

Site Condition Monitoring survey of upland notified features on designated sites – Coille Dalavil





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RESEARCH REPORT

Research Report No. 1028

**Site Condition Monitoring survey of upland
notified features on designated sites –
Coille Dalavil**

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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 – Coille Dalavil

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Keywords

Site Condition Monitoring; Protected Area; Upland; Site of Special Scientific Interest; Condition; Grazing

Background

Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), and Ramsar sites are designated on the basis of notified features of interest. Site Condition Monitoring is a six year rolling programme of assessment, against quality standards, of the state of notified features of interest on designated sites. This project is concerned with habitat features on Coille Dalavil SSSI. Grid Ref: NG 590055 in SNH Area: South Highland.

The SSSI features blanket bog and lowland flood plain fen were surveyed at this site. No previous survey information was available so all points for assessment were selected opportunistically for each feature. For blanket bog, 21 points were surveyed throughout the site and at each waypoint the species composition, cover, structure, signs of grazing, browsing, trampling, erosion, etc. were assessed against attributes and targets laid down in the guidance notes for the assessment of blanket bog. For the flood plain fen, the Lowland wetland guidance was used and a range of assessments were made against the component features of the floodplain fen, sump wetland, alluvial wetland, percolating wetland and water tracks.

Main findings

- The blanket bog feature passed at each of the 21 points where it was assessed, although there was an abundance of *Molinia caerulea* in some plots making them borderline passes.
- The flood plain fen was in generally good condition although the water track component failed due to a build up of litter and the presence of undesirable species such as tall sedges, rushes and grasses.
- The water tracks occur in mosaic with the component sump wetland (S27) within which these species are integral. This may be just transitional vegetation between these two components but could also be due to low levels of grazing on the site and should be monitored.
- Bracken is present around the wooded areas but does not appear to be expanding.

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1. BACKGROUND

Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), and Ramsar sites 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 notified features of interest on designated sites. This project is concerned with upland and lowland wetland habitat features and this report deals with the Coille Dalavil SSSI. Grid Ref: NG 590055 in SNH Area: South Highland.



Figure 1. Transition to flood plain mire at the west end of Loch a Ghlinne

2. METHODS

2.1 Common Standards Monitoring

The methods for assessing the condition of the upland habitats followed those given in the documents 'Common Standards Monitoring - guidance for upland habitats' (JNCC, 2009) <http://www.jncc.gov.uk/Default.aspx?page=2237> and Site Condition Monitoring of Upland Sites in Scotland: Method of Field Assessment, by A. MacDonald 5/5/2004 (DetFieldMethod.doc). For the wetland feature, the guidance used was the 2004 JNCC, Common Standards Monitoring Guidance for Lowland Wetland <http://jncc.defra.gov.uk/page-2235>.

The above CSM guidance provides attribute tables with a number of targets to be assessed for each feature.

2.2 Selection of assessment points

The extent and distribution of notified features were usually identified from data provided by previous SNH surveys but in this case this was not available. A simple NVC survey was carried out across the site to give an idea of the type and extent of habitats and opportunistic sampling was employed to select samples for the blanket bog assessment. As many of

these as possible were done during the initial walkover; some areas where blanket bog was identified were revisited to increase the number of samples.

The flood plain fen feature was surveyed as part of the NVC survey and from assessments made during the walkover of this feature. Each of the individual components of the flood plain fen were also sampled from a small number of opportunistic sample locations.

2.3 Field methods

The surveyor walked over the site in such a way as to pass through most of the habitat to be assessed, in particular areas of blanket bog and the flood plain fen feature extending from the loch and outfall burn. As part of this walkover, a brief NVC survey was also carried out since this information was not available for this site (see map 2).

Points for the assessment of blanket bog were selected at random during the walkover and the grid reference for the actual location of each assessment made was then recorded.

At each point, all targets for the blanket bog feature were checked and the actual value of the assessment recorded, e.g. vegetation height in cm, as well as a note of whether the feature passed or failed for each target.

The scale of assessment varied according to the habitat and attribute to be assessed. Some feature assessments were made at an 'immediate' scale of four square metres and some at the scale of the entire feature visible from the sample location.

If any target was not met at a point assessment, the feature was considered to have failed at that location. The justification used to determine passing or failure of a feature is described in the SNH paper Site Condition Monitoring of Upland Sites in Scotland: Method of Field Assessment, by A. MacDonald 5/5/2004 (DetFieldMethod.doc). If failure was considered to have been 'unmerited' or a 'false alarm' evidence or observations supporting this judgement are discussed in the relevant section.

For the lowland flood plain fen, the surveyor's assessment of the feature was based on point assessments combined with observations from vantage points and observations made while walking through the components. If it was judged by the surveyor that less than 90% of the extent of each component would meet the targets then that component failed overall for the feature.

Photographs were taken throughout the site to illustrate general condition of each feature assessed and any particular issues related to condition or management. Each photo was given a unique reference as listed in the spreadsheet (Appendix 3).

2.4 Features surveyed

The following SSSI habitat features were surveyed:

- Blanket bog
- Flood plain fen

2.5 Data presentation/spreadsheets

All field data were collated into spreadsheets (Appendix 3). All records are supported by the following information: point number, surveyor's initials, date, grid reference (6 figure easting and northing), any photo details and notes. In addition, for each feature or component of an assemblage, the relevant targets are tabulated such that Y/N signifies pass (Y) or fail (N) and associated figures indicate the actual value ascribed to the target assessed, e.g. for

vegetation height Y 25 indicated that the feature passed and that the vegetation was 25cm high. Units are given in the title bar for each table.

For a full list of the abbreviations used in this report see Appendix 3.

2.6 Dates, surveyors and local conditions

The Coille Dalavil SSSI was surveyed between the 9th and 11th August by Nikki Dayton. Conditions were variable with one relatively clear day and otherwise heavy rain.

2.7 Difficulties with particular features, attributes or targets

The floodplain fen feature was quite difficult to assess near to the loch and south of the Allt a Ghlinne due to the presence of deep water in the river and drains. Some of this assessment was done remotely using binoculars. Blanket bog assessment points had to be located during a walkover without prior survey information and it became awkward to locate enough points without going back around the site several times. There are therefore only 21 assessment points for this feature.

3. RESULTS

Table 1. Summary table of the overall condition assessment for each feature.

Feature / habitat	Number of assessments				Pass/ Fail	Reasons for failure or uncertainty
	passed	failed	discarded	inaccessible		
Blanket bog	21	0	NA	NA	P	This feature passed although there was abundant <i>Molinia caerulea</i> in some quadrats.
Flood plain fen					F	There were tall sedges and rushes in the water track component and too much litter suggesting undergrazing.

3.1 Blanket bog

The blanket bog feature on this site was rather diverse in both type and composition. Loch a Ghlinne shallows very gradually at the west end and goes through an extended transition through inundation vegetation and swamp to bog habitat. The main areas of blanket bog within the site are therefore at the eastern margin of the loch and to the west beyond the floodplain, along the valley as far as the coast. Within this there are rises and banks where the bog grades to wet heath over thinner peats, and some raised peat domes that include some of the characteristic species of the M18 raised bog habitat. Some areas were dominated by *Molinia caerulea* and *Myrica gale* whereas others comprised a range of dwarf-shrubs and cotton grass with peat depressions. In this survey the targets for blanket bog were used throughout.

Around the loch, the blanket bog was predominantly of the *Trichophorum cespitosum-Eriophorum vaginatum* M17 community with locally abundant *Molinia caerulea* and *Myrica gale*. Although still supporting frequent other dwarf shrubs including *Calluna vulgaris* and *Erica tetralix* these were rather subordinate to the tall grasses. *Sphagnum* cover was abundant and, although pools were not frequent, to the west of the loch the water-tracks associated with the flood plain fen continued into the surrounding bog with runnels of small sedges and some *Potamogeton polygonifolius* flushes.

To the west of the flood plain fen there were stands of blanket bog all along the valley, broken up by stands with thinner peat. These were mainly of the *Drosera* sub-community of the *Trichophorum-Eriophorum* mire (M17a), with a reasonable cover of *Calluna vulgaris* (though there were a number of dead bushes) and a high diversity of indicator species (8-10) within plots.

Within this western area, around NG 582 053, were some areas of domed peat (see plots 8008, 8010 & 8011) that had characteristics of raised bog both in their structure and composition, with frequent *Vaccinium oxycoccos*, *Drosera rotundifolia* and pools with *Rhynchospora alba*. These mire areas constituted the most diverse stands within the site with up to 11 indicator species.

For this feature, all 21 assessments passed on all targets, and the comments noted reflected a general impression that the bog was undisturbed and in good condition. Although the western end of the mire had been cut by drains in the past and the course of the Allt a Ghlinne had been straightened, the seepage of water across the bog was slow and largely natural, the ditches having become blocked with lack of management.

The main concern for this feature would be the overabundance of *Molinia caerulea* in some of the mire stands, some of which may be attributable to past management followed by undergrazing, e.g. by Dalavil bothy. However, around the loch, this would appear to be a part of the natural progression from terrestrial to aquatic habitat. The blanket bog feature therefore passes at this site.

3.2 Flood plain fen

Table 3. Summary of the condition assessment for flood plain fen.

Component	Description
Sump wetland	S27 <i>Carex rostrata</i> - <i>Potentilla palustris</i> fen
Alluvial wetland	M23a <i>Juncus acutiflorus</i> - <i>Galium palustre</i> fen meadow & M27 <i>Filipendula ulmaria</i> - <i>Angelica sylvestris</i> mire
Percolating wetland	M14 <i>Schoenus nigricans</i> - <i>Narthecium ossifragum</i> mire
Water track	M29 <i>Hypericum elodes</i> - <i>Potamogeton polygonifolius</i> soakway

The assessment of this feature was made from a combination of point assessments and more general observations made from a structured walk through the site.

The sump wetland component was found around the western end of the loch from where the open water was broken up by a series of small islands, to a gradual transition to blanket bog between 250 & 500m from the western extremity of the open water. Within the loch, the islands were covered by wet heath (M15) with some small birch trees (W4b) and sparse *Phragmites australis* in the water S4a/S4c. As the water shallowed the loch graded into land through a series of tussocky hummocks dominated by *Molinia caerulea*, *Myrica gale*, *Calluna vulgaris* and sedges with *Phragmites australis*, *Carex rostrata* and *Carex lasiocarpa* in the water with other herbs becoming increasingly frequent such as *Menyanthes trifoliata*, *Potentilla palustris* and *Mentha aquatica* (S27).

The runnels between the peaty mounds and tussocks shallowed and broadened out away from the open water transition and became increasingly dominated by *Potamogeton polygonifolius*, with short sedges *Carex panicea*, *Carex echinata*, *Juncus bulbosus*, *Sphagnum denticulatum* and *Utricularia intermedia*. These were rather overshadowed by the surrounding tall vegetation however, which extended into the water tracks making them rather choked in appearance, and there was quite abundant litter in places. The suggested acceptable level of litter within the lowland fen guidance of 10% was exceeded over about

30% of this feature with 'undesirable' tall herbs such as *Phragmites australis*, *Menyanthes trifoliata*, *Potentilla palustris*, *Carex rostrata* and *Equisetum fluviatile*.

The alluvial wetland and percolating wetland were also dominated by *Molinia caerulea* such that this species accounted for more than 25% of most stands.

3.3 Woodland

The woodland on the valley sides is mostly planted broadleaved woodland along the lower slopes to the north, dominated by oak, beech and sycamore including more natural oak woodland (W11/W17), with a stand of Scots pine (W18) towards the north-east. On the upper slopes of the northern side and to the south of the loch there are natural birch woodlands (W17) along the steep banks of the burns running down the valley where they have been able to persist, with some areas of open scattered birch woodland across the valley sides.

There has been no obvious change in extent of any of these wooded blocks but there are some areas of opportunity for woodland regeneration between the scattered stands across the wet heath and bracken habitats of the valley sides.

4. MANAGEMENT

4.1 Positive management activities

Lack of remedial management

4.2 Negative management activities

Under-grazing of the flood-plain fen

Invasive species - bracken

Water management (historic drainage ditches)

4.3 Management discussion

The Coille Dalavil SSSI is very remote and seems largely unmanaged. Past efforts to drain the wetland west of the loch straightened the main Allt a Ghlinne but the smaller drains across the fen and bog habitats do not appear to have been managed and are mostly blocked and back-filled with peat and *Sphagna*. Berms and banks could be employed to encourage the main river to carve out a more natural meandering channel.

There were some sheep to the east of the SSSI and a few cattle grazing around Dalavil bothy, but the main part of the site was ungrazed. There seems to be a build up of litter within some of the flood-plain fen components and *Molinia caerulea* is abundant in the alluvial and percolating wetland habitats and in some stands of the blanket bog.

Bracken was present on the slopes by the wooded ground on both sides of the valley but did not appear to be encroaching onto the surrounding wet heath.

5. DISCUSSION OF OVERALL SITE CONDITION

The SSSI is in a remote area on the west coast of Skye with no road access except for a fairly difficult track (see photo below), only really for landrover or quad-bike ATV. There is a footpath that runs along the northern side of the loch to the bothy but there is generally very minimal management here. Some ditching on the mire has been largely allowed to backfill

and most of the wetland appears untouched. A few cattle graze and there are deer signs but grazing across most of the wetland is negligible.

The blanket bog and associated habitats are in good condition, in places very good with a high diversity of species and good structure including *Racomitrium lanuginosum* hummocks, *Rhynchospora alba* depressions, peat domes with *Vaccinium oxycoccos* and commonly 8-10 indicator species in assessment plots.

The flood plain fen is undisturbed and shows a natural seral progression from open water to terrestrial habitats with a good diversity of species including less common plants such as *Utricularia intermedia* and *Carex lasiocarpa*. The lack of grazing has tended to allow a build up of litter in places and the encroachment onto open habitats such as the water tracks of 'undesirable' taller grasses and sedges. This does suggest a failure of those targets but as this is part of the natural development of this system consideration should be given to the advisability of changing the status quo. Some changes, such as increased grazing, would have to be closely controlled in case they cause damage to the other habitats, such as the bog, that would be sensitive to increased trampling.

Positive management could include putting in some berms or banks in the Allt a Ghlinne to encourage a more natural, meandering channel and encouraging woodland expansion around the higher valley sides on the areas where there is dense bracken.

6. GENERIC PROBLEMS WITH ATTRIBUTES AND TARGETS

The lowland wetland guidance was rather vague and difficult to apply to the flood plain fen as found at this site, particularly with reference to undesirable species, some of which were normal components of the habitats present, e.g. *Phragmites australis* in S27.

It was also quite awkward to do a comparative assessment of features without existing survey information. Some NVC survey therefore needed to be carried out on the ground in order to make this assessment and this information is included as Map 3 in this report.

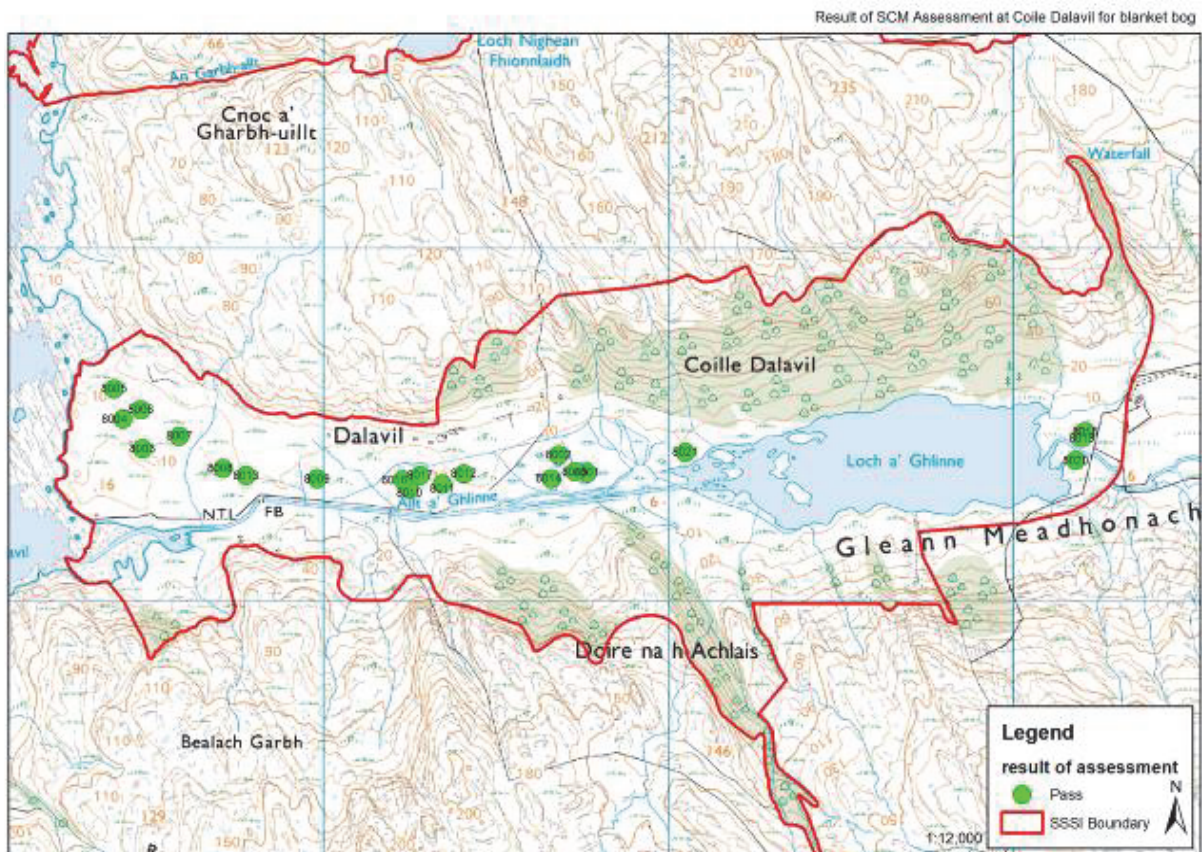
7. REFERENCES

JNCC, 2009. *Common Standards Monitoring Guidance for Upland habitats*. Available at: <http://www.jncc.gov.uk/Default.aspx?page=2237>

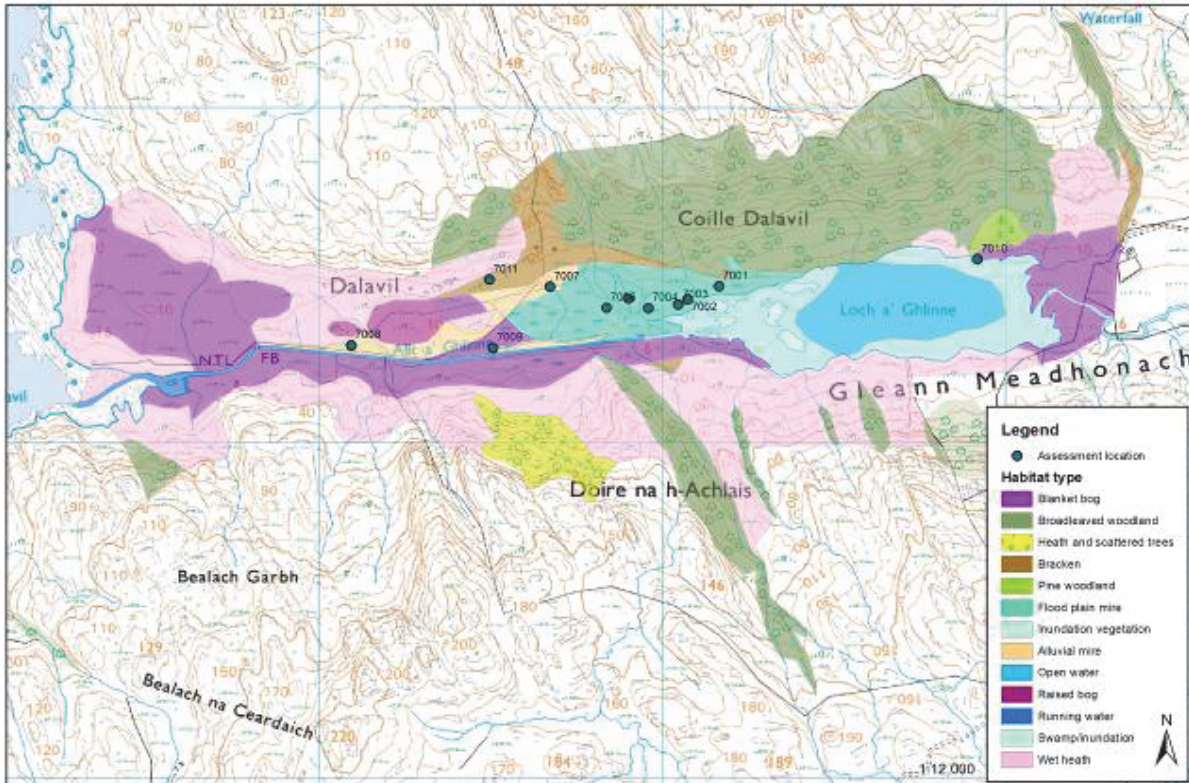
JNCC, 2004. *Common Standards Monitoring Guidance for Lowland Wetland*. Available at: <http://jncc.defra.gov.uk/page-2235>

Rodwell, J.S. ed. 1991-2000. *British Plant Communities*. Volumes 1-5 Cambridge: Cambridge University Press.

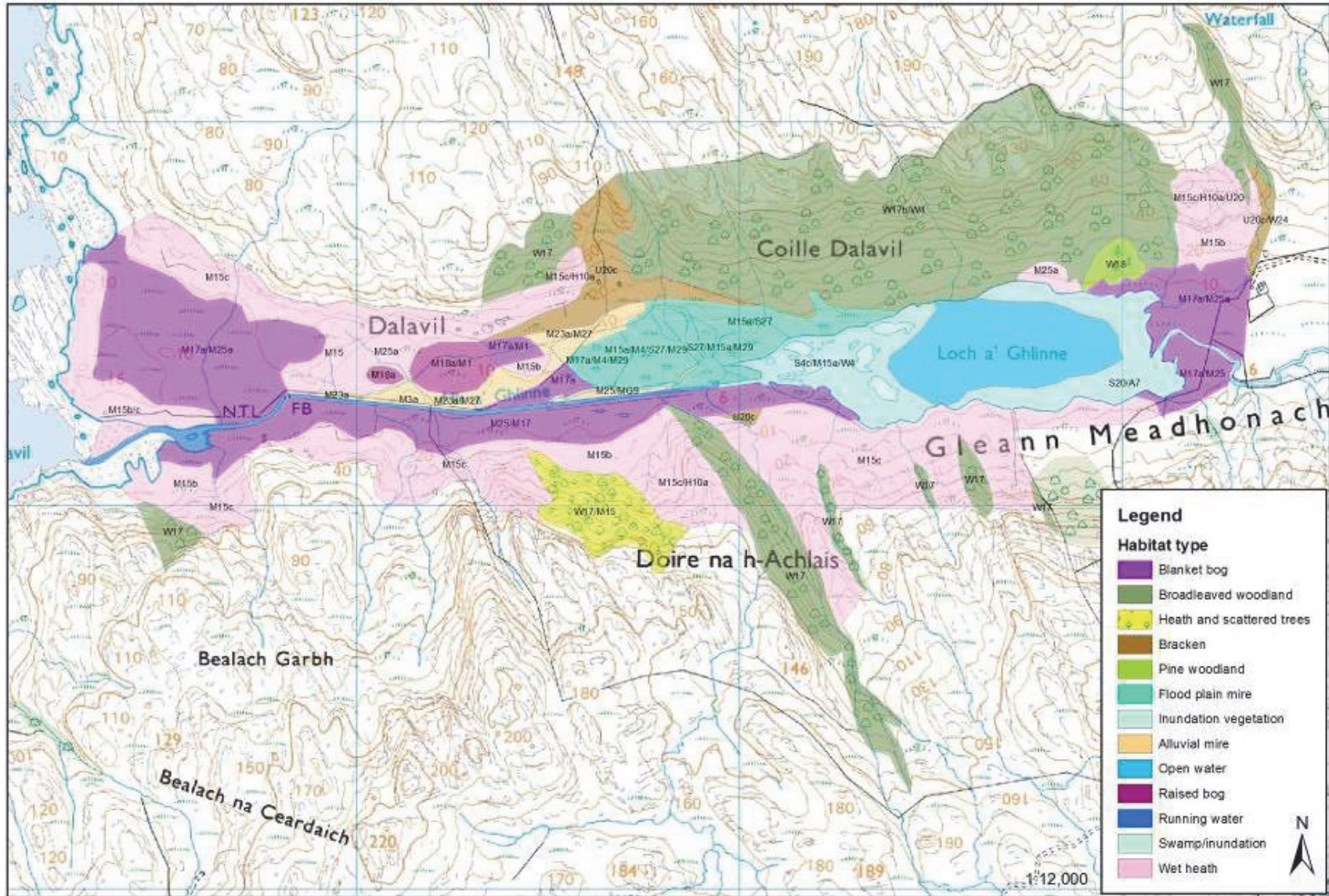
APPENDIX 1: MAPS TO SHOW SITE LOCATION AND RESULTS



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APPENDIX 2: PHOTOGRAPHS



Typical Vegetation around the Loch.



*Runnels supporting *Rhynchospora alba* within the peat domes.*



Sump Wetland Vegetation.



Access to Coille Dalavil.

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