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Glen Earrach Pumped Storage Hydro

Environmental Impact Assessment Report

Volume 5: Appendices
Appendix 7.3: Habitats

Glen Earrach Energy Ltd

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Quality Information

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Issue History

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1. Introduction

1.1 Habitats

1.1.1 This appendix supports **Chapter 7: Terrestrial Ecology** of the EIAR **(Volume 2: Main Report)**. It sets out the methods and findings of the habitat surveys carried out for the Proposed Development, including information on habitats, National Vegetation Classification (NVC) types, and notable botanical species, which have informed the impact assessment.

1.1.2 This appendix is supported by and should be read in conjunction with the following figures found within **Volume 3: Figures:**

- **Figure 7.3: Sites of Special Scientific Interest, Ancient Woodland and Important Invertebrate Areas**
- **Figure 7.5 – Habitats;**
- **Figure 7.6 – National Vegetation Classification;**
- **Figure 7.7 – Peatland**
- **Figure 7.8 - Notable Plants and Species-rich Habitats; and**
- **Figure 7.9 – Potential Groundwater Dependent Terrestrial Ecosystems.**

1.1.3 This appendix is concerned primarily with terrestrial habitats. Whilst mention is made of NVC types in relation to standing waters, further detail on the macrophyte flora of standing waters, as well as watercourses, is given in **Chapter 9: Aquatic & Marine Ecology** of the EIAR (**Volume 2: Main Report**).

2. Methods

2.1 Nomenclature

2.1.1 Vascular plant species are given their common and scientific names when first referred to and their common names only thereafter. Common names of bryophytes are generally not well-known, and they are referred to by scientific names only. Nomenclature for vascular plants follows Stace (2019)[1] and for bryophytes Atherton *et al*. (2010)[2] unless otherwise stated.

2.1.2 For uniformity, and to avoid potential confusion having two scientific names for one species, where the published NVC community names incorporate out-dated scientific names, they are replaced by current species names.

2.1.3 The term 'NVC type' is commonly used in this appendix for brevity, and can refer to communities or sub-communities.

2.2 Habitat Survey

2.2.1 The NVC survey took place in the periods 17-21 June 2024, 15-19 July 2024, 23-25 July 2024, and 20-24 October 2024. UK Habitat Classification (UKHab)[3] habitats were assigned with reference to the dominant vegetation or occasionally unvegetated habitat (NVC type(s) or non-NVC categories) in each polygon. Point locations of notable vascular plants and bryophytes were also recorded.

2.2.2 Assigned UKHab habitats generally correspond to those set out in UKHab guidance[3]. However, similarly to the Phase 1 habitat system[4], notes were made of dominant, typical and notable plant species, and any other relevant ecological factors, which reflect conditions at the time of survey. Strict adherence to the UKHab methodology permits only one 'primary' habitat to be assigned per polygon, however this is often impractical and an over-simplification in the context of large, complex upland sites, and therefore habitat mosaics have been employed, which consider the dominant NVC types (or occasionally unvegetated habitat) within each polygon. Habitat mosaic categories and symbols have been used as appropriate.

2.2.3 In considering NVC, the normal procedure was followed whereby homogenous vegetation stands are assigned NVC types[5]. Reference was made also to other NVC guidance[6] [7]. Since NVC communities often occur in patches too small to map amongst more extensive communities (especially in upland areas as in this case), or in complexes that cannot be feasibly mapped within a reasonable timescale, NVC polygons were mostly described as mosaics in the standard way, with estimated proportions of mosaic components. Rarely, vegetation considered intermediate between two NVC types was recorded as a transitional type using a hyphen between the two NVC codes. Vegetation not corresponding to a community in the NVC volumes (in particular, non-native plantation woodland) was assigned a unique code (defined further below). If habitats lacked vegetation, a brief descriptive term was given (e.g. 'Open water').

2.2.4 Identification of NVC types was by experienced professional judgement with cognisance of the above-referenced NVC guidance.

[1] Stace, C. (2019). New Flora of the British Isles, 4th edition. C&M Floristics.
[2] Atherton, I., Bosanquet, S., and Lawley,M. (2010). Mosses and Liverworts of Britain and Ireland – a Field Guide. British Bryological Society.
[3] UKHab Ltd (2023). UK Habitat Classification Version 2.0 (https://www.ukhab.org)
[4] Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough.
[5] Rodwell, J.S. (ed.) (1991a). British Plant Communities Volume 1 Woodlands and Scrub. Cambridge University Press, Cambridge.
Rodwell, J.S. (ed.) (1991b). British Plant Communities Volume 2 Mires and Heaths. Cambridge University Press, Cambridge.
Rodwell, J.S. (ed.) (1992). British Plant Communities Volume 3 Grassland and Montane Communities. Cambridge University Press, Cambridge.
Rodwell, J.S. (ed.) (1995). British Plant Communities Volume 4 Aquatic Communities, Swamps and Tall-herb Fens. Cambridge University Press, Cambridge.
Rodwell, J.S. (ed.) (2000). British Plant Communities Volume 5 Maritime Communities and Vegetation of Open Habitats. Cambridge University Press, Cambridge.
[6] Averis, A.M., Averis, A.B.G., Birks, H.J.B., Horsfield, D., Thompson, D.B.A. and Yeoman J.M. (2004). An Illustrated Guide to British Upland Vegetation. Joint Nature Conservation Committee, Peterborough.
[7] Hall, J.E., Kirby, K.J. and Whitbread, A.M. (2004). National Vegetation Classification: Field guide to woodland. JNCC, Peterborough.

2.2.5 Aerial photography and contour data were used during the field survey, along with a GPS unit and/or GPS-enabled tablet operating Esri Field Maps loaded with recent aerial photography, to maximise survey accuracy.

2.3 Habitat Condition

2.3.1 Where habitats were considered to have failed Defra Statutory Metric condition criteria[8], this was noted. However, these criteria are not always suitable for upland Scotland and the following amendments were made:

- The bare ground criterion for grassland and heathland (1-5% and 1-10% bare ground respectively) is not appropriate because it requires a minimum of 1% bare ground, which (at least for Scottish grasslands and heaths) would often be a negative feature indicative of adverse management such as physical damage (as can result from livestock pressure) or burning. This criterion has therefore been treated as 0-5% and 0-10% bare ground for grassland and heathland respectively (i.e. no bare ground is acceptable). This aligns with JNCC Common Standards Monitoring[9] criteria as employed for the assessment of Sites of Special Scientific Interests (SSSIs) and Special Areas of Conservation (SACs), which similarly state 0-5% or 0-10% bare ground;
- For heathland, especially where an NVC survey has produced numerous polygons of limited extent, it is not appropriate to expect that every NVC polygon would contain all the heather *Calluna vulgaris* age classes required by Criterion C. A hillside or management area might satisfy this criterion whilst individual NVC polygons within it do not. Additionally, it is not uncommon for heather (*Calluna*) to be present at low cover or absent in wetter forms of wet heath, and some dry heaths may also lack heather (e.g. H18 heath). Consequently, Criterion C for heathland has been taken as satisfied for individual NVC polygons unless there is evidence that the wider hillside or other larger management area clearly exhibits a lack of pioneer, mature or degenerate heather;
- For heathland, for the purposes of Criterion G, 'heather' is considered to mean any heather species. Moreover, if heather was deemed naturally sparse within an area of heath (as is the case in some flushed wet heath), then the part of Criterion G requiring "at least frequent heather" is considered to have passed;
- Some condition criteria consider floristic features such as scrub, bracken, and bare ground, which can be negative features if their cover is high. However, whether or not their cover causes failure of the relevant criteria is affected by the level of mapping detail: if small patches of bracken or scrub are separated out in a detailed fashion, a grassland or heathland polygon might not fail this criterion, but alternatively could fail it if it was not feasible in a reasonable timescale to separately map out small bracken and scrub patches. A practical approach was taken, and the following assumptions were made:
  - where NVC polygons dominated by heathland or grassland contain percentages of U20 or W25 bracken stands, those percentages were taken into account when considering bracken limits in Criteria D for grassland and Criteria J for heathland. Where bracken proportions are high, professional judgement condition was used to rate as Moderate even if no other criteria were deemed to have failed;
  - however, where natural bare rock is present as a percentage of an NVC polygon (as can occur in mountainous areas), it has been treated as separate from anything else within the same polygon, and was not taken as a negative factor contributing to bare ground;

2.3.2 For peatland habitats (here comprising primarily blanket bog and wet heath), condition as per Peatland Action peatland categories[10] were also assigned. Habitat polygons comprising less than 50% peatland were assigned to a non-peatland category. The peatland categories of 'Eroding: hagg and gully' and 'Flat bare peat' were mapped with the aid of aerial photography. A 30 m buffer was applied to these to give the 'Drained' category (as per Peatland Action guidance, this included peatland habitats on interpolated peat depths down to 0.3 m depth). Local wet sphagnum-rich areas were assigned the 'Near natural' category. Bog not falling into these categories was dominated by drier forms and was assigned to the 'Modified' Peatland Action category. The latter included M15 (rarely M25; M16 was very rarely recorded) where this was found to overlap interpolated peat depths of 0.3 m or more (as per Peatland Action guidance[9]), except where a) the proportion of M15 in the polygon was 10% or less and considered to represent small areas of genuine wet heath on rocky knolls within the bog (the terrain is often

[8] Natural England (2023). Biodiversity Metric 4.0 – Technical Annex 1: Condition Assessment Sheets and Methodology. (https://publications.naturalengland.org.uk/publication/6049804846366720)
[9] JNCC (2019). Common Standards Monitoring guidance. https://jncc.gov.uk/our-work/common-standards-monitoring-guidance/
[10] NatureScot (2016). Peatland Condition Assessment. https://www.nature.scot/sites/default/files/2023-02/Guidance-Peatland-Action-Peatland-Condition-Assessment-Guide-A1916874.pdf

topographically varied in this way), or b) the polygon in question was genuine flush/fen rather than blanket bog (some M15a and M25a);

2.4 Data processing

2.4.1 Data gathered in the field were refined as appropriate in Esri ArcGIS, with reference to current aerial imagery. Validation checks were carried out on the GIS data to ensure consistency and rectify any overlaps. Mosaics were recorded within the GIS data in the standard way, with NVC types separated by slashes in one attribute, and respective proportions separated by slashes in a separate attribute;

2.4.2 For habitat calculations, the validated GIS data were exported to spreadsheet format, the NVC mosaic components and respective proportions were separated, and pivot tables were then used to obtain areas of habitats and NVC types, including areas of habitat that would be lost (permanently or temporarily) or potentially indirectly modified (permanently or temporarily, using a 30 m buffer).

2.5 Limitations

2.5.1 The survey extent of habitat / NVC survey is as shown by the extent of mapped habitats on **Figure 7.5 Habitats** and **Figure 7.6 National Vegetation Classification (Volume 3: Figures)**. The original survey extent generally encompassed a large buffer around infrastructure of 500 m, to minimise risk of insufficient survey extent if infrastructure components were significantly moved during design iterations. Subsequently, the existing Euroforest track in the north east of the survey extent was dropped as an access route, new access routes from the north via Forestry and Land Scotland (FLS) land and new compounds were added, and there were other design adjustments. The precise design of the Proposed Development necessarily evolved over the course of and beyond the survey periods, and was not finalised until December 2024. Part of the north eastern survey therefore became less relevant, although it has still been included to inform habitat assessment and compensation / enhancement. For the new access tracks from the north, further survey was carried out within an intended survey buffer of at least 250 m (excluding the northern-most section that passes through FLS conifer plantation, which uses existing large forestry tracks). However, the following points should be noted, which for the reasons given are considered minor and would not detract from assessment of habitat impacts:

- The northwards survey buffer for a relatively short stretch of the northern access route (approximately 800 m) is less than 250 m; however, at the very narrowest the survey buffer is no less than 125 m, which is beyond the extent of possible habitat degradation, through hydrological impact for shallow excavations (taken as 100 m for potential groundwater dependent terrestrial ecosystems (GWDTE), and 30 m for potential drying effects on retained blanket bog through which access tracks pass);
- The survey buffer around the compounds beside the northern access route near the River Coiltie is less than 250 m to the west/south west, however the buffer here is still at least 125 m, and moreover the ground rises rather steeply uphill in these directions such that hydrological impact from compound construction in those directions is not possible;
- For parts of the western / southern survey area along the lower section of the Alltsigh access track, the survey buffer was dropped to approximately 200 m. This was largely because habitats to the south/west in these areas are mainly on the other side of significant watercourses, such that hydrological impact is impossible, and also because this access route was subsequently stated to be intended for use by small vehicles only (i.e. 4x4 cars) with no significant works to the track or significant alteration to its current course.

2.5.2 Where habitat edges are sharp and coincide with features on base mapping or aerial photography that are considered correct, their placement is based on the accuracy of that data in GIS. Otherwise, habitat edges are best estimates as judged in the field. Note also that habitat transitions can be gradual without sharp boundaries. Habitat mapping and stated habitat areas are necessarily subject to these limitations

2.5.3 Baseline conditions are increasingly liable to change with further elapsed time since field survey. However, it is unlikely that significant changes to baseline habitats would occur prior to construction in this primarily upland location.

3. Recorded Habitats and NVC Types

3.1.1 **Figure 7.5: Habitats** shows the recorded habitats by the UKHab classification. **Figure 7.6: National Vegetation Classification** shows the recorded NVC types. **Figure 7.7: Peatland** shows the Peatland Action categories of peatland. **Figure 7.8: Notable Plant and Species-Rich Habitats** shows notable plant and habitat features. **Figure 7.9: Potential GWDTE (Volume 3: Figures)** shows potential GWDTE.

3.1.2 The recorded NVC communities and sub-communities are listed below with their full names, grouped into habitat types, with brief descriptive comments in brackets, and indication of ***Annex I habitats*** where applicable. However, for the sake of brevity only the NVC codes (e.g. 'M19') are stated in this appendix after this section. Where no NVC sub-community is stated, either a) there are no published sub-communities, or b) the recorded vegetation was not considered a good fit to the published sub-communities or considered intermediate, or c) the vegetation was of low ecological value and low priority and not closely inspected (e.g. most bracken) or was not able to be closely inspected.

3.1.3 Underlined NVC types below are the principal and most abundant vegetation types in the survey area. [Square brackets] indicates that the NVC type was recorded but does not occur within the footprint of the Proposed Development nor a 30 m buffer beyond it.

- **Blanket bog** (UKHab f1a Blanket bog) (constitutes ***Annex I H7130***):
  - **M1** *Sphagnum auriculatum* bog pool;
  - **M2** *Sphagnum cuspidatum/fallax* bog pool;
  - **M3** *Eriophorum angustifolium* bog pool;
  - **M15c*** – with asterisk = M15c vegetation seen in field to be on deep peat = degraded blanket bog;
  - **M17** *Trichophorum germanicum-Eriophorum vaginatum* blanket mire (wetter oceanic bog):
    - **M17a** *Drosera rotundifolia-Sphagnum* sub-community (wettest oceanic bog, with the most sphagnum, and at this site (where it occurs) the most common location for *Sphagnum austinii*);
    - [**M17a Clas** – notable form of M17a with slender sedge *Carex lasiocarpa*];
    - **M17b** *Cladonia* sub-community (less wet oceanic bog, in places gullied);
    - [**M17c** *Juncus squarrosus-Rhytidiadelphus loreus* sub-community (very rarely recorded)];
  - [**M17-M19** transitional blanket bog];
  - **M19** *Calluna vulgaris-Eriophorum vaginatum* blanket mire (drier boreal bog):
    - **M19a** *Drosera rotundifolia-Sphagnum* sub-community (effectively a transition towards M17);
    - **M19b** *Empetrum nigrum* spp. *nigrum* sub-community (typical drier boreal bog);
    - **M19c** *Vaccinium vitis-idaea-Hylocomium splendens* sub-community (higher altitude, cowberry *Vaccinium vitis-idaea*, in places dwarf birch *Betula nana*/cloudberry *Rubus chamaemorus*);
  - **M20** *Eriophorum vaginatum* blanket and raised mire (degraded bog):
    - **M20b** *Calluna vulgaris-Cladonia* sub-community (degraded bog probably derived from M19);
  - [**M25a*** - with asterisk = M25a vegetation seen in field to be on deep peat = degraded blanket bog];
  - [**Eang** – indicates non-NVC montane common cotton-grass *Eriophorum angustifolium*];
  - **Peat** – indicates bare peat;
- **Flush and fen** (UKHab f2c Upland flushes, fens and swamps) (the basic flushes are ***Annex I H7230***):
  - [**M4** *Carex rostrata-Sphagnum fallax* mire (acid bottle sedge *Carex rostrata*, closely allied to M6)];
  - **M6** *Carex echinata-Sphagnum fallax/denticulatum* mire (acid and typically species-poor flush):
    - **M6a** *Carex echinata* sub-community (typical acid flush with small sedges);
    - **M6b** *Carex nigra-Nardus stricta* sub-community (more grassy acid flush);
    - **M6c** *Juncus effusus* sub-community (soft-rush *Juncus effusus* acid flush);

        - **M6d** *Juncus acutiflorus* sub-community (sharp-flowered rush *Juncus acutiflorus* acid flush);
        - [**M6 Ev** – indicates a form of M6 with abundant hare's-tail cottongrass;]
        - [**M6w** – indicates a particularly wet form of M6;]
    - **M10** *Carex dioica-Pinguicula vulgaris* mire (basic species-rich flush, constituting ***Annex I H7230***):
        - **M10a** *Carex viridula* spp. *oedocarpa-Juncus bulbosus* sub-community;
    - [**M1-M10** – indicates vegetation transitional between M1 bog pool and M10 basic flush];
    - **M11** *Carex demissa-Saxifraga aizoides* mire (higher altitude basic flush, also ***Annex I H7230***)
    - [**M17-M4** – indicates vegetation transitional between M17 bog and M4 mire];
    - **M17-M6** – indicates vegetation transitional between M17 bog and M6 flush;
    - [**M17-S9** – indicates vegetation transitional between M17 bog and S9 swamp];
    - **M29** *Hypericum elodes-Potamogeton polygonifolius* soakway (very wet vegetation of water channels);
    - [**MX** – indicates neutral sedge mire (neither acid M6 nor basic M10/11)];
- **Wet heath** (UKHab h2b Upland Heathland) (all ***Annex I H4010***, but widespread in the region/Highlands):
    - **M15** *Trichophorum germanicum-Erica tetralix* wet heath:
        - **M15a** *Carex panicea* sub-community (flushed wet heath, more species-rich and sometimes with at this site supporting notable species);
        - **M15b** Typical sub-community (typical wet heath, often rather species-poor);
        - **M15c** *Cladonia* sub-community (higher altitude, more open and generally more rocky, with frequent *Cladonia* spp. and/or *Racomitrium lanuginosum*);
        - [**M15d** *Vaccinium myrtillus* sub-community];
        - [**M16b** *Succisa pratensis-Carex panicea* sub-community – very rarely recorded];
- **Dry heath** (UKHab Upland Heathland) (all ***Annex I H4030***, but widespread in the region/Highlands):
    - **H10** *Calluna vulgaris-Erica cinerea* heath:
        - **H10a** Typical sub-community (typical and rather species-poor);
        - **H10b** *Racomitrium lanuginosum* sub-community (higher altitude and more open);
        - [**H10c** *Festuca ovina-Anthoxanthum odoratum* sub-community (grazed and more open / grassy)];
        - **H10d** *Thymus drucei-Carex pulicaris* sub-community (basic and species-rich);
    - **H10-12** – vegetation transitional between H10 and H12 (i.e. with both frequent bell heather *Erica cinerea* and bilberry *Vaccinium myrtillus*, as well as heather *Calluna vulgaris*);
    - **H12** *Calluna vulgaris-Vaccinium myrtillus* heath:
        - **H12a** Typical sub-community (typical and rather species-poor;
        - **H12b** *Vaccinium vitis-idaea-Cladonia portentosa* sub-community (higher altitude with cowberry);
        - **H12c** *Galium saxatile-Festuca ovina* sub-community (more grazed, more open/grassy);
        - **H12HR** – herb-rich H12 with similar species to adjacent species-rich grassland.
    - **H13** *Calluna vulgaris-Cladonia arbuscula* heath (prostrate heather/lichen);
    - **H14** *Calluna vulgaris-Racomitrium lanuginosum* heath (prostrate heather/moss);
    - **H16** *Calluna vulgaris-Arctostaphylos uva-ursi* heath (heather/bearberry *Arctostaphylos uva-ursi*);
    - **H17** *Calluna vulgaris-Arctostaphylos alpinus* heath (heather/arctic bearberry *Arctostaphylos alpinus*);
    - [**H18** *Vaccinium myrtillus-Deschampsia cespitosa* heath]:
        - [**H18a** *Hylocomium splendens-Rhytidiadelphus loreus* sub-community];
    - **H21** *Calluna-vulgaris-Vaccinium myrtillus-Sphagnum capillifolium* heath (shady/damp heather):

        - **H21a** *Calluna vulgaris-Pteridium aquilinum* sub-community;
    - [**H22** *Vaccinium myrtillus-Rubus chamaemorus* heath];
    - [**HX** – bilberry *Vaccinium myrtillus* heath with sphagnum that does not well-fit published NVC types];
- **Marsh/marshy grassland** (UKHab f2b Purple Moor-Grass and Rush-Pasture, except species-poor acid soft rush and purple moor-grass which are assigned to UKHab g1b Upland Acid Grassland):
    - [**M23** *Juncus effusus/Juncus acutiflorus-Galium palustre* rush-pasture (neutral rushy wetland)];
        - [**M23a** *Juncus acutiflorus* sub-community];
        - [**M23b** *Juncus effusus* sub-community – localised];
        - [**Je** – indicates *Juncus effusus* with acid grassland flora];
    - **M25** *Molinia caerulea-Potentilla erecta* mire (swards of purple moor-grass *Molinia caerulea*);
        - **M25a** *Erica tetralix* sub-community (acid and probably often derived from wet heath);
        - [**M25b** *Anthoxanthum odoratum* sub-community (more grassy)];
        - **M25c** *Angelica sylvestris* sub-community (allied to M23 with neutral wetland herbs);
        - **M25aMM** – M25a with especially abundant bog myrtle *Myrica gale*;
- **More species-rich/basic grassland** (UKHab g2b Upland Calcareous Grassland) (***Annex I H6230***):
    - [**CG10** *Festuca ovina-Agrostis capillaris-Thymus drucei* grassland (species-rich basic grassland)]:
        - [**CG10a** *Trifolium repens-Luzula campestris* sub-community (typical)];
        - [**CG10b** *Carex pulicaris-Carex panicea* sub-community (damp)];
    - **U4** *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland:
        - **U4c** *Lathyrus linifolius-Stachys officinalis* sub-community;
    - **U5** *Nardus stricta-Galium saxatile* grassland
        - **U5c** *Carex panicea-Viola riviniana* sub-community;
    - [**U6r** – indicates species-rich heath rush *Juncus squarrosus* vegetation];
- **Acid grassland** (UKHab g1b Upland Acid Grassland) (species-rich / basic forms are in the group above):
    - **U4** *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland (typical lower altitude acid grassland):
        - **U4a** Typical sub-community;
        - [**U4b** *Holcus lanatus-Trifolium repens* sub-community (more mesophytic)];
    - **U5** *Nardus stricta-Galium saxatile* grassland (allied to U4 but with abundant mat-grass *Nardus stricta*):
        - [**U5a** Typical sub-community (species-poor)];
        - [**U5b** *Agrostis canina-Polytrichum commune* sub-community (damp with mosses)];
    - **U6** *Juncus squarrosus-Festuca ovina* grassland:
        - [**U6a** *Sphagnum* sub-community];
        - **U6d** *Agrostis capillaris-Luzula multiflora* sub-community;
- **Neutral grassland** (UKHab g3c Other neutral grassland):
    - [**MG1** *Arrhenatherum elatius* grassland (coarse unmanaged neutral grassland)];
    - [**MG6** *Lolium perenne-Cynosurus cristatus* grassland (poor agriculturally-improved grassland)]:
        - [**MG6a** Typical sub-community];
    - [**MG10** *Holcus lanatus-Juncus effusus* rush-pasture (species-poor rushy pasture)]:
        - [**MG10a** Typical sub-community];
- **Ferns and species-rich rocky ledge** (UKHab s1a Inland Rock and Scree Habitats (for U17 constituting ***Annex I H6430***) and g1c Bracken):

  - [**U17** *Luzula sylvatica-Geum rivale* tall-herb community];
  - **U20** *Pteridium aquilinum-Galium saxatile* fern community (dense bracken *Pteridium aquilinum*):
    - **U20a** *Anthoxanthum odoratum* sub-community;
    - **U20b** *Vaccinium myrtillus-Dicranum scoparium* sub-community;
    - [**U20sr** – indicates notably species-rich bracken].
- **Wet woodlands** (UKHab w1d Wet Woodland):
  - [**W4** *Betula pubescens-Molinia caerulea* woodland (acid wet downy birch *Betula pubescens*)]:
    - [**W4b** *Juncus effusus* sub-community];
    - [**W4y** – indicates young planted downy birch over purple moor-grass, heather, etc.];
  - [**W7** *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum* woodland (neutral wet woodland)]:
    - [**W7b** *Carex remota-Cirsium palustre* sub-community (flushed neutral wet woodland)];
- **Dry woodlands/scrub** (UKHab w1b Upland Mixed Ashwood (of which some W9 constitutes ***Annex I H9180***), w1e Upland Birchwood, w2a/b Native and Other Scots pine woodland, h3d Bramble Scrub, h3e Gorse Scrub):
  - **W9** *Fraxinus excelsior-Sorbus aucuparia-Mercurialis perennis* woodland (basic dry woodland):
    - **W9a** Typical sub-community;
  - **W11** *Quercus petraea-Betula pubescens-Oxalis acetosella* woodland (acid non-heathy woodland);
    - **W11c** *Anemone nemorosa* sub-community;
    - **W11d** *Stellaria holostea-Hypericum pulchrum* sub-community;
  - **W17** *Quercus petraea-Betula pubescens-Dicranum majus* woodland (acid heathy woodland):
    - **W17b** Typical sub-community;
    - **W17c** *Anthoxanthum odoratum-Agrostis capillaris* sub-community;
  - [**W18** *Pinus sylvestris-Hylocomium splendens* woodland];
  - [**W23** *Ulex europaeus* scrub];
  - [**W24** *Rubus fruticosus-Holcus lanatus* scrub (grassy bramble *Rubus fruticosus* agg. scrub)];
  - [**W25** *Rubus fruticosus-Pteridium aquilinum* scrub (bramble *Rubus fruticosus* agg. with bracken)];
  - **Non-NVC plantation codes: Scots pine, CP, CPfell, CPy** – these indicate coniferous plantations of Scots pine, non-native conifers, felled conifers and young conifers respectively;
- **Swamps** (UKHab f2c Upland Flushes, Fens and Swamps):
  - [**S4** *Phragmites australis* swamp and reedbed (species-poor common reed *Phragmites australis*;]
  - [**S9** *Carex rostrata* swamp (species-poor bottle sedge):
    - [**S9a** *Carex rostrata* sub-community];
  - **S10** *Equisetum fluviatile* swamp (species-poor water horsetail *Equisetum fluviatile*:
    - **S10a** *Equisetum fluviatile* sub-community;
  - [**Clas** – non-NVC swamp of slender sedge];
  - [**Meny** – non-NVC dense bog-bean *Menyanthes trifoliata* in water;]
  - [**Jartic** – non-NVC articulated rush *Juncus articulatus* in water];
- **Aquatic communities** (UKHab r1c Oligotrophic and Dystrophic Lakes):
  - [**A7** *Nymphaea alba* community (white water-lily *Nymphaea alba* in water];
    - [**A7a** species-poor sub-community];
  - [**A9** *Potamogeton natans* community (broad-leaved pondweed *Potamogeton natans* in water)];

- **Ruderal ('weed') and non-vegetation codes** (including UKHab s1a Inland Rock Outcrop and Scree Habitats, and 'u' Urban categories):
  - [**OV27** *Chamaenerion angustifolium* community (rosebay willowherb *Chamaenerion angustifolium*)];
  - **OW/RW/Rock pebble** – open water, running water and rock/pebble substrate beside Loch Ness;
  - **Rock/Scree** – significant areas of rock/scree (the scree is montane and constitutes ***Annex I H8110***);
  - **Track/Quarry/Road/Dam/Built-up/Private** – generally self-explanatory. 'Dam' indicates existing hydroelectric small dams; 'Private' indicates private houses and associated gardens.

4. Impacted Habitat Extents

4.1.1 **Table 4-1** and **Table 4-2** present the areas of habitats and NVC types that would be lost, are located within an indirect modification buffer (30 m of all constructed infrastructure), or retained. The loss and modification areas are split into the Construction and Pre-construction and Enabling Phases. The final columns indicate the total areas of each habitat or NVC type within the entire survey area.

4.1.2 **Table 4-2** includes forms of M15 and M25 with double-asterisks under the blanket bog category. These are M15 wet heath and M25 purple moor-grass that were found to be on interpolated peat depths of 0.5 m or more and were therefore treated as blanket bog (except where the percentage contribution was 10% or less, in which case it was considered genuine wet heath on knolls within the blanket bog, a common topographical feature in the survey area, or where the M15/M25 was considered to be flush/fen rather than blanket bog).

Table 4-1 Areas (ha) of habitats that would be a) lost, b) within indirect modification buffer, c) retained. 'Temp' = Temporary; 'Perm' = Permanent'.

	Construction Phase					Pre-construction and Enabling Phase					Retained	Whole Survey Area
Habitat	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.		
Dry heath	-	0.082	9.439	2.203	0.085	0.435	0.731	0.023	0.258	0.070	143.973	161.077
Montane heath	-	0.003	0.402	0.136	0.006	-	-	-	-	-	7.764	8.449
Wet heath	0.019	1.467	16.351	27.628	1.397	16.341	4.790	2.767	6.139	2.718	754.279	834.307
Bog	0.114	1.757	81.107	32.573	1.342	2.889	1.720	0.242	2.689	0.707	694.061	821.903
Transition mire	-	-	-	-	-	-	0.001	-	-	-	0.123	0.124
Flush/fen	-	-	0.090	0.005	-	-	-	-	-	-	4.320	4.421
Poor purple moor-grass	-	0.009	1.598	0.207	0.006	-	-	-	0.047	-	9.035	10.901
Rich purple moor-grass	-	-	-	0.004	-	-	-	-	-	-	0.059	0.063
Neutral rush wetland	-	-	-	-	-	-	-	-	-	-	1.190	1.190
Species-rich dry grassland	-	-	0.851	0.020	-	-	-	-	-	-	2.583	3.700
Acid grassland	-	0.003	0.148	0.049	0.002	-	-	-	-	-	18.149	18.351
Neutral grassland	-	-	-	-	-	-	-	-	-	-	1.732	1.732

	Construction Phase					Pre-construction and Enabling Phase					Retained	Whole Survey Area
Habitat	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.		
Bracken	-	-	-	-	-	0.115	0.190	0.017	0.210	0.145	79.588	80.265
Species-rich bracken	-	-	-	-	-	-	-	-	-	-	0.364	0.364
Species-rich ledge	-	-	-	-	-	-	-	-	-	-	0.019	0.020
Wet acid woodland	-	-	-	-	-	-	-	-	-	-	3.745	3.745
Wet neutral woodland	-	-	-	-	-	-	-	-	-	-	0.686	0.686
Basic woodland	-	-	-	-	-	-	-	-	-	-	5.678	5.678
Acid grassy woodland	-	-	-	-	-	-	0.002	-	0.013	-	22.335	22.351
Acid heathy woodland	-	-	0.009	-	-	0.006	0.157	0.088	1.300	0.115	45.469	47.145
Heathy Scots pine	-	-	-	-	-	-	-	-	-	-	25.174	25.174
Non-W18 Scots pine	-	-	-	-	-	-	-	-	-	-	0.174	0.174
Non-native plantation	-	-	-	-	-	-	0.002	-	0.034	-	533.981	534.017
Scrub	-	-	-	-	-	-	-	-	-	-	1.919	1.919
Swamp	-	-	0.066	-	-	-	-	-	-	-	1.849	1.915
Aquatic vegetation	-	-	-	-	-	-	-	-	-	-	0.025	0.025
Open water	-	-	24.155	-	-	-	-	-	-	-	115.653	139.808
Main rivers	-	-	-	-	-	-	0.002	0.002	0.031	0.002	1.798	1.834
Ruderal vegetation	-	-	-	-	-	-	-	-	-	-	0.018	0.018
Rock/scree	0.001	0.052	0.208	0.839	0.051	0.002	0.008	0.002	0.021	0.004	22.015	23.681
Quarry	-	-	-	-	-	-	-	-	-	-	0.311	0.311
Track	-	-	0.004	0.076	-	-	0.003	0.008	0.085	0.006	18.568	18.750
Built-up/private	-	-	-	-	-	-	-	-	-	-	3.493	3.493
Total	**0.134**	**3.374**	**134.428**	**63.740**	**2.889**	**19.787**	**7.607**	**3.149**	**10.828**	**3.766**	**2520.126**	**2777.590**

Table 4-2: Areas (ha) of NVC types that would be a) lost, b) within indirect modification buffer, c) retained. 'Temp' = Temporary; 'Perm' = Permanent'.

Note that woodland NVC types in this table with the suffix 'y' indicate young woodland.

		Construction Phase					Pre-construction and Enabling Phase						
Habitat	NVC	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Retained	Whole Survey Area
Dry heath	H10	-	-	-	0.043	-	-	-	-	-	-	3.189	3.232
	H10-12	-	0.001	-	0.004	-	-	-	-	-	-	2.414	2.419
	H10-12a	-	-	-	-	-	-	-	-	-	-	0.262	0.262
	H10a	-	-	-	0.003	-	0.004	0.008	0.002	0.025	0.017	20.485	20.546
	H10a-12a	-	0.001	0.233	0.012	-	-	-	-	-	-	2.856	3.103
	H10a-12b	-	-	-	-	-	-	-	-	-	-	3.020	3.020
	H10a-H12a	-	-	-	-	-	-	-	-	-	-	0.120	0.120
	H10b	-	0.002	0.018	0.149	0.001	-	-	-	-	-	9.426	9.935
	H10b-12b	-	-	-	-	-	-	-	-	-	-	0.221	0.221
	H10c	-	-	-	-	-	-	-	-	-	-	6.618	6.618
	H10d	-	-	0.001	0.003	-	-	-	-	-	-	4.459	4.463
	H12a	-	-	3.132	0.056	-	-	-	-	-	-	8.665	12.900
	H12b	-	0.008	0.021	0.205	0.007	-	-	-	-	-	9.867	10.445
	H12b-H10	-	-	0.161	0.133	-	-	-	-	-	-	0.078	0.431
	H12c	-	0.001	0.001	0.016	0.001	-	-	-	-	-	4.234	4.252
	H12c-U5c	-	-	-	-	-	-	-	-	-	-	0.243	0.243
	H12HR	-	-	1.608	0.030	-	-	-	-	-	-	0.862	3.054
	H21	-	0.001	0.152	0.188	0.002	-	-	-	-	-	2.853	3.206
	H21a	-	0.067	4.112	1.362	0.074	0.431	0.723	0.021	0.233	0.053	63.553	72.061
	H22	-	-	-	-	-	-	-	-	-	-	0.089	0.089
	HX	-	-	-	-	-	-	-	-	-	-	0.456	0.456

		Construction Phase					Pre-construction and Enabling Phase						
Habitat	NVC	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Retained	Whole Survey Area
Montane heath	H13	-	0.001	0.005	0.034	0.002	-	-	-	-	-	3.780	3.822
	H14	-	0.001	0.005	0.035	0.002	-	-	-	-	-	1.696	1.739
	H16	-	0.001	0.035	0.059	0.001	-	-	-	-	-	1.703	1.814
	H17	-	-	-	0.001	-	-	-	-	-	-	0.006	0.007
	H18	-	-	-	-	-	-	-	-	-	-	0.387	0.387
	H18a	-	-	0.357	0.007	-	-	-	-	-	-	0.191	0.679
Wet heath	M15	-	-	-	-	-	0.001	0.812	-	-	-	0.551	1.364
	M15a	-	0.024	0.507	1.428	0.018	0.166	0.064	0.012	0.069	0.029	57.786	60.105
	M15a Clas	-	-	-	0.010	-	-	-	-	-	-	0.097	0.107
	M15b	-	0.084	1.209	2.588	0.091	12.455	2.736	1.136	3.055	1.861	258.551	283.767
	M15c	0.019	1.360	14.635	23.603	1.288	3.718	1.178	1.619	3.014	0.827	436.346	488.016
	M15d	-	-	-	-	-	-	-	-	-	-	0.164	0.164
	M16b	-	-	-	-	-	-	-	-	-	-	0.785	0.785
Blanket bog	M1	-	-	0.028	0.019	-	-	-	-	-	-	0.138	0.187
	M1-M10	-	-	0.001	0.004	-	-	-	-	-	-	-	0.007
	M2	-	-	0.051	0.020	-	-	-	-	0.002	-	0.335	0.412
	M3	-	-	0.305	0.012	-	-	-	-	-	-	0.202	0.519
	M17	-	0.017	0.045	0.381	0.012	-	-	-	-	-	25.779	26.234
	M17-19	-	-	-	-	-	-	-	-	-	-	2.695	2.695
	M17-19a	-	-	-	-	-	-	-	-	-	-	0.195	0.195
	M17a	-	0.115	7.869	2.072	0.099	0.007	0.044	0.007	0.086	0.018	53.947	64.313
	M17a Clas	-	-	-	0.006	-	-	-	-	-	-	0.198	0.204
	M17b	-	0.232	32.596	8.149	0.168	0.837	0.173	0.079	0.693	0.420	137.609	181.715

		Construction Phase					Pre-construction and Enabling Phase						
Habitat	NVC	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Retained	Whole Survey Area
	M17c	-	-	-	-	-	-	-	-	-	-	0.088	0.088
	M19	-	0.008	1.071	0.379	0.003	-	0.096	-	-	-	2.442	3.999
	M19a	0.043	0.438	11.948	6.216	0.350	0.535	0.120	0.029	0.256	0.067	277.485	297.786
	M19b	-	-	-	-	-	-	-	-	-	-	6.479	6.479
	M19c	0.015	0.218	16.362	4.930	0.145	-	-	-	-	-	73.661	96.073
	M20	-	-	-	-	-	-	-	-	-	-	0.015	0.015
	M20b	-	-	-	-	-	-	-	-	-	-	1.167	1.167
	M15c*	-	-	0.129	-	-	-	-	-	-	-	0.169	0.298
	M25a*	-	-	-	-	-	-	-	-	-	-	0.260	0.260
	Eang	-	-	-	-	-	-	-	-	-	-	0.151	0.151
	Peat	-	-	0.200	0.056	-	-	-	-	-	-	0.970	1.227
	M15c**	0.055	0.685	9.880	9.222	0.523	0.634	0.391	0.052	0.541	0.072	85.181	108.086
	M15b**	-	0.037	0.169	0.958	0.034	0.876	0.840	0.075	1.111	0.130	21.704	25.934
	M15a**	-	0.002	0.003	0.068	0.003	-	-	-	-	-	2.726	2.802
	M25a**	-	0.004	0.451	0.081	0.003	-	-	-	-	-	0.463	1.002
	M15**	-	-	-	-	-	-	0.056	-	-	-	0.001	0.056
Transition mire	M17a-M4	-	-	-	-	-	-	-	-	-	-	0.041	0.041
	M17a-M6	-	-	-	-	-	-	0.001	-	-	-	0.019	0.021
	M17-S9	-	-	-	-	-	-	-	-	-	-	0.062	0.062
Basic flush	M10	-	-	-	0.004	-	-	-	-	-	-	0.139	0.143
	M10a	-	-	0.015	0.001	-	-	-	-	-	-	0.490	0.509
	M11	-	-	0.009	-	-	-	-	-	-	-	0.091	0.103
Acid flush / fen	M4	-	-	0.033	-	-	-	-	-	-	-	0.019	0.052
	M6 Ev	-	-	-	-	-	-	-	-	-	-	0.063	0.063

Habitat	NVC	Construction Phase					Pre-construction and Enabling Phase					Retained	Whole Survey Area
		Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.		
	M6a	-	-	-	-	-	-	-	-	-	-	0.824	0.824
	M6b	-	-	-	-	-	-	-	-	-	-	0.059	0.059
	M6c	-	-	0.033	-	-	-	-	-	-	-	1.837	1.869
	M6w	-	-	-	-	-	-	-	-	-	-	0.062	0.062
	MX	-	-	-	-	-	-	-	-	-	-	0.688	0.688
	M29	-	-	-	-	-	-	-	-	-	-	0.048	0.049
Rush pasture / purple moor-grass	M23	-	-	-	-	-	-	-	-	-	-	0.112	0.112
	M23b	-	-	-	-	-	-	-	-	-	-	0.874	0.874
	Je	-	-	-	-	-	-	-	-	-	-	0.204	0.204
	M25a	-	0.009	1.598	0.207	0.006	-	-	-	-	-	8.404	10.223
	M25aMM	-	-	-	-	-	-	-	-	0.047	-	0.268	0.315
	M25b	-	-	-	-	-	-	-	-	-	-	0.363	0.363
	M25c	-	-	-	0.004	-	-	-	-	-	-	0.059	0.063
Species-rich grassland	U4c	-	-	0.357	0.007	-	-	-	-	-	-	1.465	1.952
	U5c	-	-	0.493	0.013	-	-	-	-	-	-	0.826	1.456
	CG10a	-	-	-	-	-	-	-	-	-	-	0.134	0.134
	CG10b	-	-	-	-	-	-	-	-	-	-	0.058	0.058
	U6r / U6h	-	-	-	-	-	-	-	-	-	-	1.37	1.37
Acid grassland	U4	-	-	-	-	-	-	-	-	-	-	0.317	0.317
	U4a	-	0.002	0.147	0.034	0.001	-	-	-	-	-	8.287	8.471
	U4a-MX	-	-	-	-	-	-	-	-	-	-	0.087	0.087
	U4b	-	-	-	-	-	-	-	-	-	-	8.255	8.255
	U5	-	-	-	-	-	-	-	-	-	-	0.009	0.009
	U5a	-	-	-	-	-	-	-	-	-	-	0.943	0.943

		Construction Phase					Pre-construction and Enabling Phase						
Habitat	NVC	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Retained	Whole Survey Area
	U5b	-	-	-	-	-	-	-	-	-	-	0.088	0.088
	U6a	-	-	-	-	-	-	-	-	-	-	0.030	0.030
	U6d	-	0.001	0.001	0.016	0.001	-	-	-	-	-	0.095	0.113
Neutral grassland	MG1	-	-	-	-	-	-	-	-	-	-	0.004	0.004
	MG6a	-	-	-	-	-	-	-	-	-	-	1.630	1.630
	MG10a	-	-	-	-	-	-	-	-	-	-	0.098	0.098
Species-rich ledge and bracken	U17	-	-	-	-	-	-	-	-	-	-	0.019	0.020
	U20	-	-	-	-	-	0.086	0.161	-	0.045	0.011	46.905	47.208
	U20a	-	-	-	-	-	-	-	-	-	-	0.417	0.417
	U20b	-	-	-	-	-	0.030	0.030	0.017	0.165	0.134	32.265	32.640
	U20sr	-	-	-	-	-	-	-	-	-	-	0.364	0.364
Wet acid woodland	W4	-	-	-	-	-	-	-	-	-	-	0.121	0.121
	W4c	-	-	-	-	-	-	-	-	-	-	1.123	1.123
	W4y	-	-	-	-	-	-	-	-	-	-	2.501	2.501
Wet neutral woodland	W7	-	-	-	-	-	-	-	-	-	-	0.418	0.418
	W7b	-	-	-	-	-	-	-	-	-	-	0.269	0.269
Basic woodland	W9a	-	-	-	-	-	-	-	-	-	-	5.657	5.657
	W9y	-	-	-	-	-	-	-	-	-	-	0.020	0.020
Acid grassy / bracken woodland	W11	-	-	-	-	-	-	0.002	-	0.013	-	18.717	18.732
	W11c	-	-	-	-	-	-	-	-	-	-	1.809	1.809
	W11d	-	-	-	-	-	-	-	-	-	-	1.809	1.809
Acid heathy / mossy woodland	W17	-	-	-	-	-	0.006	0.018	-	0.006	0.002	3.113	3.145
	W17b	-	-	0.009	-	-	-	0.086	0.044	0.575	0.056	39.182	39.953
	W17c	-	-	-	-	-	-	0.053	0.044	0.720	0.057	2.150	3.023

		Construction Phase					Pre-construction and Enabling Phase						
Habitat	NVC	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Retained	Whole Survey Area
	W17y	-	-	-	-	-	-	-	-	-	-	1.024	1.024
Heathy Scots pine	W18	-	-	-	-	-	-	-	-	-	-	16.657	16.657
	W18y	-	-	-	-	-	-	-	-	-	-	8.517	8.517
Non-W18 conifer plantation	Scots pine	-	-	-	-	-	-	-	-	-	-	0.174	0.174
	CP	-	-	-	-	-	-	-	-	0.017	-	505.850	505.868
	CPfell	-	-	-	-	-	-	0.002	-	0.017	-	26.873	26.892
	CPy	-	-	-	-	-	-	-	-	-	-	1.257	1.257
Scrub	W23	-	-	-	-	-	-	-	-	-	-	0.416	0.416
	W24	-	-	-	-	-	-	-	-	-	-	0.031	0.031
	W25	-	-	-	-	-	-	-	-	-	-	1.473	1.473
Swamp	S4	-	-	-	-	-	-	-	-	-	-	0.086	0.086
	S9a	-	-	-	-	-	-	-	-	-	-	1.206	1.206
	S10a	-	-	0.066	-	-	-	-	-	-	-	0.079	0.145
	Clas	-	-	-	-	-	-	-	-	-	-	0.008	0.008
	Meny	-	-	-	-	-	-	-	-	-	-	0.362	0.362
	Jartic	-	-	-	-	-	-	-	-	-	-	0.108	0.108
Aquatic	A7a	-	-	-	-	-	-	-	-	-	-	0.014	0.014
	A9	-	-	-	-	-	-	-	-	-	-	0.011	0.011
Open water	OW	-	-	24.155	-	-	-	-	-	-	-	114.546	138.701
	Rock pebble	-	-	-	-	-	-	-	-	-	-	1.107	1.107
Running water	RW	-	-	-	-	-	-	0.002	0.002	0.031	0.002	1.798	1.834
Rock / scree	Scree	-	-	0.071	0.001	-	-	-	-	-	-	0.129	0.227
	Rock	0.001	0.052	0.136	0.838	0.051	0.002	0.008	0.002	0.021	0.004	21.886	23.454

		Construction Phase					Pre-construction and Enabling Phase						
Habitat	NVC	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Loss Temp.	Indirect Temp.	Loss Perm.	Indirect Perm.	Indirect Perm. + Loss Temp.	Retained	Whole Survey Area
Ruderal	OV27	-	-	-	-	-	-	-	-	-	-	0.018	0.018
Built-up / private	Track	-	-	0.004	0.076	-	-	0.003	0.008	0.085	0.006	18.568	18.750
	Quarry	-	-	-	-	-	-	-	-	-	-	0.311	0.311
	Road	-	-	-	-	-	-	-	-	-	-	2.560	2.560
	Dam	-	-	-	-	-	-	-	-	-	-	0.017	0.017
	Built-up	-	-	-	-	-	-	-	-	-	-	0.076	0.076
	Private	-	-	-	-	-	-	-	-	-	-	0.840	0.840
	Total	**0.134**	**3.374**	**134.428**	**63.740**	**2.889**	**19.787**	**7.607**	**3.149**	**10.828**	**3.766**	**2520.126**	**2777.590**

5. Habitat Descriptions

5.1.1 Standing waters are fully addressed in **Chapter 9: Aquatic & Marine Ecology** of the EIAR (**Volume 2: Main Report**), however it is noted here that of 34.8 ha of natural oligotrophic standing water in the surveyed area, 24.2 ha would be lost to the Headpond, almost entirely comprising Loch nam Breac Dearga. Although the Headpond would contain oligotrophic water, it would be heavily fluctuating and not natural. For comparison, there are approximately 51 lochs and lochans of oligotrophic standing water in the entire estate, eleven of which are large enough to be named as lochs rather than lochans on Ordnance Survey mapping.

5.2 Ancient and Other Semi-natural Woodland

5.2.1 Within the Study Area, the Ancient Woodland Inventory (AWI) indicates several areas of ancient semi-natural woodland (ASNW, the most important type of ancient woodland; see **Figure 7.3: Sites of Special Scientific Interest, Ancient Woodland and Important Invertebrate Areas**). The woodlands most relevant to this assessment are:

- In a thin strip on steep ground at the edge of Loch Ness in the vicinity of both the Lower Control Works (LCW) and existing Alltsigh track, and extensively around Loch Ness;
- Along and near the River Coiltie, including in the vicinity of the northern access track; and
- Within Urquhart Bay Wood SAC running down to Loch Ness at Drumnadrochit, and Ness Woods SAC on slopes on the opposite side of Loch Ness.

5.2.2 Woodland indicated as ASNW in the AWI at the aforementioned locations is for the most part categorised as dating from at least 1750 (i.e. present on the Roy military map of approximately 1750, and likely considerably older). However, some is categorised as from approximately 1860 (i.e. present on 1st Edition OS mapping but not clearly present on the Roy map), mainly along parts of the River Coiltie and in part of the Urquhart Bay Wood SAC.

5.2.3 It should be understood that the AWI indicates where ASNW or long-established plantation is considered to have existed on historic mapping, and that consequent to the accuracy of that mapping AWI boundaries are not necessarily accurate and can extend onto habitat that is not now woodland or is not the indicated type of woodland. Of most note in this regard is that the great majority of indicated ASNW on the slopes west of Loch Ness is now commercial conifer plantation and has been since the 1960s, and a minority is also permanent road or permanently cleared wayleave for overhead lines. For this reason, in the vicinity of the LCW and along much of this side of Loch Ness, the only remaining ASNW is a very thin strip between the A82 and the edge of Loch Ness. Conifer plantations that overlap AWI-indicated ASNW are now Plantation on Ancient Woodland Sites (PAWS). PAWS also occur in the FLS plantation along the northern part of the Balnain access track (at this location, parts of the woodland overlap AWI polygons for ASNW, other Roy woodland and long-established plantation (LEPO), however with the exception of small areas of birch these are all coniferous commercial forestry dominated by non-native conifers and have been for several decades).

5.2.4 Survey of the thin strip of ASNW along the west edge of Loch Ness in the LCW vicinity was limited for reasons of safety (mainly steepness of slope, also frequency of traffic along the A82 where there is no walkway). However, the woodland flora in this vicinity includes basic indicators such as herb-Robert *Geranium robertianum* and wood avens *Geum urbanum*, as well as dryopteroid ferns, honeysuckle *Lonicera periclymenum* and in places greater woodrush *Luzula sylvatica*. The latter is palatable to deer and thus tends to occur on steeper slopes that are less accessible to them. Honeysuckle and greater woodrush can be ancient woodland indicators. Native trees are dominant and include birch *Betula pubescens*, oak *Quercus* sp., hazel *Corylus avellana*, ash *Fraxinus excelsior* and willow *Salix* sp., with some regeneration (the ash in particular indicative of basic conditions), although there are also scattered non-native conifers (mature and regenerating). Unlike some of the ASNW at Alltsigh, there is an absence of acid indicators. Thus, this woodland is closest to NVC type W9 (i.e. dry and basic). Several of the ash trees appear to have ash dieback disease, in places forming standing deadwood. The trees are generally mature but most are not especially large and are not considered veteran according to Defra Statutory Metric woodland criteria (although temporal continuity of native woodland cover is much more relevant to ASNW than the age of current trees, given that nearly all ASNW was subject to felling and regrowth, and sometimes still is to maintain floristic diversity). This woodland is also steeply sloping and therefore constitutes ***Annex I H9180 Tilio-Acerion forests of slopes, screes and ravines*** (UKHab w1b5).

5.2.5 The LCW is largely (except for the necessary access road) purposefully situated in a gap in the AWI-indicated ASNW. This gap corresponds to a woodland gap on the 1st Edition OS map (surveyed in 1871), and there is also suggestion of such a gap on the 1750 Roy map. The 1st Edition OS map also indicates fenced enclosures in this gap, associated with the former Ruskich Inn, of which little now remains. The inn and associated non-wooded enclosures were likely used by cattle drovers, and there is also evidence of a ferry between Ruskich and Foyers, which likely also used this cleared area (see **Chapter 12: Cultural Heritage**). However, the 1st Edition OS map still shows a single line of trees along most of this edge of Loch Ness, and although these appear absent on later OS mapping surveyed in 1899, the gap in woodland cover at the edge of Loch Ness may have been relatively short. Moreover, honeysuckle and greater woodrush also occur in the current loch-edge woodland in the AWI gap, which is not clearly different to the adjacent woodland within the AWI. Consequently, although parts of this woodland may indeed not be ancient, on a precautionary basis it has all been treated as such.

5.2.6 ASNW in the vicinity of the Alltsigh access includes both basic W9 and acidic W17/W11 (UKHab w1b5 and w1e). The latter occupies the thin strip between Loch Ness and the A82 north of the hostel; it is birch-dominated with frequent non-native conifers and regular ericoids such as heather *Calluna vulgaris* and bilberry *Vaccinium myrtillus*. W9 occurs along the loch-shore south of the hostel and for a short distance upstream alongside the Allt Saigh; birch is common here but there is also oak, ash, wych elm *Ulmus glabra* and in places alder (there being a small proportion of wet neutral W7 woodland here also), and the flora includes a wide range of species including wood avens, wood false-brome *Brachypodium sylvaticum* and sanicle *Sanicula europaea* (the last two of which can be ancient woodland indicators).

5.2.7 Surveyed ASNW along and near the River Coiltie is acidic upland birchwood (UKHab w1e). The majority is heathy, corresponding to NVC type W17, but some is grassier and/or bracken-dominated and corresponds to W11. Within it there are open patches of wet heath (some flushed and species-rich), dry heath and bracken, especially towards the east. The strip just downstream of the existing hydroelectric dam was noted to support serrated wintergreen *Orthilia secunda* and the notable lichen *Peltigera britannica*. Woodland in the River Coiltie area was noted to be lacking in regeneration, which is no doubt owing to apparent long-term failure of deer fencing in this area, given observation of deer within the enclosure.

5.2.8 The recorded W11 is grassy or bracken-dominated woodland with a canopy of mainly downy birch but also some silver birch *Betula pendula*, rowan *Sorbus aucuparia* and occasionally hazel. The ground layer includes common acid grasses, tormentil *Potentilla erecta*, heath bedstraw *Galium saxatile*, bracken, wood anemone *Anemone nemorosa*, dog-violet *Viola riviniana*, primrose *Primula vulgaris*, wood sorrel *Oxalis acetosella* and occasionally beech fern *Phegopteris connectilis*, and common large mosses such as *Hylocomium splendens, Thuidium tamariscinum, Pleurozium schreberi* and *Hylocomiadelphus triquetrus*. The vegetation was mapped to NVC community level because it shows affinities with at least three of the four sub-communities of W11.

5.2.9 In contrast, the recorded W17 is often heathy and/or mossier, with a canopy mainly of birch but also with occasional rowan and Scots pine *Pinus sylvestris*, and very rarely aspen *Populus tremula*. The ground layer is mossy (including *Hylocomium splendens, Pleurozium schreberi, Thuidium tamariscinum, Hylocomiadelphus triquetrus, Rhytidiadelphus loreus, Plagiothecium undulatum, Hypnum jutlandicum* and *Polytrichum formosum*) and often has much heather and bilberry. There is often also a thin cover of other vascular species such as wavy hair-grass *Avenella flexuosa*, tormentil, heath bedstraw, wood sorrel, sweet vernal-grass *Anthoxanthum odoratum*, bracken and hard-fern *Blechnum spicant*. This vegetation corresponds to W17b. Rock outcrops within this woodland include the mosses *Hypnum cupressiforme, Dicranum scoparium* and *Racomitrium heterostichum*, and, in small amounts, the western liverwort *Scapania gracilis*. Some of the W17 in the River Coiltie area, especially where denser and younger, has a sparser ericoid cover, and the abundance of similar mosses and wavy hair-grass points to the W17c sub-community.

5.2.10 The majority of woodland at Urquhart Bay Wood SAC falls within AWI-indicated ASNW. A strip next to Loch Ness is not included in the AWI, but this may result from inaccuracies in the AWI and the entirety is treated as ancient, there being no obvious reason to exclude the strip beside Loch Ness. This woodland is classed as ***Annex I H91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicio albae)*** (UKHab w1d5) in the SAC and SSSI documentation, an alluvial alderwood type that can also include ash, crack willow *Salix fragilis* or white willow *Salix alba*. In this case, although obviously alluvial with two rivers passing through and a clearly alluvial substrate, alder and large willows are frequently not dominant, and a large proportion corresponds to NVC type W9, an essentially dry and basic woodland type that can be damp but not obviously wet. There are however areas of wet neutral woodland of NVC type W7, containing obvious wetland indicators that are lacking in the W9 areas, that better correspond to the Annex I type, and within which alder is common and crack willow frequent. The W7 areas include parts of the wood close to Loch Ness, although on inspection some of these were considered transition W7-W9 (i.e. with insufficient wetland indicators to class as pure W7). Further detail on observed woodland in Urquhart Bay Wood SAC is given in Annex A. Wet W7 woodland

constitutes potential groundwater dependent terrestrial ecosystem (GWDTE), and indeed at Urquhart Bay Wood SAC it is very likely groundwater-dependent (it is characteristic of alderwood especially in this type of situation to be groundwater dependent).

5.2.11 The AWI was not intended to be and is not exhaustive, and generally excluded very small patches of woodland. In this regard, there are a few thin strips of semi-natural upland birch woodland (UKHab w1e) located in ravine-like locations within the surveyed moorland (but outside the Proposed Development footprint) that are probably also ancient:

- A long north-south strip, along a stream in a small steep-sided glen, that meets the conifer plantation edge near the point that the existing Alltsigh track exits the FLS plantation onto the open moorland. This is largely acidic and heathy but of note for the local occurrence of serrated wintergreen and wood melick *Melica uniflora*; and
- A smaller narrow strip in a very steep-sided ravine approximately 1 km north east of the Headpond, again birch-dominated and heathy.

5.2.12 Surveyed semi-natural broadleaved woodland that is not ancient comprises further upland birchwood (UKHab w1e). This is generally heathy or mossy and corresponds to NVC type W17, but in places is again grassy or bracken-dominated W11, most extensively north of the River Coiltie and locally in the commercial forestry along the Balnain access route). There are also small patches of acidic wet birch or willow corresponding to W4. The W4 has a downy birch canopy and a ground layer similar to M15 wet heath or M25 mire, with much purple moor-grass, often a small to moderate cover of ericoids, and common mosses of acid conditions. None of these woodlands lie within the footprint of the Proposed Development, aside from a very limited felling for the Balnain access route by constructed permanent track and limited widening of the existing FLS forestry track.

5.2.13 Within the surveyed area, but beyond any possible impact, there is also localised semi-natural heathy Scots pine woodland corresponding to W18. This is located on extremely steep to cliff-like slopes within the conifer plantation north of the Allt Saigh. It was only inspected from the opposite side of the Allt Saigh for obvious safety reasons. It contains some moderately large Scots pine *Pinus sylvestris* trees, and there are large fallen dead Scots pines. The ground is rocky but includes heather and bell-heather *Erica cinerea*. Given the extreme steepness of slope, that would seem to preclude planting in at least part of this area, some at least of this woodland could constitute ***Annex I H91C0 Caledonian forest***, and Caledonian Pinewood priority Scottish Biodiversity List (SBL) habitat (UKHab w2a5) (since this area is within the zone of indigenous Scots pine and there are scattered very large Scots pines in the plantation shortly to the north that appear likely to be indigenous Scots pines).

5.3 Plantation Woodland

5.3.1 The majority of woodland within the survey area above the west side of Loch Ness is commercial conifer plantation, which was not closely inspected since it is unlikely to contain much floristic interest, would not be directly impacted, and is often too steep to safely access. As already mentioned, much of this constitutes PAWS. It is dominated by non-native conifers, and where dense non-native conifers have been dominant for several decades it is rather unlikely that notable flora remains. There are also areas of planted Scots pine within which remnant notable flora might remain. Not far beyond the survey area, some non-native plantation has been cleared, to be replaced by native species through planting and/or natural regeneration.

5.3.2 There is also extensive conifer plantation along the northern part of the Balnain access route. This is again mainly dominated by non-native conifers, although planted Scots pine is occasional. This woodland is managed as commercial plantation and would not be significantly impacted since the access route uses the existing FLS track and only limited felling for widening, and core path redirection is required.

5.4 Montane Scrub

5.4.1 Montane scrub notably includes montane willow and dwarf birch *Betula nana*. Montane willow scrub is scarce in Scotland and survives where grazing is at a very low level or absent, and is thus normally found on localised very steep or cliff-like slopes. Dwarf birch is more widespread but local, and also tends to indicate lower-level grazing since it is relatively palatable to deer. Montane scrub here also includes other woody species at moderate to high altitude that also occur at low altitude, such as juniper *Juniperus communis* (which occurs very sparsely but typically as small bushes) and a few other tree/shrub species occurring as scattered individuals on the cliff-like parts of Meall Fuar-mhonaidh (mainly rowan *Sorbus aucuparia* and aspen *Populus tremula*; on the east side of the mountain holly *Ilex aquifolium* and ivy *Hedera helix* were also locally seen).

5.4.2 As is often the case, the dwarf birch occurs most frequently in M19c, the higher altitude form of M19 which in places also supports cloudberry *Rubus chamaemorus*. The zone with the most recorded dwarf birch is between Loch nam Breac Dearga and the summit of Glas-bheinn Mhòr , about half of this zone lying within the Headpond. As with other species that are not prominent, there would certainly be other unrecorded locations of dwarf birch, both within and beyond the Headpond.

5.4.3 The observed montane willow scrub notably includes a small amount of whortle-leaved willow *Salix myrsinites*, as well as the common eared willow *Salix aurita,* creeping willow *Salix repens* and stone bramble *Rubus saxatilis* on the west side of Meall Fuar-mhonaidh. Whortle-leaved willow is listed as Endangered in the Vascular Plant Red Data List[11], and is classed as Nationally Scarce (occurring in 16-100 hectads within the UK as a whole). Within the UK it is confined to Scotland, and is most frequent in the Highlands southeast of the Great Glen (probably because it favours base-rich substrates), although the largest populations were reported to be in the west. There are existing hectad records covering the Meall Fuar-mhonaidh vicinity[12]. It was found during field survey on a largely inaccessible steep rocky patch on the lower part of Meall Fuar-mhonaidh that would be inundated by the Headpond, and in greater quantity on nearby steep rocky ground above the upper water level of the Headpond. Owing to the inaccessibility of these locations, the number of plants is not known but appears to be low, and there are more plants above the Headpond inundation zone than within it. It was not seen elsewhere on Meall Fuar-mhonaidh, but there are extensive cliffs lying beyond safe close viewing distance and it is quite possible that whortle-leaved willow occurs elsewhere on these cliffs, which would not be safely surveyable without rope access. However, under extremely low intensity or absent grazing, whortle-leaved willow would likely occur more widely on the less steep grassland and heath habitats on this side of Meall Fuar-mhonaidh, some of which are species-rich and indicate a degree of base-richness that would likely be favourable to whortle-leaved willow.

5.4.4 Montane willow scrub constitutes ***Annex I H4080 Sub-Arctic Salix spp. scrub***, and Willow Scrub priority SBL habitat. Dwarf birch most often occurs within blanket bog and is then a constituent of that Annex I type (see next section). There was no obvious sign of adverse condition of the montane willow scrub, however as already noted it would probably be more widespread along the lower western slope of Meall Fuar-mhonaidh under an absence of grazing. The dwarf birch was generally seen to have been browsed (though not heavily) and would probably achieve greater stature under further reduced or absent grazing.

5.5 Blanket Bog

5.5.1 Both M17 and M19 blanket bog are widespread in the surveyed area. Overall, including within the Headpond, M19 is the most abundant.

5.5.2 M19 is the boreal and drier form of blanket bog, that naturally contains less sphagnum and generally a denser and more tussocky mix of heather and hare's-tail cottongrass *Eriophorum vaginatum*. It extends on to moderate peat slopes, including at higher altitude. Mosses are abundant but sphagnum diversity is typically low – the main mosses are pleurocarpous species (mainly *Hylocomium splendens, Pleurozium schreberi, Hypnum jutlandicum* and *Rhytidiadelphus loreus*), although *Sphagnum capillifolium/rubellum* is common, and this mix of mosses is a natural feature of M19. Other common species at typically lower cover include bilberry and occasionally crowberry *Empetrum nigrum*. M19 is locally notable within the Headpond area, and in places outside it, for the presence of dwarf birch. Where dwarf birch is present, this tends to indicate that grazing levels are not high (although observed dwarf birch was nevertheless noted to browsed) and that there has been no significant burning, since this species is relatively palatable to deer and easily killed by burning. Observed dwarf birch was noted when seen and these records are shown on **Figure 7.8 Notable Plant and Species-Rich Habitats** (although it should be noted that dwarf birch, as the name suggests, is not very conspicuous and there are likely to be significantly more unrecorded locations). M19 at the Site also locally includes the notable bryophyte *Sphagnum fuscum*. The most common recorded form of M19 is M19c. typically including cowberry *Vaccinium vitis-idaea* and quite often also cloudberry amongst the dominant hare's-tail cottongrass and heather; sometimes there is also *Racomitrium lanuginsum* moss and/or *Cladonia* lichen. M19a is also common – this is effectively a transition to M17, usually with abundant cross-leaved heath *Erica tetralix* and/or purple moor-grass. M19b was uncommonly recorded at lower altitude, where it comprises generally species-poor heather and hare's-tail cottongrass without the distinguishing species of M19a and M19c.

[11] Cheffings, C.M. & Farrell, L. (eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005). The Vascular Plant Red Data List for Great Britain. Species Status No. 7. JNCC, Peterborough, ISSN 1473-0154.

[12] https://plantatlas2020.org/atlas/2cd4p9h.fyy; and:
Mackenzie, N.A. (2000). Low alpine, subalpine & coastal scrub communities in Scotland. Report to Highland Birchwoods.

5.5.3 Much of the M17 is M17b, which is less wet than M17a with less sphagnum, especially *Sphagnum papillosum*, and less sundew *Drosera* spp., and significant amounts of *Cladonia* spp. lichen (especially *Cladonia. arbuscula, Cladonia portentosa* and *Cladonia uncialis*) and/or the moss *Racomitrium lanuginosum*. The M17b is locally gullied and there are localised areas of flat bare peat (sometimes moderately large) that appear to have been caused or exacerbated by deer (with obvious deer prints and droppings). M17a is however also present and is wetter with extensive sheets of sphagnum including *Sphagnum papillosum* and *Sphagnum tenellum* and often small quantities of round-leaved sundew *Drosera rotundifolia,* greater sundew *Drosera anglica,* few-flowered sedge *Carex pauciflora,* the mosses *Sphagnum cuspidatum, Sphagnum tenellum* and (very locally) *Sphagnum austinii* and the liverwort *Pleurozia purpurea*. More notably, some M17 (usually M17a) supports *Sphagnum austinii*, a local and notable bog sphagnum species. *Sphagnum austinii* occurs locally in small quantity within the Headpond, but is much more abundant in the wider surveyed area, with some notable concentrations on the west side of Glas-bheinn Mhòr (see **Figure 7.8 Notable Plants and Species-rich Habitats (Volume 3: Figures)**). Very locally and beyond impact, there is an interesting form of M17a ('M17a Clas') with abundant slender sedge *Carex lasiocarpa*.

5.5.4 Bog pools (mostly in the M17) are localised and include both M1 with *Sphagnum auriculatum* and M2 with *Sphagnum cuspidatum/fallax.* Locally there are extents of M3 with common cottongrass *Eriophorum angustifolium*, some on bare peat amongst hagged bog indicating local deer pressure. Very rarely, well beyond the footprint of the Proposed Development, linear bog pools were noted with a basic influence that are transitional between M1 bog pool and M10 basic flush.

5.5.5 M20 was uncommonly recorded – this is a poorer form of bog vegetation in which ericoids are much reduced and hare's-tail cottongrass dominates, and it may be derived from M19 by locally heavier grazing. Some blanket bog includes M15 wet heath (rarely M25) vegetation on interpolated peat of at least 0.5 m depth, and this was occasionally directly noted in the field.

5.5.6 Vegetation akin to transition mire was rarely recorded in waterlogged edges of lochans north of the Headpond. The small extents of this vegetation are more or less continuous with adjacent blanket bog and are considered part of the overall blanket bog (as per EU Annex I guidance for transition mire[13]). The vegetation in these situations is intermediate between very wet blanket bog, acid flush and swamp vegetation, with sphagna but also sedges, in places including slender sedge. Such locations are invariably treacherous and were viewed from adjacent solid ground only.

5.5.7 All blanket bog constitutes ***Annex I H7130 Blanket bog*** (whether modified or not). No beak-sedges *Rhynchospora* spp. were recorded therefore Annex I 7150 Depressions on peat substrates of the *Rhynchosporion* is considered absent. All blanket bog is also Blanket Bog priority SBL habitat. EU Annex I guidance indicates that small extents of transition mire within wider mire complex, as here, should not be regarded as the Annex I transition mire type, but (in this case) part of the wider Annex I H7130 habitat.

5.5.8 Categorisation of the blanket bog according to the Peatland Action types indicates that substantial parts of the blanket bog are drained (i.e. lying within 30 m of haggs/gullies or flat bare peat). Outside of drained areas, the majority of the bog is drier (either M19 or M17b, or M15 wet heath vegetation on interpolated peat depth of 0.5 m or greater) and falls into the Peatland Action Modified category, although parts of this are not without interest (in particular, where dwarf birch and occasionally *Sphagnum austinii/fuscum* is present). The Peatland Action category of Near Natural, with continuous wet ground containing abundant sphagna, is localised. These Peatland Action categories are shown on **Figure 7.7 Peatland (Volume 3: Figures)**.

5.5.9 Where bare peat was observed, this often-showed deer footprints or droppings. However, grazing pressure does not appear to be high, with reasonable ericoid cover and no obvious over-grazing of ericoids noted. Presence of dwarf birch, which is widespread in part of the Headpond area and on the southern slopes of Glas-bheinn Mhòr, and scattered widely elsewhere, is suggestive in itself of lower grazing levels (and lack of burning). These observations are matched by herbivore impact assessments[14], which indicate that grazing pressure was low or zero-to-low in most inspected parts of Balmacaan Estate in 2018, with a few outliers of low-medium and medium grazing pressure (a 2019 update was similar but exhibited a still higher proportion of zero-to-low and low grazing pressure). The latest 2021 deer count for Balmacaan Estate (see **Table 5-1**) places the deer density at 9.5/km^2 (10.1 in 2016), amongst the lower counts for the Glenmoriston Deer Management Group area, and at a level at which major habitat impacts would be avoided. However, as noted above dwarf birch recorded during the 2024

[13] European Commission DG Environment (2013). Interpretation Manual of European Union Habitats. European Commission DG Environment.
[14] Agroecosystems Ltd. (2019). An assessment and evaluation of herbivore impacts on the upland habitats of the Glenmoriston Deer Management Group 2018. Report to Glenmoriston Deer Management Group.

habitat surveys was nearly always browsed and it would probably achieve greater stature (and perhaps greater reproductive success) with less grazing pressure.

Table 5-1: Latest deer count data for the area covered by Glenmoriston Deer Management Group

Property	Area (km^2)	2021 Stags	2021 Hinds	2021 Calves	2021 Total	2021 Density	2016 Stags	2016 Hinds	2016 Calves	2016 Total	2016 Density
Balmacaan	76.95	248	354	131	729	9.5	292	371	115	778	10.1
Balnacarn	7.24	25	127	34	186	25.7	2	13	4	19	2.6
Ceannacroc	51.72	70	282	117	469	9.1	67	264	98	429	8.3
Corrielair	33.5	32	354	161	547	16.3	32	359	91	482	14.4
Corrimony	27.5	31	115	21	167	6.1	16	198	54	268	9.7
Dundreggan	40.18	27	79	26	132	3.3	65	247	74	386	9.6
FLS Glenurquhart		4	0	0	4		0	0	0	0	0.0
FCS Balnacarn	4.12	2	23	4	29	7.0					
Glenmoriston	35.08	75	310	104	489	13.9	91	313	100	504	12.3
Guischan (Hilton)	16.91	43	45	18	106	6.3	13	34	9	56	3.1
RSPB Corrimony	15.38	3	7	4	14	0.9	0	0	0	0	0.0
Tomcrasky	34.02	166	337	120	623	18.3	88	316	100	504	14.8
Wester Guisachan	36.62	188	206	49	443	12.1	71	160	44	275	7.5
Glenshiel Wood	1.27	30	0	0	30	23.6					
Total	**380.49**	**944**	**2239**	**789**	**3968**	**10.4**	**737**	**2275**	**689**	**3701**	**9.7**

5.6 Wet Heaths

5.6.1 The majority of surveyed wet heath is M15c, a more open and shorter form of wet heath in which *Cladonia* spp. lichen (mainly *Cladonio portentosa, Cladonia arbuscula* and *Cladonia uncialis*; also a little *Cladonia rangiferina*) and/or *Racomitrium lanuginosum* are frequent and there is often visible rock. Cross-leaved heath is invariably present and often some bell heather, as well as smaller amounts of heather and occasionally other ericoids (rarely including bearberry). Other typical associates include tormentil, heath rush, common cottongrass, mosses including *Hypnum jutlandicum*, *Hylocomium splendens* and *Sphagnum capillifolium/rubellum*, and occasionally star sedge *Carex echinata* and common sedge *Carex nigra*. Occasionally, such vegetation was recorded on deep peat (indicated with an asterisk as M15c*, and treated as blanket bog). More frequently, it was found during GIS analysis to be present on interpolated peat depth of 0.5 m or greater, in which cases it was also treated as modified bog (unless field evidence indicated it was genuine wet heath on rocky knolls within more extensive blanket bog, or flush/fen habitat). More locally on lower ground, particularly in topographical depressions and along streams, the wet heath tends to become thicker and taller with more and denser purple moor-grass, and sometimes bog myrtle *Myrica gale*, but still abundant cross-leaved heath – this is M15b. Rarely and beyond impact, M15d was recorded, which is similar to the M15b but with abundant bilberry. Neither the M15c, M15b or M15d are typically of any note, despite constituting Annex I H4010, because they are ubiquitous locally, regionally and throughout north western Scotland, and are not species-rich (notwithstanding rare occurrences of notable species such as dwarf birch, which is more common in M19 bog and was typically near it when present in M15c).

5.6.2 There are smaller extents of M15a, in many cases resembling a basic flush, with a flora including species indicative of at least a mild degree of flushing and mineral enrichment, but with either abundant ericoids or deer-grass *Trichophorum germanicum*. These are often species-rich, at minimum with abundant carnation sedge *Carex panicea* but usually with other species such as flea sedge *Carex pulicaris*, tawny sedge *Carex hostiana* and devil's-bit scabious *Succisa pratensis*. Where particularly species-rich, associates locally also include alpine bistort *Persicaria alpina*, globeflower *Trolius europaea*, water avens *Geum rivale*, lady's bedstraw *Galium verum*, the moss *Sphagnum teres* and rarely alpine meadow-rue *Thalictrum alpinum*. Quite often there are narrow M10

(or M11) basic flushes within the M15a. Unusual M15a with slender sedge was recorded once, beyond possible impact.

5.6.3 M16 was recorded very rarely, far east of the Proposed Development on the flank of Glas Bheinn Beag, where it may have arisen following burning.

5.6.4 Apart from occasional instances of wet heath with unfavourable amounts of bracken, it was generally found to be in good condition, with reasonable ericoid cover and no suggestion of heavy grazing pressure.

5.6.5 All wet heath constitutes ***Annex I H4010 North Atlantic wet heaths with Erica tetralix***, and Upland Heathland priority SBL habitat. However, it is important to note that wet heath is extremely extensive locally, regionally and throughout north-west Scotland, and that much wet heath below and up to the tree line would under more natural circumstances be native woodland (such as birchwood, pinewood or montane scrub).

5.6.6 Whilst all wet heath also constitutes potential GWDTE (almost entirely Moderate potential GWDTE, with only M15a likely to be High potential GWDTE) it is critical to note that almost all the underlying bedrock in the Proposed Development Site is described as essentially impermeable in **Chapter 10: Water Environment (Volume 2: Main Report)**. Consequently, it is very likely that the vast majority of wet heath is not groundwater dependent, but rather made wet primarily by the climate.

5.7 Dry Heaths

5.7.1 Numerous forms of dry heath were recorded. By far the most common, and the most impacted by the Proposed Development, are forms of H10 and H12. The former typically occurs on more southerly aspects and contains abundant bell heather amongst the heather, whilst the latter contains abundant bilberry and occasionally crowberry amongst the heather. Common species in these heaths include tormentil, heath bedstraw *Galium saxatile*, heath woodrush *Luzula multiflora*, green-ribbed sedge *Carex binervis*, wavy hair-grass *Avenella flexuosa* and common pleurocarpous mosses of acid conditions. Both are typically mossy, and in both cases, in addition to typical forms (H10a and H12b), higher altitude forms (H10b and H12b) were also recorded with species such as cowberry (particularly in H12b), and *Racomitrium lanuginosum* and *Cladonia* lichens (particularly in H10b). The H10b also occasionally included small amounts of mountain everlasting *Antennaria dioica*, petty whin *Genista anglica* and bearberry. Some recorded heaths of these types are transitional with aspects of both H10 and H12 (i.e. moderate amounts of both bell heather and bilberry amongst the heather).

5.7.2 More-grazed grassy forms (H10c and H12c) were also recorded locally, with typical acid grassland species amongst the ericoids, such as common bent *Agrostis* capillaris, sweet vernal-grass *Anthoxanthum odoratum*, sheep's fescue *Festuca ovina*, viviparous fescue *Festuca vivipara* and mat-grass *Nardus stricta*. More notably but extremely locally, and almost entirely beyond possible impact, there are small amounts of particularly species-rich H10 with signs of base-enrichment (H10d), including species such as thyme *Thymus drucei*, bird's-foot trefoil *Lotus corniculatus*, lady's-bedstraw, common dog-violet *Viola riviniana*, bitter-vetch *Lathyrus linifolius* and wood cranesbill *Geranium sylvaticum*. Locally on the steep western slopes of Meall Fuar-mhonaidh, there is herb-rich H12 containing species similar to those in adjacent species-rich grassland, including wood cranesbill.

5.7.3 On steeper slopes with more northerly aspects, vegetation similar to H12 but damper and mossier with scattered *Sphagnum capillifolium* (H21a) was recorded. The occurrence of the sphagnum indicates damper conditions that are not clearly the result of poor drainage, as much of the H21 heath is on moderately to steeply sloping ground. The H21 heath is mainly on northerly aspects where the relatively shaded conditions appear to be an important factor in maintaining higher humidity than in otherwise-similar H12 heath. H21 is common on north west to east-facing slopes at this site. It often grades into or is mixed with M19c drier blanket bog vegetation, and dwarf birch occasionally also occurs in the H21a. Other species of interest found very rarely in H21 at this site include interrupted clubmoss *Lycopodium annotinum*, serrated wintergreen (once, far east of the Proposed Development), the moss *Ptilium cristacastrensis* and the liverwort *Anastrepta orcadensis.*

5.7.4 All the above dry heaths constitute ***H4030 European dry heaths***, and all are Upland Heathland priority SBL habitat. The recorded dry heaths are less abundant than wet heath, but are nevertheless widespread on drier slopes locally, regionally and throughout the Highlands. It is also important to note that some dry heath below the tree line (where not on cliff-like terrain, and excluding the montane heaths) would under more natural circumstances be native woodland. Observed dry heaths were in good condition, except locally where bracken was overly abundant. Grazing pressure was not noted to be an issue.

5.8 Montane Heaths

5.8.1 Recorded montane heaths occur in small quantity within the footprint of the Proposed Development (typically on the summits of knolls) and beyond it. These comprise a form with bilberry the dominant ericoid (H18), montane damp heather and bilberry (H22), and forms with naturally prostrate ericoids caused by exposure (and not by grazing pressure). In this case, the prostrate forms include heather with *Cladonia* spp. lichen and/or *Racomitrium lanuginosum* (H13/14), and forms with abundant or dominant bearberry (H16) or (very locally) arctic bearberry (H17).

5.8.2 The H13 is short montane heath on thin, stony soils in topographically exposed situations at medium to high altitude. Heather is abundant but restricted in height by regular exposure to wind, with shoots typically quite prostrate, windswept and only a few centimetres in height. There can also be a little bell heather, crowberry and bilberry, all similarly short. Tufts of deergrass and fir clubmoss *Huperzia selago* are very sparse, as are low rosettes of carnation sedge, stiff sedge and heath rush. Mosses are abundant, including *Racomitriuim lanuginosum*, *Polytrichum piliferum* and *Polytrichum alpinum*. Particularly distinctive are lichens, which here form an extensive pale greyish to whitish 'frosting' of species including *Cladonia arbuscula, Cladonia portentosa, Cladonia rangiferina, Cladonia uncialis* and *Ochrolechia frigida*, along with other *Cladonia* species, and a very little *Alectoria nigricans*. There are many patches of H13 at this site, typically on slightly raised, windswept knolls or other rises of ground in mosaics with much more abundant M15c wet heath. It was mapped at NVC community level but is generally closest floristically to the *Cladonia arbuscula-Cladonia rangiferina* sub-community H13a.

5.8.3 H14 is similar to the H13 heath just described, but with a greater abundance of the moss *Racomitrium lanuginosum* and a correspondingly smaller cover of lichens. There are patches if it on thin soils in windswept places on higher ground. The habitat is similar to that of H13 but it is less common than that community at this site. It was mapped at NVC community level but is generally closest to the *Empetrum nigrum hermaphroditum* sub-community H14b.

5.8.4 The H16 has a canopy of heather that is shorter than in most of the H10 and H12 heath at this site, but not as consistently short as the H13, H14 and H17 heaths. Low shoots and mats of bearberry are very common among the heather here and are the defining feature of this community. Bell heather, bilberry, cowberry and crowberry variably enrich the dwarf shrub layer. There can be a little tormentil, and pleurcarpous mosses of acid conditions, and *Racomitrium lanuginosum*, are common. Small areas of H16 are scattered widely through the survey area, mostly on rather exposed knolls with thin soils amongst abundant M15c wet heath, and on steeper rocky slopes. At sub-community level the heath shows affinities with the *Vaccinium myrtillus-Vaccinium vitis-idaea* sub-community H16b and the *Cladonia* spp. sub-community H16c, and was left at community level.

5.8.5 Recorded H17 is similar to prostrate heaths above, with very low, wind-pruned heather accompanied by many arctic bearberry plants, and sometimes also bearberry, with small amounts of crowberry, deergrass, fir clubmoss, alpine clubmoss *Diphasiastrum alpinum* and abundant mosses and lichens including all those listed for H13 above plus *Thamnolia vermicularis*. Small areas of H17 were found on thin, patchy and stony soils on very wind-exposed ground at medium to high altitude, on Nighean a' Mhill and just east of Glas-bheinn Mhòr, mostly in mosaics with abundant M15c wet heath.

5.8.6 The H18 contains little or no heather but abundant bilberry, cowberry and crowberry. Other species include wavy hair-grass, pill sedge *Carex pilulifera*, heath bedstraw, mat-grass, viviparous fescue, carnation sedge, fir clubmoss, alpine clubmoss and abundant mosses (including *Polytrichum commune* in addition to pleurocarpous mosses of acid conditions). Lichens such as *Cladonia uncialis, Cladonia arbuscula* and *Cladonia rangiferina* occur here too. Small areas of H18 were found on well-drained ground on the upper part of Glas-bheinn Bheag and on the north west slope of Meall Fuar-mhonaidh. It is floristically closest to the *Hylocomium splendens-Rhytidiadelphus loreus* sub-community H18a, but locally showing some affinities with the *Racomitrium lanuginosum-Cladonia* spp. sub-community H18c.

5.8.7 On northerly aspects at higher altitude on Meall Fuar-mhondaidh, H22 was occasionally recorded, which has similarities to H21 but with a montane element, in which heather and bilberry are accompanied by smaller amounts of cloudberry, stiff sedge *Carex bigelowii*, heath rush, common cottongrass, *Sphagnum capillifolium/rubellum* and pleurocarpous mosses of acid conditions.

5.8.8 All montane heaths constitute ***Annex I H4060 Alpine and boreal heaths***, and all are Upland Heathland priority SBL habitat. The recorded montane heaths are widespread at higher altitude throughout the Highlands, becoming more abundant above the altitude of the Proposed Development, the highest parts of which are at the lower end of the montane zone. The observed montane heaths were in good condition (prostrate uniformity arising through exposure is natural in these heaths).

5.9 Flush, Fen, Rush-pasture and Swamp

5.9.1 Recorded flushes are mainly basic and mainly comprise M10 and M11, the latter similar to the former but with frequent yellow saxifrage *Saxifraga aizoides*. These are mostly, as is typical, narrow and stony. Some basic flushes include or are dominated by M15a, a flushed form of wet heath. Typical species in the M10/M11 include the base-indicator mosses *Scorpidium scorpioides/revolvens*, and vascular species such as carnation sedge, dioecious sedge *Carex dioica*, tawny sedge, few-flowered spikerush *Eleocharis quinqueflora,* jointed rush, butterwort *Pinguicula vulgaris*, bog asphodel, round-leaved sundew, lesser spearwort *Ranunculus flammula*, lesser clubmoss *Selaginella selaginoides* and fairy flax *Linum catharticum*. Other mosses recorded here include *Ctenidium molluscum, Sarmentypnum sarmentosum, Calliergonella cuspidata, Blindia acuta* and *Sphagnum auriculatum*. More notable species occur locally including northern deergrass *Trichophorum cespitosum*[15], Scottish asphodel *Tofieldia pusilla*, alpine meadow-rue *Thalictrum alpinum*, broad-leaved cottongrass *Eriophorum latifolium* and the uncommon moss *Drepanocladus trifarius*. The relevant M15a typically includes significant amounts of cross-leaved heath as well as carnation sedge and some of the above-listed species, as well as locally alpine lady's-mantle *Alchemilla alpina*; rarely, although not near proposed infrastructure, it includes the base-indicator mosses *Sphagnum warnstorfii* and *Sphagnum contortum*.

5.9.2 Acid flush constituting NVC type M6 (mainly M6c with soft-rush *Juncus effusus*, and sphagna such as *Sphagnum fallax* and *Sphagnum palustre*) is scarce and was only locally recorded, although extensive M6 was recorded far east of the Headpond towards the Euroforest track. It often also contains the large moss *Polytrichum commune*, and the species composition is clearly indicative of acidic conditions. Although most of the recorded examples contain much soft-rush, and correspond to M6c, occasionally M6a was recorded in which the sward is of sedges without rushes, especially star sedge, with associates such as velvet bent *Agrostis canina*, sweet vernal-grass, marsh violet *Viola palustris*, mat-grass, tormentil, bog asphodel *Narthecium ossifragum*, purple moor-grass and the moss *Hylocomium splendens*. Very rarely, similarly wet acidic vegetation with much sphagnum of but with a sward dominated by bottle sedge was recorded, which corresponds to M4.

5.9.3 Rarely, neutral sedge mire ('MX'), that does not well-fit into the acid or basic NVC flush types, was recorded. This has a mix of sedges, especially star sedge and common sedge, but also some carnation sedge, glaucous sedge *Carex flacca* and (rarely) white sedge *Carex pallescens*. Accompanying species include devil's-bit scabious, marsh violet, tormentil, eyebright *Euphrasia* agg., water avens, yellow pimpernel *Lysimachia nemorum*, marsh horsetail *Equisetum palustre*, butterwort, white clover *Trifolium repens*, bog asphodel, alpine bistort *Persicaria vivipara*, early marsh-orchid *Dactylorhiza maculata*, purple moor-grass and the mosses *Rhytidiadelphus squarrosus, Hylocomium splendens, Aulacomnium palustre* and *Sphagnum palustre*. There is some floristic overlap with M10 and M6a/b, but this MX has little or nothing of the calcicolous 'brown mosses' of M10 and lacks the abundance of acidophilous sphagna of M6. Small areas of MX mire were rarely recorded on flushed ground among grasslands (including U5c) and wet heath (especially M15a).

5.9.4 There are local extents of wet acidic grassland dominated by tussocky purple moor-grass, typically along watercourses. It is generally species-poor with associates such as tormentil, star sedge and common pleurocarpous mosses of acid conditions such as *Hylocomium splendens*. There is often thinly scattered heather and cross-leaved heath, and scattered *Sphagnum fallax* and *Sphagnum capillifolium/rubellum*. This is the typical M25a sub-community, and is of no note. Some of the M25a includes abundant bog myrtle and was labelled M25aMM. Rarely, M25b was recorded, a more grassy form in which species typical of standard U4 and U5 were found mixed with abundant purple moor-grass (again, of no note), and also very rarely M25c in which neutral wetland herbs similar to those present in M23 were recorded.

5.9.5 Rush-pasture and related vegetation dominated by rushes in neutral conditions was rarely recorded, and is all beyond possible impact. Both M23a and M23b were recorded, the former dominated by sharp-flowered rush *Juncus acutiflorus* and the latter by soft-rush. Typical recorded associates comprise marsh violet, marsh bedstraw *Galium palustre*, bog stitchwort *Stellarium uliginosum* and the moss *Calliergonella cuspidata*.

5.9.6 Swamp is extremely localised and there is none within the footprint of the Proposed Development. Most frequently, it comprises intermittent species-poor bottle sedge *Carex rostrata* swamp around the peripheries of lochans, sometimes extending sparsely into the wider lochan, corresponding to S9a. Very occasionally, S10a was recorded, with similarly species-poor water horsetail *Equisetum fluviatile*. Rarely, very small amounts of slender sedge swamp were also recorded, for which there is no official NVC type. Sedge swamps in standing water of these kinds are evidently of value at some lochans to notable breeding birds (see **Chapter 8: Ornithology**

[15] Note that this is the former name of common deergrass, now *Trichophorum germanicum*; northern deergrass is scarce but certainly under-recorded.

(Volume 2: Main Chapter)). Rarely there are other typical and very species-poor swamp forms, of bog-bean *Menyanthes trifoliata* and jointed rush in transition to open water.

5.9.7 All basic flushes constitute ***Annex I H7230 Alkaline fens***, and together with acid flush and swamp fall within the Upland Flush, Fen and Swamp priority SBL habitat. All observed flushes, fens and swamps were in good condition. However, species-poor M25, which is likely derived from wet heath, was considered to be in moderate condition at best.

5.9.8 Whilst all flushes and rush-pasture also constitute potential GWDTE (potentially High GWDTE) it is critical to note that almost all the underlying bedrock in the Proposed Development Site is described as essentially impermeable in **Chapter 10: Water Environment (Volume 2: Main report)**. Consequently, it is very likely that the vast majority of flushes and rush-pasture are not heavily groundwater dependent, but rather made wet primarily by the climate or by water percolating along the upper substrate surface (as is frequently evident in base-rich flushes).

5.10 Grassland and Bracken

5.10.1 Grassland is very localised in the survey area, which is dominated by blanket bog and wet heath. It is largely confined to small extents of damp species-poor purple moor-grass (typically along watercourses), and dry acid and basic grasslands on the lower western slopes of Meall Fuar-mhonaidh and very locally on Glas-bheinn Mhòr and elsewhere. On the western slope of Meall Fuar-mhonaidh, it includes typical acid grassland forms of U4 and U5 of no note, but also more species-rich grassland corresponding to NVC types U4c and U5c.

5.10.2 The U4 is short grassland containing various combinations of the grasses common bent, brown bent *Agrostis vinealis*, sweet vernal-grass, sheep's fescue, viviparous fescue, mat-grass and wavy-hair grass. The small herbs heath bedstraw and tormentil are very common here, along with smaller amounts of other herbs such as common dog-violet, heath speedwell *Veronica officinalis* and heath milkwort *Polygala serpyllifolia*. Pleurocarpous acid mosses are common too. Much of the recorded U4 corresponds to this description, constituting U4a, and is widely and thinly scattered as small patches. More rarely at relatively low altitudes it includes some neutral species such as Yorkshire fog, white clover and yarrow *Achillea millefolium*, which corresponds to U4b and suggests slight nutrient enrichment. Locally in complex heath/grassland mosaics on the lower western slope of Meall Fuar-mhonaidh, there is richer U4 grassland, apparently in response to flushing and associated slight base-enrichment. These correspond to U4c and include a range of other species including bird's-foot trefoil, harebell *Campanula rotundifolia*, wood anemone *Anemone nemorosa*, northern bedstraw *Galium boreale*, wood cranesbill, wood avens, alpine bistort, lady's-mantle *Alchemilla glabra*, meadowsweet *Filipendula ulmaria* and eyebright.

5.10.3 The U5 is similar to the U4 described above, but with mat-grass as the most abundant grass, and consequently often a more tussocky structure. It is also widely but thinly scattered. Some is similar to U4a but with more mat-grass, which is the typical U5a sub-community. However, other U5 including locally on the lower western side of Meall Fuar-mhonaidh has a more species-rich flora indicating a degree of flushing and at least slight base-enrichment. This is U5c. At minimum there is an abundance of carnation sedge, but often a several and sometimes many of a wide range of other species, which include those listed for U4c above as well as ribwort plantatain *Plantago lanceolata*, meadow buttercup *Ranunculus acris*, flea sedge *Carex pulicaris*, marsh violet, heath milkwort, dandelion *Taraxacum officinale* agg., self-heal *Prunella vulgaris*, white clover and alpine lady's-mantle *Alchemilla alpina*. Locations of more species-rich U5c include the western slope of Meall Fuar-mhonaidh, and also locally on Glas-bheinn Mhòr where it included the uncommon frog orchid *Dactylorhiza viridis*. Very locally damp U5 grassland similar to U5a but including sphagnum and *Polytrichum commune* was recorded, which is U5b.

5.10.4 Basic grassland corresponding to NVC type species-rich CG10 was very locally recorded, in all cases far beyond the Proposed Development footprint. It was most abundantly recorded far east of the Headpond, on dry hill slopes and nearby vegetated shingle beside a watercourse, where both CG10b (damper, with small sedges) and CG10a (typical drier form) were recorded. Thyme is common in these grasslands, and there is a wide range of other herbs. The recorded CG10 is grazed and often short as it typical, but not over-grazed and sometimes more tussocky in river shingle locations, with swards of sheep's fescue, red fescue *Festuca rubra*, sweet vernal-grass and common bent. Characteristically, there are frequent low mats of thyme, and a wide range of herbs including all those listed for U4c and U5c aside from alpine lady's-mantle, plus fairy flax, devil's-bit scabious and locally more notable species such as wood cranesbill, globeflower and limestone bedstraw *Galium sterneri*. Mosses such as *Hylocomium splendens, Thuidium tamariscinum, Pseudoscleropodium purum, Rhytidiadelphus squarrosus* and *Dicranum scoparium* are also common. Most of this vegetation is slightly damp with flea sedge, carnation sedge, etc. and hence corresponds to CG10b, however a very little drier CG10 was found with little or no such species, corresponding to CG10a.

5.10.5 There is very little agriculturally improved grassland in the survey area. Small grazed extents occur at the eastern limit of the survey area and by the northern end of the Balnain access, corresponding to MG6 or MG10 where including soft-rush amongst neutral grasses.

5.10.6 Bracken stands are common on generally lower ground in the survey area. They are generally of low ecological value and were therefore often not closely inspected. However, forms with an essentially grassy flora (U20a) and more often an ericaceous flora including bilberry and sometimes heather (U20b) were observed. More notably, on the east side of Meall Fuar-mhondaidh and on the hillside of Sron Dubh north of it, unusually species-rich bracken was seen in which acid grasses and ericoids are present but there are also frequent uncommon species such as globeflower, wood cranesbill and primrose *Primula vulgaris*, and locally melancholy thistle *Cirsium heterophyllum* and water avens, indicating a degree of flushing.

5.10.7 The dry species-rich grassland types (U4c, U5c and CG10) all constitute ***Annex I H6230 Species-rich Nardus grasslands on siliceous substrates in mountain areas***. They are also Upland Calcareous Grassland priority SBL habitat. All of the observed species-rich grasslands were in good condition, with no suggestion of herbivore damage and an appropriate floristic range of species.

5.10.8 The species-rich forms of U4 and U5, as well as CG10, are potential GWDTE (potentially High GWDTE for CG10). These species-rich forms where found on the lower western slopes of Meall Fuar-mhonaidh are within a region of rock that represents a form of aquifer (see **Chapter 10: Water Environment (Volume 2: Main report)** and as such in these locations they may be genuinely groundwater-dependent, potentially receiving water direct from the bedrock rather than only from rainfall or rainfall percolated superficially downslope from above. However, elsewhere (such as on Glas-bheinn Mhòr) the likelihood of these being groundwater-dependent in this manner is much less owing to the reported essentially impermeable bedrock. CG10 well beyond the Proposed Development towards the Euroforest track is located beside a substantial watercourse and grows on deposits, often pebbly, deposited during spate events, and in this situation the CG10 is likely more dependent on water spreading from the watercourse than on bedrock water.

5.11 Natural Cliff/Crag

5.11.1 Rocky cliffs are abundant on the side of Meall Fuar-mhonaidh and were generally viewed from below. They include a large amount of dry heath. The exposed rocky parts also include local U17 species-rich ledge vegetation, with greater woodrush *Luzula sylvatica* and various herbs. Patches of this lush vegetation grow in inaccessible places on cliffs on Meall Fuar-mhonaidh – species here include roseroot *Sedum rosea*, wood cranesbill, devil's-bit scabious, goldenrod *Solidago virgaurea*, heather, lady's-mantle, tormentil, wood anemone, alpine sorrel *Oxyria digyna*, globeflower, glaucous sedge *Carex flacca* and the moss *Breutelia chrysocoma*. Very locally, small bushes of the nationally-scarce montane willow species whortle-leaved willow were seen in the vicinity of U17 (see **paragraph 5.4.3**). U17 constitutes ***Annex I H6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels***.

5.11.2 A crag on the southern part of Meall Fuar-mhonaidh extending southwards from the Headpond includes a rocky gully with notable species, including small-white orchid *Pseudorchis albida* and limestone bedstraw. Small local crags elsewhere that are not part of Meall Fuar-mhonaidh are more acidic and did not include such notable species, often with dry heaths and occasionally montane heath such as H12b, H10b and H16 (regarding which see dry and montane heaths above).

5.12 Aquatic Communities

5.12.1 Few aquatic NVC types were noted within lochans in the survey area, and none are extensive or of special note. They comprise tiny extents of species-poor white water-lily vegetation (A7) in Loch an t' Sionnaich in the far west of the survey area, and of broad-leaved pondweed (A9) at a small pool in the far east of the survey area, both well beyond possible impact. However, refer to **Chapter 9: Aquatic and Marine Ecology (Volume 2: Main Report)** for further information on water features.

6. Notable Flora

6.1.1 Several notable botanical species were recorded. The most notable are listed below (categories of threat below in brackets, where not 'Least Concern', are from the Vascular Plant Red Data List[16]). See also **Annex B** of this appendix, which provides a table of all target-noted species of interest, and notably species-rich habitats (all invariably basic and/or flushed), and **Figure 7.8 Notable Plants and Species-rich Habitats (Volume 3: Figures)**.

- The most notable recorded botanical species is whortle-leaved willow (Endangered), recorded locally in montane willow scrub on the western slope of Meall Fuar-mhonaidh and discussed previously under the Montane Scrub section (**paragraph 5.4.3**);
- Notable species associated with the blanket bog comprise dwarf birch (also occasional in heath) (a localised species and considered notable blanket bog species), and the two sphagna *Sphagnum fuscum* and *Sphagnum austinii*, which (especially the latter) tend to occur in blanket bog of better quality and minimal disturbance. The occurrence of these is discussed under the Montane Scrub section for dwarf birch (**paragraph 5.4.1**) and Blanket Bog section for the sphagna (**paragraph 5.5.3-5.5.4**);
- The uncommon base-indicator moss *Drepanocladus trifarius* was recorded in widely scattered base-rich flushes amongst *Scorpidium* species, none of which are with zones of impact;
- Three notably uncommon orchid species were recorded, all at locations beyond impact. As noted previously, small-white orchid (Vulnerable) was found at a crag on Meall Fuar-mhonaidh south of the Headpond. Frog orchid *Dactylorhiza viridis* (Vulnerable) was found in one patch of species-rich grassland on Glas Bheinn Mor. Lesser butterfly-orchid *Platanthera bifolia* (Vulnerable) was recorded once in flush habitat far east of the Headpond towards the Euroforest track;
- Serrated wintergreen (a very local species of certain woodlands and heaths) was recorded twice in (unaffected) birch woodland along the River Coiltie and towards the Alltsigh access (as discussed under the Ancient and Other Semi-natural Woodland section, **paragraphs 5.2.7** and **5.2.11**), and once in sloping open heath (also unaffected). The notable lichen *Peltigera britannica* was also recorded in unaffected birchwood along the River Coiltie;
- Interrupted clubmoss *Lycopodium annotinum* (another localised species) was recorded in several widely scattered locations, most often in forms of wet heath other than M15c. The majority are beyond possible impact – of 25 recorded locations, one would be certainly lost, and another two potentially lost through very close proximity to a permanent track;
- Alpine saw-wort *Sausurea alpina* (another localised species) was recorded twice in basic flushed vegetation, once within the Headpond and once on Glas-bheinn Mhòr beyond possible impact. It is probably present in other basic flushed vegetation, since it appears to rarely flower and the leaves can be easily missed; and
- A few notable lichens were occasionally recorded, all beyond possible impact, including *Peltigera britannica* and *Lobaria pulmonaria* in woodland, and on heathland *Ochrolechia frigida, Alectoris nigricans, Thamnolia vermicularis* and *Sphaerophorus globosus*.

[16] Cheffings, C.M. and Farrell, L. (eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005). *The Vascular Plant Red Data List for Great Britain*. Species Status No. 7. JNCC, Peterborough, ISSN 1473-0154.

Annex A: Urquhart Bay Woodland SAC

This Annex provides further detail on the observed woodland in Urquhart Bay Wood SAC.

W9 *Fraxinus excelsior-Sorbus aucuparia-Mercurialis perennis* woodland

There is a good extent of this type of woodland on more or less level ground west of Urquhart Bay, west / inland from the W7 and W7-9 woodland described below. This woodland has a canopy of ash, bird cherry, hazel (these three species especially plentiful), wych elm, sycamore *Acer pseudoplatanus*, downy birch, alder and goat willow. The ground vegetation is lush and quite species-rich, including (likely ancient woodland indicators are marked with an asterisk) *Mercurialis perennis*, Geum urbanum, Silene dioica, Allium ursinum*, Urtica dioica, Galium aparine, Hyacinthoides non-scripta*, Stachys sylvatica, Brachypodium sylvaticum*, Poa trivialis, Schedonorus giganteus, Bromopsis ramosa, Luzula sylvatica*, Stellaria holostea, Veronica montana*, Anemone nemorosa, Dryopteris dilatata, Dryopteris filix-mas, Dryopteris affinis, Athyrium filix-femina, Ranunculus repens, Aegopodium podagraria, Tolmiea menziesii,* the mosses *Kindbergia praelonga, Brachythecium rutabulum, Eurhynchium striatum, Thuidium tamariscinum, Hylocomiadelphus triquetrus* and *Plagiomnium undulatum*, and the liverwort *Plagiochila asplenioides*. The species composition overall places the woodland in the typical sub-community W9a and suggests that the soils are neutral to slightly basic.

Epiphytes in this W9a woodland include the mosses *Hypnum cupressiforme, Neckera complanata, Isothecium myosuroides, I. alopecuroides, Ulota bruchii, Dicranum scoparium, Plenogemma phyllantha, Pulvigera lyellii, Brachythecium rutabulum, Zygodon rupestris, Z. conoideus and Neckera complanata*, the liverworts *Frullania dilatata, F. tamarisci, Metzgeria furcata, M. violacea and Radula complanata*, and the lichens *Lobaria pulmonaria* (notably plentiful on some trees), *Lobarina scrobiculata, Peltigera collina* and *Pannaria conoplea*.

W7 *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum* woodland

This is wet woodland on level ground just inland from the loch shore. It has a flora indicating more or less neutral soils. The canopy here is of alder, grey willow, crack willow, ash and sycamore. There is a sparse shrub layer of blackcurrant. The ground layer is mainly a mix of herbs, grasses, sedges and mosses: species include (likely ancient woodland indicators are marked with an asterisk) *Ranunculus repens* (very abundant), *Juncus effusus, Filipendula ulmaria, Deschampsia cespitosa, Phalaris arundinacea, Urtica dioica, Galium aparine, Angelica sylvestris, Aegopodium podagraria, Silene dioica, Carex remota*, Carex sylvatica, Holcus mollis, Elytrigia canina, Schedonorus giganteus, Bromposis ramosa, Stachys sylvatica, Caltha palustris, Valeriana officinalis, Myosotis scorpioides* and *Equisetum sylvaticum,* and the non-native invasive species *Impatiens glandulifera, Fallopia japonica* and *Tolmiea menziesii*. This shows elements of both the *Urtica dioica* sub-community W7a and the *Carex remota-Cirsium palustre* sub-community W7b.

Epiphytes on trees in this W7 woodland include the mosses *Hypnum cupressiforme, Homalothecium sericeum, Lewinskya affinis, Ulota crispa s.l., U. drummondii* (this species seen on sycamore), *Cryphaea heteromalla* (on crack willow; this moss is very rare this far north in Britain) and *Zygodon viridissimus*, the liverworts *Frullania dilatata, Metzgeria violacea* and *Radula complanata*, and the lichens *Parmelia sulcata*, *Usnea subfloridana*, *Evernia prunastri* and *Platismatia glauca*.

Woodland intermediate between W7 and W9

Also at Urquhart Bay, just inland from the loch shore but further north from the above-described W7 (i.e. north of the mouth of the River Enrick), there is woodland floristically intermediate between the W7 and W9 communities described above. This W7-W9 woodland has a canopy of alder, ash, sycamore, grey willow, goat willow, crack willow, bird cherry, rowan and downy birch over a ground layer including (likely ancient woodland indicators are marked with an asterisk) *Luzula sylvatica*, Mercurialis perennis*, Deschampsia cespitosa, Filipendula ulmaria, Athyrium filix-femina, Crepis paludosa, Ranunculus repens, Epipactis helleborine* (NH 52477 29520), *Stachys sylvatica, Geum rivale, Scrophularia nodosa, Silene dioica, Circaea x intermedia*, Veronica montana*, Anemone nemorosa, Holcus mollis, Galium aparine, Phalaris arundinacea* and *Juncus effusus,* the non-native invasive species *Impatiens glandulifera* and *Tolmiea menziesii* (locally dominant), the mosses *Kindbergia praelonga, Calliergonella cuspidata* and *Atrichum undulatum*, and the liverwort *Pellia epiphylla*. It was observed that the land at the edge of the SAC and Loch Ness north of the River Enrick outflow has a bank approximately 0.8 m high.

Swamp at edge of Loch Ness

Difficulty of physical access along the loch shore limited the amount of swamp vegetation that could be examined, but the areas seen at the south-east edge of the SAC and Loch Ness were found to consist largely of *Carex rostrata* (dominant in S9), *Sparganium erectum* (dominant in small areas of S14) and *Phalaris arundinacea* (dominant in small areas of S28), with other species including *Juncus effusus, Myosotis scorpioides, Jacobaea aquatica,*

Ranunculus flammula, Caltha palustris, Oenanthe crocata, Galium palustre, Persicaria hydropiper and the non-native invasive species *Impatiens glandulifera*.

Annex B: Target-noted Species and Species-rich Habitats

**Entries are given in these columns according to whether each feature concerns target-noted habitat, vascular plant(s) and/or non-vascular plant(s)*

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
		Douinia ovata	Liverwort *Douinia ovata* on boulder.	245150	822043
		Ochrolechia frigida, Alectoris nigricans	H13 heath with species including lichens *Alectoris nigricans* and *Ochrolechia frigida*.	245397	821571
		Ochrolechia frigida, Thamnolia vermicularis	Lichens *Ochrolechia frigida* and *Thamnolia vermicularis* in H17 heath, with *Arctostaphylos alpinus* and *Diphasiastrum alpinum*.	245756	823077
		Ochrolechia frigida, Thamnolia vermicularis	H13 heath with lichens *Ochrolechia frigida* and *Thamnolia vermicularis*, as well as including *Carex bigelowii.*	245772	822191
		Ptilium cristacastrensis	Moss *Ptilium cristacastrensis* in H21a heath.	244527	823554
		Sphaerophorus globosus	H16 heath with lichen *Sphaerophorus globosus* and *Arctostaphylos uva-ursi*.	244711	821335
		Sphagnum austinii		245365	823051
		Sphagnum austinii	A few hummocks in this area.	245352	823029
		Sphagnum austinii		245376	823142
		Sphagnum austinii	One hummock.	246717	825019
		Sphagnum austinii	One hummock foreground, larger one in background.	246697	825022
		Sphagnum austinii	One hummock.	246687	825023
		Sphagnum austinii	One large and two small hummocks, merging, in small area of shallowly sloping M17b.	246751	823413
		Sphagnum austinii	One medium hummock in M17b.	246322	822815
		Sphagnum austinii	Small, very low mound, with *Sphagnum capillifolium* in M17b.	246055	822762
		Sphagnum austinii	One large hummock at this position, four smaller ones nearby. Much greater sundrew and few-flowered sedge, usual wet bog species, bog myrtle.	244324	821680
		Sphagnum austinii	One moderate hummock in M17b.	243839	821821
		Sphagnum austinii	Two moderate hummocks.	243402	821979
		Sphagnum austinii	Five medium and one small hummocks, one spreading at low level, damaged bit of *Eriophorum vaginatum* in middle might indicate there was a bigger hummock here.	243383	821994
		Sphagnum austinii	Appears to be one very large hummock that has been largely split/damaged by deer.	243366	822033
		Sphagnum austinii	One small and one medium hummock.	243345	822088

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
		Sphagnum austinii	One medium hummock in M17b.	243456	822118
		Sphagnum austinii	Two medium hummocks.	243459	822112
		Sphagnum austinii	One large hummock.	243457	822147
		Sphagnum austinii	Three large hummocks.	243463	822153
		Sphagnum austinii	Three large, four medium, and four small hummocks, in vegetation more like M15c at edge of M17b area, noticeably flat patch with sparsely scattered bottle sedge but cottongrass/*Sphagnum papillosum*, usual wet heath species, abundant deergrass.	243089	822002
		Sphagnum austinii	Small remnant hummock seems to have mainly degenerated to *Racomitrium lanuginosum*.	243160	822293
		Sphagnum austinii	One small hummock.	247169	825762
		Sphagnum austinii	One medium hummock.	244617	822638
		Sphagnum austinii	One small lower hummock.	244701	822697
		Sphagnum austinii	One large and one medium hummock.	244638	824191
		Sphagnum austinii	Two large hummocks in M17a.	244668	824050
		Sphagnum austinii	One large hummock.	244809	823938
		Sphagnum austinii	One large, three medium, and one small hummock in M17b.	245882	824891
		Sphagnum austinii	Three hummocks in M17a bog with other species including *Carex lasiocarpa* (abundant), *Carex pauciflora*, *Drosera anglica* and liverwort *Pleurozia purpurea*.	243537	821391
		Sphagnum austinii	Three hummocks) in M17 bog, plus *Carex pauciflora* and *Trichophorum cespitosum x germanicum*.	244327	821672
		Sphagnum austinii, Sphagnum fuscum	Three medium, one small, and two large compound *Sphagnum austinii/fuscum.*	243390	821990
		Sphagnum austinii, Sphagnum fuscum	Two small, one large, and two large compound *Sphagnum austinii/fuscum.*	243390	822094
		Sphagnum austinii, Sphagnum fuscum	Six medium *Sphagnum austinii*, one medium largely dead *Sphagnum fuscum* likely damaged by deer urine.	243471	822104
		Sphagnum austinii, Sphagnum fuscum	One small *Sphagnum austinii*, one small *Sphagnum fuscum* nearby to north.	245330	823639
		Sphagnum austinii, Sphagnum fuscum	Three large *Sphagnum austinii* with *Sphagnum capillifolium*, plus one large *Sphagnum fuscum.*	244780	823976
		Sphagnum austinii, Sphagnum fuscum	14 *Sphagnum austinii* hummocks in this thin strip of flat wetter bog (M17a), which has locally frequent *Carex rostrata*. Also two large *Sphagnum fuscum* hummocks	243382	822010

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
		Sphagnum austinii, Sphagnum fuscum	Six *Sphagum austinii* hummocks (two partly composed also of *Sphagnum fuscum*) and two very large *Sphagnum fuscum* hummocks, in M17a.	243342	822099
		Sphagnum austinii, Sphagnum fuscum	Four large and nine medium *Sphagnum austinii* hummocks; also one large and one medium *Sphagnum fuscum* hummocks, and another one medium hummock that was largely dead from deer pressure.	243460	822113
		Sphagnum fuscum	Three or four hummocks here.	245481	823208
		Sphagnum fuscum		245655	823404
		Sphagnum fuscum		245607	823513
		Sphagnum fuscum		245383	823471
		Sphagnum fuscum		242310	821796
		Sphagnum fuscum	Two hummocks.	245052	823540
		Sphagnum fuscum		244725	822908
		Sphagnum fuscum	Three large very dense hummocks, and one small one, forming an island of M19c but surrounding area mixed M17b and M15c.	244650	821400
		Sphagnum fuscum	One medium hummock in M17b.	246122	822775
		Sphagnum fuscum	One large hummock in M19c (M17b with deergrass adjacent).	246106	822754
		Sphagnum fuscum	One moderate with a little deer damage.	243748	821796
		Sphagnum fuscum	One very large.	243327	822087
		Sphagnum fuscum	One medium.	243467	822091
		Sphagnum fuscum	One large.	243455	822130
		Sphagnum fuscum	One moderate hummock in slight valley amongst M15c and adjacent to M11.	243520	822578
		Sphagnum fuscum	One large.	243938	822803
		Sphagnum fuscum	Large 'promontory' of *Sphagnum fuscum* extending into stony ground in gully	244472	823091
		Sphagnum fuscum	Large hummock in M19c, looks split by deer passage.	242395	822254
		Sphagnum fuscum	About six hummocks in slightly odd location in steep M15a/b.	247159	824033
		Sphagnum fuscum	Damaged hummock or hummocks close together.	247165	825775
		Sphagnum fuscum	One large but low hummock, some deer damage.	244570	822633
		Sphagnum fuscum	Two medium.	244611	822642
		Sphagnum fuscum	One large.	244902	822732

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
		Sphagnum fuscum	One medium.	244621	822433
		Sphagnum fuscum	One large but mixed with much *Hylocomium* and some *Sphagnum capillifolium*.	246436	822897
		Sphagnum fuscum	One large in M19c.	246213	822638
		Sphagnum fuscum	At least five medium to large in M19c.	246219	822626
		Sphagnum fuscum	One large.	244628	824184
		Sphagnum fuscum	A few hummocks of the moss *Sphagnum fuscum* in M19 bog, also *Betula nana*.	245625	823483
		Sphagnum fuscum	At least six hummocks in M19c bog.	246068	822414
		Sphagnum fuscum	In M19c bog.	245811	822937
		Sphagnum fuscum	In M19 bog.	244555	823012
		Sphagnum fuscum	On vertical side of peat hag in M19 bog. *Betula nana* nearby.	244556	823007
		Sphagnum medium	In lower wetter bog area in historically cut area, very locally co-dominant with *Sphagnum papillosum.*	247768	824100
		Sphagnum medium	Local in M17b.	246641	823073
		Sphagnum medium	Moderate amounts in lower M17b next to *Sphagnum papillosum/cuspidatum*.	243454	821551
		Sphagnum medium	Small amount by M2 pool with *Sphagnum cuspidatum.*	245038	823237
		Sphagnum medium	In M17b by M1 pool.	245939	824863
		Sphagnum medium	Single medium hummock.	243838	821823
		Sphagnum medium	Single medium hummock, with some deer damage.	243745	821793
		Sphagnum medium	With *Carex pauciflora* in M17a bog.	246841	824969
		Sphagnum medium	Small patch in M17a.	244929	823354
		Sphagnum medium	At edge of lochan.	244941	823224
		Sphagnum quinquefarium	*Sphagnum quinquefarium* occasional amongst *Sphagnum capillifolium* in extensive H21a here. Also *Equisetum sylvaticum* locally frequent in M19c, with *Rubus chamaemorus* and occasional *Melampyrum pratense.*	246773	823618
	Alpine bearberry		Small amount.	244207	822979
	Alpine bearberry		Small amount.	244825	822998
	Alpine bearberry		*Arctostaphylos alpinus* rare in M15c in this area.	243965	822697
	Alpine bearberry		*Arctostaphylos alpinus* in H17 heath.	244307	823100
	Alpine bearberry		*Arctostaphylos alpinus* in M15c wet heath.	244330	823100

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
	Alpine bearberry		*Arctostaphylos alpinus* in M15c wet heath.	244120	823055
	Alpine bearberry		*Arctostaphylos alpinus* in M15c wet heath.	244142	823204
	Alpine bearberry		*Arctostaphylos alpinus* in M15c wet heath.	243959	823651
	Alpine bearberry	*Cladonia rangiferina*	*Arctostaphylos alpinus* and *Arctostaphylos uva-ursi* and *Cladonia rangiferina* in H17 heath.	244548	822932
	Aspen		Three mature *Populus tremula* (likely one clone)	243645	819873
	Bearberry		*Arctostaphylos uva-ursi* in H10b dry heath.	245885	823602
	Bearberry		*Arctostaphylos uva-ursi* in H10-H21 heath.	246224	826415
	Bearberry		*Arctostaphylos uva-ursi* in H16 heath.	246324	824482
	Bearberry		*Arctostaphylos uva-ursi* in M15c wet heath.	244224	820524
	Bearberry		*Arctostaphylos uva-ursi* in M15c wet heath.	245774	823830
	Bearberry		*Arctostaphylos uva-ursi* in M15c wet heath.	245540	823706
	Bearberry		*Arctostaphylos uva-ursi* in M15c wet heath.	245473	823662
	Bog bilberry		Vaccinium uliginosum in H22 heath.	246059	822392
	Creeping willow		*Salix repens* in M15a wet heath.	247004	822812
	Creeping willow		*Salix repens* in M15a wet heath.	245741	823790
	Creeping willow		*Salix repens* in M15a wet heath.	246491	824609
	Dwarf birch		Several.	245150	822784
	Dwarf birch		In M19c, at least a dozen individuals, some cloudberry nearby.	244338	822670
	Dwarf birch		Looks like one plant, nothing more nearby, in M15c, wet heath perhaps a little over grazed with some deer poaching.	243295	822280
	Dwarf birch		About ten plants in M19c.	244035	822872
	Dwarf birch		A few plants in M15c, short and one bitten off.	244285	822973
	Dwarf birch		About 20 plants close together in M19c, also another five or so about 10 m to north-east.	244321	823012
	Dwarf birch		One plant in H21.	244411	823045
	Dwarf birch		Few plants in M19a near large pool.	244438	823049
	Dwarf birch		One plant in M19a.	244524	823225
	Dwarf birch		A few in M15c.	244576	823256
	Dwarf birch		One in rocky M15c.	244648	823298
	Dwarf birch		With *Juniperus communis* in M15c.	244654	823315
	Dwarf birch		In M15c	244667	823333
	Dwarf birch		At least 3 in M19a with cloudberry abundant.	244697	823162
	Dwarf birch		Two in M19c.	244708	823070
	Dwarf birch		At least 20 in M19c (M17b).	244661	822828
	Dwarf birch		At least 10 in M19c.	244567	822862
	Dwarf birch		One in M15c.	244508	822929
	Dwarf birch		About five in M19c.	244476	822853

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
	Dwarf birch		At least four around and one within a miniscule *Sphagnum cuspidatum* pool.	244443	822785
	Dwarf birch		One short in M15c.	243553	822118
	Dwarf birch		AT least six in M17b approaching M19.	244568	822600
	Dwarf birch		At least ten in M15c, some shoots previously bitten, another six seen shortly to south-east.	244892	822717
	Dwarf birch		At least five in M17b.	244919	822690
	Dwarf birch		One in M15c.	244933	822665
	Dwarf birch		About 20 in M15c here and south-east.	244971	822624
	Dwarf birch		About five in M15c.	244958	822581
	Dwarf birch		About eight in M19c with cloudberry.	244843	822492
	Dwarf birch		About 40 plants in a slightly raised area of M19c.	244756	822102
	Dwarf birch		Four in M17a w slight flushing.	244739	821716
	Dwarf birch		Four at edge of small M15a patch with two fragrant orchids and several meadow oat-grass.	243042	822172
	Dwarf birch		About 15 in M15c with locally a little hare's-tail cottongrass, another 20 shortly north-east. Fairly short, slight overgrazing.	243068	822199
	Dwarf birch		About six at edge of M15c and M17b.	243187	822290
	Dwarf birch		About eight at junction M17b/M15c.	244558	822639
	Dwarf birch		About ten all low in small patch M19c.	244643	822662
	Dwarf birch		Seven in tiny patch M17b.	244814	822789
	Dwarf birch		Three in M19c with cloudberry.	244896	823021
	Dwarf birch		A few in M17b.	245011	823061
	Dwarf birch		At least 40 in patches M19c amongst M15c along this west facing slope, often short.	245106	823326
	Dwarf birch		Two in tiny M19c.	245050	822951
	Dwarf birch		About ten mainly in M19c.	244966	822799
	Dwarf birch		Five or so widely spread in M15c M19c.	244689	822595
	Dwarf birch		One in M19c.	244537	822305
	Dwarf birch		About 15 plants.	245086	822427
	Dwarf birch		Two plants.	245111	822440
	Dwarf birch		Three plants.	245139	822501
	Dwarf birch		Around 10 plants.	245126	822526
	Dwarf birch		Several.	244929	822470
	Dwarf birch		Several.	245025	822400
	Dwarf birch		Several.	245195	822733
	Dwarf birch		Several.	244899	822843
	Dwarf birch		One in M15c.	246550	825065
	Dwarf birch		*Betula nana* and some young *Betula pubescens* in M15c wet heath and M17b and M19c bog.	245135	822788
	Dwarf birch		*Betula nana* in M15-19 wet heath/bog.	244510	822755
	Dwarf birch		*Betula nana* in M15c wet heath and M19c bog (many plants seen from here to NH 44760 22463).	244877	822516
	Dwarf birch		*Betula nana* in M15c wet heath and M19c bog (many plants seen from here to NH 44877 22516).	244760	822463

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
	Dwarf birch		*Betula nana* in M15c wet heath and M19c bog.	245202	822841
	Dwarf birch		*Betula nana* in M15c wet heath.	245559	823716
	Dwarf birch		*Betula nana* in M15c wet heath.	244633	823205
	Dwarf birch		*Betula nana* in M15c wet heath.	244440	823094
	Dwarf birch		*Betula nana* in M15c wet heath.	243848	823813
	Dwarf birch		*Betula nana* in M15c wet heath.	244307	822210
	Dwarf birch		*Betula nana* in M15c wet heath.	244554	822992
	Dwarf birch		*Betula nana* in M19 bog.	244745	821704
	Dwarf birch		*Betula nana* in M19 bog.	245776	823507
	Dwarf birch		*Betula nana* in M19 bog.	244553	822872
	Dwarf birch		*Betula nana* in M19 bog.	244566	823039
	Dwarf birch		*Betula nana* in M19a bog.	244499	823773
	Dwarf birch		*Betula nana* in M19c bog.	244682	822423
	Dwarf birch		*Betula nana* in M19c bog.	244446	823770
	Dwarf birch		Three plants.	245249	823250
	Dwarf birch		Ten plants.	245253	823307
	Dwarf birch		Three plants.	245132	823384
	Dwarf birch		Three plants.	245064	823397
	Dwarf birch		One plant.	244926	823378
	Dwarf birch, Juniper		*Betula nana*, also *Juniperus communis*, in M15c wet heath.	244080	824038
	Floating bur-reed		Small amount of *Sparganium angustifolium* at lochan edge.	245282	823292
	Interrupted clubmoss		*Lycopodium annotinum* in H21a heath.	245736	824115
	Interrupted clubmoss		*Lycopodium annotinum* in H21a heath.	246483	824795
	Interrupted clubmoss		*Lycopodium annotinum* in heath (M15c and M15b-H21a).	244847	821671
	Interrupted clubmoss		*Lycopodium annotinum* in M15 wet heath.	247631	825695
	Interrupted clubmoss		*Lycopodium annotinum* in M15 wet heath.	246688	824609
	Interrupted clubmoss		*Lycopodium annotinum* in M15 wet heath.	244210	823911
	Interrupted clubmoss		*Lycopodium annotinum* in M15 wet heath.	246102	824687
	Interrupted clubmoss		*Lycopodium annotinum* in M15 wet heath.	245598	824867
	Interrupted clubmoss		Lycopodium annotinum in M15 wet heath. Tiny M32 spring with abundant *Dichodontium palustre* nearby.	245458	824608
	Interrupted clubmoss		*Lycopodium annotinum* in M15/M25 wet heath/Molinia.	244607	823366
	Interrupted clubmoss		*Lycopodium annotinum* in M15b wet heath.	246243	823968
	Interrupted clubmoss		*Lycopodium annotinum* in M15b wet heath.	245543	823851
	Interrupted clubmoss		*Lycopodium annotinum* in M15b wet heath.	245881	824453

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
	Interrupted clubmoss		*Lycopodium annotinum* in M15b wet heath.	245921	824443
	Interrupted clubmoss		*Lycopodium annotinum* in M15b wet heath.	246318	824810
	Interrupted clubmoss		*Lycopodium annotinum* in M15c wet heath.	244652	823212
	Interrupted clubmoss		*Lycopodium annotinum* in M15c wet heath. Nearby rock outcrops have species including the mosses *Hypnum callichroum* and *Tortella tortuosa*.	244051	823310
	Interrupted clubmoss		*Lycopodium annotinum* in M15 wet heath, and *Salix repens*.	246558	824871
	Interrupted clubmoss		Very large amount of *Lycopodium annotinum* in M15b patch.	245064	824221
	Interrupted clubmoss	Ptilium cristacastrensis	*Lycopodium annotinum* and moss *Ptilium cristacastrensis* in H21a heath.	243933	823733
	Interrupted clubmoss		Several scattered in M15 patch.	244837	821685
	Interrupted clubmoss		Several scattered in M15 patch.	247190	823581
	Interrupted clubmoss		Moderate quantity in M15b.	244733	824005
	Interrupted clubmoss		Large quantity in M15b patch.	246521	825049
	Juniper		*Juniperus communis* (<10 cm tall) in M15c wet heath.	244530	821641
	Juniper		*Juniperus communis* (<30 cm tall) in H10-12 heath.	248101	826036
	Juniper		*Juniperus communis* (two plants, 10 cm and 30 cm tall) in M15c wet heath.	244616	821539
	Juniper		*Juniperus communis* (two small plants c. 25 cm tall) in M15c wet heath.	244597	821554
	Juniper		*Juniperus communis* (very small specimen) in rocky H10b heath.	245546	821978
	Juniper		*Juniperus communis* and *Arctostaphylos uva-ursi* scattered in heath on steep rocky slope.	246260	822250
	Juniper		*Juniperus communis* and *Genista anglica* in M15c wet heath.	246144	824235
	Juniper		*Juniperus communis* in H10b dry heath.	243094	820996
	Juniper		*Juniperus communis* in H18 heath.	245802	823996
	Juniper		*Juniperus communis* in heath.	248499	826245
	Juniper		*Juniperus communis* in M15 wet heath.	247946	823025
	Juniper		*Juniperus communis* in M15 wet heath.	243191	820736
	Juniper		*Juniperus communis* in M15 wet heath.	243096	820547
	Juniper		*Juniperus communis* in M15/H10 heath.	243010	820415
	Juniper		*Juniperus communis* in M15c wet heath.	245073	821156
	Juniper		*Juniperus communis* in M15c wet heath.	243414	820929
	Juniper		*Juniperus communis* in M15c wet heath.	243892	820484
	Juniper		*Juniperus communis* in M15c wet heath.	246202	823943
	Juniper		*Juniperus communis* in M15c wet heath.	245586	823495
	Juniper		*Juniperus communis* in M15c wet heath.	246226	826568
	Juniper		*Juniperus communis* in M15c wet heath.	246819	824767
	Juniper		*Juniperus communis* in M15c wet heath.	246431	824576

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
	Juniper		*Juniperus communis* in M15c wet heath.	245520	824642
	Juniper		*Juniperus communis* in M15c wet heath.	245720	824523
	Juniper		*Juniperus communis* in M15c wet heath.	244345	823098
	Juniper		*Juniperus communis* in W4-W17b woodland.	247842	822880
	Juniper		*Juniperus communis* just west of track.	243358	820930
	Oak fern		*Gymnocarpium dryopteris* very locally frequent here	246697	823536
	Other native shrubs/trees		*Betula pubescens* (10 cm tall) in M15c wet heath.	246055	824222
	Other native shrubs/trees		*Ilex aquifolium* in H10-12 heath.	244963	821296
	Other native shrubs/trees		Rowan (3.5 m tall) on steep rocky slope. *Arctostaphylos uva-ursi* in M15c wet heath 10 m SSE/upslope.	247351	825030
	Other native shrubs/trees		Rowan seedling in M19 bog.	244499	823220
	Other native shrubs/trees		Steep rocky slope with H10 and H16 heath and species including *Arctostaphylos uva-ursi*, *Juniperus communis, Populus tremula, Betula pubescens, Sorbus aucuparia, Pinus sylvestris* and spruce sp.	246470	822450
	Petty whin		On small rock exposures with H10 dry heath.	245925	823761
	Petty whin		Very local here.	248085	824267
	Petty whin		Scattered thinly but widely on steeper ground with small rock exposures in this vicinity.	248068	826686
	Petty whin		Locally frequent here.	244867	821235
	Petty whin		Scattered in 5x5 m area at bottom of H12a heath.	247912	823911
	Petty whin		Locally frequent here, also in open mixed semi-natural woodland below deer fence.	245459	820153
	Petty whin		Locally frequent here.	243376	821839
	Petty whin		Locally frequent here.	243593	822538
	Petty whin		Abundant on steep slope.	243940	822429
	Petty whin		With *Melampyrum pratense*.	245155	820525
	Petty whin		Abundant on small rock exposure here, also scattered on other rock exposures in vicinity.	247058	825296
	Petty-whin		*Genista anglica* in H10c heath.	248463	826243
	Petty-whin		*Genista anglica* in M15c wet heath.	244047	820797
	Serrated wintergreen		*Orthilia secunda* in small quantity on very steep rocky bank on south side of river.	246430	826743
	Serrated wintergreen		Good population of *Orthilia secunda* in H21a heath, as well as some *Betula nana*. Also some *Anastrepta orcadensis* (liverwort) here.	246774	824948
	Serrated wintergreen, Dwarf birch		Several rosettes at edge of M19c/H21, with a little dwarf birch.	246773	824961
	Slender sedge		*Carex lasiocarpa* in transitional M17a-M6 vegetation.	245858	826460
	Stiff sedge		Area around summit includes *Carex bigelowii*.	245700	822210
	Stone bramble		In steep H10-12 grading to scree.	245876	820389
	Stone bramble		*Rubus saxatilus* in U20-W25 bracken.	247629	824618
	Stonewort		Undetermined charophyte in small stream.	248241	823544

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
Basic bog pool		*Drepanocladus trifarius*	Transitional M1-M10 long bog pool, with *Scorpidium scorpioides* plus *Drepanocladus trifarius* and *Eleocharis quinqueflora*, plus *Sphagnum auriculatum*, more rarely *Carex pauciflora/paniculata/demissa/echinata*.	243416	820165
Basic bog pool	Mud sedge		*Carex limosa* scattered in long bog pool, transitional between M1 and M10, essentially aquatic habitat but with *Eleocharis quinqueflora/Sphagnum auriculatum* dominant, *Drosera anglica* abundant.	243416	820130
Basic flush			Basic flush with *Campylium stellatum, Scorpidium scorpioides*, small sedges, cross-leaved heath.	246792	822669
Basic flush			Basic flush with *Scorpidium scorpioides, Salix repens; Trollius* scattered upslope down to about here, with much *Geranium sylvaticum* also, including in bracken stands.	247404	822867
Basic flush			Basic flush with *Trollius* in M15a beside narrow M10 flush including *Carex dioica*. *Geranium sylvaticum* and *Dactylorhiza ericetorum* also frequent here.	247218	822695
Basic flush			M15a here includes about ten *Gymnadenia conopsea*, with *Carex panicea/hostiana.*	243655	821267
Basic flush			M15a/U5c not as diverse as upstream, but including *Galium boreale*.	244265	822216
Basic flush			Location of main extent of M10 in this polygon, which is very narrow with *Scorpidium scorpioides, Carex dioica/hostiana/demissa, Eleocharis quinqueflora, Blindia acuta.*	243826	821939
Basic flush			M10 flush with species including *Thalictrum alpinum, Trichophosum cespitosum x germanicum, Carex demissa/pauciflora, Pinguicula vulgaris* and mosses *Sarmentypnum sarmentosum and Scorpidium scorpioides.*	244824	821512
Basic flush			M10 flush.	247334	824437
Basic flush			M10a flush at bottom of steep slope.	243963	823409
Basic flush			Small species-rich M10a flush with species including *Thalictrum alpinum, Saxifraga aizoides* and *Trichophorum cespitosum, Carex demissa/panicea, Blindia acuta, Scorpidium scorpioides, Warnstorfia sarmentosa, Campylium, Eleocharis quinqueflora, Pinguicula vulgaris* and a little *Saxifraga aizoides*.	244558	821582
Basic flush			M10a flush.	246312	823983
Basic flush			M10a flush.	246002	823615
Basic flush			M10a flush.	246320	823783
Basic flush			*Saxifraga aizoides* in M10 flush.	245867	823583
Basic flush			Very small M10a flush (among M15/17/19 heath/bog habitat).	246349	824004
Basic flush			*Saxifraga aizoides, Persicaria vivipara* and moss *Breutelia chrysocoma* in M11 flush. Adjacent MX sedge mire has species including *Persicaria vivipara*.	247775	826832
Basic flush			*Persicaria vivipara* in MX sedge mire.	247353	825097
Basic flush			Several small stony M10 flushes, partly M11 with frequent *Saxifraga aizoides*, and usual species e.g. *Scorpidium scorpioides, Campylium, Carex demissa.*	244795	823283
Basic flush		*Drepanocladus trifarius*	Scattered amongst *Scorpidium scorpioides* in M11.	243521	822594
Basic flush		*Drepanocladus trifarius*	Locally abundant in M10/M11	243523	822603
Basic flush		*Drepanocladus trifarius*	M11 most notable with frequent *Drepanocladus trifarius, Scorpidium scorpioides/revolvens, Eleocharis*	243532	822594

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
			quinqueflora, Carex dioica, Trichophorum hybrid, Aneura pinguis; three *Sphagnum fuscum* hummocks adjacent; M15a with *Tofieldia* and *Thalictrum alpinum*.		
Basic flush		*Drepanocladus trifarius*	Moss *Drepanocladus trifarius* in M10 flush.	245848	823523
Basic flush		*Drepanocladus trifarius*	Moss *Drepanocladus trifarius* in M10a flush with *Saxifraga aizoides*.	246162	823919
Basic flush	Alpine saw-wort, Limestone bedstraw		M11 flush most notably including *Saussurea alpina* and *Galium sterneri*, also *Saxifraga aizoides, Tofieldia pusilla, Plantago maritima, Alchemilla alpina, Thalictrum alpinum, Galium boreale* and *Persicaria vivipara*.	244959	821792
Basic flush	Broad-leaved cottongrass		In M15a/M10.	248398	824713
Basic flush	Dwarf birch		*Betula nana* in M15a flushed wet heath. M10a flushes nearby.	244184	823944
Basic flush	Dwarf birch		*Betula nana* in M19 bog. Nearby M11 flush has species including *Eriophorum latifolium* and *Tofieldia pusilla*.	246057	823866
Basic flush	Dwarf birch, Scottish asphodel		Dwarf birch local in M19c in this area, with *Vaccinium vitis-idaea*. Small amount of M10 flush also present here, with *Tofieldia*.	244185	822828
Basic flush	Broad-leaved cottongrass		M10 flush with abundant *Eriophorum latifolium, plus Scorpidium scorpioides, Eleocharis quinqueflora, Blinda acuta*, a little *Saxifraga aizoides.*	246552	826153
Basic flush	Fragrant orchid		*Gymnadenia conopsea* in rich M15a, also with *Dactylorhiza ericetorum, Molinia, Erica tetralix, Calluna, Salix repens, Succisa, Carex panicea, Pinguicula vulgaris, Anemone.*	247348	822841
Basic flush	Interrupted clubmoss, Northern deergrass		*Lycopodium annotinum* in M15 wet heath. Nearby M10 flush has *Trichophorum cespitosum* (Nationally Scarce), *Tofieldia pusilla* and *Carex hostiana*.	244427	823765
Basic flush	Northern deergrass		*Trichophorum cespitosum* (Nationally Scarce), *Saxifraga aizoides* and *Carex hostiana* in M11 flush.	244082	823274
Basic flush	Northern deergrass, juniper		M10/15a flushes have species including *Eriophorum latifolium*, *Juniperus communis*, *Trichophorum cespitosum* (Nationally Scarce), *Saxifraga aizoides* and *Gymnadaenia conopsea*.	247914	825612
Basic flush	Scottish asphodel		Small amount M10 in this area includes *Tofieldia.*	243181	822355
Basic flush	Scottish asphodel		A few thin basic flushes run downslope in this area, merging, including M10 and less often M11, with usual species plus frequent *Trichophorum* hybrid and *Tofieldia.*	243887	822240
Basic flush	Scottish asphodel		*Thalictrum alpinum* and *Tofieldia pusilla* in M10 flush.	242994	821004
Basic flush	Scottish asphodel		*Tofieldia pusilla* and *Thalitrum alpinum* in M11 flush. Nearby M32 spring has more *Thalitrum alpinum*. Rocks just upslope have species including *Alchemilla alpina, Antennaria dioica* and liverworts *Gymnomitrion conccinatum* and *Gymnomitrion obtusum*.	245486	821784
Basic flush	Scottish asphodel	*Drepanocladus trifarius*	M10 flush with species including *Tofieldia pusilla*, *Trichophorum cespitosum* (Nationally Scarce), *Saxifraga aizoides* and moss *Drepanocladus trifarius*.	245027	821251
Basic flush	Scottish asphodel	*Drepanocladus trifarius*	M10/11 flushes with species including *Saxifraga aizoides*, *Tofieldia pusilla* and moss *Drepanocladus trifarius*.	245849	823152
Basic flush	Scottish asphodel	*Drepanocladus trifarius*	M10a and M11 flushes with species including *Tofieldia pusilla, Saxifraga aizoides, Thalictrum alpinum* and moss *Drepanocladus trifarius*.	244776	821360

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
Basic flush	Scottish asphodel, Northern deergrass		M10a flush with species including *Eriophorum latifolium, Trichophorum cespitosum* (Nationally Scarce), *Saxifraga aizoides, Tofieldia pusilla* and *Drosera anglica.*	243265	821243
Basic flush	Scottish asphodel, Northern deergrass		M11 and M15a flushes have species including *Eriophorum latifolium, Saxifraga aizoides, Tofieldia pusilla* and *Trichophorum cespitosum* (Nationally Scarce).	247922	825653
Basic flush	Scottish asphodel, Northern deergrass		M11 flush with species including *Saxifraga aizoides, Eriophorum latifolium, Drosera anglica, Trichophorum cespitosum* (Nationally Scarce), *Thalictrum alpinum* and *Tofieldia pusilla*.	246074	823874
Basic flush, Dry heath	Scottish asphodel		M10 flush with species including Tofieldia pusilla and *Saxifraga aizoides*. Also *Genista anglica* and *Salix repens* in nearby H10/M15c heath.	246282	823961
Basic flush, Flushed heath			More M15a than M10; M10 occasional *Thalictrum alpinum*; sedges *Carex paniculata/dioica/demissa/hostiana*, *Linum catharticum*, *Juncus bulbosus*; M15a some *Thalictrum alpinum, Dactylorhiza ericetorum*, plus much *C. paniculata, Molinia, Erica tetralix.*	243677	822000
Basic flush, Flushed heath			Several very thin M10 stony flushes run downslope in this vicinity, with usual species, and adjacent M15a has locally frequent *Thalictrum alpinum*.	243916	822066
Basic flush, Flushed heath			A few thin M10 flushes run downslope in this area, tending to merge, all M10 similar to elsewhere nearby but here with adjacent M15a containing Lotus corniculatus in places, and occasionally *Antennaria dioica* and *Galium boreale.*	243794	822246
Basic flush, Flushed heath			M10 flush with species including *Drosera anglic*a. Nearby M15a wet heath has species including *Geranium sylvaticum* and *Salix aurita*. Nearby H10c has species including *Geranium sylvaticum*.	247377	824408
Basic flush, Flushed heath		*Drepanocladus trifarius*	*Drepanocladus trifarius* in M10, with usual *Scorpidium scorpioides, Blindia acuta, Carex paniculata/demissa*, etc.; nearby M15a with *Thalictrum alpinum* locally frequent.	244038	822218
Basic flush, Flushed heath	Globeflower		M15a/M10. *Trollius* rare in M15a, with *Calluna, Erica tetralix, Molinia, Polygala, Pedicularis, Ctenidium, Narthecium, Carex paniculata/pulicaris, Dactylorhiza ericetorum*, also *Gymnodenia conopsea* rare. Latter also in H12c with *Antennaria, Fragaria*.	243154	821581
Basic flush, Flushed heath	Scottish asphodel		Flushes (M10/11/15a) with species including *Eriophorum latifolium* and *Tofieldia pusilla*.	247395	824416
Basic grassland			Similar to CG10 on nearby as noted shortly to south-east, but more vegetated. Grades to more abundant U4c with *Persicara vivipara* etc.	247363	824019
Basic grassland			Miniscule amount of CG10a on cobbles beside stream, with *Thymus drucei* and usual species.	243363	820238
Basic grassland			CG10b grassland with species including *Persicaria vivipara, Geranium sylvaticum* and *Carex pallescens*.	247251	824149
Basic grassland	Frog orchid		2 *Dactylorhiza viridis* seen in U5c, with *Thalictrum alpinum*, etc.	243724	822736
Basic grassland	Globeflower, Limestone bedstraw		Small area of CG10b grassland with species including *Galium sterneri, Geranium sylvaticum, Trollius europaeus* and *Danthonia decumbens*.	247292	824541
Basic grassland	Limestone bedstraw		CG10 on deposited shingle with *Thymus, Saxifraga aizoides, Plantago lanceolata, Viola riviniana, Festuca* spp, *Prunella, Lathyrus lin., Carex* dem.; occasional *Galium sterneri, Alchemilla alpina, Hypochaeris, Calluna, Erica cinerea* and rare *Rhinanthus, Fragaria,*	247384	824000

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
			Pilosella, Alchemilla glabra, Lotus corniculatus, Galium verum/boreale, Cirsium heterophylum.		
Basic grassland	Limestone bedstraw		Patch of CG10b including *Thymus, Galium verum/sterneri, Persicaria vivipara, Primula vulgaris, Linum, Geranium sylvaticum, Lathyrus linifolius, Succisa, Potentilla sterilis, Lotus corniculatus*, and a little short heather	247213	824193
Basic grassland	Limestone bedstraw		Patch CG10b, larger than one to west, but slightly less rich, although *Galium sterneri* still present. No Nardus in these examples, main grasses *Festuca ovina/vivipara/rubra, Anthoxanthum, Agrostis capillaris.*	247246	824240
Basic grassland, Basic heath			Miniscule amounts of CG10a, H10d and H16 along stream, with *Thymus drucei, Lotus corniculatus, Oreopteris* and rarely *Salix repens*. Also extremely thin strips of typical damp H21 on very steep east bank.	243229	820067
Basic grassland, Basic heath			Small patch of basic H10d and U4c with *Lotus corniculatus* often abundant; frequent *Pilosella officinalis/Veronica officinalis*; locally frequent *Primula vulgaris and Polygala offficinalis*. H10d grassy with similar species plus *Calluna* and *Erica cinerea.*	243866	822314
Basic grassland, Basic heath			Small patch of basic H10d with some CG10a and U5c; *Thymus drucei, Persicaria vivipara* frequent; plus *Viola riviniana,* usual grasses/heathers, *Polygala officinalis,* occasionally G*alium boreale, Campanula rotundifolia* and *Anemone nemorosa*.	243711	822303
Basic grassland, Flushed heath	Globeflower		M15a/MX flush habitat and nearby CG10c grassland, with species including *Galium boreale, Trollius europaeus, Saxifraga aizoides, Rhinanthus minor* and *Persicaria vivipara*.	245917	823626
Basic heath	Field gentian		*Gentianella campetris* in rich H10d with *Thymus, Lotus corniculatus, Plantago maritima, Succisa* and *Trollius*.	247518	822780
Basic heath	Limestone bedstraw		Amongst H10d rocky heath here there is occasional *Galium sterneri* and frequent *Thymus*, plus *Racomitrium lanuginosum, Festuca ovina, Viola riviniana, Oxalis acetosells, Potentilla erecta, Calluna* and *Anemone*, and rarely *Phegopteris* between boulders.	247418	824009
Basic heath	Moonwort		Small area of species-rich H10d with *Botrychium lunaria, Lotus corniculatus, Calluna, Erica cinerea, Blechnum, Linum, Primula vulgaris, Filipendula ulmaria, Carex pulicaris, Anemone, Plantago lanceolata*.	243687	822157
Basic heath	Scottish asphodel		5x10 m area of H10d with downslope M15a; H10d has *Thymus/Calluna/Erica cinerea* plus U4 species, *Lotus corniculatus, Viola riviniana, Succisa* and rarely *Galium boreale*; M15a downslope includes *Tofieldia pusilla*.	243247	821963
Basic pool			Bog pools here and in places nearby to north/north-east are in places intermediate between M1 / M10, with *Eriophorum angustifolium, Sphagnum auriculatum* and *Potamogeton polygonifolius*, locally frequent *Carex dioica/Eleocharis quinqueflora*.	244437	822567
Basic pool	Mud sedge		Mud sedge scattered in this long pool, which is transitional between M1 and M10, with *Eleocharis quinqueflora* and *Sphagnum auriculatum* dominant, and abundant *Drosera anglica*.	243421	820118
Cliff	Limestone bedstraw		*Galium sterneri* sparse on rock hereabouts; also in this vicinity are *Galium boreale, Viola riviniana, Saxifraga oppositifolia, Alchemilla alpina, Hieracium* sp., *Luzula sylvatica, Lathyrus linifolius, Antennaria, Campanula, Carex hostiana/pulicaris/pilulifera* below rock.	244851	821506
Dry heath			*Persicaria vivipara* in U4a-H10c grassland/heath. *Alchemilla alpina* in H10/U20 heath/bracken 20 m north-east of here.	246787	822590

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
Dry heath	Juniper		*Juniperus communis* in M15 wet heath. *Persicaria vivipara* and *Cirsium heterophyllum* in H10/21 heaths.	246708	826635
Dry heath	Juniper, Limestone bedstraw		H10 heath at base of cliff, with species including *Galium sterneri, Genista anglica* and *Juniperus communis*.	244848	821252
Dry heath	Petty-whin		H10b heath with species including *Antennaria dioica*, *Arctostaphylos uva-ursi* and *Genista anglica*.	244689	821286
Flushed heath			Species-rich M15a and U4 on ground between meanders and along parts of streamsides, including *Succisa, Galium boreale, Equisetum palustre, Anemone, Calluna, Erica tetralix, Carex panicea, Filipendula ulmaria, Polygala serpyllifolia, Pedicularis, Dactylorhiza ericetorum* and typical U4 species; in places grading outwards to species-poor M25.	247408	822337
Flushed heath			*Helictochloa pratense* locally abundant here in steep M15a with *Calluna, Erica tetralix, Carex panicea/pulcaris, Anemone, Lotus pedunculatus, Alchemilla glabra, Polygala, Fragaria, Antennaria, Plantago lanceolata.*	245954	820365
Flushed heath			Mainly M15a, some M10, includes rare *Gymnadenia conopsea*, plus D*actylorhiza ericetorum, Carex paniculata*; M10 with *Carex dioica, Carex demissa, C. paniculata, Potamogeton polygonifoius, Eriophorum angustifolium, Narthecium*.	243735	821705
Flushed heath			*Alchemilla alpina* by small stream. Nearby M15a wet heath has species including *Cirsium heterophyllum, Geranium sylvaticum, Trollius europaeus* and *Salix aurita. C. heterophyllum* and *G. sylvaticum* also in nearby H10d dry heath.	247347	824088
Flushed heath			M15a wet heath and U5c flushed grassland with species including *Trollius europaeus*, *Geranium sylvaticum, Crepis paludosa, Carex pallescens* and *Persicaria vivipara*.	247896	825495
Flushed heath			*Salix repens* in M15a wet heath.	246048	823665
Flushed heath			*Galium boreale* in U4a/M15a grassland/wet heath.	243543	821099
Flushed heath			Calcicole mosses *Tortella tortuosa* and *Ctenidium molluscum* on ground/rock in M15c wet heath. Also some *Saxifraga aizoides* here.	246281	824800
Flushed heath			Local flushed wet heath M15a in this area is species-rich with e.g. *Carex dioica, Selaginella selaginoides, Euphrasia* sp., *Carex hostiana, Carex paniculata*, as well as usual *Erica tetralix* etc.	247567	827051
Flushed heath			Very wet M15a feeding lochan to north; main species *Trichophorum germanicum, Molinia, Carex rostrata, Carex echinata, Erica tetralix, Myrica*, with scattered *Campylium, Scorpidium revolvens*. Also frequent Equisetum palustre, locally abundant *Carex lasiocarpa*, occasional *Succisa. Myriophylum alternifolia* and *Potagmogeton polygonifolius* in M29.	246040	824831
Flushed heath			M15a here is species-rich with frequent *Selaginella selaginoides*, *Carex panicea/pauciflora, Dactylorhiza ericetorum, Succisa, Polygala serpyllifolia, Pedicularis, Narthecium*.	247031	823660
Flushed heath			M15a here is locally species-rich with *Thymus, Rhinanthus, Alchemilla glabra, Succisa, Lathyrus linifolia.*	247107	823576
Flushed heath		*Sphagnum contortum*	*Sphagnum contortum* rare in M15a, which also contains locally frequent Selaginella selaginoides and *Dactylorhiza ericetorum*.	243058	820212

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
Flushed heath		*Sphagnum teres, Sphagnum warnstorfii*	M15a heathy flush with species including *Carex pauciflora* and mosses Sphagnum teres and *S. warnstorfii.*	246964	823829
Flushed heath		*Sphagnum teres, Sphagnum warnstorfii*	Mosses *Sphagnum angustifolium, S. teres* and *S. warnstorfii* in M15a wet heath.	246330	826694
Flushed heath	Early marsh-orchid		*Tofieldia pusilla* and *Dactylorhiza incarnata* in M15a wet heath.	245514	823044
Flushed heath	Globeflower		*Trollius* locally frequent, and also *Helictochloa pratensis*, in M15a wet heath.	247725	824778
Flushed heath	Globeflower		M15a wet heath with species including *Trollius europaeus*, *Persicaria vivipar*a and moss *Campylium stellatum.*	247406	822672
Flushed heath	Globeflower		*Trollius europaeus* and *Crepis paludosa* in M15a wet heath.	247396	826523
Flushed heath	Globeflower		*Trollius europaeus* and *Salix repens* in M15a wet heath.	247688	824693
Flushed heath	Globeflower		*Trollius* europaea locally abundant in M15a wet heath. *Geranium sylvaticum* here too. Both species also in nearby U20 bracken.	247217	822586
Flushed heath	Globeflower	*Sphagnum contortum, Sphagnum warnstorfii*	M15a/MX flush with species including *Trollius europaeus, Persicaria vivipara* and the mosses *Sphagnum contortum* and *S. warnstorfii.*	247631	824595
Flushed heath	Lesser butterfly orchid		*Platanthera bifolia* in patch of wet M15a including *Juncus acutiflorus, Erica tetralix, Carex nigra/echinata, Equisetum palustre* and *Salix repens*; M6d around includes *Crepis palustre*, *Succisa, Carex rostrata, Potentilla erecta, Eriophorum angustifolium, Salix repens, Myric*a and occasional *Sphagnum subnitens* and *Triglochin palustre*; grades to M10 in places with *Campylium/Carex pulicaris*.	247460	824035
Flushed heath	Limestone bedstraw		Species-rich M15a with typical species for vicinity plus scattered *Carex dioica* and Galium *sterneri,* and rarely *Gymndenia conopsea*.	243652	822058
Flushed heath	Rockrose		*Helianthemum nummularium* rare in M15a with e.g. *Erica tetralix, Calluna, Cirsium heterophyllum, Helictochloa pratense, Anemone, Geranium sylvaticum, Carex panicea, Lathyrus linifolia, Salix repens, Alchemilla glabra*.	245626	820120
Flushed heath	Scottish asphodel		*Tofieldia* and *Eriophorum latifolia* frequent in stoney M10 basic flushes in this area; other spp include *Campylium, Carex panicea, Eleocharis quinqueflora, Scorpidium scorpioides*, and rarely Saxifraga aizo*ides*.	247961	826495
Flushed heath	Scottish asphodel		*Tofieldia* frequent in stony M15a/M10 here, with occasional *Eriophorum latifolium*.	248179	826340
Flushed heath	Scottish asphodel		*Tofieldia* occasional in M15a with e.g. *Trichophorum germanicum, Erica tetralix, Calluna, Molinia, Carex demissa/panicea, Scorpidium scorpioides/revolvens, Drosera rotundifolia, Eleocharis quinqueflora, Pinguicula vulgaris, Succisa, Dactylorhiza ericetorum, Narthecium, Polygala serpyllifolia, Pedicularis, Anemone.*	245611	820246
Flushed heath	Scottish asphodel		*Tofielida* rare with *Pleurozia purpurea* in M15a with *Campylium, Sphagnum subnitens/compactum, Narthecium, Myrica, Erica tetralix*, etc.	244460	821693
Flushed heath	Scottish asphodel		*Tofieldia pusilla* and *Salix repens* in M15a-c wet heath.	244801	821678
Flushed heath	Scottish asphodel		*Tofieldia pusilla* and liverwort *Pleurozia purpurea* growing together (unusual combination) in M15a wet heath.	244463	821681

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
Flushed heath	Scottish asphodel		A very little M15a peripherally between M15c slopes and M17a bog, here including *Tofieldia*.	246404	823315
Flushed heath	Scottish asphodel, Limestone bedstraw	*Sphagnum warnstorfii*	M15a wet heath with species including *Tofieldia pusilla, Galium sterneri* and moss *Sphagnum warnstorfii*.	245052	821201
Native woodland			W17b in small but deep ravine, with *Betula pendula* and *Sorbus aucuparia*, also smaller amounts of *Salix* aurita*, Juniperus communis* and *Ilex aquifolium*; contains *Vaccinium vitis-idaea* and a little *Arctostaphylos uva-ursi.*	246513	823739
Native woodland		*Antitrichia curtipendula*	Moss *Antitrichia curtipendula* on *Salix aurita* in W7b woodland just east of road. Other epiphytes on willow, ash and rowan around here include mosses *Ulota drummondii* and *Zygodon conoides* and lichens *Peltigera collina* and *Pannaria rubiginosa*.	248219	823546
Native woodland		*Antitrichia curtipendula*	Woodland along the Allt Coillte here includes the uncommon moss *Antitrichia curtipendula* on ash.	247240	827120
Native woodland		*Cryphaea heteromalla*	Moss *Cryphaea heteromalla* on Salix fragilis in W7 woodland.	252437	829346
Native woodland		*Lobaria pulmonaria*	Woodland (W17b) in ravine has species including *Populus tremula*, liverwort *Scapania gracilis* and lichen *Lobaria pulmonaria*.	246230	826693
Native woodland		*Peltigera britannica, Scapania gracilis*	Woodland along the Allt Coillte here includes the western liverwort *Scapania gracilis* and the lichen *Peltigera britannica*.	246480	826720
Native woodland	Serrated wintergreen		Species-rich section of native birchwood in ravine with rock exposures, including *Orthillia secunda* and *Melica uniflora*, with e.g. *Hieracium* sp., *Crepis paludosa*, *Polystichum aculeatum, Fragaria, Valeriana, Saxifraga aizoides, Teucrium, Calluna, Arctostaphylos uva-ursi, Campanula rotundifolia, Carex pulicaris.*	243629	819901
Ravine	Purple saxifrage		Small amounts *Saxifraga oppositifolia*, as well as *Saxifraga aizoides* and *Alchemilla glabra*, along stream in ravine with H21a on south side and H10a on north side, plus more local H16 with *Arctostaphylos uva-ursi*	246432	822368
Species-rich bracken			Bracken in this area is generally co-dominant with *Calluna* (completely mixed, not separate blocks) and in places is relatively species-rich with *Primula vulgaris* as well as more usual species such as *Viola riviniana* and *Vaccinium myrtillus*.	247706	827092
Species-rich cliff	Whortle-leaved willow		Cliffs around here include *Salix myrsinites/repens, Juniperus communis, Populus tremula, Alchemilla alpina/glabra, Persicaria vivipara, Silene acaulis, Saxifraga oppositifolia/aizoides, Sorbus aucuparia, Cystopteris fragilis, Trollius europaeus, Geranium sylvaticum, Oxyria digyna, Sedum rosea* and *Gymnocarpium dryopteris*.	245350	822160
Species-rich gully			Heathy gully with species including *Luzula sylvatica, Geranium sylvaticum, Crepis paludosa, Carex pallescens, Juniperus communis, Phegopteris connectilis, Saxifraga aizoides, Polystichum aculeatum, Ilex aquifolium* and moss *Breutelia chrysocoma*.	247196	824129
Species-rich gully	Small-white orchid		Largely inaccessible gully in small cliff that includes at least two *Pseudorchis albida* (others have been not visible) and local *Saxifraga oppositifolia*, plus Alchemilla alpina/glabra, Solidago canadensis, *Hieracium* sp., *Luzula sylvatica, Calluna, Festuca vivipara, Succisa.*	244875	821529
Species-rich heath			Small H14 patch which is more diverse than usual with abundant *Lotus corniculatus,* amongst prostrate *Calluna/Racomitrium lanuginosum.*	244550	822896

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
Species-rich heath			*Geranium sylvaticum* frequent in heaths in this vicinity.	247092	823079
Species-rich heath	Globeflower		Several *Trollius* plants scattered through heathy bracken/M15a, with *Succisa*, *Alchemilla glabra, Calluna, Viola riviniana, Carex panicea, Conopodium majus, Geranium sylvaticum.*	247359	822890
Species-rich heath	Globeflower		Several *Trollius* plants scattered amongst grassy *Molinia* with *Myrica* (closest to M25b at this point).	247337	822479
Species-rich heath	Globeflower		*Trollius* locally frequent here.	247608	824774
Species-rich heath	Globeflower		Patch of about eight *Trollius* plants in heath.	247368	824173
Species-rich heath	Globeflower		At least 10 *Trollius* plants in M15a, with occasional *Equisetum sylvaticum/palustre, Primula vulgaris* and *Anemone*, amongst *Erica tetralix, Molinia, Carex panicea/echinata/pulicaris, Succisa, Nardus*.	247808	825477
Species-rich ledge			Small amounts of U17 on steep streamside, including Luzula sylvatica, *Arctostaphylos uva-ursi*, *Vaccinium myrtillus, Juniperus communis, Hieracium* sp., *Thalictrum alpinum, Fragaria, Viola riviniana, Luzula pilosa, Vicia sepium, Lathyrus linifolius,* and small amounts of Ge*ranium sylvaticum, Anemone, Thymus, Saxifraga aizoid*es and possibly native *Chamaenerion angustifolium*.	246850	823688
Species-rich ledge			Extremely small amount of U17, amongst H21 and species-rich H10, including Crepis paludosa, Luzula sylvestris, Geranium sylvaticum, Hieracium sp., Saxifraga aizoides, Blechnum, Phegopteris, Oreopteris, Sphagnum capillifolium, Alchemilla glabra, Carex pulicaris, Viola riviniana, Geum rivale	247176	824145
Species-rich rock	Stone bramble		*Rubus saxatilis*, plus *Phegopteris*, *Saxifraga aizoides, Juniperus communis, Hieracium* sp., *Vaccinium myrtillus*; on small rock exposure under two mature *Sorbus aucuparia* trees	243295	820106
Species-rich track edge			*Persicaria vivipara* and *Geranium sylvaticum* by forest road.	247753	824944
Species-rich U4/U5			*Persicaria vivipara* in U4c/U5c grassland.	247763	824895
Species-rich U4/U5			U5c grassland with species including *Persicaria vivipara, Geranium sylvaticum, Galium boreale* and *Alchemilla alpina*.	245177	822062
Species-rich U4/U5			*Persicaria vivipara* in U5c grassland.	247413	824369
Species-rich U4/U5, Basic flush	Frog orchid, Scottish asphodel		Two *Dactylorhiza viridis* in U5c, also *Tofieldia* in small amount of M10 flush, *Thalictrum alpina* more widely	243734	822741
Species-rich U4/U5, Basic flush, Flushed heath	Scottish asphodel		M15a *Tofieldia*, *Carex pulicaris*, *Succisa*, *Linum*, *Helictochloa*; U5c/M25c *Euphrasia, Succisa*, *Alchemilla glabra*; M10/M11 *Scorpidium* spp., *Blindia*, *Eleocharis quinqueflora, Carex demissa/paniculata/hostiana, Campylium*; H10d *Lotus, Festuca vivipara*	244310	822350
Species-rich U4/U5, Basic grassland, Basic heath	Alpine saw-wort		*Sausaurea alpina* rare in species-rich U4c (also contains *Helictochloa pratensis*), also species-rich CG10a, H10d and M15a in this vicinity	243696	822450
Species-rich U4/U5/rock	Whortle-leaved willow	Sphagnum fuscum	Steep rocky slope, *Salix myrsinites/aurita, Alchemilla alpina, Persicaria vivipara, Silene acaulis, Saussurea, Saxifraga oppositifolia/aizoides, Rubus saxatilis, Sorbus aucuparia, Alchemilla glabra, Sphagnum fuscum, Douinia ovata, Gymnomitrion obtusum*. U4c	245394	822364

Habitat*	Vascular spp.*	Non-vascular spp.*	Comment	X	Y
			grassland downslope has *Persicaria vivipara, Geranium sylvaticum* and G*alium boreale. (Salix myrsinites* is Nationally Scarce; it has been recorded here on NW side of Meall Fuar-mhonaidh in 1973 and 1987).		
Species-rich woodland			*Persicaria vivipara* in W11 woodland.	247797	826795
Species-rich woodland	Serrated wintergreen		*Orthilia secunda* local here under birch on rock exposure, with e.g. *Hieracium sp., Crepis palustris, Polystichum aculeata, Fragaria vesca, Valerian officinalis, Saxifraga aizoides, Teucrium, Calluna, Arctostaphylos, Carex pulicaris, Campanula rotundifolia*.	243631	819903
Spring			A few square metres of spring vegetation dominated by *Philonotis fontana*, with *Viola palustris* and *Carex nigra.*	244022	822464
Spring			A few square metres of spring vegetation dominated by *Philonotis fontana.*	243935	822397
Spring			A few square metres of *Philonotis fontana* spring, leading to extremely small M10 basic flush below	244002	822823
Transition mire			Very wet inaccessible vegetation with affinities to M6 but much wetter than normal and with abundant *Molinia*, likely to contain sphagnum.	245016	823855
Transition mire			Very wet inaccessible vegetation transitional between M17 bog and S9 swamp	245090	823400
Transition mire	Slender sedge		*Carex lasiocarpa* with sphagnum and *Pedicularis.*	244845	823229

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