voltalia

# CRUACH CLENAMACRIE WIND FARM

## APPENDIX 10.1 BASELINE HABITAT SURVEY REPORT

Voltalia

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## Appendix 10.1 Baseline Habitat Survey Report

NOVEMBER 2024

PUBLIC

Voltalia

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## Appendix 10.1 Baseline Habitat Survey Report

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WSP

110 Queen Street
Glasgow
G1 3BX

Phone: +44 141 429 3555

Fax: +44 141 429 3666

WSP.com

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| Prepared by | Lilian Wadle | Sabrina Bremner | Sabrina Bremner | |
| Signature | | | | |
| Checked by | Alex Gow | Sabrina Bremner | Sabrina Bremner | |
| Signature | | | | |
| Authorised by | S Kydd | S Kydd | A Miller | |
| Signature | | | | |
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# EXECUTIVE SUMMARY

WSP UK Ltd. was commissioned by the Applicant (Voltalia) to undertake habitat surveys including a UK Habitat Classification (UKHab) survey and National Vegetation Classification (NVC) survey for a proposed new wind farm development - Cruach Clenamacrie66ucture of six turbines, and the access track. The Application Boundary is the extent of the area relating to the consent application. The Site is situated within an area of upland habitats and is adjacent to both mixed and conifer woodlands consisting of primarily conifer plantation. The indicative layout of the wind farm is shown in **Figure 10.1.1**.

The objectives of this study were to provide baseline habitat information about the Study Areas, constituting a 250 metre (m) buffer around the Proposed Development, which is made up of the turbine layout plus a 100m buffer, and the Access Track Study Area which constitutes the access track and a 100m buffer.

The UKHab survey confirmed the Study Area was predominantly comprised of f1a - blanket bog, f2b - purple moor grass and rush pastures, h1b - upland heathland, h1b6 - wet heathland with cross-leaved heath, w1e - upland birchwoods and w2c - other coniferous woodland. Additionally, the following habitats were also recorded : f1a6 - degraded blanket bog, f2c - upland flushes fens and swamps, g1b6 - other upland acid grassland, g1c - bracken; h1b5 - dry heaths; r1 - standing open water and canals; r2 - rivers and lakes; and w1h5 - other woodland; mixed; mainly.

The National Vegetation Classification (NVC) survey confirmed the following communities within the Study Area: M1 *Sphagnum auriculatum* bog pool community, M3 *Eriophorum angustifolium* bog pool community, M4 *Carex rostrata-Sphagnum recurvum* mire, M9 *Carex rostrata-Calliergon cuspidatum/giganteum* mire, M10 *Carex dioica-Pinguicula vulgaris* mire, M11 *Carex demissa-Saxifraga aizoides* mire, M15 *Scirpus cespitosus-Erica tetralix* wet heath, M17 *Scirpus cespitosus-Eriophorum vaginatum* blanket mire, M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire, M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture, M25 *Molinia caerulea-Potentilla erecta* mire, M29 *Hypericum elodes-Potamogeton polygonifolius* soakway, S9 *Carex rostrata* swamp, W4 *Betula pubescens-Molinia caerulea* woodland, W17 *Quercus petraea-Betula pubescens-Dicranum majus* woodland, H10 *Calluna vulgaris-Erica cinerea* heath, H12 *Calluna vulgaris-Vaccinium myrtillus* heath, U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland and U20 *Pteridium aquilinum-Galium saxatile* community.

The UKHab survey confirmed the Access Track Study Area was predominantly comprised of w2c – other coniferous woodland interspersed with w1d - wet woodland, w1e - upland birchwoods, g3c - other neutral grassland , u1c - artificial unvegetated - unsealed surface, and f2b - purple moor grass and rush pasture. Additionally, the following habitats were also recorded within the Access Track Study Area: f1a - blanket bog, u1e - built linear features, f2f - other wetlands, u1b6 - other developed land, g1c – bracken, u1d - suburban mosaic of developed and natural surface, w1a - upland oakwood. The following linear habitats were recorded in the Access Track Survey Area (in order of dominance): r1a - rivers  w1g - other broadleaved woodland, r1g - other standing water, h2a - native hedgerow,

g3c - other neutral grassland, u1e - built linear features. NVC surveys were not undertaken for the habitats within the Access Track Study Area, as these constitute mainly coniferous plantation of low ecological value.

Of the habitats within the Study Areas both the dry heath and wet heath are listed in Annex I of the Habitats Directive, the Scottish Biodiversity List (SBL) and the Argyll and Bute Local Biodiversity Action Plan (LBAP). The remaining habitats, with the exception of bracken and coniferous woodland, are all listed in the SBL or Argyll and Bute LBAP.

Additionally, NVC Communities M9, M10, M11, M23, M29 and W4 within the Study Area have high potential to be Groundwater Dependant Terrestrial Ecosystems (GWDTE). Communities M15 and M25 within the Study Area have moderate potential to be GWDTEs, following SEPA's guidance (SEPA 2017). Although there were no NVC surveys performed within the Access Track Study Area, the following habitats have medium potential to be GWDTEs; f2b - purple moor grass and rush pasture as well as f2f - other wetlands.

# 1

# INTRODUCTION

# 1 INTRODUCTION

1.1.1 WSP UK Ltd. was commissioned by the Applicant (Voltalia) to undertake habitat surveys including a UK Habitat Classification (UKHab) survey and National Vegetation Classification (NVC) survey of the proposed Cruach Clenamacrie wind farm (hereafter the 'Site'). A UKHab habitat survey was also undertaken of the proposed access track. The Site is located to the east of Oban, within Argyll and Bute Council and is located at approximate central Ordnance Survey grid reference NM 94187 29995.

1.1.2 The indicative layout of Cruach Clenamacrie wind farm comprises six turbines, shown in **Figure 10.1.1**, hereafter the 'Proposed Development'.

## 1.2 SCOPE AND OBJECTIVES

1.2.1 The objectives of this study were:

- To provide baseline habitat information about the Site with particular reference to whether priority sites or habitats are present;
- To provide recommendations to enable compliance with relevant nature conservation legislation and planning policy; and
- If necessary, to identify the need for avoidance, mitigation, compensation or enhancement measures and/or further ecological surveys.

## 1.3 LEGISLATIVE CONTEXT

1.3.1 The study has been compiled with reference to the following relevant nature conservation legislation and Scottish biodiversity guidance from which the protection of sites, habitats and species is derived in Scotland.

- The Wildlife and Countryside Act 1981;
- The UK Post-2010 Biodiversity Framework (2011-2020);
- Environment Act 1995;
- The Conservation (Natural habitats &c.) Regulations 1994;
- Nature Conservation (Scotland) Act 2004;
- Wildlife and Natural Environment (Scotland) Act 2011;
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Code of Practice on Non-Native Species (Scottish Government, 2012);
- Scottish Biodiversity List (SBL)[1];

[1] NatureScot (2024) Scottish Biodiversity List. Available at: Scottish Biodiversity List | NatureScot. The Scottish Biodiversity List is a list of flora, fauna and habitats considered by the Scottish Ministers to be of principal importance for biodiversity conservation. The publication of the SBL satisfies the requirements of Section 2(4) of The Nature Conservation (Scotland) Act 2004. The development of the list has been a collaborative effort involving a great many stakeholders overseen by scientists from the Scottish Biodiversity Forum. The SBL is a

- Scottish National Planning Framework 4 (2023);
- Scottish Planning Policy (2014);
- Scotland's biodiversity: it's in your hands (Scottish Government, 2004);
- 2020 Challenge for Scotland's Biodiversity (Scottish Government, 2013);
- UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021;
- Argyll and Bute Council Local Development Plan (Argyll and Bute Council, 2015)[2]; and
- Argyll and Bute Council Local Biodiversity Action Plan 2010 – 2015 (Argyll and Bute Council, 2010).

tool for public bodies and others doing their Biodiversity Duty as required by Section 2(4) of the Nature Conservation (Scotland) Act 2004.

[2] A second Local Development Plan (LDP2) is being prepared and is currently under examination by the Scottish Government.

# 2

# METHODS

# 2 METHODS

2.1.1 The Habitat Study Area comprised the Developable Area, plus a 250m buffer to the footprint of and the Application Boundary. The Developable Area represents the footprint of the turbines and associated infrastructure.

2.1.2 Over the development of the Project, the Access Track was defined and included within the Habitat Study Area with a smaller 100m buffer applied to the track, and a 250m buffer around the borrow pits to be established alongside the access track.

2.1.3 Habitat surveys including UKHab and NVC were undertaken of the Study Area, the methods of which are detailed below.

2.1.4 For both the UKHab and NVC, nomenclature for higher plant species (e.g., vascular, flowering plants) follows New Flora of the British Isles (Stace, 2019). Nomenclature for lower plants (e.g., bryophytes) follows Mosses and Liverworts of Britain and Ireland (Atherton *et al*. 2010). Relative plant species abundance was estimated using the DAFOR[3] scale.

2.1.5 Following data collection, habitats were assessed for their potential to be a Scottish Biodiversity List (SBL) priority habitats and Argyll and Bute Local Biodiversity Action Plan[4] priority habitats. The Carbon and Peatland Map was also reviewed to determine any areas of deep peat (Scotland's Soils, 2016).

2.1.6 Invasive non-native plant species were also recorded by target notes when encountered.

## 2.2 DESK STUDY

2.2.1 A desk-based study was undertaken in July 2024 to identify presence of botanical species with conversation concern within the Site. The desk study also involved a search for records of extant protected or notable botanical species within 2km of the Site (records from 2014 onwards) with data provided by the Botanical Society of Britain and Ireland (BSBI).

## 2.3 UKHAB

2.3.1 Initial habitat surveys were conducted on the 22nd - 24th June, 12th-14th and 19th – 20th October 2022 across the Habitat Study Area as shown in **Figure 10.1.1** (**Annex A**) which covered the Developable Area plus a 250m buffer, and the Application Boundary.

2.3.2 Survey results were updated on the 11th – 14th July 2023 and the Habitat Condition Assessment (HCA) survey undertaken on 12th – 14th September 2023.

[3] The DAFOR scale has been used to estimate the frequency and cover of the different plant species as follows: Dominant (D), Abundant (A) , Frequent (F), Occasional (O), Rare (R) , The term 'Locally' (L) is also used where the frequency and distribution of a species are patchy and 'Edge' (E) is also used where a species only occurs on the edge of a habitat type.

[4] Argyll and Bute Council (2010) Argyll and Bute Local Biodiversity Action Plan. Available at: A&B BAP Draft (argyll-bute.gov.uk)

2.3.3 Habitats within the Habitat Study Area were described and mapped following the Professional Version 1.1 of UKHab (which was the current version at the time of survey) using the following documents:

- UKHab User Manual (Butcher *et al*. 2020a);
- UKHab Field Key (Butcher *et al*. 2020b); and
- UKHab Habitat Descriptions Version 1.1 (Butcher *et al.* 2020c).

2.3.4 Following development of the Proposed Development design, locations for the Access Track were defined. The Habitat Study Areas for the Access Tracks were defined as a 100m buffer to the track and 250m to the borrow pits. Habitat surveys were completed in May 2024 with habitats described and mapped following the Professional Version 2.0 of UKHab using the following documents:

- UKHab Ltd (2023). UK Habitat Classification Version 2.0

2.3.5 An update survey following Version 2.0 of the UKHab was also undertaken for 250m buffer to the Developable Area and 250m buffer and Application Boundary at this time.

2.3.6 Dominant plant species are recorded, and habitats are classified according to their vegetation types. UKHab system comprises of a principal hierarchy (the Primary Habitats) and non-hierarchical Secondary Codes. Primary Habitats include ecosystems (level 1), broad habitat types (level 2 and 3); more defined habitats, including Priority Habitats (level 4) (UK Biodiversity Action Plan, 2011) and further defined habitats, including Annex I Habitats[5] (level 5).

2.3.7 Secondary Codes can then be used to provide more information on a habitat from the following categories:

- Mosaic habitats;
- Habitat complexities;
- Origin of habitat;
- Management;
- Land use;
- Environmental qualifiers;
- Hydrological regime; and
- Green infrastructure.

2.3.8 A single Primary Habitat is assigned to each polygon, line or point feature with generally a maximum of six Secondary Codes used. Lowercase letters are used, with the levels 2 to 5 shown by the alphanumeric code and no commas are used between secondary codes as per the UKHab User Manual.

2.3.9 Point features were used for Primary Habitats if of conservation interest and too small to map as an area. For this survey, where possible, level 5 Primary Habitat codes were used for habitats.

2.3.10 Surveys were undertaken by a WSP Consultant Ecologist, who is capable in surveying sites containing similar habitat types and species (CIEEM, 2021 and CIEEM, 2022).

[5] European Union Habitats Directive 92/43/EEC Annex I.

## 2.4 NATIONAL VEGETATION CLASSIFICATION

2.4.1 Habitats were identified for which further botanical survey was recommended; therefore, a National Vegetation Classification (NVC) survey was undertaken across the NVC Survey Area as shown in **Figure 10.1.3**, (**Annex A**) following standard guidelines in July 2023, classifying communities in accordance with the NVC system and floristic tables . The NVC survey was undertaken on 11th – 14th July 2023 by a WSP ecologist with nine years of botanical survey experience, including similar habitats across Scotland, and who qualifies as 'capable-accomplished' against the CIEEM habitat survey standards (CIEEM, 2022). The Access Track was not included within the NVC Survey Area.

2.4.2 The NVC survey was completed following standard guidelines (Rodwell, 2006), classifying communities in accordance with the NVC system and floristic tables (Rodwell, 1991 – 2000). The predefined habitat parcels were surveyed qualitatively to record dominant and constant species, sub-dominant species and other species present. Quadrat sampling was not applied as it is not always necessary if vegetation types can be reliably identified in the field using sufficient qualitative data where most NVC communities and sub-communities are defined by inter-stand frequency, not by the abundance of the constituent species. Target Notes (TN) were taken to record species frequency and an overall qualitative sample, rather than one quantitative sample. Furthermore, qualitative information can be vital for understanding the dynamics and trends in vegetation patterns.

2.4.3 Post-survey, any alterations to the predefined community boundaries were made in ArcGIS software.

2.4.4 An avoidance hierarchy for design development was produced through a qualitative assessment of reviewing the different characteristics and values of the communities, with reference to recent NatureScot advice for development on peatlands[6], the context of all communities within the developable area (most of which hold some value), and professional judgement.

2.4.5 The avoidance hierarchy is as follows:

- VERY HIGH = must be completely avoided and buffered by a minimum of 100m subject to further review/discussions and hydrologist input (e.g., priority Annex I peatland distinct from wider blanket mire, discrete Annex I type flushes likely to be highly dependent on groundwater movement)
- HIGH = should be avoided as far as reasonably possible or impacts minimised (e.g., priority Annex I peatland that is more widespread and in mosaic with degraded peatland)
- MEDIUM = try to avoid but loss of this community is unlikely to have a significant effect (e.g., typical upland community likely on shallower peatland or extensive area of degraded peatland)
- LOW = low value habitat and loss of this community would not have a significant effect

## 2.5 PEATLAND CONDITION ASSESSMENT

2.5.1 As a large proportion of the Development Site is situated on peatland, consideration was given to the condition of the peatland based on the Peatland Condition Assessment (PCA) guide (SNH/Peatland

[6] NatureScot (2023). Advising on peatland, carbon-rich soils and priority peatland habitats in development management. Online at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management, accessed August 2023.

Action, 2016). A PCA walkover survey of the Development Site was undertaken alongside the NVC survey.

2.5.2 PCA bases the condition of blanket bog on indicators such as bog-moss cover, extent of bare peat and evidence of grazing and burning (Peatland Action, 2016). The PCA recognises four categories of peatland condition:

- Near-Natural - peat forming bog-mosses dominant, with no recent fires, little or no grazing pressure and little or no bare peat, heather is not dominant.
- Modified - bare peat is in small patches, fires may be recent, grazing impacts are evident, bog-mosses are absent or rate, extensive cover of heather or purple moor-grass.
- Drained - within 30 m either side of an artificial drain or a revegetated hagg or gully system.
- Actively Eroding - actively eroding hagg/gully system, extensive continuous bare peat surfaces.

2.5.3 The PCA Support Tool also gives descriptions of peatlands as being in good, intermediate or bad condition (Glenk *et al*, 2017). The criteria for these are shown in Table 2.1.

**Table 2-1 – PCA Tool categories**

| Signs | Good | Intermediate | Bad |
|---|---|---|---|
| **Water** | Plenty of water, visible on the surface. | Surface water is rarely visible. | Deep gullies have formed from wind and water erosion. |
| **Vegetation** | Small grasses, bog-mosses (Sphagnum spp.) common and very wet. | Taller plants, such as cottongrasses (*Eriophorum spp.*) and heather. | Rarely any plants grow on the areas that are exposed. Patches of grasses or heather are still found on 'islands' in between exposed bare peat. |
| **Bare peat** | Little to no bare peat patches. | Bare peat patches are occasional, burning may occur. | Bare peat areas will continue to expand, leaving less plant cover as protection on the surface. Peat will continue to be lost until the solid rock is exposed. |
| **Water quality** | Water flowing from good quality peatland is clear. | Water flowing from peatland likely to be slightly brown, especially after heavy rainfall. | Bad water quality, it can be dark brown from the peat content. |
| **Wildlife** | Good for wildlife. | Wildlife less abundant than in good condition. | Home too little wildlife. |

## 2.6 LIMITATIONS

2.6.1 Every effort has been made to provide a comprehensive description of the Site; however, the following specific limitations apply to this assessment:

- Part of the surveys were undertaken in September and October which is suboptimal survey time for habitat surveys, as some vegetation will have died back already. As there was sufficient vegetation still present on Site this did not impact the quality of the survey results as the UKHab type could still be assigned and further habitat surveys were undertaken within the optimal survey period.

- The coniferous plantation woodland surrounding the Site was not subject to survey but assessed from the perimeter. This is not considered a limitation to the findings of this report as the UKHab type could still be assigned.
- The results of the UKHab survey represent a current evaluation (as opposed to one seeking to describe what the habitats were before any human interference or may become in the future).
- In the absence of changes in land use, hydrology, or otherwise, and depending on the sensitivity and condition of habitats identified, it is likely that habitat data remain valid for 18 months (CIEEM, 2019).The precise location of the desk study results were not provided by BSBI, instead they recorded broad grid references which refer to 1km grid squares.
- Over the course of the assessment, an updated version of the UKHab survey method was published. The surveys for the for the Study Area and the Access Track Study Area, therefore, follow different versions of this method, however as the changes between the versions were minimal, this will not affect the assessment.

# 3

# RESULTS

# 3 RESULTS

## 3.1 DESK STUDY

3.1.1 No records of notable flora species made within the Habitat Study Area were received from the desk study. Within 2km of the Site, 39 records of notable plant species were provided by BSBI which included 11 species of which are considered vulnerable on the International Union for Conservation of Nature's (IUCN) Red List of Threatened Species (IUCN (2024): corn spurrey *Spergula arvensis,* mossy saxifrage *Saxifraga hypnoides*, and lesser butterfly-orchid *Platanthera bifolia,* while two others are considered near threatened: chaffweed *Lysimachia minima* and long-stalked pondweed *Potamogeton praelongus.* Additionally, the following species with stable conversation status were recorded: bluebell *Hyacinthoides non-scripta*, corn mint *Mentha arvensis*, lesser tussock-sedge *Carex diandra*, tall bog-sedge *Carex magellanica,* welsh poppy *papaver cambricum* and Wilson's filmy-fern *Hymenophyllum wilsonii.* The species recorded closest to Site, were bluebells located approximately 1 km to the south of the Habitat Study Area .

## 3.2 UKHAB SURVEY RESULTS

3.2.1 The results of the habitat surveys are shown in **Figure 10.1.2**, **Figure 10.1.3** (showing the final location of the Access Track) and **Figure 10.1.4** (**Annex A**) and a species list is shown in **Annex B**.

3.2.2 The UKHab survey results, corresponding NVC communities, along with whether they are priority habitats or Groundwater Dependant Terrestrial Ecosystems (GWDTE) are detailed in **Table 3-1.** The potential to be GWDTEs follows Land Use Planning System SEPA Guidance Note 31 (SEPA, 2017).

3.2.3 The results are grouped into broad habitat categories and then listed in order of their UKHab alpha-numeric codes, as depicted by the UKHab User Manual.

**Table 3-1 – Habitat Study Area Habitat Survey Results**

| UKHab | NVC community* | Peatland importance[7] | Potential for GWDTE[8] | Annex I[9] habitat | SBL habitat/ LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|---|---|---|
| f1a - blanket bog | M1 *Sphagnum auriculatum* bog pool community | Priority | - | Blanket bogs (as component); and<br>Depressions on peat substrates of the *Rhynchosporion* (one location fringing M1 bog pool) | Blanket bog (as component)<br>is mentioned on the LBAP and SBL. | Areas of blanket bog (M17 and M19) were recorded throughout the Study Area with bog pools (M1 and M3) also recorded throughout. These communities were often recorded as mosaics alongside M15 and M25 which are detailed below.<br>The M17 blanket mire community had a constant cover of *Sphagnum* mosses comprising *Sphagnum papillosum* and *Sphagnum capillifolium*. Heather and purple moor-grass were abundant and hare's-tail cottongrass, deergrass, cross-leaved heath, bog asphodel, reindeer lichen and *Rscomitrium lanuginosum* were all frequent. | Very High |
| | M3 *Eriophorum angustifolium* bog pool community | Priority | - | Blanket bogs (as component) | | | Very High |

[7] NatureScot (2023). Advising on peatland, carbon-rich soils and priority peatland habitats in development Blanket bog management. Online at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management

[8] Scottish Environment Protection Agency (2017). Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Online at: https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf

[9] Habitats listed on Annex I of the Habitats Directive for which Special Areas of Conservation are selected, online at: https://www.nature.scot/doc/habitats-and-species-habitats-directive-which-occur-scotland-and-which-special-areas-conservation; and JNCC Annex I habitat descriptions, online at: https://sac.jncc.gov.uk/habitat/

| UKHab | NVC community* | Peatland importance[7] | Potential for GWDTE[8] | Annex I[9] habitat | SBL habitat/ LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|---|---|---|
| | M17 *Scirpus cespitosus-Eriophorum vaginatum* blanket mire | Priority | - | Blanket bogs | Blanket bog<br>is mentioned on the LBAP and SBL. | The M19 community was often dominated by purple moor-grass with heather abundant. Hare's-tail cottongrass, *Sphagnum capillifolium*, common sedge, tormentil, carnation sedge, star sedge and bog myrtle were recorded as frequent. Deergrass, cross-leaved heath, bell heather and bilberry were occasional and bog asphodel and bog myrtle were locally frequent. Bottle sedge was rare and scattered spruce and birch trees were recorded in parts.<br>Bog pools (M1 and M3) contained *Sphagnum denticulatum, Sphagnum papillosum, Sphagnum capillifolium, Sphagnum cuspidatum, Sphagnum fallax* and bottle sedge, white beaked sedge, common cottongrass, bog bean and bare peat.<br>Areas of bare peat were also recorded with no vascular plants and poaching present. | Very High |
| | M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire | Priority | - | Blanket bogs | | | High |
| | BP (Bare Peat) | Degraded | - | - | | | High |
| f2b - purple moor grass and rush pastures | M25 *Molinia caerulea-Potentilla erecta* mire | Degraded | Moderate | - | Purple moor grass and rush pasture is mentioned on the LBAP and SBL. | Purple moor-grass rush pastures were identified in the eastern end of the Study Area, primarily around water courses. M25 was often recorded alongside M19, M17, M23 and M29. Dominated by purple moor-grass, sharp-flowered rush and soft rush. Occasional species included devil's-bit scabious, tufted-hair grass, bog myrtle, tormentil, creeping buttercup, marsh violets, cross-leaved heath, hare's-tail cottongrass, *Sphagnum papillosum*, star sedge, flea sedge, bog asphodel and *Polytrichum commune.* | Medium** |

| UKHab | NVC community* | Peatland importance[7] | Potential for GWDTE[8] | Annex I[9] habitat | SBL habitat/ LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|---|---|---|
| f2c - upland flushes fens and swamps | M4 *Carex rostrata-Sphagnum recurvum* mire | - | - | Transition mires and quaking bogs | Upland flushes, fens and swamps is mentioned on the LBAP and SBL. | An area of M4 comprised abundant bottle sedge over *Sphagnum denticulatum*. Bogbean was frequent and round-leaved sundew was locally frequent. | Very High |
| | M9 *Carex rostrata-Calliergon cuspidatum/giganteum* mire | - | High | Transition mires and quaking bogs | | M9 was recorded along water courses. Bottle sedge was locally abundant; bogbean, lesser spearwort, bog pond weed and common yellow sedge were occasional; and horsetail was rare. | Very High |
| | M10 *Carex dioica-Pinguicula vulgaris* mire | - | High | Alkaline fens | | Flushes of M10 comprised common butterwort, round leaved sundew and eyebright as locally frequent. Carnation sedge, yellow sedge, flea sedge, glaucous sedge and *Scorpidium* species were also recorded. | Very High |
| | M11 *Carex demissa-Saxifraga aizoides* mire | - | High | Alkaline fens*** | | A single area of M11 flush was recorded over a relatively large area of exposed rock. Frequent species included common butterwort, round-leaved sundew, common cottongrass, yellow saxifrage, clubmoss and *Scorpidium revolvens*. Glaucous sedge, yellow sedge and spring sedge were also recorded. | Very High |
| | M29 *Hypericum elodes-Potamogeton polygonifolius* soakway | - | High | Transition mires and quaking bogs | | Areas of M29 were recorded along watercourses alone and in mosaics with M23 and M25. Species included bog pondweed, lesser spearwort, marsh marigold, bogbean, marsh pennywort and sedges including carnation sedge and star sedge. | Very High |

| UKHab | NVC community* | Peatland importance[7] | Potential for GWDTE[8] | Annex I[9] habitat | SBL habitat/ LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|---|---|---|
| | M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture | - | High | - | | M23 was recorded along water courses and in wet areas and was recorded alone and in mosaics with M25 and M29. These areas were often dominated by sharp-flowered rush with purple moor-grass and bog myrtle locally abundant. Other species occurred locally frequent - occasional and included: tormentil, marsh willowherb, marsh violet, marsh bedstraw, Yorkshire-fog, spotted orchid, compact rush, *Sphagnum fallax,* meadowsweet, valerian, marsh orchid, marsh pennywort, flea sedge, carnation sedge, star sedge, devil's-bit scabious, spotted orchid, meadow buttercup, sweet vernal grass, horsetail, bog asphodel, star sedge, *Sphagnum capillifolium*, common sorrel and spotted orchid. Areas which contained pools and channels also contained lesser spearwort, common sedge, common cottongrass, bog pondweed and marsh lousewort. | High |
| | S9 *Carex rostrata* swamp | - | - | - | | A bog pool with bog pondweed, bottle sedge, bogbean and bladderwort. | High |
| g1b6 - other upland acid grassland | U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland | - | - | - | - | Acidic grassland was recorded on higher ground amongst the hillsides within the Study Area. The grassland comprised sweet vernal grass, bent grass, Yorkshire-fog, matgrass, viviparous fescue and wavy hair-grass. Other species also included tormentil, heath bedstraw, heather, bell heather, bilberry, woodrush and *Rhytidiadelphus squarrosus*. | Low |

| UKHab | NVC community* | Peatland importance[7] | Potential for GWDTE[8] | Annex I[9] habitat | SBL habitat/ LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|---|---|---|
| g1c - bracken | U20 *Pteridium aquilinum-Galium saxatile* community | - | - | - | - | Several areas around the Study Area were dominated by bracken. | Low |
| h1b - upland heathland<br>h1b5 - dry heaths; upland (H4030) | H10 *Calluna vulgaris-Erica cinerea* heath | - | - | European dry heaths | Upland heathland is mentioned on the LBAP and SBL. | Areas of dry heath were recorded within the Study Area, typically where the gradient is greatest and often had areas of heavily grazed grassland throughout. These areas were dominated by heather whilst abundant species included bell heather, wavy-hair grass, bent grass, purple moor-grass. *Hylocomium splendens* and *Hypnum jutlandicum* were present under the shrubs. Frequent to occasional species include tormentil, sheep's fescue, *Sphagnum capillifolium*, hare's-tail cottongrass, star sedge, bilberry, hard fern, rowan and spruce. Cross-leaved heath was rare. | Medium |
| | H12 *Calluna vulgaris-Vaccinium myrtillus* heath | - | - | | | | Medium |
| h1b - upland heathland<br>h1b6 - wet heathland with cross-leaved heath; upland (H4010) | M15 *Scirpus cespitosus-Erica tetralix* wet heath | Degraded | Moderate | Northern Atlantic wet heaths with Erica tetralix | Upland heathland is mentioned on the LBAP and SBL. | Areas of wet heathland were recorded within the Study Area and were recorded alone and in mosaics with M19 and H12. Some areas recorded as h1b upland heath were degraded and dominated by purple moor-grass which also align with M25 detailed above.<br>These areas were generally dominated by heather and purple moor-grass whilst abundant species comprised cross-leaved heath, deer grass and *Sphagnum* sp. Frequent to occasional species included bog asphodel, tormentil, bell heather, sharp-flowered rush, and devil's-bit | Medium |

| UKHab | NVC community* | Peatland importance[7] | Potential for GWDTE[8] | Annex I[9] habitat | SBL habitat/ LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|---|---|---|
| | | | | | | scabious. Bog myrtle was also recorded in some areas. | |
| r1 - standing open water and canals | Ax (Aquatic community/ open water) | - | - | Natural dystrophic lakes and ponds | Oligotrophic and dystrophic lakes are mentioned on the LBAP and SBL. | An un-named water body is located within the Study Area. | High |
| r2 - rivers and lakes | - | - | - | - | Rivers are mentioned on the LBAP and SBL. | Several un-named watercourses are located within the Study Area. | High |
| u1e - built linear features | - | - | - | - | - | Forestry tracks are present throughout the south of the Study Area. | Low |
| w1e - upland birchwoods | W4 *Betula pubescens-Molinia caerulea* woodland | - | High | Bog woodland | Wet woodland is mentioned on the LBAP and SBL. | Upland birchwoods which align with the W4 community had a canopy dominated by downy birch as well as grey willow and spruce. The understory includes immature downy birch and grey willow and bracken dominated any clearings.<br>Ground vegetation comprised purple moor-grass, *Sphagnum fallax, Sphagnum papillosum*, tormentil, sharp-flowered rush, hawkweed, creeping soft-grass, bilberry, *Hylocomium splendens,* Dicranium species, *Polytricum commune*, violets, hawksbeard, devil's-bit scabious, *Holcus* species, meadow buttercup, bog myrtle and hard fern. | High |

| UKHab | NVC community* | Peatland importance[7] | Potential for GWDTE[8] | Annex I[9] habitat | SBL habitat/ LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|---|---|---|
| | W17 *Quercus petraea-Betula pubescens-Dicranum majus* woodland | - | - | - | Upland birchwoods is mentioned on the LBAP and SBL. | Upland birchwoods which align with the W17 community, located on hillsides and notably drier than W4 birchwoods. The canopy is dominated by downy birch and also contained alder, ash, rowan, grey willow and spruce. The understory comprised bracken in clearings and fringes. Ground flora contained sweet vernal grass, *Holcus* species, *Agrostis* species, wood sorrel, tormentil, hard fern, bilberry, heath bedstraw, rushes, *Dicranium scoparium, Hylocomium splendens, Rhytidiadelphus loreus, Polytrichum commune* and *Shagnum fallax*. | Medium |
| w1h5 - other woodland; mixed; mainly broadleaved | - | - | - | - | - | Mixed woodland was present amongst the coniferous plantation woodland within the Study Area. Species included Douglas fir, Sitka spruce, willow and birch. Ground vegetation comprised white clover, bracken, purple moor-grass, sweet vernal grass, *Sphagnum* species, *Polytrichum commune,* violets, wood sorrel, pignut, woodrush, creeping thistle and meadowsweet. | Medium |
| w2c - other coniferous woodland | CP (Coniferous plantation) / FP (Felled plantation) | - | - | - | - | The Site is surrounded by coniferous woodland to the west, south and east. These plantation woodlands comprised Sitka spruce and larch with occasional grey willow and birch around the edges or within breaks. The ground vegetation was often bare in mature dense stands but comprised heathland vegetation in younger stands. This included heather, soft rush, purple moor-grass, *Sphagnum* species and *Polytrichum commune*. | Low |

| UKHab | NVC community* | Peatland importance[7] | Potential for GWDTE[8] | Annex I[9] habitat | SBL habitat/ LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|---|---|---|

* NVC communities were often recorded as mosaics of multiple communities, as shown on **Figure 10.1.2** (**Annex A**). Therefore, this column indicates what communities broadly align with the UKHab habitat, but it should be noted they were often recorded as mosaics.
** One area of M25 (centre-west) has been assigned HIGH priority for avoidance because it extends around a VERY HIGH area of wet blanket mire (M17) with bog pools and fens (M1, M4, M9, S9) and is likely to functionally support these communities.
*** The flora of M11 aligns to Annex I habitat Alpine pioneer formations of the *Caricion bicoloris-atrofuscae*, however this example occurs at an altitude of ~250m therefore it does not qualify as this 'high' altitude Annex I habitat – instead it is grouped into Annex I Alkaline fen habitat to capture its value.

**Table 3-2 – Access Track Habitat Survey Results**

| UKHab | Annex I habitat | SBL habitat/LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|
| f1a - blanket bog | Blanket bogs (as component); | Blanket bog is is mentioned on the LBAP and SBL. | Areas of blanket bog were recorded in the southern end of the Access Track Study Area. Areas of bare peat were also recorded with no vascular plants and poaching present. The recorded bog was relatively dry bog with shrub and tussock vegetation. There is abundant heather and purple moor-grass, and hare's-tail cottongrass frequent as well as scattered spruce and birch. Additionally, frequent bilberry, cross-leaved heath, tormentil were recorded and frequent *Ploytrichum* commune and *Hylocomium splendens*. *Sphagnum capillifolium* was recorded occasionally. | Very High |
| f2b - purple moor-grass and rush pasture | - | Purple moor grass and rush pasture is mentioned on the LBAP and SBL. | Purple moor-grass and rush pastures were recorded in the southern and northern end of the Access Track Study Area. Sharp flowered rush dominates the habitats with frequent purple moor grass. Additionally, Yorkshire-fog, valerian, marsh bedstraw are abundantly present. Frequently recorded were bog myrtle and occasional hare's-tail cottongrass. | High |
| f2f - other wetlands | - | - | Other wetlands were recorded in two areas, one larger section in the north of the Access Track Study Area and one narrow linear strip amidst felled woodland in the south of the Access Track Study Area. Frequently recorded species include soft rush and devil's-bit scabious. Occasionally recorded species include meadowsweet and common valerian. Rarely present were hawksbeard, marsh thistle, marsh violet, and opposite-leaved golden-saxifrage. | Medium |
| g1c - bracken | - | - | Bracken was recorded as small isolated patched in the north and south of the Access Track Study Area. | Low |
| g3c - other neutral grassland | - | - | Other neutral grassland is the dominant form of habitat in the northern end of the Access Track Study Area. The habitat constitutes abundant sweet vernal grass and nay frequently present species such as meadow buttercup, meadow vetchling, self-heal, and soft rush, occasional red clover and ribwort plantain, and rare orchid sp. and primrose. | Medium |

| UKHab | Annex I habitat | SBL habitat/LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|
| h2a - native hedgerow | - | Hedgerows are mentioned on the LBAP and SBL. | Native hedgerows were recorded in the north of the Access Track Study Area. They are unmanaged hedgerows made of hawthorn and hazel. | High |
| r1a - rivers (priority habitat) | - | Rivers are mentioned on the LBAP and SBL. | Several un-named watercourses are located within the Access Track Study Area. | High |
| r1g - other standing water | - | - | A ditch is located in the north of the Access Track Study Area forming a boundary feature between wetland and grassland. Vegetation recorded within the feature constitutes frequent common valerian, common water-starwort, lesser spearwort marsh marigold, meadowsweet, and soft rush as well as occasional bog pondweed, bog stitchwort and wavy bitter-cress. | Low |
| u1b6 - other developed land<br>u1c - artificial unvegetated - unsealed surface<br>u1d - suburban mosaic of developed and natural surface<br>u1e - built linear features<br>u1e - built linear features | - | - | Various sections of developed land, the majority constituting the existing Forestry and Land Scotland FLS forestry track are scattered throughout the Access Track Study Area. | Low |

| UKHab | Annex I habitat | SBL habitat/LBAP | Description | Avoidance hierarchy |
|---|---|---|---|---|
| w1a - upland oakwood | - | Upland oakwood is mentioned on the LBAP and SBL. | One small and isolated patch of oak woodland is located surrounded by neutral grassland in the north of the Access Track Study Area. The dominant species is oak with an understory frequented by bluebell, bracken, and greater stitchwort. | High |
| w1d - wet woodland | - | Wet woodland is mentioned on the LBAP and SBL. | Large areas of wet woodland were recorded in proximity to water courses in the north and the south of the Access Track Study Area. The habitat is dominated by alder and birch. There is abundant hazel recorded and the understory frequently constitutes common valerian and great wood-rush. | High |
| w1e - upland birchwoods | - | Upland birchwoods is mentioned on the LBAP and SBL. | Birch dominant woodland is located centrally, to the north and to the south of the Access Track Study Area. Other species occasionally recorded were oak and Sitka spruce. The understory was frequented by bluebell and male fern. | High |
| w1g - other broadleaved woodland | - | - | Two small lines of trees were recorded in the north of the Access Track Study Area along the boundary of a field adjacent to the A85. The features were dominated by oak, with occasional sycamore, abundant hazel and birch, alder, rowan and frequent willow. | Medium |
| w2c - other coniferous woodland | - | - | The majority of the Access Track Study Area is covered in coniferous woodland, which form part of a large plantation dominated by Sitka spruce. | Low |

## 3.3 PEATLAND CONDITION ASSESSMENT

3.3.1 Table 3-2 gives the condition of the peatland within the Study Area according to the four PCA categories. Table 3-3 provides an evaluation of the peatland quality within the Study Area. The PCA plan is shown in **Figure 10.1.5** (**Annex A**).

**Table 3-2 – Evaluation of the peatland condition within the Site**

| Peatland Condition Categories | Comment | NVC Communities |
|---|---|---|
| ***Near-Natural:***<br>*Peat forming bog-mosses dominant, with no recent fires, little or no grazing pressure and little or no bare peat, heather is not dominant.* | Small parcels of M17 were recorded within the Site, with a constant cover of Sphagnum mosses comprising *Sphagnum papillosum* and *Sphagnum capillifolium*, as well as bog pool communities. | M17a, M1, M3 |
| ***Modified:***<br>*Bare peat is in small patches, fires may be recent, grazing impacts are evident, bog-mosses are absent or rare, extensive cover of heather or purple moor-grass.* | The great extent of the Site comprises a mosaic of modified blanket bog communities dominated by purple moor grass and ranker heather. | M15, M19/25, M19, M25 |
| ***Drained:***<br>*Within 10m either side of an artificial drain or a revegetated hagg or gully system.* | Drainage ditches were identified in the central and north-eastern parts of the Site, contributing to modification of blanket bog communities. | M19, M25 |
| ***Actively Eroding:***<br>*Actively eroding hagg/gully system, extensive continuous bare peat surfaces.* | Actively eroding bare peat patches are limited and localised within the Site. | M17, M19 |

**Table 3-3 – Evaluation of the peatland quality within the Site**

| Signs | Good | Intermediate | Bad | Site |
|---|---|---|---|---|
| Water | *Plenty of water, visible on the surface.* | *Surface water is rarely visible.* | *Deep gullies have formed from wind and water erosion.* | Surface water is rarely visible within peatland communities across the Site. Bog pools were recorded sporadically, within mire and wet heath vegetation. In places, drainage ditches have further contributed to localised draining. Overall, the Site is considered to be intermediate status. |
| Vegetation | *Small grasses, bog-mosses common and very wet.* | *Taller plants, such as cotton-grasses and heather.* | *Rarely any plants grow on the areas that are exposed. Patches of grasses or heather are still found on 'islands' in between* | Within the Study Area there is localised good quality bog habitats with extensive bog-moss coverage and bog pools; however, the greater extent of the Site comprises intermediate quality vegetation dominated by heather and purple moor-grass. |

| Signs | Good | Intermediate | Bad | Site |
|---|---|---|---|---|
| | | | *exposed bare peat.* | |
| Bare peat | *Little to no bare peat patches.* | *Bare peat patches are occasional, burning may occur.* | *Bare peat areas will continue to expand, leaving less plant cover as protection on the surface. Peat will continue to be lost until the solid rock is exposed.* | Small, localised areas of bare peat were recorded with no vascular plants and poaching present. |
| Water quality | *Water flowing from good quality peatland is clear.* | *Water flowing from peatland likely to be slightly brown, especially after heavy rainfall.* | *Bad quality, it can be dark brown from the peat content.* | Water quality across open areas of the Development Site were found to be running relatively clear. |

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# Annex A

## FIGURES

**FIGURE 10.1.1 – PROPOSED DEVELOPMENT STUDY AREA**

**FIGURE 10.1.2 – UKHAB DEVELOPABLE AREA**

**FIGURE 10.1.3 – NVC SURVEY RESULTS**

**FIGURE 10.1.4 – UKHAB ACCESS TRACK**

**FIGURE 10.1.5 – PEATLAND CONDITION ASSESSMENT**

# Annex B

## SPECIES LIST

**Table B-1 – Species List**

| English name | Scientific name |
|---|---|
| Trees and Shrubs | |
| Alder | *Alnus glutinosa* |
| Ash | *Fraxinus excelsior* |
| Birch | *Betula sp.* |
| Bog myrtle | *Myrica gale* |
| Bramble | *Rubus fruticosus* agg. |
| Douglas fir | *Pseudotsuga menziesii* |
| Grey willow | *Salix cinerea* |
| Hawthorn | *Crataegus monogyna* |
| Hazel | *Corylus avellana* |
| Larch | *Larix decidua* |
| Oak species | *Quercus sp.* |
| Rowan | *Sorbus aucuparia* |
| Sitka spruce | *Picea sitchensis* |
| Sycamore | *Acer pseudoplatanus* |
| Willow species | *Salix sp.* |
| *Plants and Mosses* | |
| Beech fern | *Phegopteris connectilis* |
| Bell heather | *Erica cinerea* |
| Bent grass species | *Agrostis* sp. |
| Black knapweed | *Centaurea nigra* |
| Blaeberry | *Vaccinium myrtillus* |
| Blinks | *Montia fontana* |
| Bluebell | *Hyacinthoides non-scripta* |

| English name | Scientific name |
|---|---|
| Bog asphodel | *Narthecium ossifragum* |
| Bog bean | *Menyanthes sp* |
| Bog pondweed | *Potamogeton polygonifolius* |
| Bog stitchwort | *Stellaria alsine* |
| Bottle sedge | *Carex rostrata* |
| Bracken | *Pteridium aquilinum* |
| Broad-leaved dock | *Rumex obtusifolius* |
| Brooklime | *Veronica beccabunga* |
| Broom forkmoss | *Dicranium scoparium* |
| Bugle | *Ajuga reptans* |
| Bush vetch | *Vicia sepium* |
| Carnation sedge | *Carex panica* |
| Cat's ear | *Hypochaeris radicata* |
| Changing forget-me-not | *Myosotis discolor* |
| Cinquefoil | *Potentilla* sp. |
| Cocksfoot | *Dactylis glomerata* |
| Common butterwort | *Pinguicula vulgaris* |
| Common cottongrass | *Eriophorum angustifolium* |
| Common cow-wheat | *Melampyrum pratense* |
| Common figwort | *Scrophularia nodosa* |
| Common nettle | *Urtica dioica* |
| Common sedge | *Carex nigra* |
| Common sorrel | *Rumex acetosa* |
| Common valerian | *Valeriana officinalis* |
| Common water-starwort | *Callitriche stagnalis* |

| English name | Scientific name |
|---|---|
| Creeping bent | *Agrostis stolonifera* |
| Creeping buttercup | *Ranunculus repens* |
| Creeping soft-grass | *Holcus mollis* |
| Creeping thistle | *Cirsium arvense* |
| Cross-leaved heath | *Erica tetralix* |
| Cuckoo flower | *Cardamine pratensis* |
| Curled dock | *Rumex crispus* |
| Dandelion | *Taraxacum* agg. |
| Deergrass | *Muhlenbergia Rigens* |
| Devil's-bit scabious | *Succisa pratensis* |
| Dog violet | *Viola riviniana* |
| Enchanter's-nightshade | *Circaea lutetiana* |
| Field wood-rush | *Luzula campestris* |
| Flea sedge | *Carex pulicaris* |
| Germander speedwell | *Veronica chamaedrys* |
| Glaucous sedge | *Carex flacca* |
| Great wood-rush | *Luzula sylvatica* |
| Greater bird's-foot trefoil | *Lotus pedunculatus* |
| Greater stitchwort | *Stellaria holostea* |
| Hard fern | *Blechnum spicant* |
| Hare’s-tail cottongrass | *Eriophorum vaginatum* |
| Hawks-beard | *Crepis paludosa* |
| Hawkweed | *Hieracium* sp. |
| Heath bedstraw | *Galium saxatile* |
| Heath milkwort | *Polygala serpyllifolia* |

| English name | Scientific name |
|---|---|
| Heath plait-moss | *Hypnum jutlandicum* |
| Heath rush | *Juncus squarrosus* |
| Heather | *Calluna vulgaris* |
| Herb Robert | *Geranium robertianum* |
| Honeysuckle | *Lonicera periclymenum* |
| Horsetail | *Equisetum* sp. |
| Jointed rush | *Juncus articulatus* |
| Lady fern | *Athyrium filix-femina* |
| Lemon-scented fern | *Oreopteris limbosperma* |
| Lesser celandine | *Ficaria verna* |
| Lesser spearwort | *Ranunculus flammula* |
| Little shaggy-moss | *Rhytidiadelphus loreus* |
| Lousewort | *Pedicularis sp.* |
| Maidenhair spleenwort | *Asplenium trichomanes* |
| Male fern | *Dryopteris filix-mas* |
| Marsh bedstraw | *Galium palustre* |
| Marsh foxtail | *Alopecurus geniculatus* |
| Marsh lousewort | *Pedicularis palustris* |
| Marsh marigold | *Caltha palustris* |
| Marsh orchid | *Dactylorhiza praetermissa* |
| Marsh pennywort | *Hydrocotyle vulgaris* |
| Marsh thistle | *Cirsium palustre* |
| Marsh violet | *Viola palustris* |
| Marsh willowherb | *Epilobium palustre* |
| Mat-grass | *Nardus stricta* |

| English name | Scientific name |
|---|---|
| Meadow buttercup | *Ranunculus acris* |
| Meadow vetchling | *Lathyrus pratensis* |
| Meadowsweet | *Filipendula ulmaria* |
| Moss species | *Polytrichum commune*<br>*Racomitrium lanuginosum*<br>*Scorpidium* sp. |
| Oak fern | *Gymnocarpium dryopteris* |
| Opposite-leaved golden-saxifrage | *Chrysosplenium oppositifolium* |
| Orchid species | *Dactylorhiza* sp. |
| Pignut | *Conopodium majus* |
| Pimpernel | *Anagallis* sp. |
| Polypody | *Polypodium vulgare* |
| Polypody species | *Polypodium sp.* |
| Primrose | *Primula vulgaris* |
| Purple moor-grass | *Molinia caerulea* |
| Ramsons | *Allium ursinum* |
| Red clover | *Trifolium pratense* |
| Reindeer lichen | *Cladonia rangiferina* |
| Ribwort plantain | *Plantago lanceolata* |
| Rosebay willowherb | *Chamerion angustifolium* |
| Scaly male-fern | *Dryopteris affinis* |
| Selfheal | *Prunella vulgaris* |
| Sharp-flowered rush | *Juncus acutiflorus* |
| Sheep’s fescue | *Festuca ovina* |
| Sheep's sorrel | *Rumex acetosella* |

| English name | Scientific name |
|---|---|
| Silverweed | *Potentilla anserina* |
| Skullcap | *Scutellaria galericulata* |
| Soft rush | *Juncus effusus* |
| Sphagnum moss species | *Sphagnum papillosum*<br>*Sphagnum capillifolium*<br>*Sphagnum denticulatum*<br>*Sphagnum revolvens*<br>*Sphagnum cuspidatum*<br>*Sphagnum fallax* |
| Splendid feather moss | *Hylocomium splendens* |
| Spotted orchid | *Dactylorhiza incarnata* |
| Spring sedge | *Carex caryophyllea* |
| Springy turf-moss | *Rhytidiadelphus squarrosus* |
| Star sedge | *Carex echinata* |
| Sweet grass species | *Glyceria* sp. |
| Sweet vernal-grass | *Anthoxanthum odoratum* |
| Thyme-leaved speedwell | *Veronica serpyllifolia* |
| Tormentil | *Potentilla erecta* |
| Tufted-hair grass | *Deschampsia cespitosa* |
| Violet species | *Viola* sp. |
| Viviparous fescue | *Festuca vivipara* |
| Water-pepper | *Persicaria hydropiper* |
| Wavy bitter-cress | *Cardamine flexuosa* |
| Wavy-hair grass | *Deschampsia flexuosa* |
| White clover | *Trifolium repens* |
| Wood anemone | *Anemone nemorosa* |
| Wood sedge | *Carex sylvatica* |

| English name | Scientific name |
|---|---|
| Wood sorrel | *Oxalis acetosella* |
| Woodrush species | *Luzula sp.* |
| Yellow flag iris | *Iris pseudacorus* |
| Yellow sedge | *Carex flava* |
| Yorkshire-fog | *Holcus lanatus* |

110 Queen Street
Glasgow
G1 3BX

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