 3 has photographs for all survey points and other photographs which are helpful in indicating condition.

3.1 Site Description

Alpine heath vegetation at Cape Wrath is a mixture of *Calluna vulgaris-Erica cinerea* heath, *Racomitrium lanuginosum* sub-community – H10b (wind-clipped and therefore classed as alpine heath), *Calluna vulgaris-Juniperus communis* heath (H15) and *Calluna vulgaris-Arctostaphylos alpinus* heath (H17), with small amounts of *Calluna vulgaris-Arctostaphylos uva-ursi* heath (H16). The feature was confirmed from the plateau area and the exposed south and west-facing slopes. The terrain on the top of Sgribhis-bheinn (see Annex 2, photo at survey point 422) and the outlying northern summit across the col of Soc Glas is very bleak, stony ground, with very sparse vegetation (Figure 1).



Figure 1. Alpine heath on Sgribhis-bheinn, taken facing southeast from NC 32177245.

Due to the extremely exposed location the vegetation forms tight, prostrate carpets of dwarf shrubs with shoot tips growing away from the prevailing wind. This tends to create 'ripples' of heath with bare, stony ground between (Figures 2 and 3).



Figure 2. Ripples of alpine heath on Sgribhis-bheinn, taken facing south from NC 31897252.



Figure 3. Ripples of alpine heath on Sgribhis-bheinn, taken facing east from NC 32137110.

The abundance of bare ground in these situations is considered acceptable in climax vegetation of these extremely exposed locations as it is not 'disturbed'. There was, however, evidence of excessive erosion and recent loss of *Juniperus juniperus ssp nana* of great age (e.g. Figure 4) outwith assessed plots.



Figure 4. Erosion and loss of juniper on Sgribhis-bheinn, taken facing southeast from NC 32047121.

3.2 Alpine Heath SCM

Alpine heath at Cape Wrath SSSI was found not to meet all SCM targets, and evidence suggests that there has been deterioration in the condition of the feature since the last assessment for one of the targets. However, one target which was not met in 2006 is now assessed as being met. These attributes and targets are discussed below.

3.2.1 Attribute: Vegetation structure – indicators of heavy browsing

3.2.1.1 Less than 33% of the last complete growing season's shoots of dwarf shrub species (collectively but excluding *Betula nana* and *Myrica gale*) should show signs of browsing.

This target was not met in 2006 due to over-grazing on one plot (survey point 235). Comparison with the 2006 survey indicates that if anything grazing impacts have increased with increased damage to *J. juniperus ssp nana*. Whilst it is often difficult to separate impacts on dwarf shrubs from grazing and extreme exposure leading to wind clipping, there did appear to be evidence of over-grazing with little flowering at eight of the survey points.

3.2.2 Attribute: Physical structure – indicators of ground disturbance due to herbivore and human activity

3.2.2.1 Less than 10% of the ground cover should be made up of disturbed bare ground (scattered / diffuse disturbance).

This target was not met in 2006 at two locations, however, during this survey only survey point 422 failed. The failing survey point is near the summit of Sgribhis-bheinn where there

appears to have been much erosion due to hill-walkers climbing to the summit cairn. At other survey points and throughout the feature there is much bare ground, however it does not appear 'disturbed' (e.g. Figures 2, 3 and 4).

3.2.3 Attribute: Vegetation composition – indicators of current grazing

3.2.3.1 Less than 10% of the vegetation cover should consist of, collectively, *Agrostis capillaris*, *A. vinealis*, *Anthoxanthum odoratum*, *Deschampsia flexuosa*, *Festuca ovina* / *vivipara*, *Galium saxatile*, *Poa* spp. (other than arctic-alpine spp.) and *Potentilla erecta*.

This target was not met in 2006 in eight out of the 13 plots; however, whilst *Molinia caerulea* and *Trichophorum* sp were in evidence in some plots in 2015, the target grass species were consistently at less than 10% of the vegetation cover. High abundance of these undesirable grass species indicates high levels of grazing, trampling and dunging; as their cover has decreased, there is an indication that grazing levels have dropped and the feature is only lightly grazed and trampled through the growing season (MacDonald *et al.*, 1998).

4. CONCLUSIONS

The current Site Condition Monitoring indicates that the Cape Wrath SSSI alpine heath feature is in improved condition compared to the previous survey carried out in 2006. This is indicated by the reduced number of targets not met as shown in at Annex 1 (two targets were not met in 2015 compared with three in 2006).

During the assessment no sheep or other herbivores were encountered, and no droppings or hoof prints were in evidence. Consequently at the time of the survey it appeared that grazing and browsing pressure was low. It appears likely that this has been the case over a number of years as coverage of undesirable grasses has decreased since 2006. However, browsing impact on dwarf shrub is consistently greater than 33% and there has clearly been erosion which appears to have caused death of a number of *J juniperus ssp nana* throughout the alpine heath feature.

The previous assessment recorded an abundance of undesirable grasses, however, these have reduced in cover. The evidence appears to indicate that in winter the feature is being heavily grazed (probably by red deer) and possibly trampled leading to breaking up of dwarf shrubs and erosion. There may also be a legacy of past trampling which has opened up gaps in the vegetation allowing wind to disrupt the vegetation mat and erosion to take place (MacDonald *et al.*, 1998).

In winter snow is blown off these exposed ridges allowing deer access to dwarf shrub when much of the resource is covered by snow. Heavy snow fall in preceding years may have exacerbated impacts due to winter browsing and grazing. If climate change increases the frequency of snowfall in winter then this could have long term impacts for alpine heath at this location.

Table 2. Summary of assessed condition:

Site	Feature	Assessed condition
Cape Wrath SSSI	Alpine heath	Unfavourable recovering

It is suggested that the condition overall is assessed as Unfavourable – recovering.

The following pressures were identified:

- Grazing – over;
- Natural event; and
- Recreation / disturbance.

Recommended management actions:

- Grazing – maintain current domestic grazing regime (i.e. very little grazing);
- Take steps to ensure winter browsing by red deer is reduced or if possible eliminated;
- Monitor erosion;
- Monitor impact of climate change; and
- Work to reduce impact of hill walkers at the summit of Sgribhis-bheinn.

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ANNEX 1: SITE CONDITION MONITORING DATA

This Annex can be downloaded as a separate document.

ANNEX 2: PHOTO COMPARISON WITH PREVIOUS CYCLE

This Annex can be downloaded as a separate document.

ANNEX 3: ALL PHOTOS

This Annex can be provided on request in electronic format.

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