Scottish Natural Heritage
Research Report No. 1029

Site Condition Monitoring survey of upland notified features on designated sites – Derskelpin Moss

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RESEARCH REPORT

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Site Condition Monitoring survey of upland notified features on designated sites – Derskelpin Moss

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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). 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

Site Condition Monitoring survey of upland notified features on designated sites – Derskelpin Moss

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Keywords

Site Condition Monitoring; Protected Area; Upland; Site of Special Scientific Interest; Condition; Blanket bog

Background

Special Areas of Conservation (SAC) and Sites of Special Scientific Interest (SSSI) are designated on the basis of notified features of interest. These include habitats, species, or geological features. Site Condition Monitoring (SCM) is a six-year programme of assessment of the state of all notified features of interest on designated sites. Reporting is based on feature types and is performed to the common standards used across the four UK country conservation agencies. This report was prepared by Peak Ecology Ltd. It provides findings of monitoring undertaken at Derskelpin Moss SSSI (central NGR: NX 26460 58864) in the Southern Scotland SNH Area. There was Site Condition Monitoring (SCM) of the Blanket Bog and Valley Bog (Upland) Feature and a search for the vascular plant Pillwort (*Pilularia globulifera*) feature by Dernaglar Loch.

SNH provided Site Attribute Tables tailored to the Blanket Bog and Pillwort features. Desk study included the 1999 report when the blanket bog feature was found to be in Favourable Maintained condition. Fieldwork took place over two days: 31st August and September 4th 2013. A total of 29 sample points were assessed on the blanket bog. Positive and negative management activities were also recorded.

Main findings

- Most targets were easily met on the Blanket Bog, except for two targets: one sample point (23) failed because cover of Phragmites was over 1%; one sample point was marginal because drainage grips were affecting around 10% of surrounding bog vegetation. The latter area should be a target for drain blocking if it were carried out.
- The rest of the bog is in Favourable Condition
- The pillwort was not relocated in search areas, despite loch levels being low. Survey of adjoining areas might be rewarding if suitable conditions occur.
- The impacts of grazing are localised. There has been very small scale broadleaved planting at the east edge of the bog which should be removed along with the limited conifer regeneration.

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1. INTRODUCTION

This report has been prepared by Peak Ecology Ltd for Scottish Natural Heritage (SNH). It provides findings of monitoring undertaken at Derskelpin Moss SSSI (central National Grid Reference: NX 26460 58864) in the Southern Scotland SNH Area. This consisted of Site Condition Monitoring (SCM) of the Blanket Bog and Valley Bog (Upland) Feature and baseline monitoring of the vascular plant Pillwort (*Pilularia globulifera*) Feature. A Site Check for the Breeding Bird Assemblage and Breeding Dunlin was also to be considered but the survey was at the wrong time of year. The work was undertaken by Carol Crawford with assistance from Lenka Sukenikova on the first visit.

From henceforth in this report the Blanket and Valley Bog Feature will be referred to as the blanket bog or bog feature.

Figure 1. Typical bog surface at Sample Point 3 with several Sphagna, Erica tetralix *and* Myrica gale*.*

The objectives of the monitoring were:

1. An assessment of the condition of the selected notified features, in the field.
2. A report on the overall condition of the selected notified features.
3. A report on which attributes fail, and estimates of how much target variables differ from targets, at which sample locations, for each notified feature.
4. A written general description of the state of all the notified features over the whole site, highlighting any pattern in condition across multiple features.
5. Completed field recording forms, in a standardised format, showing the results for the notified feature and notes on the reliability of observations (e.g. as affected by bad weather or poor visibility).
6. A record of management activities observed which are likely to affect feature condition (from a supplied standardised list).
7. Photographs of sample points and examples of condition.

2. METHODS

2.1 Monitoring guidance

The methods for assessing the condition of the habitats followed those given in the JNCC (2009) Common Standards Monitoring (CSM) Guidance. This contains attribute tables with targets to be assessed for each feature.

Site Attribute Tables (SATs) tailored to the Bog and Pillwort Features were provided by SNH with the instruction that at least one target per attribute be used; some targets being more applicable than others. Mandatory targets were indicated in the SATs. The SNH suggestion that the SAT be included in the return for the site, with final two columns completed, was followed.

SNH's (2012) Statement of Requirements and detailed SCM method (MacDonald, 2004) were also used.

2.2 Desk study

Ordnance Survey (OS) maps, recent aerial photographs, the SAT and the SNH (1999) SCM report for this feature, provided by SNH, were studied before the field survey. CSM and SNH guidance and an earlier aerial photograph on Google Earth were also referred to. Page (1997) was referred to for detailed information about pillwort.

Two recording forms were designed in Excel: one to capture data necessary to assess blanket bog targets; the second to record notes and details of photographs. In the former the targets are in the same order as in the SAT provided for that site and feature.

2.3 Selection of assessment points

2.3.1 Blanket bog feature

The air photo provided by SNH was used to find locations of the bog feature and a spread of sample points within each was selected by eye with Anquet software and uploaded to the GPS handset. This included points within smaller bog fragments, to help locate them in the field. No points were selected in the M25 *Molinia* mire which encircles the bog areas, as agreed for nearby Flow of Dergoals SAC. On discussion with the nominated officer, between Derskelpin Moss visits, it was agreed that some points transitional to *Molinia* mire should be sampled on the second visit. General locations of transitional areas were again found on the air photo, sample points selected and uploaded via Anquet to the GPS handset – all are in the north half of the bog system.

2.3.2 Pillwort feature

A map showing the previous location of the pillwort on the edge of Dernaglar Loch was provided by SNH. This point was located by eye on the OS 1: 25,000 map using Anquet software then uploaded to the GPS handset.

2.4 Field survey

The site was visited on 31st August and 4th September 2013. Field methods followed those in: SNH (2012) Statement of Requirements (SoR) issued June 2012; MacDonald (2004), the SATs provided by SNH; and the CSM guidance.

2.4.1 Blanket bog feature

On the bog feature, the GPS handset (accurate to 3m in the open) was used to navigate close to uploaded points and suitable sample points were selected on the ground. A ten figure national grid reference (NGR) was taken at the arrival point. A 2m x 2m sample plot was set out from the arrival point. Corners of the plot were marked with pieces of kit.

As prescribed, some targets were assessed in the $4m^2$ plot, some in the area visible from it and a few both inside the plot and in the surrounding visible area. Active drainage and eroding peat were also looked for between sample points.

All mandatory targets and other targets given for attributes were assessed.

Positive indicator species lists given in the results spreadsheet are not exhaustive. Obvious species were recorded rapidly and once at least six species had been seen recording stopped. Vascular plant names follow Stace (2010) and bryophytes names follow Atherton et al (2010).

Oblique photographs were taken of each plot (and direction noted) and its context in one or more directions. At least one vertical view of the ground layer, at wide angle setting, was also captured.

Target notes cover management activities and other observations of interest and also include photographs.

Up to three significant positive management activities and three most significant negative activities for the blanket bog feature were recorded.

2.4.2 Pillwort feature

All of the shoreline from approximately 200m north-west of the previous location to approximately 150 m south-east of that location, was searched for the plant. This included visiting muddy areas above the water's edge and walking into the water where vegetation was seen.

2.5 Survey limitations

All sample points of blanket bog transitional to M25 *Molinia* mire were in the north half of the bog system. On the ground an assessment was made as to where the M25 began, giving potential for bias. The samples selected had 15 – 30% Molinia cover.

Targets for the 'Vegetation structure – indicators of browsing' were sometimes difficult to assess, given the time of year (optimum late winter – spring) and therefore these assessments may not be accurate.

There seems to have been moisture on the camera lens while photographing at sample points 17 – 24 and Target Notes 7 – 14. This affected the quality of the central area of photos at those locations.

The survey took place towards the end of a long dry summer and, though by then there had been some rain, water levels at Dernaglar Loch remained low; conditions should have been ideal for sighting pillwort.

3. RESULTS

3.1 Desk study

The extent of the SSSI could be seen on the maps and aerial photographs. No NVC mapping was available. On the aerial photo the bog system can be seen to be in two parts, bisected by an access track, the northern section being more extensive.

The Blanket Bog and Valley Bog (Upland) Feature is defined in the CSM guidance as comprising the following NVC communities: M1 – M3 bog pool communities and M17 – M21 blanket and raised mire communities. Communities which may indicate degraded blanket bog are also listed.

The 1999 SCM report was studied before the visit. In this the condition of the SSSI was assessed as Favourable Maintained.

The 2009 CSM guidance recommends that to report the condition of a feature as favourable, it should be possible to state with a high degree of confidence that each target is met over at least 90% of the feature. MacDonald (2004) explains that 28 is the number of samples that gives a percentage of the feature passing closest to 90%.

3.2 Field survey

3.2.1 Organisation of results

The routes taken, sample points and target note locations are shown in **Figure 1**. This is also provided as shape files in the accompanying data. The data sheets; completed SATs; notes on each sample and target notes, both with lists of photographs are provided in the Excel **Appendix**.

Photographs retain their original numbers and are contained in folders in the accompanying data, each folder labelled by Sample Point or Target Note numbers.

Bog Sample Points and Target Note locations are shown on **Figure 1**. See Excel **Appendix** Sheets 1 for data, Sheet 2 for the SAT completed with Target Results and Sheet 3 for each sample's Notes and Target Notes. Sheet 4 is the Pillwort SAT.

- On (1) the Data sheet, the first column shows if the target was assessed within a $4m^2$ sample plot and/or the area visible round the plot (denoted $4m^2$ or Ж respectively).
- On (2) the SATs sheet the Target Results are in the final two (yellow) columns.
- On (3) the Notes are: the NGR for each sample point, a brief description and/or notes for each sample plot and lists of photograph numbers for each.
- Sheet (3) also contains Target Notes (TNs), their NGRs and relevant photos. These notes are below the Bog Points notes.

3.2.2 Blanket bog feature

Over the two days 29 samples were taken within the bog feature, 15 in August and 14 in September. The weather during these days was largely dry and bright, with intermittent light rain showers. At these sample points most targets were easily met but there was one fail and one marginal result as given in Table 1. Mandatory targets are given in **bold**. More detailed discussion and assessments follow the table.

Table 1. Sample points which failed blanket bog targets (or were marginal)

Attribute	Target	Failed sample points	Number of fails
Vegetation composition – cover of other species	Less than 1% of vegetation cover should consist of collectively *A. capillaris H. lanatus, Phragmites australis, P. aquilinum, R. repens*.	Point 23	1
Physical structure - indicators of ground disturbance due to herbivore and human activity	Less than 10% of the total feature area should show signs of active drainage	Point 20 marginal	

3.2.2.1 Vegetation composition – cover of other species

From Sample Point 23 a stand of *Phragmites* at the edge of the bog (TN14) occupied more than 2% of the viewable area of the feature. On closer examination the ground was transitional to M25 and willow carr, so can be considered to be marginal qualifying habitat. Another *Phragmites* stand was visible from Sample Point 24, partly obscured by willow carr therefore occupying less than 1% of visible area.

3.2.2.2 Physical structure – signs of active drainage

Pillwort was not seen in the search area. The previous location, viewable from TN1, might be underwater – see photo 7031. Other photos taken at TN1 and at TN2 show the shoreline. *Juncus bufonius* and *Ranunculus flammula* were the main species recorded on the muddy edge. Areas underwater were often rocky with little vegetation. A decision was made at TN2 to stop searching for pillwort and focus on the bog feature.

4. MANAGEMENT OF BLANKET BOG

4.1 Positive and negative activities

The most positive activities seen were:

1. Limited grazing, some swiping
2. Many old drains don't appear to be maintained and are inactive

The three most negative activities were:

1. One gripped area and a few larger drains in north of SSSI are affecting vegetation
2. Limited grazing impacts in central and east part of site and possible swiping effects
3. Limited conifer regen and local broadleaved planting in tubes at edges of bog

4.2 Discussion of management

Though there is fencing dividing the area into grazing units, most signs of livestock activity were in to the central part of the bog – samples 8 to 11 and 15, mostly north-east of the access track. Effects included animal paths, with some poaching, shorter vegetation and an animal wallow at TN5.There were also signs of stock use at the north end of bog – Sample Points 22 and 24. The impacts are small scale in relation to the size of the bog.

Where swiping has been carried out there is some evidence of a change in the vegetation with less heather height and cover and more graminoids. Taller bushier heather was evident at Sample Points 27 and 28 when compared with probable swiped bog further west. Grazing and swiping may both reduce the differentiation of hummocks and hollows.

Molinia-dominated areas are more extensive south of the access track. There might be scope for improving them by swiping, where machinery can get on.

The main bog areas appear to have little active drainage, most old drainage being redundant. However the concentration of grips was affecting vegetation in a band between TN10 and Sample Point 21, as discussed under 3.2.2.2. A larger drain at TN11 marks the north end of the continuous bog, the bog becoming more fragmented north of it and there is another active drain at TN12 within that area. Drain blocking would be most effective in the gripped area described above as it is within the largest area of continuous bog.

A very small scale issue was two areas of broadleaved planting on bog habitats towards the east of the SSSI near Samples 4 and 10. These trees should be removed. Conifer regeneration from the forestry, though sparse, would ideally be removed at the same time.

An Operations Officer in the Dumfries SNH office asked whether scrub identified on the north and west sides of the site is having a negative effect and should be controlled. This does not appear to be on the bog feature but in adjoining habitats particularly the lagg phase north of the bog where there are patches of willow carr. Willow control at the bog edge might benefit the bog in a small scale way. It might also be worth controlling the *Salix cinerea* on the drain line at the north end of the main bog system (TN 11) because there are fragments of bog north of this.

5. CONCLUSION

Most targets were easily met at sample points. Only one sample point failed – Point 23 - because a stand of *Phragmites* occupies more than 1% of the feature visible area from this point. This and another nearby stand of *Phragmites* (TN13) are in ground at the edge of the bog transitional to M25. No *Phragmites* was seen on the main bog.

The main bog is more affected by the dense gripped area around Sample Point 20 where around 10% of the vegetation is affected by drainage. This should be the priority for conservation effort.

Apart from these locations the blanket bog feature is in favourable condition.

The vascular plant pillwort feature was not relocated. It might be worth surveying sections of shore west and south of the search area for this species in another summer when water levels are low.

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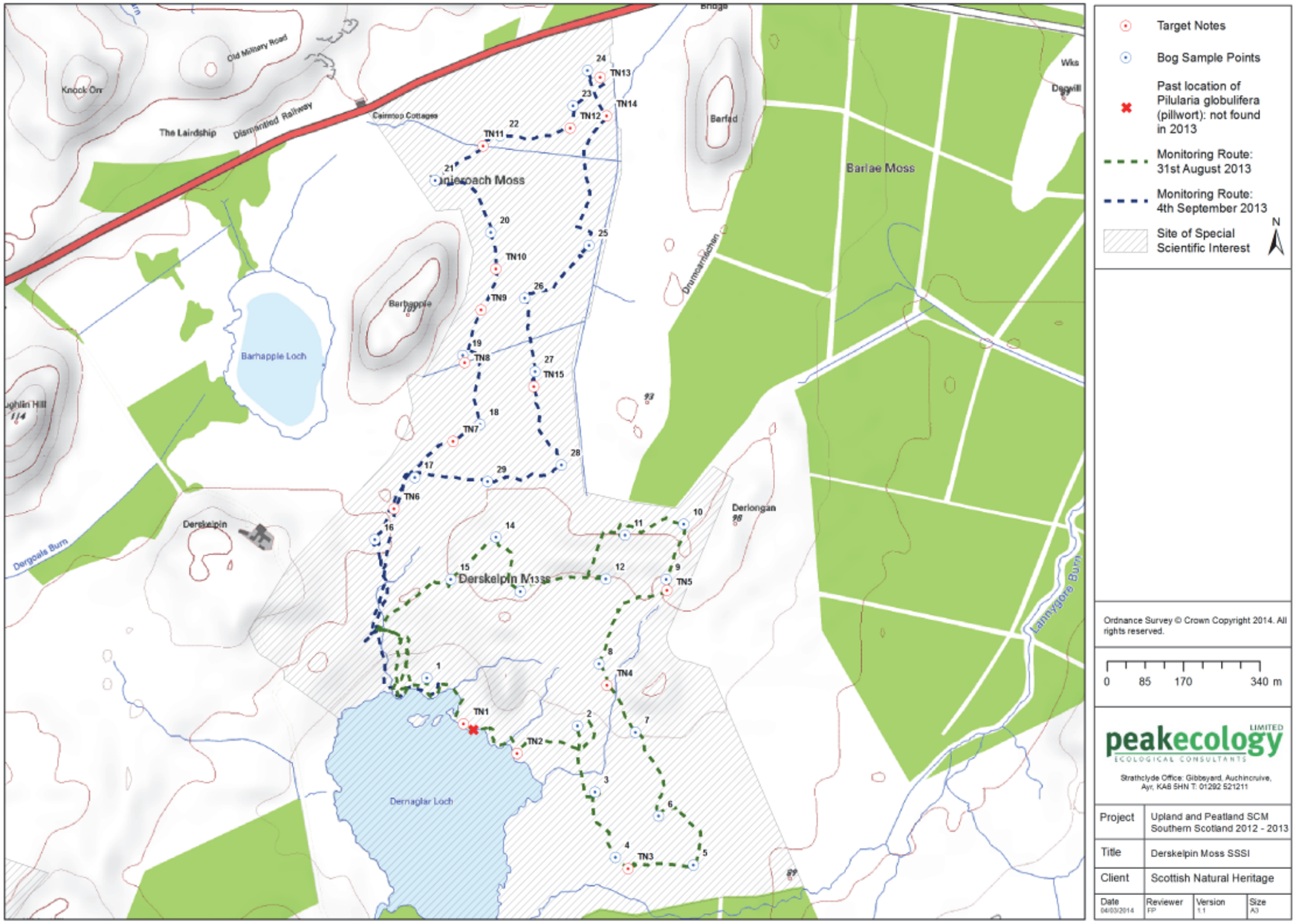

Figure 1. Routes Taken, Sample Points and Target Note locations

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