Scottish Natural Heritage
Research Report No. 1051

Site Condition Monitoring survey of upland notified features on designated sites – North End of Bute

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RESEARCH REPORT

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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 – North End of Bute

Research Report No. 1051
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Keywords

North End of Bute; SSSI; SCM; Upland assemblage

Background

Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation (SACs) are designated on the basis of notified features of interest. These features of interest may be particular habitats or vegetation types, particular species, or particular geological or geomorphological features. Site Condition Monitoring is a six year rolling programme of assessment, against quality standards, of the state of each notified feature of interest on each designated site. This project is concerned with upland habitat features and this report deals with the notified Upland assemblage at North End of Bute SSSI, NGR NS 004728 in SNH's Argyll & the Outer Hebrides Area and within the Argyll & Bute local authority area.

Main Findings

The Upland assemblage feature was assessed at the site. The results of the survey were as follows:

- The upland assemblage feature failed the condition assessment because fewer than 90% of any of the components was considered to be in favourable condition.
- Wet heath was considered to be in unfavourable condition mainly due to effects of fire damage and cover of invasive bracken.
- Dry heath was considered to be in unfavourable condition mainly due to effects of fire damage and cover of invasive bracken.
- Blanket bog was considered to be in unfavourable condition mainly due to effects of fire damage.
- There appears to have been a significant deterioration in the quality of component habitats since the last SCM assessment in 2007.
- Repeat photographs taken at a number of locations originally assessed as part of a land management impact survey in 2004 also indicate a significant deterioration in habitat quality.
- Repeated severe fires across all key habitats have resulted in marked decrease in heather cover, disruption of moss layers in wetter habitats, and the promotion of rank grasses, especially purple moor-grass *Molinia caerulea*.Bracken encroachment has also increased, including in those areas comparatively unaffected by severe fires.

- Colonisation by invasive species (Rhododendron and Sitka spruce) also has the potential to pose a threat to habitat quality in some areas.
- Overall it is unlikely that more than 20-30% of any of the upland assemblage component habitats is in favourable condition and they are likely to deteriorate still further given the continuation of current land management.

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1. INTRODUCTION

1.1 Background

The site lies at the northern end of Bute and contains the best examples of upland habitats and upland oak woodland on the island. It is a Site of Special Scientific Interest and notified for its upland assemblage feature, upland oak woodland and breeding bird assemblage. The upland habitat assemblage comprises the component habitats: wet heath, dry heath, and blanket bog and is the subject of this assessment.

2. METHODS

2.1 Identification of component features and sampling points

The method used for assessing the condition of the upland habitats was the Common Standards Monitoring guidance for upland habitats (2009). Locations for monitoring the three component habitats of the upland feature were selected from sample plots previously monitored by O'Hanrahan (2007) and assessed during a structured traverse across the site. Components of the upland feature were assessed against standard targets at two scales:

- 2X2m quadrats
- From vantage points to assess the surrounding visible habitat and from observations made whilst traversing the site.

2.2 Assessment of condition targets

The standard target for the upland assemblage feature consists of assessing whether 90% of each of the component habitats meets individual condition thresholds, according to the attribute and target tables corresponding to these habitats (JNCC, 2009).

Field assessment was carried out at a number of vantage points on the site that gave sufficient overview of the component habitats designated as part of the upland assemblage. At each vantage point an assessment of the components that could easily be observed from that location was made with reference to guidance from appropriate attribute and target tables.
In addition to this general overview assessment, detailed assessments were also made in twenty-nine specific sampling plot locations to add further resolution to this broad overview. At each of these locations the appropriate habitat was assessed for its species composition, cover, structure, signs of grazing, browsing, trampling, erosion, etc., against attributes and targets laid down in the CSM Guidance for these habitats.

Eight of the sample waypoints previously visited during the last monitoring cycle (O'Hanrahan, 2007) were reassessed as part of the detailed sampling, allowing a degree of insight into change over the last decade. Additional waypoints were selected during fieldwork.

In addition, a selection of the locations which were assessed and photographed during a land management impact survey thirteen years ago (Dayton, 2004) were revisited. These were re-photographed in 2017 to help illustrate vegetation change during the intervening period.

2.3 Field procedure

At each individual assessment location, the twelve-figure grid reference was taken with a hand-held Global Positioning System (GPS) receiver. A list of targets for various attributes from the relevant generic table such as vegetation composition, indicators of grazing

pressure and of physical disturbance (JNCC 2009) was checked in order and if the target was met it was recorded as a 'Y', if not, as an 'N'. Where the target was a quantitative one, e.g., the proportion of the ground intensively disturbed, then the approximate percentage of disturbed ground, if any, was noted.

The scale of assessment varied according to the habitat and attribute to be assessed. For the component habitats surveyed here, the assessments were mostly made at an 'immediate' scale of four square metres or the scale of the entire feature visible from the sample location.

2.4 Data spreadsheets

Data are presented in the spreadsheets for the upland assemblage component habitats where locations were assessed at specific waypoints using the appropriate attribute and target table – though it should be noted that these results are not necessarily conclusive as to whether the upland assemblage feature passes or fails. The judgement of the observer regarding the threshold of 90% of all component habitats across the whole site being perceived as meeting the targets for favourable condition remains the deciding factor.

Data are presented in an accompanying Excel spreadsheet. Each record consists of the waypoint code, date, surveyor, 12-figure grid reference and 'Y's or 'N's for each target followed by details of photographs and any appropriate notes. Column headings for the targets are often severely abbreviated to allow an overview in as economical a space as possible –full details of the target requirements for the different attributes are published by JNCC (JNCC, 2009).

The column headings representing the targets are phrased to ensure that a negative answer means failure, whereas a positive one means that the waypoint passes, e.g. the target referring to disturbed bare ground – the column heading is phrased 'Cover of disturbed bare ground <10%?' and a 'Y' result means that, yes, there were no such areas present, while an 'N' result means that no, there was at least one of these areas present.

There are columns for details of photographs taken and notes at the far right of the columns containing results for the various targets. The notes generally contain information about the NVC community and any discussion or extra information on any of the results, particularly where a failure might be considered to be unmerited or where results need to be explained in more detail.

2.5 Features surveyed on North End of Bute

The SSSI feature Upland Assemblage was the subject of this survey.

This consists of the following component habitats:

- wet heath (upland)
- subalpine dry dwarf-shrub heath
- blanket bog

2.6 Areas surveyed

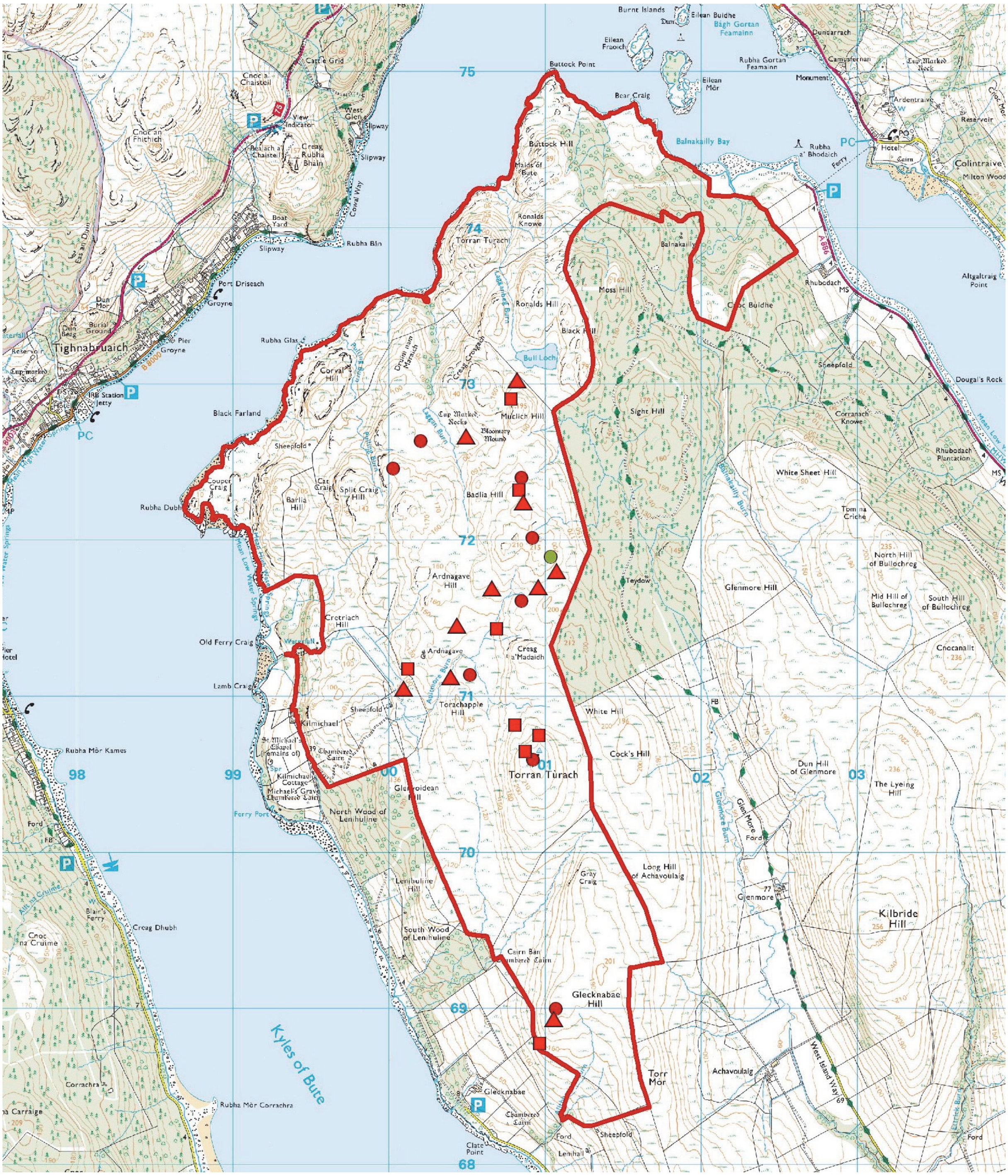
A structured walk across the whole site was undertaken. In addition, where possible, sample waypoints selected in the previous monitoring cycle were revisited, as well as extra opportunistic samples. The locations where the various habitats were visited are shown in Map 1.

2.7 Dates, surveyors and local conditions

Fieldwork was carried out on the 10 and 11th July 2017 by Colin Wells.
The weather was clear and warm with bright sunny conditions and a negligible wind.

2.8 Difficulties with particular attributes or targets

None



Map 1. Locations of SCM Upland Assemblage sampling points by habitat. Circles – Blanket bog, Squares – Dry heath, Triangles – Wet heath. Red colour indicates assessment failure, green indicates pass.

3. RESULTS

3.1 Upland assemblage

Table 1 summarises the results of the assessment of the extent of the three component habitats of the upland assemblage feature (subalpine dry dwarf-shrub heath, wet heath and blanket bog). The three component habitats were sampled at a total of 28 specific locations and their condition was assessed to give more detailed information on their condition. For the Upland Assemblage feature as a whole to be regarded as being in 'favourable condition', it is necessary for at least 90% of the extent of each component habitat of the to be considered to be in favourable condition across the site.

Table 1. A summary of the results of the field survey showing probable area and number of locations at which different habitats within the upland assemblage feature were assessed at specific locations and the number of passes and failures for each habitat at these points.

Habitat	Number of locations assessed	passed on all targets	failed on at least one target	Number of different targets failed
Wet heath	11	0	11	9
Subalpine dry dwarf-shrub heath	8	0	8	9
Blanket bog	9	0	9	6

3.1.1 Wet Heath

This habitat is widely distributed throughout the site occupying blanket bog fringes and thinner peats on sloping and rockier ground, together with wet hollows around springs and pools. It includes stands of the typical sub-community of *Trichophorum germanicum-Erica tetralix* wet heath (M15b), along with *Molinia caerulea-Potentilla erecta* mire (M25), much of which was considered to be derived from wet heath.

The wet heath was examined in detail at eleven locations. All of samples failed one or more condition assessment targets. This suggests a marked deterioration from the previous assessment when only one out of four sample assessments (three of which were reassessed as part of this current monitoring) failed one or more condition assessment targets (O'Hanrahan, 2007).

The 2017 monitoring found that:

- Ten of the samples failed due to insufficient cover of key indicator species.
- Eight of the samples failed due to evidence of burning in sensitive areas and excessive cover of graminoids.
- Six failed due to burning of moss layers.
- Five failed due to absence of *Erica tetralix* within 20 m of the plot.
- Three failed due to excessive bracken cover, excessive browsing of dwarf shrubs or apparent reduction in habitat cover.
- One failed due to the amount of *Juncus effusus* breaching the 10% cover threshold and one due to over-grazing of pioneer phase dwarf shrubs.

Overall, only 20-30% of the total extent of wet heath was considered likely to meet the assessment targets favourable condition.

3.1.2 Sub-alpine dry dwarf-shrub heath

Sub-alpine dry dwarf-shrub heath (or Dry heath) on the site predominantly comprises *Calluna vulgaris-Vaccinium myrtillus* heath (H12) and *Calluna vulgaris-Erica cinerea* heath (H10). The dry heath was found scattered throughout most of the site occupying higher, rockier better-drained ground.

Specific stands of dry heath were assessed at eight locations. All sample plots failed the assessment. This suggests a marked deterioration from the previous assessment when one out of four sample assessments (two of which were reassessed as part of the current monitoring) failed one or more condition assessment targets (O'Hanrahan, 2007).

The 2017 monitoring found that:

- Seven plots failed samples due to burning within sensitive areas
- Five due to an excess of bracken cover
- Three due to insufficient dwarf-shrub cover
- Three due to an apparent decline in habitat cover
- Three due to insufficient indicator species,
- Two due to lack of bryophytes and lichens and 2 other samples due to over-grazing or
- One due to over-browsing of pioneer stage.

Overall, only 20-30% of the total extent of Sub-alpine dry dwarf-shrub heath was considered likely to meet the assessment targets.

3.1.3 Blanket bog

Blanket bog is present widely through the SSSI occupying both low-lying saturated ground as valley mires and poorly-drained gently sloping higher ground. Most of the blanket bog conforms to either *Scirpus cespitosum-Eriophorum vaginatum* bog (M17) or *Calluna vulgaris-Eriophorum vaginatum* bog (M19) NVC types.

Specific stands of blanket bog were assessed at nine locations. All nine sample plots failed the assessment. This suggests a marked deterioration from the previous assessment when one out of four sample assessments (three of which were reassessed as part of the current monitoring)failed assessment targets (O'Hanrahan, 2007).

The 2017 monitoring found that:

- Seven failed due to burning within sensitive areas
- Six failed due to burning of moss layers
- Four failed due to excessive cover of undesirable species
- Three failed due to insufficient cover of indicator species
- Two failed due to insufficient number of indicator species
- One due to an apparent decline in habitat cover.

Overall, only 20-30% of the total blanket bog feature was considered likely to meet the assessment targets.

4. GENERAL OBSERVATIONS & SITE MANAGEMENT

The Upland Assemblage feature clearly failed the assessment and is in unfavourable condition.

Both the SCM assessment and the comparison with photographs taken of the various habitats between 2004 and 2017 indicate a continuing deterioration in habitat condition over the past decade. Only a few plot-specific assessments were undertaken during the last monitoring cycle in 2007 but nearly all met the targets. When a sample of these were repeated this year all plots failed multiple targets, and most of the failures can be attributed to direct or indirect effects of repeated burning and/or many years of over grazing.

Comparison of photographs taken at the same locations in 2004 and 2017 (Appendix 3) reflects the same process, with significant declines in dwarf shrubs noticeable at most points and often also expansion of bracken cover.

A significant contribution to the decline in habitat condition has clearly been due to the effects of a series of uncontrolled fires across significant parts of the site during the intervening period. This has greatly reduced or depressed dwarf-shrub cover, disrupted sensitive moss layers and encouraged desiccation of wetter habitats and promoted an increase in grasses, especially purple moor-grass *Molinia caerulea* and other rank grasses in heathland. Bracken expansion is likely to be enhanced due to the effects of the burning, conveying a competitive advantage through the removal of rival species' above-ground vegetative material along with nutrient enhancement in the growing with ash.

In addition high grazing pressures, primarily from sheep, will have added to the damage from burning, by suppressing regrowth of dwarf-shrubs.

It should also be noted that even in areas comparatively unaffected by fires, bracken encroachment appears to have increased markedly, especially in dry and wet heath habitats (Appendix B, Target Notes 11, 13-14, 16-17, 23-26, 28). In addition invasive non-native species in the form of *Rhododendron ponticum* and Sitka spruce also appear to have increased in abundance (Target Notes 2, 6, 7, 8, 11, 21, 24, 27, 29-36, 38).

Given a continuation of the present management it is predicted that species-poor *Molinia*- and *Trichophorum*- dominated communities, less valuable for both agriculture and biodiversity, will occupy much of the wetter ground in the future. Bracken will continue to increase, turning many areas of drier component habitat into near-monocultures of bracken (U20). Colonisation by *Rhododendron ponticum* and Sitka spruce is also likely to increase if left unchecked.

In order to begin to redress the problems, complete cessation of burning on the site and the removal of intense livestock grazing on fire-damaged areas for several years - especially in winter - is probably required in order to give notified features a chance to recover. Removal of most Sitka Spruce and Rhododendron observed is currently still possible by handsaw and should be considered before these species begin to become too numerous or large to deal with easily. Bracken control is important for the medium to long term restoration of the site but ensuring no further fires affect the site is an essential first step.

4.1 Negative management activities

Burning
Grazing – over (sheep)
Agricultural operations (ATV tracking)
Presence/change extent of invasive species – non-native (rhododendron and sitka spruce)

4.2 Positive management activities

None.

5. POSSIBLE PROBLEMS DUE TO TIMING OF ASSESSMENT

None.

6. GENERIC PROBLEMS WITH ATTRIBUTES AND TARGETS

None.

7. REFERENCES

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APPENDIX 1: SCM FIELD DATA

	Upland CSM			wet heath					Site - North End of Bute SSSI															Photo		
Way-point code	Sur-veyor	Date	Easting	Northing	No measur-able decline?	*E tet pres-ent <20m*	50% cover T1_ 20% Ericoid	<20 % trees /sh'bs?	< 10% brac k-en?	< 1% alien s?	<1% b-lvd grass, Rrep?	< 10% Jeff?	Neither d-sh'bs nor grams >75%?	< 33% of d-sh'bs (excl. Bna & Mga)	pioneer stage (Bna or Mga) - <66% brow'd?	no signs of burnt moss/li ch layer or expo'd	no evdce of bur'ng in sens've areas?	_ 10% of h'th subj. to no intense dist'bce ?	< 10% of area drained by ditches or tr'pg etc?	eroding peat/min soil < redepos' n/reveg areas?	< 10% of Sphag crushe d, broken etc?	Cover of distb'd bare grd <10%?	no patche s > 100m2 of intense ly	No.	Dir	NVC
					all	4	4	vis	vis	vis	4 & vis.	4 & vis.	4	4	4	vis	vis; ER	vis	vis; ER	vis	4	4 & vis.	vis; ER			
WH1	CW	10.07.17	200664	671688	N	Y	N 5/1	Y 0	Y 0	Y 0	Y 0/0	Y 0/0	N g99	Y 0	n/a	N	N	Y 0	Y 0	Y	Y 0	Y 0/0	Y	6177/8	W	M15
WH2	CW	11.07.17	200865	672239	N	Y	N 10/10	Y 0	Y 0	Y 0	Y 0/0	Y 0/0	N g90	Y 0	Y 0	N	N	Y 0	Y 0	Y	Y 1	Y 0/0	Y	6275/6	N	M15
WH3	CW	10.07.17	200823	673019	Y	Y	N 50/15	Y 1	N 10	Y 0	Y 0/0	Y 0/0	Y 40/60	Y 5	n/a	Y	Y	Y 0	Y 0	Y	Y 0	Y 0/0	Y	6261/2	E	M15
WH4	CW	10.07.17	201078	671799	?	N	N 35/5	Y 0	Y 0	Y 0	Y 0/0	Y 0/0	N g95	Y	n/a	Y	N	Y 0	Y 0	Y	Y 0	Y 0/0	Y	6158/9	N	M15b
WH5	CW	10.07.17	200962	671694	?	N	N 60/10	Y 0	Y 0	Y 0	Y 0/0	Y 0/0	N g90	Y 0	n/a	N	N	Y 0	Y 0	Y	Y 1	Y 0/0	Y	6171/2	N	M15b
WH6	CW	10.07.17	200441	671447	?	Y	N 90/0	Y 0	Y 0	Y 0	Y 0/0	Y 0/0	N g90	Y 0	n/a	Y	N	Y 0	Y 0	Y	Y 1	Y 0/0	Y	6186/7	S	M15b
WH7	CW	10.07.17	200399	671119	?	N	N 35/0	Y 0	Y 0	Y 0	Y 0/0	N 15/5	N g90	N 90	n/a	N	N	Y 0	Y 5	Y	Y 5	Y 2/2	Y	6190/1	S	M15b
WH8	CW	11.07.17	200098	671045	?	N	N 70/0	Y 0	Y 0	Y 0	Y 0/0	Y 0/5	Y 70/30	n/a	n/a	Y	Y	Y 0	Y 5	Y	Y 5	Y 2/2	Y	6215/6	S	M15b
WH9	CW	11.07.17	299882	671522	?	Y	N 70/15	Y 0	N 30	Y 0	Y 0/0	Y 0/5	N g80	N 40	n/a	N	N	Y 0	Y 5	Y	Y 5	Y 2/2	Y	6225/6	S	M15b
WH10	CW	11.07.17	200499	672660	?	Y	Y 50/50	Y 5	N 40	Y 0	Y 0/0	Y 0/5	Y 60/40	N 40	n/a	Y	Y	Y 0	Y 1	Y	Y 0	Y 0/0	Y	6249/5	N	M15b
WH11	CW	11.07.17	201059	668928	N	N	N 60/10	Y 0	Y 0	Y 0	Y 0/0	Y 0/5	N g80	Y 10	Y 50	N	N	Y 0	Y 1	Y	Y 5	Y 8/5	Y	6295/6	NW	M15b

	Upland CSM			subalpine dry heath					Site - North End of Bute SSSI														Photo		
Way-point code	Sur-veyor	Date	Easting	Northing	No measur-able decline?	1 bryo or lich'n pr'st?	H10d(H7, H16a) fr d-sh'b list?(_25% fr Gp I, < 50% fr Gp II?)	50% fr T1t? (_25% fr Gp I, < 50% fr Gp II?)	2 spp from Grp 1 indic'rs?	< 1% aliens?	< 10% bracken ?	< 20% scatt'rd trees/ sh'bs?	< 1% 'weeds' ?	< 10% Jeff?	no signs of bur'ng inside sens've areas?	_ 10% of h'th subj. to no intense dist'bce?	On areas o'with prev. 2 tgts, pioneer stage 25-50% cover?	< 33% of d-sh'bs brow'd?	pioneer stage (or Bna, Mga) - <66% browsed?	Cover of distb'd bare grd <10%?	no patches > 100m 2 of intensely dist'bd bare gr'd?	No.	Dir	NVC
					all	1	4	4	4	vis	vis	vis	4 & vis.	4 & vis.	vis; ER	vis	vis	4	4	4 & vis.	vis; ER			
DH1	CW	11.07.17	200832	672313	N	N	n/a	N 10	N 1	Y 0	Y 0	Y 0	Y 0	Y 0	N	N	n/a	Y 0	n/a	Y 0/0	Y 0	6273/4	S	H10
DH2	CW	10.07.17	200690	671426	Y	N	n/a	N 0	N 1	Y 0	N 50	Y 3	Y 0	Y 0	N	Y	n/a	Y 0	n/a	Y 0/0	Y 0	6184/5	S	H12
DH3	CW	10.07.17	200806	670811	N	Y	n/a	N 25	Y 2	Y 0	N 10	Y 0	Y 0	Y 0	N	Y 0	n/a	Y 10	Y 10	Y 2/2	Y 0	6197/8	SW	H12
DH4	CW	10.07.17	200961	670745	Y	Y	n/a	Y 80	Y 2	Y 0	Y 0	Y 0	Y 0	Y 0	N	Y 0	n/a	Y 1	n/a	Y 0/0	Y 0	6200/01	SE	H12
DH5	CW	10.07.17	200874	670643	Y	Y	n/a	Y 60	Y 2	Y 0	Y 5	Y 0	Y 0	Y 0	N	Y 0	n/a	Y 1	n/a	Y 1/1	Y 0	6202/03	SE	H12
DH6	CW	11.07.17	200120	671168	?	Y	n/a	Y 90	Y 2	Y 0	N 90	Y 0	Y 0	Y 0	N	Y 0	n/a	N 90	n/a	Y 1/1	Y 0	6218/19	E	H10
DH7	CW	11.07.17	200779	672898	Y	Y	n/a	Y 95	N 1	Y 0	N 10	Y 3	Y 0	Y 0	Y	Y 0	n/a	Y 0	n/a	Y 0/0	Y 0	6269/70	S	H10
DH8	CW	11.07.17	200965	668769	N	Y	Y 50/0	n/a	Y 2	Y 0	N 40	Y 2	Y 0	Y 0	N	Y 0	n/a	N 40	N 70	Y 5/5	Y 0	6292/93	E	H10d

	Upland CSM		Blanket bog							Site - North End of Bute SSSI									Photo details		
Way-point code	Sur-veyor	Date	Easting	Northing	No meas-urable decline ?	_ 6 indic spp.?(v bogs - 3)	1/2 cover fro' _ 3 indics? See qualifs	< 1% alien s?	< 10% scatt'rd trees/ sh'bs?	<1% Agcap, Hlan, Phrag, Paqu, Rrep?	< 33% of d-sh'bs (excl. Bna & Mga) brow'd?	pioneer stage (or Bna, Mga)<66% brow'd?	no signs of burn'g into moss/lich l'yr or bare p't s'fce?	no burn'g (or other dist'b'ce) inside sens've areas?	< 10% of area drained by ditches or tr'pg etc?	eroding peat/min soil < redepos'n /reveg areas?	< 10% of Sphag crushed, br'kn or p-u?	Cover of distb'd bare grd <10%?	no patches > 100m2 of intensely dist'bd bare gr'd etc?	No.	Dir	NVC
					all	4	4	vis	vis	4 & vis.	4	4	vis	vis	vis; ER	vis	4	4 & vis.	vis; ER			
BB1	CW	11.07.17	200849	672397	Y	Y 6	Y 50	Y 0	Y 0	Y 0	Y 0	n/a	N	N	Y 5	Y	Y 1	Y 0/0	Y	6279/80	N	M17
BB2	CW	10.07.17	200519	671133	?	N 5	N 20	Y 0	Y 0	N 2	Y 10	n/a	N	N	Y 5	Y	Y 5	Y 0/0	Y	6193/4	S	M25
BB3	CW	11.07.17	200205	672632	Y	Y 6	N 35	Y 0	Y 0	Y 0	Y 0	n/a	Y	Y	Y 0	Y	Y 0	Y 0/0	Y	6239/40	N	M25a
BB4	CW	10.07.17	201039	671888	Y	Y 6	Y 80	Y 0	Y 0	N 7	Y 0	n/a	Y	Y	Y 0	Y	Y 1	Y 0/0	Y			M17
BB5	CW	10.07.17	200920	672010	Y	Y 6	Y 80	Y 0	Y 0	Y 0	Y 0	n/a	Y	N	Y 0	Y	Y 3	Y 0/0	Y	6167/8	N	M17
BB6	CW	10.07.17	200850	671606	Y	Y 6	Y 95	Y 0	Y 0	Y 0	Y 0	n/a	N	N	Y 0	Y	Y 1	Y 0/0	Y	6174/5	N	M17
BB7	CW	10.07.17	200924	670588	Y	N 3	N 45	Y 0	Y 0	Y 0	Y 0	Y 0	N	N	Y 0	Y	Y 1	Y 0/0	Y	6205/6	N	M17
BB8	CW	11.07.17	200030	672455	Y	Y 6	Y 50	Y 0	Y 0	N 10	Y 10	Y 0	N	N	Y 0	Y	Y 2	Y 0/0	Y	6235/6	N	M17
BB9	CW	11.07.17	201071	668995	N	Y 7	Y 90	Y 0	Y 0	N 10	Y 30	n/a	N	N	Y 0	Y	Y 2	Y 1/5	Y	6298/9	W	M17

It should be noted that the following targets from the CSM upland Guidance 2009 were not assessed as specific targets for the component habitats:

Blanket Bog:
Vegetation composition – cover of indicator species
(2) *Sphagnum* cover should not consist only of *Sphagnum fallax (S recurvum* p.p.)
(3) Any one of *Eriophorum vaginatum*, Ericaceous species collectively, or *Trichophorum* should not individually exceed 75% of the vegetation cover.
These targets would have been assessed as part of the overall assessment of the visible areas of site from waypoints and whilst traversing the site

Subalpine dry dwarf-shrub heath:
Vegetation composition – cover and frequency of dwarf shrubs
(3)At least 25% of dwarf-shrub cover should be made up of Group (i) indicators from Table 1
(4) Less than 50% of dwarf shrub cover should be made up of Group (ii) indicators from Table 1
These would have been assessed but not explicitly recorded – they are qualifiers for the “cover and frequency of dwarf-shrubs”

Vegetation structure – disturbance:
On the remainder of the feature, outside areas identified in (1), all growth phases of heather should occur throughout the area. At least 10% of the heather should be in the late mature growth phase.
Different targets were used in relation to growth phases in old guidance. These are not really comparable with the new guidance, but none of the old targets were not met, so no effect on results.

It should be noted that the following targets from the CSM upland Guidance 2005, not present in the 2009 Guidance was assessed as specific targets for the component habitats:
No patches >100m2 of disturbed bare ground – but there are no failures for this so doesn’t affect results. Note that this target applied to all 3 habitats assessed.

APPENDIX 2: TARGET NOTES

ID	X	Y	COMMENT	PHOTO/DIRECTION
1	201150	671821	Burnt heather	
2	201045	671888	Rhododendron on WH/BB	6160
3	200990	671997	BB M19 in good condition	6161 SW
4	200950	672083	Severe burn into moss layer: WH	6164 NW
5	200931	672118	Extensive destruction of C.vulgaris by fire	6166 W
6	200914	671959	Sitka colonisation	6169 E
7	200942	671865	Sitka, Rhododendron & bracken colonisation of BB	6170 SE
8	200939	671684	2 Rhododendron in WH	6163 SE
9	200643	671632	Burning into moss layer & dead *C.vulgaris* & damage to Salix aurita stand	6179 NW 6180/1 W
10	200639	671564	Showing burnt *C.vulgaris* & bracken encroachment into DH	6182 S
11	200669	671437	Rhododendron & bracken	6183 S
12	200439	671120	Burning into S.capillifolium hummocks	6192 SE
13	200665	670912	Burnt WH - colonisation by bracken & succeeding to M25	6195 NW
14	200714	670852	Burned W20 S.aurita scrub with bracken colonisation & sheep grazng. Turning into acid grassland	6196 S
15	201140	670427	Showing E side site with C.vulgaris all burnt & Molinia becoming dominant	6211 NE
16	200143	671122	Extensive bracken colonisation on former WH	6217 N
17	200097	671281	Extensive bracken colonisation on DH & WH	6220 NE
18	200021	671347	Extensive fire damage to WH - all C.vulgaris dead T.germanicum 90% grazed Succeeding to M25	TN18 N-W
19	199942	672119	Rare patches of DH not burned inaded by bracken & Rhododendron	TN19 N-W
20	199964	672379	Severely burnt WH	6234 NW
21	200034	672492	Rhododendron x 3 in BB	6237 N
22	200116	672538	Showing BB WH & SH Largely unaffected by fires - but bracken a problem	6238 N
23	200223	672633	Showing Extensive Pteridium colonisation of all notified habitats	TN23 NE
24	200493	672678	Sitka & bracken colonisation of DH	6247 N
25	200608	672724	Bracken colonisation if all habitats	TN25 S
26	200707	672779	DH infested with Pteridium	6255 NE
27	200724	672879	Rhododendron	6256 N
				TN28 NE
28	200799	673095	Pteridium invasion of habitats NE of loch - formerly recorded as passing in good condition. Photo 6259 shows DH3 sample site	6259 det
29	200821	673009	Rhododendron	6260 NE
				6263 NE
30	200849	673022	Sitka & Rhododendron: WH	6264 BE
31	200872	672983	Sitka & Rhododendron on WH	6265 NW
32	200787	672954	Sitka & Rhododendron colonising WH	TN32 SW
33	200698	672400	Rhododendron WH	6271 NW
34	201006	672556	Rhododendron BB	6272 NE
35	200841	672391	Rhododendron BB	6278 NE
36	200579	672297	Rhododendron BB	6281 S
37	200562	672282	BB badly burnt (moss layer)	6282 N
38	200544	672256	Rhododendron in fire-damaged BB	6283 W
39	200443	672065	Rare area of BB In good condition with pools (too wet for sheep or fire) but still v, sparse dwarf shrub layer	6284 SW
40	200185	671866	Showing where fire has clipped Cv in WH narrowly missing dense H10/H21 on cliff	6285 S
41	200028	670918	Showing W side of mid-site with Extensive Pteridium and Mol M25	TN41 E
42	200942	668750	Burning starts literally at the SSSI boundary	6291 SE
43	200969	668801	Extensive burned WH	6294 NE
44	201067	668974	Heavily burnt & browsed (Cv 70%) WH	6286 SW
45	201073	669041	Badly burned BB & WH	6300 NW
46	201095	669132	Badly burned BB wirh sheep grazing	6301 N
47	200985	668754	Showing edge of burn at SSSI boundary - drystane wall has stopped fire from affecting highly flammable gorse other(non-notified)	6304 SW

APPENDIX 3: COMPARATIVE PHOTOGRAPHS 2004-2017

Photo comparisons 2004-2017

2004 Photo ID	2017 photo	Direction	Description
2	6212	NW	Rush-meadow
4	6213/4	E	View E showing increase in bracken cover
8	6189	S	Former heath/grassland boundary-now U20 & no heath
9	6188	E	High intensive burn-converting heath into M25. Several sheep present
12	6248	NW	Former grazed/burnt dry heath now colonised by bracken and converted to U20
14	6176	SE	C.vulgaris now burnt. dom by Molinia. Bracken colonising.
16	6165	NE	Much heather now dead - combination of burning (& beetle?); Rhododendron colonising
17	6277	NW	Illustrating loss of heather cover in wet heath
19	6245	W	Massive expansion of bracken
25	6227	SW	Wet heath being invaded by bracken
26	6228/9	NW	Loss of heath
32	6303	SW	Former heavily grazed WH-still heavily grazed (70% T.germanicum & N.ossifragum grazed) but now also heavily burned. 50 sheep in vicinity.
36	6302	NE	Former long C.vulgaris in BB-now badly burned
45	6208	S	Formerly moderately-grazed WH-now BB bereft of C.vulgaris but low grazing
46	6207	W	Former long C.vulgaris -now all dead. No regeneration -yet.
47	6199		Heath now less grazed
48	6204	NW	Loss of C.vulgaris generally
50	6209	W	O/view W- burnt Cv
51	6210	SW	Former long C.vulgaris -now dead

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