
**Rare Plant Surveys for Olympic
National Park, Queets Area,
DNR Road 010 Project**



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INTRODUCTION

Olympic National Park has proposed to reopen DNR Road 010 through lands managed by the U.S. Forest Service (USFS) near the Queets River Road in Jefferson County, Washington. According to USFS regulations, rare plant surveys must be conducted prior to any ground disturbing activities. To fulfill these regulations, Hamer Environmental L.P. conducted vascular and non-vascular rare plant and noxious weed surveys for Olympic National Park. The site surveyed was on Olympic National Forest lands that may be impacted by the road reopening. The survey site was located along DNR Road 010, within T24N R10½ W, Section 11 (Figure 1).

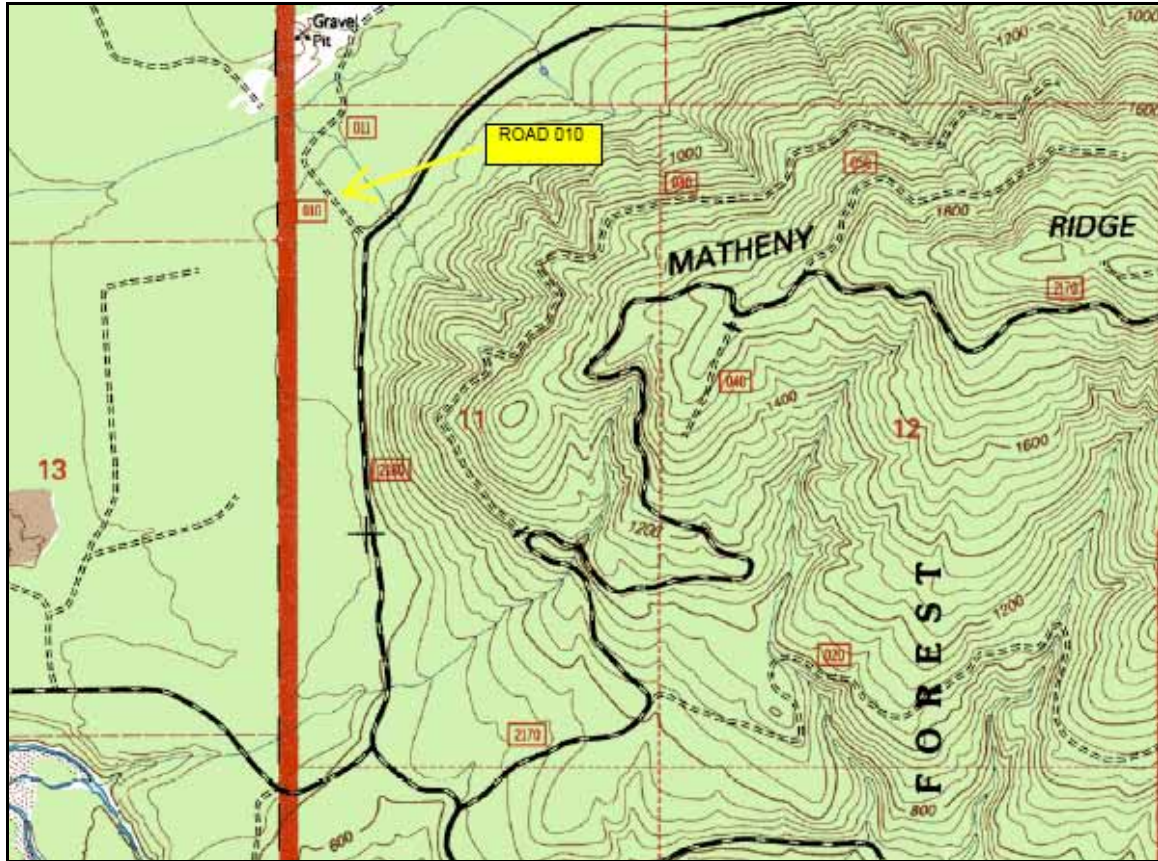


Figure 1. Location of rare plant surveys. WDNR Road 010; T24N R10½ W, Section 11.

BACKGROUND

To determine the species to include in our surveys, we combined two rare plant lists consisting of the Olympic National Forest Sensitive Plant Species list (a subset of the USFS Region 6 Sensitive Species List), and the United States Forest Service (USFS) Survey and Manage (S&M) Plant list. The term “rare plant” in this report refers collectively to the species on these two lists.

Sensitive Species

In accordance with the National Forest Management Act, sensitive plant populations must be managed so that listing under the Endangered Species Act is avoided. The USFS Region 6 Sensitive Species list identifies the sensitive plant species occurring or suspected to occur in Washington and Oregon. The Olympic National Forest Sensitive Plant list is a subset of the Region 6 Species list. This secondary list identifies species known or suspected to occur on the Olympic National Forest. USFS Region 6 and Olympic National Forest Sensitive Plant lists were utilized for field surveys (Appendix 2). There were no known federally listed plant species in the survey area.

Survey and Manage Species

Species designated as Survey and Manage Species are species considered to be “at risk” under the Northwest Forest Plan. The list of designated species is reviewed annually by the USFS and Bureau of Land Management (BLM). According to the Northwest Forest Plan, surveys for S&M Category A & C species must be conducted prior to any habitat disturbing activity. For these surveys, we used the S&M list updated in April 2004 (Appendix 1).

Noxious Weeds

Noxious weeds were also of interest to Olympic National Forest personnel, and were included in our plant surveys for this project. For this list, we used the 2006 Jefferson County Noxious Weed list (Appendix 3).

Previous Rare Plant Sightings in the Nearby Cook Creek Watershed

Vascular Plants

Historic occurrence of *Erythronium revolutum* (dogs tooth violet) was documented in the Cook Creek Watershed area of the Olympic National Forest (Deborah McConnell, pers. comm.). This herbaceous species is found in a variety of northwestern conifer forest types, including those dominated by western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), and Sitka spruce (*Picea sitchensis*) trees. The plant is typically found growing on the duff layer in open or moderately shaded areas with a well developed moss layer.

Non-Vascular Plants

Several populations of the rare moss *Tetraphis geniculata* are located within the Cook Creek watershed (Deborah McConnell, pers. comm.), so this bryophyte was also a focus of the rare plant surveys. *Tetraphis geniculata* is typically found on the cut end of large, highly decayed logs.

METHODS

The site to be surveyed for the Olympic National Park road reopening project was identified and delineated in the field by Nancy Hendricks (Environmental Protection Specialist, Olympic National Park). The survey site was flagged and the surveys were conducted where the proposed road crossed through Olympic National Forest lands. Olympic National Forest boundaries were clearly marked with boundary plaque markers in the field.

Conducting Surveys

Due to the relatively small size of the survey road segment, we used a complete 100% survey method to locate rare plant within the project area. Typically, rare plant surveys are conducted utilizing an intuitive control search method to focus on the microhabitats most likely to contain target rare plant species. For these surveys, we spent additional

time in areas with higher likelihoods of rare plant presence; but all areas were thoroughly surveyed. We utilized protocols established by the U.S. Forest Service to thoroughly search each site (Hibler and O'Dell 1998, USDA/USDI 1998, Whiteaker et al. 1998, USDA/USDI 1999).

Data Collection

Erin Colclazier, lead botanist for Hamer Environmental L.P. conducted the survey and compiled a comprehensive list of vascular plants, lichens, and bryophytes. A survey documentation form was completed for the site. We identified all plants to the species level, unless the genus was difficult to identify to species and the genus did not contain a rare plant.

RESULTS

Survey Effort

We conducted field surveys on 29 August 2006. We spent an additional two days to correctly identify lichen and bryophyte species collected at survey sites. The surveyor implemented a modified version of the intuitive controlled survey, which typically cover an estimated 60 to 80% of the survey area, (Whiteaker et al., 1998). Due to the small size of the survey area, we conducted a 100% cover of the survey area. We selected this survey method for consistency with USFS methodologies and to ensure thorough coverage of survey areas. Intuitive controlled complete surveys have a finer accuracy level than field check, general, cursory or limited focus surveys. Because of the diverse habitat requirements for the rare plant species, large areas contained potential habitat for one species or another. Therefore, we closely spaced meander routes to search the entire area and generate the most complete species inventory possible.

We identified a total of 51 vascular and 26 non-vascular species of plants during the survey. We found no rare vascular or non-vascular plants within the area surveyed. In addition, we identified no noxious weeds within the project area.

DISCUSSION

Plant Species Encountered

A complete plant inventory (Appendix 4) will be a valuable tool for additional plant studies and for future reference. Since rare plant lists are dynamic, subsequent changes to rare plant lists could be cross-referenced against existing species inventories for preliminary investigations addressing the presence/absence of any species added to the lists.

LITERATURE CITED

Franklin, J.F. and C.T. Dyrness. 1973. Natural Vegetation of Oregon and Washington. USDA. Forest Service General Technical Report PNW-8.

Hibler, C. and T. E. O'Dell. 1998. Survey Protocols for *Bridgeoporus* (= *Oxyporus*) *nobilissimus*, Version 2.0.

USDA Forest Service/USDI Bureau of Land Management. 1999. Survey Protocols for Protection Buffer Bryophytes, Version 2.0.

USDA, Forest Service/USDI Bureau of Land Management. 1998. Survey Protocols for Component 2 Lichens, Version 2.0.

USDA Forest Service/USDI Bureau of Land Management. 2002. Survey and Manage Plant Species Lists.

Washington State Noxious Weed Control Board. 2002. Written Findings of the State Weed Control Board. <http://www.ncwb.wa.gov>.

Whiteaker, et. al. 1998. Survey Protocols for Vascular Plants. Version 2.0.

Personal Communication

Hendricks, Nancy. Environmental Protection Specialist, Olympic National Park. Personal communication August 15 – 29, 2006 with Erin Colclazier of Hamer Environmental L.P. via phone and email.

McConnell, Deborah. Biological Technician, Olympic National Forest. Personal communication on May 8, 2006 with Tom Hamer of Hamer Environmental L.P. via email.

Appendix 1. Survey and Manage Plant Species Requiring Pre-Disturbance Surveys (USDA/USDI, 2002).

Vascular Plants

Botrychium montanum Mountain grape-fern
Coptis aspleniifolia Spleenwort-leaved goldthread
Coptis trifolia Three-leaved goldthread
Corydalis aquae-gelidae Clackamas corydalis
Cypripedium fasciculatum Clustered lady's slipper
Cypripedium montanum Mountain lady's slipper
Eucephalus vialis (*Aster vialis*) Wayside aster
Platanthera orbiculata var. *orbiculata* Large round-leaved orchid

Lichens

Bryoria pseudocapillaris
Bryoria spiralifera
Bryoria tortuosa
Dendriscoaulon intricatulum
Hypogymnia duplicata
Leptogium burnetiae var. *hirsutum*
Leptogium cyanescens
Lobaria linita
Nephroma occultum
Niebla cephalota
Platismatia lacunosa
Pseudocyphellaria rainierensis
Ramalina thrausta
Teloschistes flavicans

Bryophytes

Schistostega pennata
Tetraphis geniculata

Fungi

Bridgeoporus (*Oxyporus*) *nobilissimus* Noble polypore

Appendix 2. Olympic National Forest Sensitive Plant Species List.

| SENSITIVE SPECIES PLANT LIST REGION 6 U.S. FOREST SERVICE (July 2004) | | | | | | | |
|--|-------------------------------|--------------------------|--------------------------|---|------------------------|------------------------------|--------------------------------|
| Species Name | Authority | U.S.F.W.S. Status | Washington Status | Regional Forester's Sensitive Species List | Heritage G Rank | Heritage S Rank WA/OR | Olympic National Forest |
| Erigeron peregrinus ssp. peregrinus var. thompsonii | (Pursh) Greene (Blake) Cronq. | | S | W | G5T2 | S2 | S |
| Erythronium quinaultense | | | T | | G2 | S1S2 | PD |
| Galium kamschaticum | Steller | | | W | G5 | S2S3 | D |
| Montia diffusa | (Nutt.) Greene | | S | W | G4 | S1S2 | S |
| Ophioglossum pusillum | Raf. | | T | W/O | G5 | S1S2/S1 | S |
| Oxytropis borealis var. viscida | DC. (Nutt.) Welsh | | S | W | G5T5 | S1S2 | S |
| Parnassia palustris var. neogaea | L. Fern. | | S | W | G4T4 | S2 | D |
| Pedicularis howellii | Gray | | | O | G3 | S2 | |
| Pedicularis rainierensis | Pennell & Warren | | S | W | G2G3 | S2S3 | |
| Pellaea breweri | D.C. Eat. | | S | W | G5 | S2 | D |
| Plantago macrocarpa | Cham. & Schlecht. | | S | W | G4 | S2 | S |
| Poa laxiflora | Buckl. | | T | W | G3 | S1S2 | S |
| Polemonium carneum | Gray | | T | W | G4 | S1S2 | S |
| Ranunculus cooleyae | (Vasey & Rose) Greene | | S | W | G4 | S1S2 | D |
| Sanguisorba menziesii | Rydb. | | S | W | G3G4 | S1S2 | S |
| Synthyris pinnatifida var. lanuginosa | S. Wats. (Piper) Cronq. | | S | W | G4T2 | S2 | D |
| Woodwardia fimbriata | Sm. | | S | W | G5 | S2 | S |

Appendix 3. Jefferson County, WA, Noxious Weed List.

Jefferson County List

Class “A” Weeds are non-native species with a limited distribution in Jefferson County and Washington State. Preventing new infestations and eradicating existing infestations is highest priority. Control of these species is required by law.

Class “A” Weeds

Common Name, *Scientific Name*

Bean-Caper, Syrian *Zygophyllum fabago*
Blueweed, Texas *Helianthus ciliaris*
Broom, Spanish *Sparium junceum*
Buffalobur *Solanum rostratum*
Clary, Meadow *Salvia pratensis*
Cordgrass, denseflower *Spartina densiflora*
Cordgrass, Salt Meadow *Spartina patens*
Crupina, Common *Crupina vulgaris*
Flax, Spurge *Thymelaea passerina*
Four O’ Clock, Wild *Mirabilis nyctaginea*
Goatsrue *Galega officinalis*
Hawkweed, Yellow Devil *Hieracium floribundum*
Hogweed, Giant *Heracleum mantegazzianum*
Hydrilla *Hydrilla verticillata*
Johnsongrass *Sorghum halepense*
Knapweed, Bighead *Centaurea macrocephala*
Knapweed, Vochin *Centaurea nigrescens*
Kudzu *Pueraria montana var. lobata*
Lawnweed *Soliva sessils*
Mustard, garlic *Alliaria petiolata*
Nightshade, Silverleaf *Solanum elaeagnifolium*
Primrose-willow, *Ludwigia peploides*
Sage, Clary *Salvia sclarea*
Sage, Mediterranean *Salvia aethiopis*
Spurge, eggleaf *Euphorbia oblongata*
Starthistle, Purple *Centaurea calcitrapa*
Sweetgrass,reed *Glyceria maxima*
Thistle, Italian *Carduus pycnocephalus*
Thistle, Milk *Silybum marianum*
Thistle, Slenderflower *Carduus tenuiflorus*
Velvetleaf *Abutilon theophrasti*
Woad, Dyers *Isatis tinctoria*

Class “B” weeds are non-native species that are presently limited to portions of the state. Class “B” species are designated for control in regions where they are not yet widespread. Preventing infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with

containment as the primary goal. Class B weeds designated for control in Jefferson County are denoted with a *.

Class “B” Weeds

Common name *Scientific name*

Alyssum, Hoary *Berteroa incana**

Arrowhead, grass-leaved *Sagittaria graminea*

Blackgrass *Alopecurus myosuroides*

Blueweed *Echium vulgare**

Broom, Scotch, *Cytisus scoparius*

Bryony, White *Bryonia alba**

Bugloss, Annual *Anchusa arvensis**

Bugloss, Common *Anchusa officinalis*

Camelthorn *Alhagi maurorum**

Carrot, wild *Daucus carota*

Catsear, common *Hypochaeris radicata*

Chervil, wild *Anthriscus sylvestris**

Cinquefoil, Sulfur *Potentilla recta**

Cordgrass, Common *Spartina anglica**

Cordgrass, Smooth *Spartina alterniflora**

Daisy, oxeye *Leucanthemum vulgare*

Elodea, Brazilian *Egeria densa*

Fanwort *Cabomba caroliniana**

Fieldcress, Austrian *Rorippa austriaca**

Floating heart, yellow *Nymphoides peltata**

Hawkweed, Mouseear *Hieracium pilosella**

Hawkweed, Orange *Hieracium aurantiacum*

Hawkweed, Oxtongue *Picris hieracioides**

Hawkweed, Polar *Hieracium atratum**

Hawkweed, Queendevil *Hieracium glomeratum**

Hawkweed, Smooth *Hieracium laevigatum**

Hawkweed, Yellow *Hieracium caespitosum**

Hedgeparsley *Torilis arvensis**

Helmet, Policeman’s *Impatiens glandulifera**

Herb Robert *Geranium robertianum*

Houndstongue, *Cynoglossum officinale*

Garden Loosestrife *Lysmachia vulgaris*

Gorse *Ulex europaeus**

Indigobush *Amorpha fruticosa**

Knapweed, Black *Centaurea nigra**

Knapweed, Brown *Centaurea jacea**

Knapweed, Diffuse *Centaurea diffusa**

Knapweed, Meadow *Centaurea jacea x nigra**

Knapweed, Russian *Acroptilon repens**

Knapweed, Spotted *Centaurea biebersteinii**

Knotweed, Bohemian *Polygonum bohemicum*

Class “B” Weeds (*continued*)

Common name *Scientific name*

Knotweed, Giant *Polygonum sachalinense*
Knotweed, Himalayan *Polygonum polystachyum*
Knotweed, Japanese *Polygonum cuspidatum*
Kochia, *Kochia scoparia**
Lepyrodiclis *Lepyrodiclis holosteoides**
Loosestrife, Purple *Lythrum salicaria**
Loosestrife, Wand *Lythrum virgatum**
Loosestrife, Garden *Lythrum vulgare**
Nutsedge, Yellow *Cyperus esculentus**
Parrotfeather *Myriophyllum aquaticum**
Pepperweed, Perennial *Lepidium latifolium*
Primrose, Water *Ludwigia hexapetala**
Puncturevine, *Tribulus terrestris*
Ragwort, Tansy *Senecio jacobaea*
Saltcedar *Tamarix ramosissima**
Sandbur, Longspine *Cenchrus longispinus**
Skeletonweed, Rush *Chondrilla juncea**
Sowthistle, Perennial *Sonchus arvensis ssp. arvensis**
Spurge Leafy *Euphorbia esula**
Spurge, myrtle *Euphorbia myrsinites*
Starthistle, Yellow *Centaurea solstitialis**
Swainsonpea *Sphaerophysa salsula**
Thistle, Musk *Carduus nutans**
Thistle, Plumeless *Carduus acanthoides**
Thistle, Scotch *Onopordum acanthium**
Toadflax, Dalmatian *Linaria dalmatica ssp. dalmatica**
Watermilfoil, Eurasian *Myriophyllum spicatum**

Class “C” weeds are other non-native weeds found in Washington. Many of these species are widespread in the state. Long-term programs of suppression and control are a local option, depending upon local threats and the feasibility of control in local areas.

Class “C” Weeds

Common Name *Scientific Name*

Babysbreath *Gypsophila paniculata*
Bindweed, Field *Convolvulus arvensis*
Broom, Scotch *Cytisus scoparius*
Butterfly Bush *Buddleia davidii*
Canarygrass, Reed *Phalaris arundinacea*
Cockle, White *Silene latifolia ssp. alba*
Cocklebur, spiny *Xanthium spinosum*
Cress, hoary *Cardaria draba*
Dodder, smoothseed alfalfa *Cuscuta approximata*

English Ivy (*4 cultivars only*) *Hedera hibernica* “Hibernica”
Hedera helix: “Baltica”, “Pittsburg”, & “Star”
Goatgrass, jointed *Aegilops cylindrical*
Hawkweed, nonnative and invasive species not listed elsewhere *Hieracium spp.*
Henbane, black *Hyocyamus niger*
Hemlock, poison *Conium maculatum*
Groundsel, Common *Senecio vulgaris*
Iris, yellow flag *Iris pseudocorus*
Knotweed, Bohemian *Polygonum Bohemicum*
Knotweed, Japanese *Polygonum cuspidatum*
Knotweed, Giant *Polygonum sachalinense*
Knotweed, Himalyan *polygonum polystachyum*
Mayweed, scentless *Matricaria perforata*
Old Man’s Beard *Clematis vitalba*
Pondweed, curly-leaf *Potamogeton crispus*
*Reed, common *Phragmites australis*
*non-native genotype
Rye, cereal *Secale cereale*
St. Johnswort, Common *Hypericum perforatum*
Spikeweed *Hemizonia pungens*
Tansy, common *Tanacetum vulgare*
Thistle, Bull *Cirsium vulgare*
Thistle, Canada *Cirsium ravense*
Toadflax, yellow *Linaria vulgaris*
Water lily, fragrant *Nymphaea odorata*
Whitetop, hairy *Cardaria pubescens*
Willow-herb, hairy *Epilobium hirsutum*
Wormwood, absinth *Artemesia absinthium*

Appendix 4. Comprehensive List of Plant Species Recorded in the project area.

| NRCS Code | Plant Name | Plant Type |
|------------------|-------------------------|-------------------|
| ABAM | Abies amabilis | Tree |
| ALRU2 | Alnus rubra | Tree |
| PISI | Picea sitchensis | Tree |
| THPL | Thuja plicata | Tree |
| TSHE | Tsuga heterophylla | Tree |
| ACCI | Acer circinatum | Shrub |
| ALCR6 | Alnus crispa | Shrub |
| GASH | Gaultheria shallon | Shrub |
| OPHO | Oplopanax horridus | Shrub |
| RHPU | Rhamnus purshiana | Shrub |
| RUDI2 | Rubus discolor | Shrub |
| RULA | Rubus lacinated | Shrub |
| RUSP | Rubus spectabilis | Shrub |
| RUUR | Rubus ursinus | Shrub |
| SACO2 | Salix commuta | Shrub |
| SARA2 | Sambucus racemosa | Shrub |
| VAAL3 | Vaccinium alaskense | Shrub |
| VAOV | Vaccinium ovalifolium | Shrub |
| VAPA | Vaccinium parvifolium | Shrub |
| ATFI | Athyrium filix-femina | Fern |
| BLSP | Blechnum spicant | Fern |
| POMU | Polystichum munitum | Fern |
| ANMA | Anaphilis margaritacea | Herb |
| BOEL2 | Boykinia elata | Herb |
| GATR3 | Galium triflorum | Herb |
| LAMU | Lactuca muralis | Herb |
| LYAM3 | Lysichiton americanus | Herb |
| MADI | Maianthemum dilatatum | Herb |
| MELU | Medicago lupulina | Herb |
| MIOV | Mitella ovalis | Herb |
| MOSI | Montia sibirica | Herb |
| OESA | Oenanthe sarmentosa | Herb |
| PLMA2 | Plantago major | Herb |
| PRVU | Prunella vulgaris | Herb |
| PYSE | Pyrola secunda | Herb |
| RAAC3 | Ranunculus acris | Herb |
| RARE3 | Ranunculus repens | Herb |
| RUCR | Rumex crispus | Herb |
| SAPR | Sagina procumbens | Herb |
| SCLA | Scrophularia lanceolata | Herb |

Rare Plant Surveys for Olympic National Park

| NRCS Code | Plant Name | Plant Type |
|------------------|-------------------------------------|-------------------|
| STME | Stachys mexicana | Herb |
| STCR2 | Stellaria crispa | Herb |
| TITR | Tiarella trifoliata var. trifoliata | Herb |
| TIUN3 | Tiarella unifoliata | Herb |
| | Viola spp. (glabella?) | Herb |
| AGRE2 | Agropyron repens | Grass |
| | Agrostis sp. | Grass |
| | Bromus sp. | Grass |
| DECA18 | Descampsia caespitosa | Grass |
| HIOD | Hierochloe odorata | Grass |
| | Carex sp. (no iflorescence) | Sedge |
| ATUN2 | Atrichium undulatum | Moss |
| | Bryum sp. | Moss |
| CLBO10 | Claopodium bolanderi | Moss |
| CLCR4 | Claopodium crispifolium | Moss |
| DICI5 | Dicranoweisia cirrata | Moss |
| DISC71 | Dicranum scoparium | Moss |
| EUOR2 | Eurhynchium oreganum | Moss |
| HOFU70 | Homalothecium fulgescens | Moss |
| HYSP70 | Hylocomium splendens | Moss |
| HYSU70 | Hypnum subimponens | Moss |
| ISMY2 | Isothecium myusoroides | Moss |
| ORLY | Orthotrichum lyellii | Moss |
| PLUN4 | Plagiothecium undulatum | Moss |
| POCO38 | Polytrichum commune | Moss |
| RHLO70 | Rhytidiadelphus loreus | Moss |
| SPSQ70 | Sphagnum squarrosum | Moss |
| ULOB | Ulotia obtusiuscula | Moss |
| BATR4 | Bazzania tricrenata | Liverwort |
| COCO38 | Conocephalum conicum | Liverwort |
| PLIN11 | Plagiomnium insigne | Liverwort |
| RHLO70 | Rhytidiadelphus loreus | Liverwort |
| | Cladonia sp. | Lichen |
| LOSC60 | Lobaria scrobiculata | Lichen |
| PENE12 | Peltigera neopolydactyla | Lichen |
| PEPR60 | Peltigera praetextata | Lichen |
| STFU3 | Sticta fuliginosa | Lichen |