

APPENDIX V2-4.6: KINLOCH & KYLEAKIN HILLS SAC/SSSI BRYOPHYTE AND LICHEN SURVEY REPORT

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1. KINLOCH & KYLEAKIN HILLS SAC/SSSI BRYOPHYTE AND LICHEN SURVEY REPORT

1.1 Introduction

- 1.1.1 MacArthur Green was commissioned by Scottish and Southern Electricity Networks Transmission (SSEN Transmission); to carry out a specialist survey for rare/scarce bryophyte (i.e., mosses, liverworts and hornworts) and lichens for the Skye Reinforcement Project (hereafter the 'Proposed Development').
- 1.1.2 These surveys were focussed on Section 3 of the Proposed Development. More specifically, within the Kinloch & Kyleakin Hills Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). The survey aimed to identify and record the locations of nationally rare/scarce bryophytes and lichens within the relevant study areas for Section 3 through the designated sites, and the Alternative Alignment within Section 3, also through the designated sites.
- 1.1.3 This information is used to aid and inform the ecological assessment of the Proposed Development that is presented in the Environmental Impact Assessment (EIA) Report (for Section 3), and the Habitats Regulations Appraisal (HRA) with respect to Kinloch & Kyleakin Hills SAC.
- 1.1.4 This Technical Appendix details the findings of the bryophyte and lichen survey undertaken.

1.2 The Site and Survey Area / Study Area

- 1.2.1 The Site extends for approximately 160 km from Ardmore Substation in the northwest of Skye, to Fort Augustus Substation on the mainland. Given the length of the Proposed Development, the project has been split into seven defined 'Sections' to more easily describe the Proposed Development and local baseline conditions. These Sections are broadly defined as follows:
- Section 0 – Ardmore to Edinbane;
 - Section 1 – Edinbane to North of Sligachan;
 - Section 2 – North of Sligachan to Broadford;
 - Section 3 – Broadford to Kyle Rhea;
 - Section 4 – Kyle Rhea to Loch Cuaich;
 - Section 5 – Loch Cuaich to Invergarry; and
 - Section 6 – Invergarry to Fort Augustus.
- 1.2.2 A full description of the Proposed Development and related works can be found in **Volume 1, Chapter 3: Project Description**, further Site and section-specific information is presented in **Volume 2, Chapter 2: Section by Section Overview**.
- 1.2.3 Section 3 of the route of the Proposed Development passes through the Kinloch & Kyleakin Hills SAC and SSSI. The SSSI includes, as part of its notified natural features, bryophyte assemblage (last assessed as Favourable Declining 11 August 2015) and lichen assemblage (last assessed as Unfavourable Declining 13 December 2013). The SSSI citation¹ notes the woodland areas support a nationally important lichen assemblage which includes three nationally rare lichens and ten nationally scarce species. The bryophyte assemblage includes seven nationally scarce moss species and nine nationally scarce species of liverwort. Ben Aslak, within the SSSI, also supports examples of oceanic hepatic-rich heath. Whilst the Kinloch & Kyleakin Hills SAC designation does not explicitly list bryophytes and lichens as qualifying features they are considered key component parts of the designated woodland features, with the woodland supporting the rich

¹ <https://sitelink.nature.scot/site/8173>

bryophyte/lichen flora, both as epiphytes and on the block scree within the woods, with an internationally important representation of oceanic species, especially in ravines deeply cut into the underlying sandstone.

- 1.2.4 The bryophyte/lichen survey area covered both the Proposed Alignment and Alternative Alignment within Section 3, within the boundary of the SAC/SSSI only. The survey covered a 100 m survey corridor around the proposed overhead line (OHL) alignment and a 60 m survey corridor around all proposed new and upgraded, permanent and temporary, tracks. The survey area covered during the bryophyte/lichen survey for Section 3 is shown in **Figures V2-4.5: Kinloch & Kyleakin Hills SAC/SSSI Bryophyte and Lichen Survey Area and Results**.
- 1.2.5 The respective area which is then considered as part of the assessment process within the EIA Report/HRA is further defined as the 'study area'. In this case, the bryophyte/lichen study area is the same as the survey area.
- 1.2.6 The survey area was not designed to cover the existing OHL, which is to be dismantled following construction of the Proposed Development. As described within **Appendix V1-3.8: Dismantling Plan for the Existing OHL** now new infrastructure is required for the dismantling and removal of the existing OHL. For all existing towers within the SAC/SSSI operatives, dismantling equipment and winches will be flown in by helicopter and the resultant dismantled infrastructure also removed via helicopter. Foundation removal involve cutting the towers down to ground level but leaving the concrete foundation in place to prevent the need to break up the foundation and in doing so avoid the need to bring in heavier tracked excavators and ATVs to each tower which may result in vegetation damage and ground scarring. Dismantling, as described within **Appendix V1-3.8: Dismantling Plan for the Existing OHL**, and with the application of general good practice construction and pollution prevention measures, for example through the Applicants General Environmental Management Plans (GEMPs) (see **Appendix V1-3.5: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs)**) and a site-specific Construction Environmental Management Plan (CEMP) it is expected that dismantling of the existing OHL would have a negligible potential impact on rare or scarce bryophyte or lichens species, and associated assemblages, within the SAC/SSSI.

1.3 Methodology

- 1.3.1 The area was surveyed by suitably qualified and experienced botanical surveyors (i.e., Ben Averis and Alison Averis) from 25 April 2022 to 28 April 2022.
- 1.3.2 The routes were walked through, and target notes were recorded (with GPS grid references) for locations where species of interest were found. The surveyors walked mostly a few tens of metres apart, to achieve greater coverage within the survey corridors. There was a particular focus on certain habitats that have greater potential for bryophyte and lichen interest: woodland, scrub, rock outcrops, boulders, flushes and the wetter parts of bogs. These habitats, especially woodland, scrub and rocky habitats, have potential for uncommon western bryophyte and lichen species for which the west Highlands and Hebrides are nationally and internationally important. Notes were also made on findings of vascular plants of particular interest.
- 1.3.3 Four additional target notes recorded on 29th April 2022 during National Vegetation Classification (NVC) survey of small areas of land in the Abhainn Lusa – Glen Arroch area are included in this report because they are close to the Alternative Alignment within Section 3 and include bryophyte and lichen interest.

- 1.3.4 Botanical nomenclature in this report follows that of Blockeel *et al.* (2021²) for bryophytes, Smith *et al.* (2009³) for lichens and Stace (2019⁴) for vascular plants.

1.4 Survey Details / Limitations

- 1.4.1 Surveys were undertaken from 25 April 2022 to 28 April 2022. Weather conditions were amenable to survey: warm and dry, with good visibility and winds no more than light.
- 1.4.2 Physical access within the survey areas was generally good, except that some deep ravines with very steep sides were inaccessible and examined as close as practically possible.
- 1.4.3 The results from this survey represent a current evaluation at the time of survey (as opposed to one seeking to describe historical or future conditions). In light of this, a constraint of the survey is that it offers a snapshot of the bryophyte/lichen assemblage present within the respective survey area/study area and should not be interpreted as a static long-term reference.

1.5 Results

- 1.5.1 A list of species of special interest found in this survey is given in **Table 1.1: Bryophyte, lichen and fern species of special interest within the study area** below. These are mainly bryophytes with a western, oceanic distribution in Europe or lichens that are western within Britain because they appear to need an oceanic climate or were once more widespread but became largely restricted to the west as a result of past atmospheric pollution since the time of the Industrial Revolution.
- 1.5.2 A total of 25 oceanic bryophyte species were recorded during this survey – a good total reflecting the strongly oceanic climate of this area. The oceanic bryophyte flora of the west Highlands and Hebrides is of international importance; Britain and Ireland are the richest part of Europe for these species. The west Highlands is a particularly good area for these plants. The richest habitats for oceanic bryophytes are mainly woods and ravines, but many heaths are also good, especially those on rocky northwest to east facing slopes.
- 1.5.3 Most of the lichens found in this survey (i.e., *Leptogium burgesii*, *L. cyanescens*, *L. dendricum*, *Lobaria pulmonaria*, *L. scrobiculata*, *Nephroma laevigatum*, *Nevesia sampaiana*, *Pannaria rubiginosa*, *Parmeliella triptophylla*, *Pectenaria atlantica*, *P. cyanoloma*, *Sticta fuliginosa*, *S. limbata* and *S. sylvatica*) are nationally uncommon species of the *Lobarion* community. Many *Lobarion* species are vulnerable to the effects of atmospheric pollution and since the time of the Industrial Revolution have suffered declines in parts of their range closer to urban and industrial areas. The west Highlands has always had relatively clean air and is their main stronghold in Britain. *Lobarion* species favour bark and rock that is not markedly acidic. *Cetrelia olivetorum*, the *Hypotrachyna* species and *Menegazzia terebrata* grow mainly in non-*Lobarion* communities on more acid bark or rock.
- 1.5.4 Among the bryophytes found in this survey the mosses *Campylopus setifolius*, *C. shawii* and *Dicranodontium uncinatum* are classed as Nationally Scarce (Pescott, 2016⁵). Among the lichens *Leptogium dendricum* is classed as Nationally Rare and (threat category) Vulnerable, and *Nevesia sampaiana* is Nationally Scarce and Near Threatened⁶.

² Blockeel, T.L., Bell, N.E., Hill, M.O., Hodgetts, N.G., Long, D.G., Pilkington, S.L. & Rothero, G.P. (2021). A new checklist of the bryophytes of Britain and Ireland, 2020, *Journal of Bryology*, 42, 1-116.

³ Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W. & Wolseley, P.A. (Eds.) (2009). *The Lichens of Great Britain and Ireland*. The British Lichen Society.

⁴ Stace, C.A. (2019). *New Flora of the British Isles. 4th Edition*. Cambridge University Press.

⁵ Pescott, O. (2016). Revised lists of nationally rare and scarce bryophytes in Britain. *Field Bryology* 115, 22-30.

⁶ <https://britishlichensociety.org.uk/resources/lichen-taxon-database>

- 1.5.5 With regards vascular plants of particular interest, these include Wilson’s filmy fern *Hymenophyllum wilsonii*, which is considered ‘Near Threatened’ in the Vascular Plant Red Data List for Great Britain (Cheffings & Farrell, 2005⁷); Wilson’s filmy fern is typically found in close association with oceanic bryophytes on rocks, banks and trees. Other vascular plant records made during this survey include hay-scented buckler-fern *Dryopteris aemula* (another western oceanic species), bearberry *Arctostaphylos uva-ursi* (small quantities in some areas of heath), white beak-sedge *Rhynchospora alba* (with *Sphagnum* mosses in the wetter parts of some bogs) and some others such as a few species-rich streamside locations and a finding of a holly *Ilex aquifolium* seedling among *Sphagnum* in a bog (an unusual habitat for holly); these species are all categorised as being of ‘Least Concern’⁷.
- 1.5.6 The full detailed target notes recorded in this survey are presented in **Annex A**. There is a total of 134 target notes (TNs): TNs 1 to 56 along the Proposed Alignment (the northern route) and TNs 57 and 59 – 130 along the Alternative Alignment (the southern route). TNs 58 and 131 - 134 relate to both alignments, with TN 58 located where the Proposed Development crosses the Abhainn Lusa, and TNs 131 – 134 located along a section of existing track and existing track to be upgraded between Kyclerhea and the existing OHL crossing.
- 1.5.7 Nineteen of these target notes are for vascular plant interest only (15 along the Proposed Alignment and four along the Alternative Alignment). This means that 115 target notes (41 along the Proposed Alignment, 69 along the Alternative Alignment, and five relating to both) were recorded for their bryophyte and/or lichen interest (in some cases including vascular plants along with that bryophyte/lichen interest).

Table 1.1: Bryophyte, lichen and fern species of special interest within the study area

Species	Habitats	Status
Mosses		
<i>Breutelia chrysocoma</i>	Moist ground	Oceanic
<i>Campylopus atrovirens</i>	Rock	Oceanic
<i>Campylopus setifolius</i>	Heath and woodland	Oceanic; NS; LC
<i>Campylopus shawii</i>	Heath	Oceanic; NS; LC
<i>Dicranodontium uncinatum</i>	Rocky heath	NS; LC
<i>Dicranum scottianum</i>	Rocks	Oceanic
<i>Hylocomiastrum umbratum</i>	Woodland floor	
<i>Hyocomium armoricum</i>	Wet rocks by stream	Oceanic
<i>Plenogemma phyllantha</i>	Trees and rocks	Oceanic
<i>Ptilium crista-castrensis</i>	Woodland floor	
<i>Sphagnum medium</i>	Bog	
<i>Sphagnum strictum</i>	Bog	Oceanic
<i>Ulota calvescens</i>	Woodland	Oceanic
<i>Ulota drummondii</i>	Woodland	
Liverworts		
<i>Anastrepta orcadensis</i>	Steep banks	
<i>Bazzania tricrenata</i>	Steep banks	
<i>Bazzania trilobata</i>	Banks and rocks	
<i>Cololejeunea (Aphanolejeunea) microscopica</i>	Rocks in ravine	Oceanic
<i>Cololejeunea minutissima</i>	Goat willow <i>Salix caprea</i> just east of road	Oceanic

⁷ 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 7: 1-116. Joint Nature Conservation Committee, Peterborough. ISSN 1473-0154.

Species	Habitats	Status
<i>Colura calyptrifolia</i>	<i>Calluna vulgaris</i> stems + one birch stem	Oceanic
<i>Douinia ovata</i>	Woodland	Oceanic
<i>Drepanolejeunea hamatifolia</i>	Rocks + birches	Oceanic
<i>Frullania teneriffae</i>	Trees	Oceanic
<i>Harpalejeunea molleri</i>	Rocks + oak	Oceanic
<i>Herbertus hutchinsiae</i>	Rocky heath	Oceanic
<i>Lejeunea patens</i>	Rocks in ravine	Oceanic
<i>Lepidozia cupressina</i>	Rocks, banks, tree bases + logs	Oceanic
<i>Lepidozia pearsonii</i>	Mossy banks	Oceanic
<i>Leptoscyphus cuneifolius</i>	Birch trunks in woodland	Oceanic
<i>Plagiochila punctata</i>	Trees	Oceanic
<i>Plagiochila spinulosa</i>	Rocks + banks	Oceanic
<i>Riccardia palmata</i>	Rotting wood	
<i>Saccogyna viticulosus</i>	Rocks and banks	Oceanic
<i>Scapania gracilis</i>	Rocks, banks, trees and logs	Oceanic
<i>Sphenobolus minutus</i>	Rocks	
Lichens		
<i>Cetrelia olivetorum</i>	Trees	
<i>Hypotrachyna laevigata</i>	Trees	Oceanic
<i>Hypotrachyna sinuosa</i>	Trees and shrubs	Oceanic
<i>Leptogium burgesii</i>	Trees	
<i>Leptogium cyanescens</i>	Rowan	
<i>Leptogium dendriscum</i>	Willow	NR; VU
<i>Lobaria pulmonaria</i>	Trees	
<i>Lobarina (formerly Lobaria) scrobiculata</i>	Trees	
<i>Menegazzia terebrata</i>	Birch	
<i>Nephroma laevigatum</i>	Trees	Oceanic
<i>Nevesia (formerly Fuscopannaria) sampaiana</i>	Rowan	Oceanic; NS; NT
<i>Pannaria rubiginosa</i>	Trees	Oceanic
<i>Parmeliella triptophylla</i>	Rowan	
<i>Pectenaria (formerly Degelia) atlantica</i>	Trees	Oceanic
<i>Pectenaria (formerly Degelia) cyanoloma</i>	Trees	Oceanic
<i>Sticta fuliginosa</i>	Trees	Oceanic
<i>Sticta limbata</i>	Trees	
<i>Sticta sylvatica</i>	Trees	Oceanic
<i>Umbilicaria polyphylla</i>	Rock	
<i>Umbilicaria polyrhiza</i>	Rock	
<i>Umbilicaria torrefacta</i>	Rocks	
Oceanic Ferns		
<i>Dryopteris aemula</i>	Steep banks	Oceanic
<i>Hymenophyllum wilsonii</i>	Rocks, banks and trees	Oceanic

N.B. Status column: **Oceanic** = with a western oceanic distribution in Europe. For bryophytes and ferns this is based on the European phytogeographical classes of Preston & Hill, 1997⁸ and Hill & Preston, 1998⁹; classes whose 2-digit code ends with '0' or '1' are oceanic on a European scale; all oceanic bryophyte species found during this survey are included in this table. For lichens 'Oceanic' is based mainly on the very brief information on European distribution in Smith *et al.* (2009)³. **NS** = Nationally Scarce. **NR** = Nationally Rare. IUCN threat categories (for NS and NR species only): **LC** = Least Concern; **NT** = Near-Threatened; **VU** = Vulnerable.

1.6 Discussion

- 1.6.1 The habitats of greatest importance for bryophytes and lichens in the areas surveyed are woodland, scrub and steep north to east facing rocky habitats.
- 1.6.2 Native woodland and scrub in this area, including very small patches of eared willow *Salix aurita* scrub, is good for epiphytic bryophytes and lichens, and also for oceanic bryophytes on rocks, banks and logs beneath the tree canopy. The richness of woodland here reflects the high humidity that is the result of a combination of shade/shelter beneath the tree canopy and the location in an area with a wet and relatively equable (i.e., oceanic) climate. These habitats at this site can therefore be regarded as examples of temperate rainforest.
- 1.6.3 Steep rock outcrops on north to east facing slopes are generally at least moderately rich in western bryophyte species. The northerly to easterly slope aspect leads to favourably shaded and sheltered conditions and an associated high level of humidity. This is reflected in the good representation of oceanic bryophytes (overlapping a lot with what is seen in woodlands in this area) and some other bryophytes that are not western on a European scale but which show a need for generally cool and humid conditions (e.g. *Ptilium cristacastrensis*, *Dicranodontium uncinatum* and *Bazzania tricrenata*). The usual presence of at least some trees on these crags is another element of overlap with woodland habitats.
- 1.6.4 Wet flushes and very wet bog habitats (especially bog pools) were included among the target notes recorded in this survey partly because they contain some bryological interest (e.g., various 'brown mosses' in base-enriched flushes, and *Sphagnum medium* in wet bogs), but equally because in being so wet their hydrology is vulnerable to the direct and indirect effects of Proposed Development construction work.
- 1.6.5 Some of the target notes refer to patches of woodland that are small and contain just a few oceanic/western bryophytes and lichens. This does not mean that they are of low interest. Those in the north are part of the large complex of woodland at Mudalach, which is mostly downslope of the survey area. The Mudalach woods in total are very rich in oceanic bryophytes (Averis & James 2002¹⁰).
- 1.6.6 Small areas of eared willow scrub are scattered widely through these hills, and many of them were encountered in this survey, especially in Glen Arroch. Their flora is notably different from that of the surrounding heath and bog vegetation and shows the influence of high levels of shelter and humidity among the dense mass of willow stems. Despite their small size, these patches of willow scrub are important in containing various western woodland bryophytes and lichens, and for having the potential to expand in area and to develop into taller woodland with trees such as downy birch *Betula pubescens* and rowan *Sorbus aucuparia*. These willows are a particularly good habitat for the western lichen *Hypotrachyna sinuosa*, which in this survey was found more commonly on willows than on larger trees. A notable find on willow was the rare lichen *Leptogium dendriscum*.
- 1.6.7 **Table 1.2: Details of Nationally Rare or Nationally Scarce Species Recorded** below details the nine TNs where Nationally Rare or Nationally Scarce species were recorded and their proximity to Proposed

⁸ Preston, C.D. & Hill, M.O. (1997). The geographical relationships of British and Irish vascular plants. *Botanical Journal of the Linnean Society*, 124, 1-12

⁹ Hill, M.O. & Preston, C.D. (1998). The geographical relationships of British and Irish bryophytes. *J.Bryol.* 20, 127-226

¹⁰ Averis, A.B.G. & James, P. (2002). A botanical assessment for the Kinloch Hills Wilderness Forest Project, Isle of Skye, Scotland. Forestry Commission contract no. 02/17.

Development infrastructure, see also **Figures V2-4.5: Kinloch & Kyleakin Hills SAC/SSSI Bryophyte and Lichen Survey Area and Results**. Full details of the TNs are provided in **Annex A**.

Table 1.2: Details of Nationally Rare or Nationally Scarce Species Recorded

TN No.	Species	Status	Alignment	Proximity to Proposed Development
47	<i>Campylopus setifolius</i>	Nationally Scarce (bryophyte)	Proposed Alignment	Recorded in woodland with steep banks and rocks to the east of Allt na Doire Tarsuinn. Located 22 m from a proposed new permanent floating track and 29 m from conductor span for the OHL. No felling, lopping or crown reduction of trees required around this location as part of the Proposed Development. Any micrositing of infrastructure would not encroach into woodland area. No direct impacts predicted on Nationally Scarce species recorded at this location.
51	<i>Campylopus setifolius</i>	Nationally Scarce (bryophyte)	Proposed Alignment	Recorded in wet heath. Located 16 m from a proposed new permanent floating track and 25 m from conductor span for the OHL. Present within the Proposed Developments Limit of Deviation (LoD), however with micrositing controls in place no direct impacts predicted on Nationally Scarce species recorded at this location.
52	<i>Dicranodontium uncinatum</i>	Nationally Scarce (bryophyte)	Proposed Alignment	Located on heathy and rocky outcrop and outwith the LoD. Located 38 m from a proposed new permanent floating track and 71 m from conductor span for the OHL. No direct impacts predicted on Nationally Scarce species recorded at this location.
53	<i>Dicranodontium uncinatum</i>	Nationally Scarce (bryophyte)	Proposed Alignment	Located on rocky outcrop just within LoD. Located 23 m from nearest proposed infrastructure, i.e., a new floating track to the northeast. 48 m from nearest tower position. Any micrositing of infrastructure would not encroach onto crag area as it is not suitable for construction. No direct impacts predicted on Nationally Scarce species recorded at this location.
56	<i>Campylopus setifolius</i>	Nationally Scarce (bryophyte)	Proposed Alignment	Located on peaty bank in wet heath habitat on southwest side edge of old track/path. Located 5 m from a proposed new permanent floating track and 62 m from conductor span for the OHL. Present within the Proposed Developments Limit of Deviation (LoD) for tracks, however with mitigation and micrositing controls in place no direct impacts predicted on Nationally Scarce species recorded at this location.
65	<i>Leptogium dendriscum</i>	Nationally Rare (lichen)	Alternative Alignment	Species found on large eared willow bush. Nearest infrastructure for the Proposed Development is a proposed new floating access track located 311 m from this eared willow bush. There is the potential for Public Road Improvement (PRI) works within 12 m of this bush, however with safeguards in place direct impacts can be avoided.
106	<i>Campylopus setifolius</i>	Nationally Scarce (bryophyte)	Alternative Alignment	Small quantity recorded in wet heath. Located directly on the route of proposed new permanent cut and fill track, 20 m from conductor span for the OHL, and 51 m from nearest tower location. Mitigation and micrositing required.

TN No.	Species	Status	Alignment	Proximity to Proposed Development
131	<i>Campylopus shawii</i>	Nationally Scarce (bryophyte)	Both	<p>Small quantity recorded in wet heath just west and upslope of the RSPB hide car park at Kylerhea and an existing track that does not require upgrading as part of works associated with the proposals.</p> <p>Also located 16 m from a proposed new access track and 23 m from nearest proposed tower for the Alternative Alignment. Safeguards would be required to be put in place if the Alternative Alignment were constructed.</p>
132	<i>Nevesia sampaiana</i>	Nationally Scarce (lichen)	Both	<p>Recorded as epiphytic on rowan tree located approximately 2.5-3 m west of an existing track that would require minor upgrading works for either alignment option.</p> <p>Located 52 m from a proposed new temporary access track and 83 m from nearest tower location for Alternative Alignment. Safeguards would be put in place to protect this tree from any damage during the construction period.</p>

1.6.8 With some mitigation and micro-siting controls it will be possible to avoid direct impacts on the Nationally Rare and Nationally Scarce species noted above, as detailed in the following section.

1.7 Recommendations and Mitigation

1.7.1 It is recommended that any direct damage to all the bryophyte and lichen interests provided in the results section above be avoided, as far as practicable. Retention of existing woodland and scrub habitats, and other scattered trees and willow bushes, is particularly important for maintaining the bryophyte and lichen interest of the surveyed areas.

1.7.2 Some of the bryophyte and lichen interest is in woodland in ravines and on other very steep and variably wooded slopes. It is expected that these places will be safe from damage and direct impacts through being too steep and inaccessible for development such as track construction. Likewise large boulders, which would presumably be too difficult to move. Wet flushes and the wetter parts of bogs may be impacted by localised track construction. However, these will be avoided as far as practicable, and mitigation will be put in place to maintain any prevailing hydrological flow paths (further information can be found in **Appendix V1-3.5: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs)**).

1.7.3 Some felling, lopping or crown reduction of native woodland areas will be required during construction and wayleave establishment (to create a safe operational corridor) in the SAC/SSSI. Felling of trees with a diameter at breast height (dbh) above 7 cm for Section 3 in the SAC/SSSI is limited to 0.15 hectares (ha) of woodland associated with a proposed new access track to the east of Inbhir Ghualann (**Volume 2, Chapter 9: Forestry**); no bryophyte/lichen TNs were recorded in this felling area. Felling with dbh greater than 7 cm for the Alternative Alignment in the SAC/SSSI amounts to 0.23 ha of woodland all located where the Proposed Development crosses the Allt Mòr watercourse (**Volume 2, Chapter 9: Forestry**); no TNs were located within this felling zone, but TN 61 relates to a line of riparian trees which starts at the eastern edge of this felling area and continues upstream (i.e., southwards), away from the felling zone.

1.7.4 Conductors will be able to span over the majority of woodland areas without the need for felling, lopping or crown reduction during construction. This will avoid the major alteration of light and humidity levels within the underlying woodlands of interest, that largely rely on the prevailing microclimates and ecological niches for these bryophyte and lichen interests. However, forestry data and modelling has indicated that 0.37 ha of woodland crown reduction will be required for the Proposed Alignment within the SAC/SSSI either during construction or within four years, due to predicted and potential encroachment of trees within electric safe

zones from conductors in two specific areas (i.e., between proposed towers BF50 - BF51 and BF57 – BF58) (**Volume 2, Chapter 9: Forestry**). Crown reduction will require the physical removal of sections of the upper tree; up to one third of the crown would be removed. Predicted crown reduction areas between proposed towers BF50 - BF51 overlap with TN 2 on the upper Allt a' Ghleannain. TNs 21 and 22 are also located a short distance to the south of the crown reduction zone located west of Allt an Rèidhe Mhòir and between proposed towers BF57 – BF58.

- 1.7.5 No crown reduction requirements have been predicted for the Alternative Alignment (**Volume 2, Chapter 9: Forestry**).
- 1.7.6 One additional location on the Proposed Alignment, just east of proposed tower BF56, has been identified in the forestry surveys and modelling (**Volume 2, Chapter 9: Forestry**) as potentially requiring crown reduction in 4+ years during the operational period of the Proposed Development¹¹; no bryophyte or lichen TNs as recorded in this survey and detailed in this report were recorded in this area.
- 1.7.7 As detailed in **Table 1.2: Details of Nationally Rare or Nationally Scarce Species Recorded** a number of Nationally Rare or Nationally Scarce species were recorded within the survey area, and some of these locations are in proximity to proposed infrastructure or within the LoD for the Proposed Development (see **Figures V2-4.5: Kinloch & Kyleakin Hills SAC/SSSI Bryophyte and Lichen Survey Area and Results**). Therefore, some of these species' locations may be at risk from direct impacts such as localised felling/lopping, excavation, and ground preparation. In order to protect and safeguard these species and populations that are in proximity to infrastructure or within the LoD the following measures are proposed:
- A bryophyte and lichen specialist, or the Ecological Clerk of Works (if suitably qualified), to re-visit the above noted locations considered at risk in **Table 1.2: Details of Nationally Rare or Nationally Scarce Species Recorded** with the Principal Contractor in advance of construction to demarcate the areas of interest and create an exclusion zone for ecological sensitivities. This demarcated area will be a minimum of 5 m around the feature, but preferably 10 m if possible (N.B. it will not be possible to create a 5 m buffer around the feature at TN 132, in this case the demarcated areas should extend to the road edge, and no upgrading works should occur on the side of the road where the rowan tree of interest is located).
 - The bryophyte and lichen specialist to undertake further pre-construction checks for Nationally Rare or Nationally Scarce species within likely areas of interest within the proposed footprint of the Proposed Development and demarcate further populations if found.
 - If required, micrositing of infrastructure within the LoD to avoid the demarcated and protected areas.
 - No works, or storage of spoil or materials, to take place within the demarcated and protected areas.
 - Regular monitoring of the features to ensure the mitigation measures are effective.
- 1.7.8 It is expected that the mitigation and safeguards noted above will ensure direct impacts on these areas of interest are avoided. However, if it is not possible to microsite or the feature is at risk, then further mitigation proposals and plans will be discussed and agreed with NatureScot in advance of construction occurring within the specific locality. This may include, but not be limited to, translocation proposals to nearby receptor sites with the same suite of environmental conditions, should the species be suitable for translocation. In the event such a measure is proposed, the proposals and plans will be prepared in conjunction with a bryophyte/lichen specialist and agreed with NatureScot.
- 1.7.9 Ecological interest and sensitivity, and an associated need for careful planning and/or mitigation is not necessarily considered more important for locations of Nationally Rare or Nationally Scarce species than for other TN locations. For example, some of the rocky stream courses and ravines lack records of Nationally Rare or Nationally Scarce species but are botanically at least as important as small populations of the Nationally

¹¹ This potential operational crown reduction requirement is uncertain and depends on future tree growth, which is dependent on a number of environmental factors.

Scarce *Campylopus setifolius* in heath that is otherwise not so botanically rich. Another good example that warrants attention in this regard is along the existing road through the conifer plantation in the east and north of Kylerhea; the need to retain existing trees for epiphytic lichen interest is just as high for the strip of rowans and goat willows *Salix caprea* just to the east of the road (from TN 133 to TN 134) as for the single rowan on which the Nationally Scarce *Nevesia sampaiana* was found (TN 132).

- 1.7.10 Potential adverse indirect construction effects, for example through water based or airborne pollution, dust, siltation, or any dewatering discharges to land will be managed via the Applicants GEMPs and a site-specific Construction Environmental Management Plan (CEMP).
- 1.7.11 During the operational period of the Proposed Development the wayleave will be allowed to regenerate, and woodland allowed to expand as part of managed regeneration. However, if there is a risk of tree encroachment within 3.5 m from conductors then focussed felling, lopping or crown reduction of trees may be required in the longer-term. This will only be carried out where necessary, with habitats and lower growing trees and scrub generally allowed to regenerate naturally. It is estimated that wayleave maintenance operations will be required more in discrete areas where the topography brings the woodland canopy into the 3.5 m range of the conductors. Initial analysis of where crown reduction may be required within the SAC/SSSI within four years is discussed above in paragraph 1.7.3 and details provided in **Volume 2, Chapter 9: Forestry**. It is expected that any longer-term impacts from occasional and localised future maintenance, primarily through crown reduction in discrete areas, are unlikely to adversely affect the local bryophyte and lichen interests in this area to a significant degree or to affect the viability of the species concerned.

Annex A. Target Notes

- 1.7.12 **Table 1.3: Detailed Target Note Information** below provides the full details and locations where notable bryophyte, lichen and fern species were found by Ben and Alison Averis during the specialist lichen and bryophyte survey through the respective study area within the Kinloch & Kyleakin Hills SAC/SSSI. See also **Figures V2-4.5: Kinloch & Kyleakin Hills SAC/SSSI Bryophyte and Lichen Survey Area and Results**.
- 1.7.13 TNs 1-56 are relevant to the Proposed Alignment, TNs 57 and 59 – 130 are relevant to the Alternative Alignment, and TNs 58 and 131 - 134 relate to both (with TN 58 located where the Proposed Development crosses the Abhainn Lusa, and TNs 131 – 134 located along a section of existing track and existing track to be upgraded between Kylerhea and the existing OHL crossing).
- 1.7.14 The 'Interest category' column in the table below is categorised as follows: B = Bog; S = Scrub; F = Flush; H = Heath; R= Rock habitat; W = Woodland (all for bryophyte/lichen interest); V = vascular plant interest. Nationally Scarce species are identified in the 'Details' column with a '*', and Nationally Rare species with a '**'.
- 1.7.15 Further below, **Table 1.4: Summary of TNs including Nationally Scarce and Nationally Rare Species** provides the summary list of TNs where Nationally Scarce or Nationally Rare species were recorded.

Table 1.3: Detailed Target Note Information

TN No.	Date	Grid reference	Details	Interest category
1	25/04/2022	NG 73910 24660	<i>Dryopteris aemula</i> (Hay-scented buckler-fern) in small quantity.	V
2	25/04/2022	NG 74360 24310	Species in this general area include mosses <i>Hycomium armoricum</i> and <i>Dicranum fuscescens</i> , liverworts <i>Scapania gracilis</i> , <i>Saccogyna viticulosa</i> , <i>Plagiochila spinulosa</i> , <i>P. punctata</i> , <i>Lejeunea patens</i> , <i>Frullania teneriffae</i> , <i>Cololejeunea microscopica</i> , <i>Colura calyptrifolia</i> and (on Birch) <i>Leptoscyphus cuneifolius</i> , lichen <i>Hypotrachyna laevigata</i> and filmy fern <i>Hymenophyllum wilsonii</i> .	W
3	25/04/2022	NG 74848 24241	<i>Sphagnum medium</i> in bog.	B
4	25/04/2022	NG 74848 24271	<i>Sphagnum medium</i> in bog. Bog pools here too, with <i>S. medium</i> , <i>S. cuspidatum</i> , <i>S. papillosum</i> , <i>S. capillifolium</i> , <i>Drosera rotundifolia</i> , <i>Pleurozia purpurea</i> , <i>Narthecium ossifragum</i> , <i>Eriophorum vaginatum</i> and <i>Erica tetralix</i> .	B
5	25/04/2022	NG 74908 24229	<i>Sphagnum medium</i> in bog.	B
6	25/04/2022	NG 74932 24324	<i>Sphagnum medium</i> and holly seedling in bog. An unusually wet habitat for holly.	B
7	25/04/2022	NG 74959 24158	<i>Sphagnum medium</i> in bog.	B
8	25/04/2022	NG 74964 24153	Base-enriched flush with species including <i>Campylium stellatum</i> , <i>Scorpidium scorpioides</i> and <i>Potamogeton polygonifolius</i> .	F
9	25/04/2022	NG 74973 24628	Species on trees include liverworts <i>Scapania gracilis</i> , <i>Plagiochila spinulosa</i> , <i>P. punctata</i> and <i>Frullania teneriffae</i> , and lichen <i>Menegazzia terebrata</i> .	W
10	25/04/2022	NG 75172 24199	Holly seedling in <i>Molinia</i> mire.	V
11	25/04/2022	NG 75182 24195	<i>Sphagnum medium</i> in bog.	B
12	25/04/2022	NG 75232 24200	<i>Sphagnum medium</i> in bog. Bog pools present too. Some quad-bike damage here.	B
13	25/04/2022	NG 75277 24206	<i>Sphagnum medium</i> in bog, and bog pools present too.	B
14	25/04/2022	NG 75288 24202	Holly (20 cm tall) in bog - an unusual habitat for this species.	V
15	25/04/2022	NG 75566 24251	Rowan on steep bank, with <i>Scapania gracilis</i> and <i>Hymenophyllum wilsonii</i> on its base. Also, two holly seedlings growing on this rowan.	H
16	25/04/2022	NG 75718 24186	Clubmoss <i>Lycopodium clavatum</i> locally frequent.	V

TN No.	Date	Grid reference	Details	Interest category
17	25/04/2022	NG 75750 24193	<i>Arctostaphylos uva-ursi</i> on rocky banks of stream. <i>Pyrola minor</i> at southeast edge of stream. Bryophytes by stream and in nearby H21a heath and W17 woodland in ravine just downstream include <i>Hyocomium armoricum</i> , <i>Campylopus atrovirens</i> , <i>Breutelia chrysocoma</i> , <i>Grimmia curvata</i> , <i>Scapania gracilis</i> , <i>Plagiochila punctata</i> , <i>Anastrepta orcadensis</i> , <i>Bazzania tricrenata</i> , <i>Mylia taylorii</i> , <i>Frullania teneriffae</i> , <i>Lejeunea patens</i> , <i>Colura calyptrifolia</i> (on old <i>Blechnum</i> frond), <i>Leptoscyphus cuneifolius</i> (on Birch) and <i>Sphenolobus minutus</i> . Also, <i>Huperzia selago</i> and <i>Hymenophyllum wilsonii</i> in W17.	W
18	25/04/2022	NG 75940 24432	Species include mosses <i>Scorpidium revolvens</i> , <i>Blindia acuta</i> and <i>Calliergonella cuspidata</i> , liverwort <i>Aneura pinguis</i> and vascular plants <i>Schoenus nigricans</i> , <i>Carex demissa</i> , <i>C. panicea</i> and <i>Pinguicula vulgaris</i> .	F
19	25/04/2022	NG 75970 24466	Holly (45 cm tall) among scattered birches.	V
20	25/04/2022	NG 76017 24496	<i>Arctostaphylos uva-ursi</i> in small quantity.	V
21	25/04/2022	NG 76209 24636	Liverworts <i>Scapania gracilis</i> (on birch and fallen dead wood) and <i>Douinia ovata</i> (on birch).	W
22	25/04/2022	NG 76235 24635	Liverworts <i>Scapania gracilis</i> and <i>Plagiochila punctata</i> on fallen wood. Also around here are liverwort <i>Frullania teneriffae</i> , lichen <i>Hypotrachyna laevigata</i> and filmy fern <i>Hymenophyllum wilsonii</i> .	W
23	25/04/2022	NG 76434 24581	Species on and around bases of birches include moss <i>Ptilium cristacastrensis</i> , liverworts <i>Scapania gracilis</i> and <i>Anastrepta orcadensis</i> , and filmy fern <i>Hymenophyllum wilsonii</i> . Also, <i>Plagiochila punctata</i> on alder.	W
24	25/04/2022	NG 76467 24453	<i>Scapania gracilis</i> and <i>Hymenophyllum wilsonii</i> on birch in birch/rowan/holly woodland in small ravine.	W
25	25/04/2022	NG 76516 24464	Species include mosses <i>Scorpidium scorpioides</i> , <i>S. revolvens</i> , <i>Campylium stellatum</i> , <i>Ctenidium molluscum</i> , <i>Breutelia chrysocoma</i> and <i>Blindia acuta</i> , liverwort <i>Aneura pinguis</i> and butterwort <i>Pinguicula vulgaris</i> .	F
26	25/04/2022	NG 76523 24558	Epiphytes include liverworts <i>Scapania gracilis</i> , <i>Plagiochila punctata</i> , <i>Douinia ovata</i> and <i>Frullania teneriffae</i> . Also, <i>Huperzia selago</i> on ground.	W
27	25/04/2022	NG 76558 24499	Moss <i>Ptilium cristacastrensis</i> in heath. Liverwort <i>Scapania gracilis</i> on dead wood.	H
28	25/04/2022	NG 76811 24573	Liverworts <i>Scapania gracilis</i> , <i>Plagiochila punctata</i> and <i>Douinia ovata</i> on birches. Moss <i>Ptilium cristacastrensis</i> and liverwort <i>Anastrepta orcadensis</i> in nearby H21a heath.	W+ H
29	25/04/2022	NG 77042 24568	<i>Sphagnum medium</i> in good M17 with <i>S. cuspidatum</i> , <i>S. papillosum</i> , <i>S. capillifolium</i> and <i>S. tenellum</i> .	B
30	25/04/2022	NG 77073 24664	<i>Sphagnum medium</i> in bog.	B
31	25/04/2022	NG 77180 24725	<i>Arctostaphylos uva-ursi</i> frequent on rocky knoll.	V
32	25/04/2022	NG 77211 24583	<i>Arctostaphylos uva-ursi</i> and holly in ravine.	V
33	25/04/2022	NG 77216 24717	<i>Arctostaphylos uva-ursi</i> frequent on steep bank.	V
34	25/04/2022	NG 77223 24590	<i>Sphagnum strictum</i> in small quantity.	H
35	25/04/2022	NG 77243 24725	<i>Arctostaphylos uva-ursi</i> in small quantity.	V
36	25/04/2022	NG 77263 24679	<i>Arctostaphylos uva-ursi</i> in small quantity on east side of stream.	V
37	25/04/2022	NG 77281 24662	<i>Arctostaphylos uva-ursi</i> in small quantity.	V
38	25/04/2022	NG 77312 24714	<i>Arctostaphylos uva-ursi</i> in small quantity.	V
39	25/04/2022	NG 77352 24783	<i>Arctostaphylos uva-ursi</i> locally abundant.	V
40	26/04/2022	NG 77432 24703	Species in open birch-dominated woodland (with some oak, rowan, holly and rose) in ravine include mosses <i>Hyocomium armoricum</i> , <i>Dicranum fuscescens</i> and <i>Breutelia chrysocoma</i> , liverworts <i>Scapania gracilis</i> , <i>Saccogyna viticulosa</i> , <i>Plagiochila spinulosa</i> , <i>P. punctata</i> , <i>Lejeunea patens</i> , <i>Frullania teneriffae</i> , <i>Cololejeunea microscopica</i> , <i>Colura calyptrifolia</i> , <i>Drepanolejeunea hamatifolia</i> , <i>Harpalejeunea mollerii</i> , <i>Pleurozia purpurea</i> , <i>Leptoscyphus cuneifolius</i> , <i>Riccardia palmata</i> , <i>Bazzania tricrenata</i> and <i>Scapania umbrosa</i> , lichens <i>Sticta sylvatica</i> (on rowan) and <i>Hypotrachyna laevigata</i> (on birch), and filmy fern <i>Hymenophyllum wilsonii</i> . Other vascular species include <i>Anemone nemorosa</i> , <i>Lysimachia nemorum</i> , <i>Hyacinthoides non-scripta</i> , <i>Primula vulgaris</i> , <i>Valeriana officinalis</i> , <i>Sanicula europaea</i> and plentiful birch regeneration.	W

TN No.	Date	Grid reference	Details	Interest category
41	26/04/2022	NG 77553 24769	Heath and woodland in ravine. Species include mosses <i>Breutelia chrysocoma</i> , <i>Hyocomium armoricum</i> , <i>Dicranum fuscescens</i> and <i>Ptilium cristacastrensis</i> , liverworts <i>Scapania gracilis</i> , <i>Saccogyna viticulosa</i> , <i>Plagiochila spinulosa</i> , <i>P. punctata</i> , <i>Frullania teneriffae</i> , <i>Lejeunea patens</i> , <i>Cololejeunea microscopica</i> , <i>Drepanolejeunea hamatifolia</i> , <i>Colura calyptrifolia</i> , <i>Anastrepta orcadensis</i> , <i>Bazzania tricrenata</i> and <i>Mylia taylorii</i> , and filmy fern <i>Hymenophyllum wilsonii</i> .	W + H
42	26/04/2022	NG 77609 24790	Species include mosses <i>Scorpidium scorpioides</i> and <i>Warnstorfia sarmentosa</i> .	F
43	26/04/2022	NG 77869 24946	<i>Arctostaphylos uva-ursi</i> in small quantity.	V
44	26/04/2022	NG 78402 24981	Species include moss <i>Dicranum fuscescens</i> , liverworts <i>Scapania gracilis</i> , <i>Plagiochila punctata</i> and <i>Mylia taylorii</i> , lichen <i>Hypotrachyna laevigata</i> and vascular plants <i>Hymenophyllum wilsonii</i> , <i>Hedera helix</i> , <i>Lysimachia nemorum</i> , <i>Ficaria verna</i> , <i>Sanicula europaea</i> , <i>Primula vulgaris</i> and <i>Hyacinthoides non-scripta</i> .	W
45	26/04/2022	NG 78434 25042	Species include moss <i>Scorpidium scorpioides</i> , clubmoss <i>Selaginella selaginoides</i> and other vascular species <i>Carex demissa</i> , <i>C. panicea</i> , <i>Pinguicula vulgaris</i> , <i>Hypericum pulchrum</i> and <i>Succisa pratensis</i> .	F
46	26/04/2022	NG 78454 24994	Flushed track with M10 vegetation including <i>Schoenus nigricans</i> , <i>Selaginella selaginoides</i> , <i>Pinguicula vulgaris</i> mosses <i>Scorpidium scorpioides</i> , <i>Breutelia chrysocoma</i> and <i>Campyllum stellatum</i> , and liverwort <i>Aneura pinguis</i> .	F
47	26/04/2022	NG 78522 25039	Species on steep rocks/banks include mosses <i>Campylopus setifolius*</i> , <i>Breutelia chrysocoma</i> , <i>Hyocomium armoricum</i> , <i>Dicranum scottianum</i> , <i>Ctenidium molluscum</i> , <i>Ulota phyllantha</i> and <i>Breutelia chrysocoma</i> , liverworts <i>Scapania gracilis</i> , <i>Plagiochila spinulosa</i> , <i>P. punctata</i> , <i>Lejeunea patens</i> and <i>Frullania teneriffae</i> , and filmy fern <i>Hymenophyllum wilsonii</i> . Also, some <i>Hedera helix</i> and <i>Lonicera periclymenum</i> .	W
48	26/04/2022	NG 78575 25069	Species on steep rock outcrops/banks and trees (birch, rowan and holly) include mosses <i>Hylocomiastrum umbratum</i> , <i>Breutelia chrysocoma</i> , <i>Tortella tortuosa</i> , <i>Dicranum fuscescens</i> , <i>D. scottianum</i> , <i>Ctenidium molluscum</i> and <i>Amphidium mougeotii</i> , liverworts <i>Scapania gracilis</i> , <i>Saccogyna viticulosa</i> , <i>Plagiochila spinulosa</i> , <i>P. punctata</i> , <i>Lejeunea patens</i> , <i>Lepidozia cupressina</i> and <i>Bazzania tricrenata</i> , and filmy fern <i>Hymenophyllum wilsonii</i> .	W + H
49	26/04/2022	NG 78669 25053	Bog pool 3 x 6 m, with much <i>Sphagnum cuspidatum</i> , <i>S. denticulatum</i> and <i>Juncus bulbosus</i> .	B
50	26/04/2022	NG 78824 25035	Species include mosses <i>Breutelia chrysocoma</i> and <i>Hyocomium armoricum</i> , liverworts <i>Scapania gracilis</i> , <i>Plagiochila spinulosa</i> , <i>Frullania teneriffae</i> , <i>Lejeunea patens</i> and <i>Colura calyptrifolia</i> , and clubmoss <i>Huperzia selago</i> .	W
51	26/04/2022	NG 79064 24966	Moss <i>Campylopus setifolius*</i> in vehicle track in wet heath.	H
52	26/04/2022	NG 79067 24901	Flora of rocky area (with cliffs) includes birch, rowan, holly, <i>Hymenophyllum wilsonii</i> , <i>Hyacinthoides non-scripta</i> , the mosses <i>Breutelia chrysocoma</i> , <i>Dicranum scottianum</i> , <i>D. fuscescens</i> , <i>Dicranodontium uncinatum*</i> (a good population of this species) and <i>Hookeria lucens</i> , and liverworts <i>Scapania gracilis</i> , <i>Plagiochila spinulosa</i> , <i>P. punctata</i> , <i>Herbertus hutchinsiae</i> (in small quantity), <i>Anastrepta orcadensis</i> , <i>Mylia taylorii</i> , <i>Bazzania tricrenata</i> , <i>Sphenolobus minutus</i> , <i>Kurzia trichoclados</i> and <i>Lepidozia pearsonii</i> .	H + R
53	26/04/2022	NG 79124 24885	Species include holly, <i>Hymenophyllum wilsonii</i> , moss <i>Dicranum fuscescens</i> and <i>Dicranodontium uncinatum*</i> , and liverworts <i>Scapania gracilis</i> , <i>Anastrepta orcadensis</i> and <i>Bazzania tricrenata</i> .	R
54	26/04/2022	NG 79138 24931	Moss <i>Breutelia chrysocoma</i> , liverwort <i>Colura calyptrifolia</i> and lichen <i>Hypotrachyna sinuosa</i> epiphytic on young rowan on southwest side of rough track.	H
55	26/04/2022	NG 79155 24872	Steep crags with rowan, holly, mosses <i>Campylopus atrovirens</i> and <i>Dicranum fuscescens</i> and liverworts <i>Scapania gracilis</i> , <i>Frullania teneriffae</i> (on rowan) and <i>Anastrepta orcadensis</i> . <i>Hyacinthoides non-scripta</i> in bracken just below crags.	R

TN No.	Date	Grid reference	Details	Interest category
56	26/04/2022	NG 79304 24743	Moss <i>Campylopus setifolius</i> * on peaty bank on southwest side of track.	H
57	29/04/2022	NG 70559 23587	Rowans with epiphytes including the lichens <i>Lobaria pulmonaria</i> , <i>Sticta fuliginosa</i> , <i>S. limbata</i> , <i>Pectenia cyanoloma</i> , <i>Pannaria rubiginosa</i> , <i>Nephroma laevigatum</i> and <i>Leptogium burgessii</i> , the mosses <i>Ulota phyllantha</i> and <i>U. drummondii</i> , and the liverworts <i>Cololejeunea minutissima</i> and <i>Frullania teneriffae</i> .	W
58	28/04/2022	NG 70760 22990	Ravine mainly inaccessible, but mosses <i>Ulota calvescens</i> and <i>U. phyllantha</i> , and liverwort <i>Frullania teneriffae</i> seen on rowans on upper slopes on northeast side. Lower part of ravine almost certainly rich bryologically. Visited an accessible part of it about 500 m downstream in 1993 and found the mosses <i>Bartramia halleriana</i> , <i>Breutelia chrysocoma</i> , <i>Campylopus atrovirens</i> , <i>Hyocomium armoricum</i> , <i>Molendoa warburgii</i> and <i>Ulota phyllantha</i> , and the liverworts <i>Cololejeunea microscopica</i> , <i>Colura calyptrifolia</i> , <i>Drepanolejeunea hamatifolia</i> , <i>Frullania teneriffae</i> , <i>Lejeunea patens</i> , <i>Plagiochila spinulosa</i> , <i>Pleurozia purpurea</i> , <i>Saccogyna viticulosa</i> and <i>Scapania gracilis</i> , and the filmy fern <i>Hymenophyllum wilsonii</i> . It is probably at least as rich as this in the inaccessible lower parts of the gorge at NG 70740 22980 (downslope of the recently-visited accessible upper northeast edge mentioned above).	W
59	29/04/2022	NG 72230 21960	Species-rich vegetation on streamside shingle. Birch, eared willow and rowan seedlings, and an open community of <i>Thymus polytrichus</i> , <i>Ficaria verna</i> , <i>Hypochoeris radicata</i> , <i>Teucrium scorodonia</i> , <i>Geum rivale</i> , <i>Lathyrus linifolius</i> , <i>Linum catharticum</i> , <i>Valeriana officinalis</i> , <i>Angelica sylvestris</i> , <i>Primula vulgaris</i> , <i>Viola riviniana</i> , <i>Hypericum pulchrum</i> , <i>Ranunculus acris</i> , <i>Anemone nemorosa</i> , <i>Calluna vulgaris</i> , <i>Erica cinerea</i> , <i>Succisa pratensis</i> , <i>Potentilla erecta</i> , <i>Taraxacum officinale</i> , <i>Tussilago farfara</i> , <i>Alchemilla glabra</i> , <i>A. alpina</i> , <i>Sanicula europaea</i> , <i>Plantago lanceolata</i> , <i>Achillea millefolium</i> , <i>Juncus articulatus</i> and <i>Luzula sylvatica</i> .	S
60	28/04/2022	NG 77210 20405	Pool and shallow runnels in bog, with open water, <i>Potamogeton polygonifolius</i> , <i>Carex nigra</i> , <i>Molinia caerulea</i> , <i>Myrica gale</i> , <i>Rhynchospora alba</i> , <i>Erica tetralix</i> and <i>Sphagnum denticulatum</i> .	B
61	28/04/2022	NG 72850 21800	Species on rocks, banks and trees (birch, rowan and eared willow) along this stretch of wooded rocky stream from NG 72760 21840 upstream to NG 72938 21743 include mosses <i>Hyocomium armoricum</i> , <i>Ulota phyllantha</i> , <i>U. drummondii</i> , <i>Campylopus atrovirens</i> and <i>Breutelia chrysocoma</i> , liverworts <i>Scapania gracilis</i> , <i>Frullania teneriffae</i> , <i>Lejeunea patens</i> , <i>Cololejeunea microscopica</i> and <i>Colura calyptrifolia</i> , and lichens <i>Hypotrachyna sinuosa</i> , <i>Pectenia atlantica</i> , <i>P. cyanoloma</i> , <i>Pannaria rubiginosa</i> and <i>Cetrelia olivetorum</i> .	W
62	27/04/2022	NG 73385 21313	Liverwort <i>Scapania gracilis</i> in bog.	B
63	27/04/2022	NG 73449 21302	Patch of <i>Salix aurita</i> c. 3 x 10 m, with epiphytes including lichens <i>Hypotrachyna sinuosa</i> and <i>Parmotrema perlatum</i> . Another patch (3 x 4 m, c. 10 m to west-northwest) has the same species.	S
64	27/04/2022	NG 73480 21212	Base-enriched flush with species including mosses <i>Scorpidium scorpioides</i> , <i>S. revolvens</i> and <i>Breutelia chrysocoma</i> and liverwort <i>Aneura pinguis</i> . Also, <i>Carex demissa</i> , <i>C. panicea</i> and <i>Potamogeton polygonifolius</i> .	F
65	29/04/2022	NG 73500 21569	Large <i>Salix aurita</i> bush with epiphytes including lichens <i>Lobaria pulmonaria</i> , <i>L. scrobiculata</i> , <i>Hypotrachyna sinuosa</i> , <i>Pannaria rubiginosa</i> , <i>Pectenia cyanoloma</i> , <i>Parmotrema perlatum</i> , <i>Leptogium dendriticum</i> ** and <i>Cetrelia olivetorum</i> , the mosses <i>Ulota phyllantha</i> , <i>U. drummondii</i> and <i>Orthotrichum pulchellum</i> , and the liverwort <i>Frullania teneriffae</i> .	S
66	27/04/2022	NG 73507 21252	Base-enriched flush with moss <i>Campylium stellatum</i> , liverwort <i>Aneura pinguis</i> and vascular plants <i>Carex demissa</i> , <i>C. panicea</i> , <i>Eriophorum angustifolium</i> , <i>Potamogeton polygonifolius</i> and <i>Narthecium ossifragum</i> .	F

TN No.	Date	Grid reference	Details	Interest category
67	27/04/2022	NG 73508 21223	Patch of <i>Salix aurita</i> c. 6 x 8 m, with epiphytes including moss <i>Ulota phyllantha</i> , liverwort <i>Frullania teneriffae</i> and lichens <i>Hypotrachyna sinuosa</i> and <i>H. laevigata</i> . Another patch (4 x 6 m, c. 6 m to west-northwest) has <i>U. phyllantha</i> , <i>F. teneriffae</i> , <i>H. sinuosa</i> and <i>Parmotrema perlatum</i> .	S
68	27/04/2022	NG 73525 21186	Small patch of <i>Salix aurita</i> with epiphytes including lichens <i>Hypotrachyna sinuosa</i> and <i>Parmotrema perlatum</i> .	S
69	27/04/2022	NG 73527 21205	Patch of <i>Salix aurita</i> c. 8 x 15 m, with epiphytes including moss <i>Ulota phyllantha</i> , liverwort <i>Frullania teneriffae</i> and lichens <i>Hypotrachyna sinuosa</i> and <i>Parmotrema perlatum</i> .	S
70	27/04/2022	NG 73566 21170	Base-enriched flush with species including mosses <i>Scorpidium scorpioides</i> and <i>Breutelia chrysocoma</i> , and <i>Blindia acuta</i> , and liverwort <i>Aneura pinguis</i> . Also, <i>Carex demissa</i> , <i>C. panicea</i> , <i>Pinguicula vulgaris</i> , <i>Triglochin palustre</i> and <i>Juncus articulatus</i> .	F
71	27/04/2022	NG 73629 21172	<i>Carex rostrata</i> in M19 bog on slope. An unusual species for this NVC community.	V
72	27/04/2022	NG 73651 21170	Base-enriched flush with species including mosses <i>Scorpidium scorpioides</i> , <i>Breutelia chrysocoma</i> and <i>Blindia acuta</i> , and liverwort <i>Aneura pinguis</i> . Also, <i>Carex rostrata</i> , <i>C. demissa</i> , <i>C. panicea</i> , <i>C. dioica</i> and <i>Triglochin palustre</i> .	F
73	27/04/2022	NG 73659 21182	Base-enriched flush/soakway with species including mosses <i>Scorpidium revolvens</i> , <i>Campylium stellatum</i> , <i>Racomitrium lanuginosum</i> , <i>Breutelia chrysocoma</i> and <i>Sphagnum denticulatum</i> , and vascular plants <i>Potamogeton polygonifolius</i> , <i>Carex demissa</i> , <i>Ranunculus flammula</i> , <i>Eriophorum angustifolium</i> , <i>Erica tetralix</i> , <i>Succisa pratensis</i> , <i>Huperzia selago</i> , <i>Juncus squarrosus</i> and <i>Narthecium ossifragum</i> .	F
74	27/04/2022	NG 73704 21144	Small patch of <i>Salix aurita</i> with epiphytes including lichen <i>Hypotrachyna sinuosa</i> .	S
75	27/04/2022	NG 73712 21171	Base-enriched flush with mosses <i>Scorpidium revolvens</i> , <i>S. scorpioides</i> , <i>Campylium stellatum</i> and <i>Sphagnum denticulatum</i> , liverwort <i>Aneura pinguis</i> and vascular plants <i>Carex dioica</i> , <i>C. demissa</i> , <i>C. panicea</i> , <i>C. echinata</i> , <i>Eriophorum angustifolium</i> , <i>Triglochin palustre</i> , <i>Drosera intermedia</i> and <i>Juncus articulatus</i> .	F
76	27/04/2022	NG 73798 21154	Liverwort <i>Scapania gracilis</i> very locally abundant in M19 bog on top of knoll.	B
77	27/04/2022	NG 73886 21129	Pool/soakway with much open water and <i>Potamogeton polygonifolius</i> and some <i>Sphagnum denticulatum</i> , <i>Carex rostrata</i> , <i>C. panicea</i> , <i>C. demissa</i> , <i>Drosera rotundifolia</i> , <i>Eriophorum angustifolium</i> and <i>Juncus bulbosus</i> .	B
78	27/04/2022	NG 73952 21104	Patch of <i>Salix aurita</i> c. 6 x 4 m, with epiphytes including moss <i>Ulota phyllantha</i> and lichens <i>Hypotrachyna sinuosa</i> and <i>Parmotrema perlatum</i> .	S
79	27/04/2022	NG 74004 21089	Many bog pools among M17b bog and M15c wet heath.	B
80	27/04/2022	NG 74019 21099	Narrow bog pools among M17b bog and M15c wet heath.	B
81	27/04/2022	NG 74021 21084	Base-enriched flush with species including mosses <i>Scorpidium scorpioides</i> , <i>Breutelia chrysocoma</i> , and <i>Blindia acuta</i> , and liverwort <i>Aneura pinguis</i> . Also, <i>Carex demissa</i> , <i>C. panicea</i> , <i>Potamogeton polygonifolius</i> , <i>Pinguicula vulgaris</i> , <i>Triglochin palustre</i> and <i>Ranunculus flammula</i> .	F
82	27/04/2022	NG 74082 21074	Small (1 m ²) bog pool with abundant <i>Sphagnum cuspidatum</i> and some <i>S. denticulatum</i> , <i>Eriophorum angustifolium</i> and <i>Erica tetralix</i> .	B
83	27/04/2022	NG 74130 21017	Base-enriched flush with species including <i>Triglochin palustre</i> and liverwort <i>Aneura pinguis</i> .	F
84	27/04/2022	NG 74162 21030	Base-enriched M15a flushed wet heath with species including the mosses <i>Scorpidium revolvens</i> , <i>Campylium stellatum</i> and <i>Breutelia chrysocoma</i> and the liverwort <i>Aneura pinguis</i> .	F/H
85	27/04/2022	NG 74180 20997	Base-enriched flush with species including mosses <i>Scorpidium scorpioides</i> , <i>Warnstorfia exxanulata</i> and <i>Blindia acuta</i> , and liverwort <i>Aneura pinguis</i> . Also, <i>Carex demissa</i> , <i>C. panicea</i> , <i>Pinguicula vulgaris</i> and <i>Juncus articulatus</i> .	F
86	27/04/2022	NG 74217 21002	Narrow, sinuous M1 pool among M15/M17.	B
87	27/04/2022	NG 74298 20995	Lichen <i>Hypotrachyna sinuosa</i> on <i>Salix aurita</i> .	S

TN No.	Date	Grid reference	Details	Interest category
88	29/04/2022	NG 74324 21309	A few plants of <i>Thalictrum alpinum</i> among sedges, herbs and mosses on damp, flushed ground. Other evidence of base-enrichment in Mx, M10 and U5c nearby in this same small polygon (species including <i>Carex panicea</i> , <i>Selaginella selaginoides</i> , <i>Lysimachia nemorum</i> and the mosses <i>Campyllum stellatum</i> , <i>Scorpidium revolvens</i> and <i>Sphagnum contortum</i>).	F
89	27/04/2022	NG 74432 20924	Good quantities of the lichen <i>Parmotrema perlatum</i> on <i>Salix aurita</i> .	S
90	27/04/2022	NG 74472 20913	Small area (c. 8 m across) of <i>Salix aurita</i> with epiphytes including the moss <i>Ulotia phyllantha</i> , the liverwort <i>Frullania teneriffae</i> and the lichen <i>Hypotrachyna sinuosa</i> .	S
91	27/04/2022	NG 74525 20916	One relatively large bog pool.	B
92	27/04/2022	NG 74592 20851	One bog pool.	B
93	27/04/2022	NG 74612 20807	Bog pools with <i>Sphagnum cuspidatum</i> and <i>S. denticulatum</i> (and <i>Potamogeton polygonifolius</i> and <i>Eriophorum angustifolium</i>).	B
94	27/04/2022	NG 74654 20823	Scattered bog pools.	B
95	27/04/2022	NG 74713 20801	Irregularly-shaped bog pool c. 10 m long and up to 5 m wide - a mix of mainly open water and <i>Sphagnum denticulatum</i> , with some <i>S. cuspidatum</i> and <i>Eriophorum angustifolium</i> .	B
96	27/04/2022	NG 74770 20759	Liverwort <i>Scapania gracilis</i> in bog.	B
97	27/04/2022	NG 74792 20772	Very small (c. 30 x 90 cm) patch of liverwort <i>Anthelia julacea</i> dotted with some <i>Sphagnum denticulatum</i> , <i>Breutelia chrysocoma</i> , <i>Racomitrium lanuginosum</i> , <i>Eriophorum angustifolium</i> , <i>Trichophorum germanicum</i> , <i>Erica tetralix</i> , <i>Juncus squarrosus</i> and <i>Pinguicula vulgaris</i> . Could be seen as a tiny patch of NVC type M31 at a relatively low altitude for that NVC community.	S
98	27/04/2022	NG 75314 20603	<i>Sphagnum fuscum</i> in small quantity.	H
99	27/04/2022	NG 75494 20328	Liverworts <i>Scapania gracilis</i> and <i>Anastrepta orchadensis</i> .	H
100	27/04/2022	NG 75494 20357	Patch of <i>Salix aurita</i> c. 4 x 5 m, with epiphytes including moss <i>Ulotia phyllantha</i> , liverwort <i>Frullania teneriffae</i> and lichen <i>Cetrelia olivetorum</i> .	S
101	27/04/2022	NG 75529 20382	Patch of <i>Salix aurita</i> c. 4 x 7 m with young birch (4 m tall). Epiphytes on willow include moss <i>Ulotia drummondii</i> and liverwort <i>Frullania teneriffae</i> .	S
102	27/04/2022	NG 75533 20422	Small patch of <i>Salix aurita</i> with epiphytes including liverwort <i>Frullania teneriffae</i> .	S
103	27/04/2022	NG 75597 20474	<i>Salix aurita</i> and young birch scattered here. Epiphytes on willows include moss <i>Ulotia phyllantha</i> and lichens <i>Hypotrachyna sinuosa</i> and <i>Parmotrema perlatum</i> .	S
104	27/04/2022	NG 75606 20556	Base-enriched flush with species including mosses <i>Scorpidium scorpioides</i> , <i>Breutelia chrysocoma</i> and <i>Blindia acuta</i> , and vascular plants <i>Carex demissa</i> , <i>C. panicea</i> , <i>Pinguicula vulgaris</i> , <i>P. lusitanica</i> and <i>Ranunculus flammula</i> .	F
105	27/04/2022	NG 75608 20526	Small patch of <i>Salix aurita</i> (with some rowan) with epiphytes including lichens <i>Hypotrachyna sinuosa</i> and <i>Parmotrema perlatum</i> . Nearby large boulder has liverwort <i>Scapania gracilis</i> and lichen <i>Umbilicaria polyrrhiza</i> .	S
106	27/04/2022	NG 75639 20549	Moss <i>Campylopus setifolius</i> * in small quantity in wet heath.	H
107	27/04/2022	NG 75669 20522	Boulder c. 1.5-2 m high and up to 3 m across, with species including a small quantity of the lichen <i>Umbilicaria torrefacta</i> .	H
108	27/04/2022	NG 75678 20519	Boulder with species including lichens <i>Umbilicaria torrefacta</i> (many patches) and <i>U. polyphylla</i> (small quantity).	H
109	28/04/2022	NG 76674 20563	Liverwort <i>Frullania teneriffae</i> on <i>Salix aurita</i> .	S
110	28/04/2022	NG 76724 20594	Liverwort <i>Frullania teneriffae</i> on <i>Salix aurita</i> .	S
111	28/04/2022	NG 76826 20612	Liverwort <i>Frullania teneriffae</i> and lichen <i>Hypotrachyna sinuosa</i> on <i>Salix aurita</i> by stream.	S

TN No.	Date	Grid reference	Details	Interest category
112	28/04/2022	NG 76856 20604	Rich flora in heathy and rocky habitats along edge of stream, with species including <i>Sanicula europaea</i> , <i>Primula vulgaris</i> , <i>Anemone nemorosa</i> , <i>Hypericum pulchrum</i> , <i>Oxalis acetosella</i> , <i>Teucrium scorodonia</i> , <i>Ranunculus acris</i> , <i>Hieracium sp.</i> , <i>Succisa pratensis</i> , <i>Vaccinium myrtillus</i> , <i>Lotus corniculatus</i> , <i>Geum rivale</i> , <i>Angelica sylvestris</i> , <i>Prunella vulgaris</i> , <i>Viola riviniana</i> , <i>Plantago maritima</i> , <i>Crepis paludosa</i> , <i>Pinguicula vulgaris</i> , <i>Blechnum spicant</i> , <i>Luzula sylvatica</i> , <i>Deschampsia cespitosa</i> and the mosses <i>Breutelia chrysocoma</i> and <i>Loesobryum brevirostre</i> .	V
113	28/04/2022	NG 76970 20534	Bog pools with species including abundant <i>Sphagnum cuspidatum</i> and <i>S. denticulatum</i> .	B
114	28/04/2022	NG 77002 20531	Wet bog with pools; good <i>Sphagnum</i> carpets including much <i>S. cuspidatum</i> .	B
115	28/04/2022	NG 77034 20531	Wet bog with pools; good <i>Sphagnum</i> carpets including much <i>S. cuspidatum</i> and some <i>S. medium</i> .	B
116	28/04/2022	NG 77174 20469	Wet bog with pools; good <i>Sphagnum</i> carpets including much <i>S. cuspidatum</i> and some <i>S. medium</i> .	B
117	28/04/2022	NG 77175 20440	Wet M17a (and bog intermediate between M1 and M17a) with much <i>Rhynchospora alba</i> and some <i>Sphagnum medium</i> .	B
118	28/04/2022	NG 77188 20451	Wet bog with pools; good <i>Sphagnum</i> carpets including much <i>S. cuspidatum</i> and some <i>S. medium</i> . Also, <i>Rhynchospora alba</i> .	B
119	28/04/2022	NG 77237 20412	Eastern end of area of wet bog with much <i>Rhynchospora alba</i> and scattered <i>Sphagnum medium</i> .	B
120	28/04/2022	NG 77355 20343	Rich flora on streamside shingle. Species include <i>Thymus polytrichus</i> , <i>Lotus corniculatus</i> , <i>Prunella vulgaris</i> , <i>Viola riviniana</i> , <i>Luzula sylvatica</i> , <i>Solidago virgaurea</i> , <i>Pilosella officinarum</i> , <i>Succisa pratensis</i> , <i>Centaurea nigra</i> , <i>Lysimachia nemorum</i> , <i>Teucrium scorodonia</i> , <i>Brachypodium sylvaticum</i> , <i>Geum rivale</i> , <i>Tussilago farfara</i> , <i>Alchemilla glabra</i> , <i>Lathyrus linifolius</i> , <i>Angelica sylvestris</i> , <i>Hypochaeris radicata</i> , <i>Hypericum pulchrum</i> and <i>Plantago maritima</i> .	V
121	28/04/2022	NG 77471 20327	Rich flora on streamside shingle. Species include <i>Thymus polytrichus</i> , <i>Linum catharticum</i> , <i>Sanicula europaea</i> , <i>Prunella vulgaris</i> , <i>Viola riviniana</i> , <i>Luzula sylvatica</i> , <i>Solidago virgaurea</i> , <i>Pilosella officinarum</i> , <i>Succisa pratensis</i> , <i>Lysimachia nemorum</i> , <i>Teucrium scorodonia</i> , <i>Brachypodium sylvaticum</i> , <i>Geum rivale</i> , <i>Tussilago farfara</i> , <i>Lathyrus linifolius</i> , <i>Hypochaeris radicata</i> and <i>Plantago maritima</i> .	V
122	28/04/2022	NG 77648 20359	Small patch of <i>Salix aurita</i> with epiphytes including lichen <i>Hypotrachyna sinuosa</i> .	S
123	28/04/2022	NG 77666 20371	Wet bog with pools; good <i>Sphagnum</i> carpets including much <i>S. cuspidatum</i> and some <i>S. medium</i> .	B
124	28/04/2022	NG 77694 20386	Lichen <i>Hypotrachyna sinuosa</i> on <i>Salix aurita</i> .	S
125	28/04/2022	NG 77703 20408	Lichen <i>Hypotrachyna sinuosa</i> on <i>Salix aurita</i> .	S
126	28/04/2022	NG 77733 20416	Species on rocks, banks and trees (birch, rowan and eared willow) here include mosses <i>Hyocomium armoricum</i> and <i>Breutelia chrysocoma</i> , liverworts <i>Scapania gracilis</i> , <i>Plagiochila spinulosa</i> , <i>Lejeunea patens</i> , <i>Cololejeunea microscopica</i> , <i>Colura calyptrifolia</i> , <i>Drepanolejeunea hamatifolia</i> (plentiful), <i>Harpalejeunea molleri</i> and <i>Pleurozia purpurea</i> , lichen <i>Hypotrachyna sinuosa</i> and filmy fern <i>Hymenophyllum wilsonii</i> .	R + W
127	28/04/2022	NG 77758 20407	Streamside rowan with epiphytes including liverwort <i>Frullania teneriffae</i> and lichen <i>Hypotrachyna sinuosa</i> .	S
128	28/04/2022	NG 77764 20400	Wet bog with pools; good <i>Sphagnum</i> carpets including much <i>S. cuspidatum</i> ; also, <i>Rhynchospora alba</i> .	B
129	28/04/2022	NG 77683 20378	Wet bog with pools; has good <i>Sphagnum</i> carpets including much <i>S. cuspidatum</i> and some <i>S. medium</i> .	B
130	28/04/2022	NG 78139 20792	Heathy flush (could also be regarded as a form of M15a with <i>Schoenus</i>) with species including moss <i>Campyllum stellatum</i> , liverwort <i>Aneura pinguis</i> and vascular plants <i>Schoenus nigricans</i> , <i>Selaginella selaginoides</i> and <i>Pinguicula vulgaris</i> .	F
131	28/04/2022	NG 78646 21123	Moss <i>Campylopus shawii</i> * in small quantity in wet heath.	H

TN No.	Date	Grid reference	Details	Interest category
132	26/04/2022	NG 78681 21964	Epiphytes on rowan just west of road include liverwort <i>Cololejeunea minutissima</i> and lichens <i>Pectenaria cyanoloma</i> , <i>Sticta fuliginosa</i> , <i>Nephroma laevigatum</i> , <i>Leptogium cyanescens</i> , <i>Nevesia sampaiana</i> *, <i>Parmeliella triptophylla</i> , <i>Parmotrema perlata</i> and <i>Pannaria rubiginosa</i> .	W
133	26/04/2022	NG 78682 21527	South end of line of rowans and goat willows (north end at other TN location: NG 78695 21946)	W
134	26/04/2022	NG 78695 21946	North end of discontinuous line of rowans and goat willows just east of road (south end is at other target note location: NG 78682 21527). Epiphytes on these trees include mosses <i>Ulota phyllantha</i> and <i>U. drummondii</i> , liverworts <i>Frullania teneriffae</i> and <i>Cololejeunea minutissima</i> , and a good representation of <i>Lobarion</i> lichens: <i>Lobaria pulmonaria</i> , <i>Lobarina scrobiculata</i> , <i>Pannaria rubiginosa</i> , <i>Pectenaria cyanoloma</i> , <i>P. atlantica</i> , <i>Peltigera collina</i> , <i>Sticta sylvatica</i> , <i>S. fuliginosa</i> , <i>S. limbata</i> , <i>Leptogium burgessii</i> . Also, the lichen <i>Hypotrachyna laevigata</i> (not a <i>Lobarion</i> species).	W

Table 1.4: Summary of TNs including Nationally Scarce and Nationally Rare Species

TN No.	Survey Date	Grid Reference	Nationally Scarce (NS) or Nationally Rare (NR) species
47	26/04/2022	NG 78522 25039	<i>Campylopus setifolius</i> (moss) = NS
51	26/04/2022	NG 79064 24966	<i>Campylopus setifolius</i> (moss) = NS
52	26/04/2022	NG 79067 24901	<i>Dicranodontium uncinatum</i> (moss) = NS
53	26/04/2022	NG 79124 24885	<i>Dicranodontium uncinatum</i> (moss) = NS
56	26/04/2022	NG 79304 24743	<i>Campylopus setifolius</i> (moss) = NS
65	29/04/2022	NG 73500 21569	<i>Leptogium dendriscum</i> (lichen) = NR
106	27/04/2022	NG 75639 20549	<i>Campylopus setifolius</i> (moss) = NS
131	28/04/2022	NG 78646 21123	<i>Campylopus shawii</i> (moss) = NS
132	26/04/2022	NG 78681 21964	<i>Nevesia sampaiana</i> (lichen) = NS

Annex B. Photographs

- 1.7.16 Selected photographs of examples of habitats and species of interest found during the survey of bryophytes and lichens in the Kinloch & Kyleakin Hills SAC/SSSI (April 2022).

Photograph 1. Bryophyte-rich wooded ravine at NG 75750 24193 above Mudalach woods.



Photograph 2. Bryophyte-rich woodland in valley at NG 77432 24703 (Mudalach woods)



Photograph 3. Birch woodland typical of that in the upper parts of the Mudalach woods.



Photograph 4. Rowans with rich epiphytic bryophyte and lichen floras at NG 70559 23587, near Abhainn Lusa.



Photograph 5. One of the many small patches of *Salix aurita* scrub in Glen Arroch.



Photograph 6. Inside a patch of *Salix aurita* scrub at NG 73500 21569 (Glen Arroch).



Photograph 7. Bryophyte-rich north facing rock outcrops with heath and some trees at NG 78575 25069, east of Mudalach.



Photograph 8. Bryophyte-rich north facing rock outcrops with heath and some trees at NG 79067 24901, east of Mudalach.



Photograph 9. Looking west (upstream) in bryophyte-rich rocky habitat at NG 77733 20416, west of Kyleshera.



Photograph 10. Looking west (upstream) to site of previous photo in bryophyte-rich rocky habitat at NG 77733 20416, west of Kyleshera.



Photograph 11. Oceanic moss *Ulota phyllantha* on *Salix aurita* in Glen Arroch.



Photograph 12. Moss *Ulota drummondii* on *Salix aurita* in Glen Arroch.



Photograph 13. Nationally Scarce oceanic moss *Campylopus setifolius* on steep north facing bank at NG 78522 25039, east of Mudalach.



Photograph 14. Nationally Scarce moss *Dicranodontium uncinatum* on bryophyte-rich north facing rock outcrops with heath and some trees at NG 79067 24901, east of Mudalach.



Photograph 15. Moss *Sphagnum fuscum* in H21a heath at NG 75314 20603 at Bealach Udal.



Photograph 16. Seedling of Holly *Ilex aquifolium* among mixed carpet of *Sphagnum medium* and *S. capillifolium* in bog at NG 74932 24324, southwest of Mudalach woods.



Photograph 17. *Scapania gracilis* – one of the commonest oceanic liverworts in the west Highlands.



Photograph 18. *Plagiochila punctata* – an oceanic liverwort seen on many trees in the Mudalach area.



Photograph 19. *Frullania teneriffae* – an oceanic liverwort seen on trees and *Salix aurita* shrubs in many places in this survey.



Photograph 20. *Cololejeunea minutissima* – a tiny yellowish oceanic liverwort on rowan at NG 78681 21964, in the conifer plantation north of Kyleshera.



Photograph 21. Oceanic liverwort *Lepidozia cupressina* on bryophyte-rich north facing rock outcrops with heath and trees at NG 78575 25069, east of Mudalach.



Photograph 22. Liverwort *Anthelia julacea* on wet, flushed ground at NG 74792 20772 in Glen Arroch.



Photograph 23. Oceanic lichen *Hypotrachyna laevigata* on birch in upper part of Mudalach woods.



Photograph 24. Western lichen *Hypotrachyna sinuosa* on *Salix aurita* in Glen Arroch. This species was found on many willows in this survey, especially in the Glen Arroch area.



Photograph 25. Western lichen *Menegazzia terebrata* on birch at NG 74973 24628 in upper part of Mudalach woods.



Photograph 26. Western lichen *Cetrelia olivetorum enegazzia terebrata* on *Salix aurita* at NG 75494 20357 near Bealach Udal.



Photograph 27. Lichen *Pannaria rubiginosa* on rowan at NG 78681 21964, in the conifer plantation north of Kylesha.



Photograph 28. Oceanic lichen *Pectenیا cyanoloma* on rowan at NG 78681 21964, in the conifer plantation north of Kylesha.



Photograph 29. Lichen *Leptogium burgessii* on rowan at NG 70559 23587, near Abhainn Lusa.



Photograph 30. Lichens *Sticta limbata* (left and top-right) and *S. fuliginosa* (middle-right to lower-right) on goat willow between NG 78682 21527 and NG 78695 21946, east of the road in the conifer plantation north of Kyleshera.



Photograph 31. Nationally Scarce lichen *Nevesia sampaiana* on rowan at NG 78681 21964, in the conifer plantation north of Kyleshera.



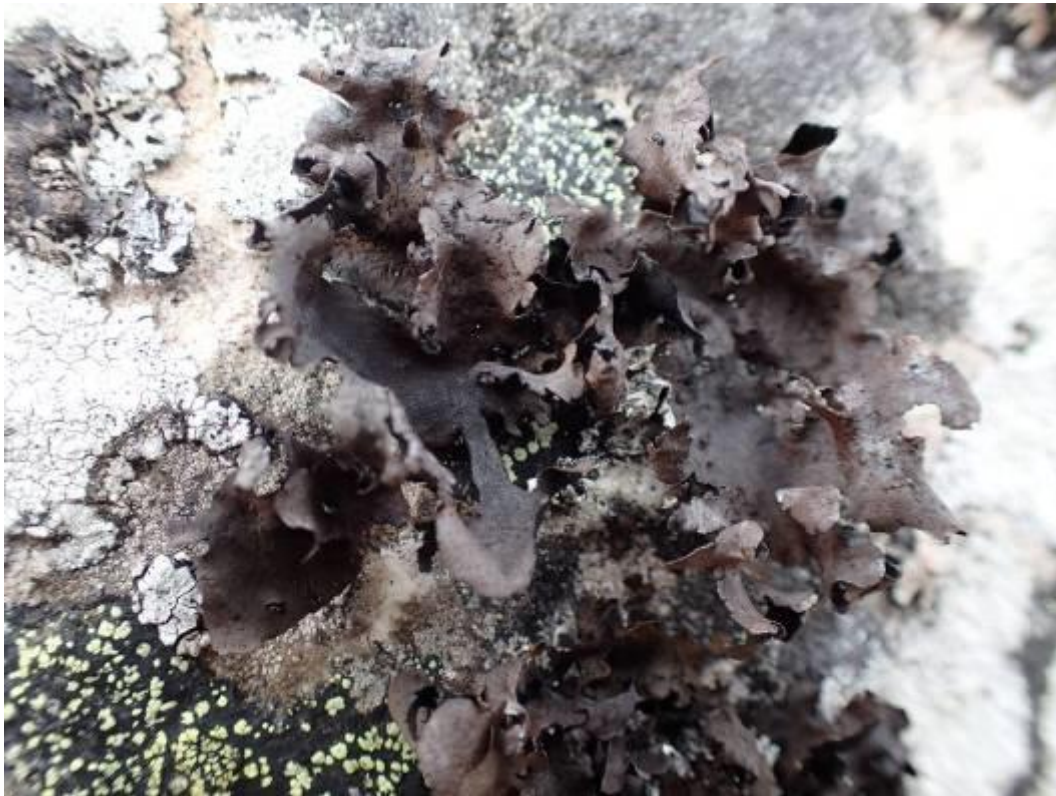
Photograph 32. Nationally Rare lichen *Leptogium dendriscum* on *Salix aurita* at NG 73500 21569 (Glen Arroch).



Photograph 33. Lichen *Umbilicaria polyrrhiza* on boulder at NG 75608 20526 near Bealach Udal.



Photograph 34. Lichen *Umbilicaria torrefacta* on boulder at NG 75678 20519 near Bealach Udal.



Photograph 35. Lichen *Umbilicaria polyphylla* on boulder at NG 75678 20519 near Bealach Udal.



Photograph 36. Wilson's filmy-fern *Hymenophyllum wilsonii* on rocky banks in bryophyte-rich woodland in steep-sided valley at NG 77432 24703, in upper part of Mudalach woods



Photograph 37. Looking north to Rowan, with rich epiphytic flora, just west of road at NG 78681 21964 in the conifer plantation north of Kyleerhea.



Photograph 38. Rowan at NG 75566 24251, north of Mudalach woods, with epiphytes including oceanic liverwort *Scapania gracilis* and filmy fern *Hymenophyllum wilsonii*.



Photograph 39. One of the locations where the Nationally Scarce moss *Campylopus setifolius* was found in this survey. This population is just southwest (L) of the track, at NG 79304 24743, east of Mudalach.



Photograph 40. An example of a base-enriched flush (NVC M10) – this one at NG 74964 24153, southwest of Mudalach woods.

