

by Sylvia Handley  
Diana Mainguy  
Dave Clare  
Dept. of Biology, University of Victoria  
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Mount Maxwell

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ECOLOGICAL RESERVES COLLECTION  
GOVERNMENT OF BRITISH COLUMBIA  
VICTORIA, B.C.  
V8V 1X4

FLORA OF THE MOUNT MAXWELL ECOLOGICAL RESERVE

DIVISION PTEROPHYTA

SELAGINACEAE - SPIKE MOSS FAMILY

Selaginella wallacei Hieron

Abundant on the rocky, exposed outcrop shoulders with the Rhacomitrium rock outcrop community. This species occupies bare outcrop shoulders in preference to deep soil pockets. By mid-July, most plants in the reserve have been completely desiccated.

EQUISETACEAE - HORSETAIL FAMILY

Equisetum arvense L. (Common horsetail)

Rare, specimens restricted to rich, moist alluvial deposits in seepage areas or to shady, gravelly drainage basins.

POLYPODIACEAE - COMMON FERN FAMILY

Pityrogramma triangularis (Kaulf.) Maxon.

Common; generally associated with crevices and pockets of soil at the base of vertical faces in both the Rhacomitrium rock outcrop and Quercus dry slope communities.

Polypodium hesperimum

Abundant in shaded, rocky areas where the moss cover is well-

developed. Vertical faces and crevices seem particularly favourable to the growth of this fern. Polypodium hesperinum is often associated with Quercus garryana and Pseudotsuga - Quercus stands.

✓ Polystichum munitum var. munitum (Kaulf.) Presl. (Sword fern)

Common on this aspect of Mt. Maxwell; generally associated with Pseudotsuga menziesii complexes in moist to mesic sites having deep soil. Alternatively, this fern can occupy deep soil found in rock crevices. The size of this plant increases with moisture and shade.

✓ Pteridium aquilinum var. pubescens Underw. (Bracken)

Rare; associated with open, disturbed areas such as logged stands near the coast in the reserve (the Pteridium logged slopes).

✓ Woodsia scopulina D.C. Eat.

Common; usually growing from soil deposits under mass wasted rocks in shaded areas of the Quercus dry slope and Pseudotsuga - Quercus mixed forest communities.

#### DIVISION SPERMATOPHYTA

#### CLASS GYMNOSPERMAE (CONIFERS)

#### PINACEAE - PINE FAMILY

✓ Abies grandis (Dougl.) Lindl. (Grand fir)

Rare; found in mesic sites which are dominated by Pseudotsuga menziesii. The occasional tree was found in the scrub bush cover close to the shoreline.

Pinus contorta var. contorta Dougl. ex. Louden (Lodgepole pine)

Very rare; found in the scrub forest (natural regrowth after logging operations and fire) close to the shoreline.

Pseudotsuga menziesii (Mirbel) Franco. (Douglas fir)

Abundant; constituting at least fifty percent of the tree cover of the reserve. On Mt. Maxwell, this tree is associated with a concave landform and deep, mesic soil or with the upper elevations of the reserve where there is little slope and no southwest aspect to the land. Seedlings found in the pure Quercus garryana stands were rarely more than three years old.

Tsuga heterophylla (Raf.) Sarg. (Western Hemlock)

Rare; preferring moist to wet sites in lowland seepage areas. Seldom found in Pseudotsuga menziesii, Quercus garryana or Pseudotsuga - Quercus stands.

#### CLASS ANGIOSPERMAE

#### MONOCOTYLEDONS

#### JUNCACEAE - RUSH FAMILY

Juncus effusus var. pacificus Fern. & Weig. (Common rush)

Rare; found in a sunny location in the sole seepage area of the reserve. Flowers in May and June; seeds are set in July.

Luzula comprestris (L.) var. multiflora (Ehrh.) Célak.

Sparse; found in the \_\_\_\_\_ . Disturbed community in a slight concavity which receives winter runoff.

GRAMINAE [POACEAE] - GRASS FAMILY

Aira caryophylla L. (Hairgrass)

Common on the Mt. Maxwell Reserve in the Rhacomitrium rock outcrop, Quercus dry slope and Pseudotsuga - Quercus mixed forest communities. It is generally associated with Aira praecox, Bromis sterilis and Cyanosurus echinatus and seems to prefer gentle, even-surfaced, gravel slopes and concavities with full exposure to the sun and a slightly higher moisture content than surrounding lands.

Aira praecox L. (Little hairgrass)

Common in areas supporting Aira caryophylla. Preference of drier, less exposed, more steeply sloping convex surfaces than A. caryophylla is noted. Flowering occurs in April and May; seeds are mature and the plant dry by mid-June or early July.

Anthoxanthum odoratum L. (Sweet vernal grass)

Sparse; scattered along roadside and in land disturbed by logging (Pteridium logged slope community). Flowering occurs in June.

Bromus mollis L. (Soft cheat)

Common; largely associated with deep soils or deep soil pockets in the Quercus garryana dry slope, Rhacomitrium rock outcrop and Pteridium logged slope communities. This grass grew in direct sunlight but its

densest growth occurred under partially shaded conditions.

Bromus sterilis L.

Common; usually associated with the Rhacomitrium rock outcrop, Quercus dry slope and Pseudotsuga - Quercus mixed forest communities, although a sparse appearance was noted in heavily shaded regions and along seepage stream banks.

Cynosurus echinatus L. (Dog's tail grass)

Common; found on gently sloping, deep-soiled outcrop and open, logged areas in sunny to lightly shaded localities. It is often most abundant in the herb layer of the Quercus dry slope and Pseudotsuga - Quercus mixed forest communities.

Elymus canadensis L. (Canadian wild rye)

Rare; located in dry, open to partially shaded sites in the Rhacomitrium rock outcrop and Quercus dry slope communities.

Elymus glaucus Buckl. (Blue wild rye)

Rare; occurring in partially shaded sites in the Quercus dry slope, Pseudotsuga - Quercus mixed forest, Pseudotsuga menziesii, and Pseudotsuga - Arbutus scrub forest communities. Flowering occurs in May and June.

Festuca myuros L. (Rat-tail fescue)

Common; generally recorded in rock outcrop regions or under stands of Quercus garryana, Pseudotsuga - Quercus, and Pseudotsuga - Arbutus. Flowering occurs in late April to July.

— Festuca occidentalis Hook. (Western fescue)

Sparse overall; common in regions forested with pure Pseudotsuga menziesii and less commonly in stands dominated by complexes of this species.

— Holcus lanatus L. (Velvet grass)

Sparse; found in areas with a history of man-made disturbance (such as the Pteridium logged slope community).

— Melica subulata (Griseb.) Scribn. (Onion grass)

Common in the dry to mesic podzols of the Pseudotsuga - Polystichum moist slopes, Rhacomitrium rock outcrop, and Pseudotsuga - Quercus mixed forest communities.

— Poa pratensis L. (Kentucky bluegrass)

Common; appearing in the Rhacomitrium rock outcrop and Pteridium logged slope communities as well as in open Pseudotsuga menziesii, Quercus garryana, and Pseudotsuga - Quercus stands. Flowers were detected in late June and July.

LILIACEAE - LILY FAMILY

— Allium acuminatum Hook. (Tapertip onion)

Rare; flowering in the third week of June in the Rhacomitrium rock outcrop community.

— Camassia quamash (Pursh.) Greene ( )

Sparse; found in flat, open, grassy localities of the Rhacomitrium rock outcrop community in quite deep soil deposits. Flowers were

recorded in May and early June; seeds were ready for dispersal by mid-August.

Erythonium grandiflorum Pursh. (Pale fawn-lily)

Rare; found only occasionally in the Quercus dry slope community. Flowers were seen in April and May.

ORCHIDACEAE - ORCHID FAMILY

Calypso bulbosa (L.) Oakes (Fairy slipper)

Rare in the reserve; usually located in mesic, heavily shaded sites in the Pseudotsuga - Polystichum moist slope community. Flowers occurred in May and early June.

Corallorhiza maculata Raf. (Spotted coral-root)

Sparse; generally associated with mesic, partially to fully shaded sites in Pseudotsuga menziesii forests. Flowers were recorded in May and early June.

Goodyera oblongifolia Raf. (Rattlesnake plantain)

Sparse; found in the Pseudotsuga - Polystichum moist slope community. Flower spikes generally appear in early June, but some are recorded as occurring later.

SALICACEAE - WILLOW FAMILY

Salix scouleriana Barrat (Scouler willow)

Rare; found in moist to very wet sites such as seepage areas or roadside ditches. Flowers occur in February.

Salix sitchensis Sanson (Sitka willow)

Rare; found occasionally in the Pseudotsuga - Polystichum moist slope community or the natural regrowth of scrub forest in logged lands near Burgoyne Bay.

BETULACEAE - SWEET GALE FAMILY

Alnus rubra Borg. (Red alder)

Sparse; associated primarily with seepage areas - preferring the alluvial, muck-type soil and high moisture regime to drier, rockier areas.

FAGACEAE - BEECH FAMILY

Quercus garryana Dougl. (Garry oak)

Abundant on Mount Maxwell; constituting approximately forty percent of the total tree cover of the reserve. It is usually associated with hot, dry regions of the mountain which frequently have a ten to twenty-two degree angle and a southwest or southerly aspect. This tree forms at least part of the canopy for two distinct community types which have been mapped for this report - the Quercus dry slope and Pseudotsuga - Quercus mixed forest communities.

URTICACEAE - NETTLE FAMILY

Urtica dioica var. lyalli (Wats.) C.L. Mitchc. (Stinging nettle)

Sparsely distributed; associated most commonly with seepage areas in the Pseudotsuga menziesii stands and in the open, logged regions common

to the lower elevations of the reserve. Flowering is maximized in late June.

POLYCONACEAE - BUCKWHEAT FAMILY

Rumex acetosella L. (Sheep sorrel)

Common in the Rhacomitrium rock outcrop community intermixed with various mosses and the two Aira species. It is also found in partially shaded areas along sheep and deer trails and in areas opened by logging. Flowers occur from May into July.

PORTULACACEAE - PURSLANE FAMILY

Montia perfoliata (Donn.) Howell (Miner's lettuce)

Common; prevalent at the bases of and within the shade of Pseudotsuga menziesii and Quercus garryana. Flowers were recorded in May and June.

Montia siberica (L.) Howell (Siberian miner's lettuce)

Sparse; in shaded areas of the Pseudotsuga - Polystichum moist slope community and in the shaded regions of seepage fields. Flowers appear in June.

CARYOPHYLLACEAE - PINK FAMILY

Arenaria macrophylla Hook. (Bigleaf sandwort)

Sparse; this species is always associated with a forest canopy, commonly Pseudotsuga menziesii, and flowers in July and August.

Cerastium arvense L. (Field mouse-ear)

Intermittently distributed in the Rhacomitrium rock outcrop and Pteridium logged slope communities where deep, mesic soil pockets or crevices allow its growth. Flowering occurs from mid-May to June; seeds are dried and ready for dispersal in July and August.

Cerastium viscosum L. (Sticky chickweed)

Fairly common; found in both the Rhacomitrium rock outcrop and Quercus dry slope communities. Flowers are senesced by June, seeds are released from late June to late July.

Lychnis coronalis L. Descr. (Dusty miller)

Intermittent in distribution, but in a wide number of communities in the reserve. It is most common in the Pseudotsuga - Quercus mixed forest, Rhacomitrium rock outcrop and Quercus dry slope communities although it has also been recorded from sunny sites in any other community. Flowers first start opening in the third week in June and plants continue bearing to late August.

Silene gallica L. (Windmill pink)

Common in the Rhacomitrium rock outcrop community in shallow soil pockets. Flowers are dead by June and seeds are released shortly after this time period.

Stellaria crispa Cham & Schlecht (Crisped stellaria)

Rare; found most frequently in moist, shaded areas featuring an Alnus rubra, Thuja plicata or Pseudotsuga menziesii canopy.

Stellaria media (L.) Cyrill (Chickweed)

Common; generally growing in the Rhacomitrium rock outcrop community, but sometimes inhabiting open stands of Pseudotsuga - Quercus and Quercus garryana. Flowers occur from April to June; seeds are released from mid-July to mid-August.

Stellaria nitens Nutt. (Shining chickweed)

Rare; found occasionally in the Rhacomitrium rock outcrop community in conditions similar to Stellaria media.

Stellaria umbellata Turcz. (Umbellate chickweed)

Rare: found only in the Pseudotsuga - Polystichum moist slopes community.

RANUNCULACEAE - BUTTERCUP FAMILY

Anemone lyalli Brit. (Lyallis anemone)

Very rare; found in the shade in gravel soil of a seepage area which supported a canopy of Arbutus menziesii and Salix sitchensis.

Aquilegia formosa Fischer (Columbine)

Very rare; a single specimen was found in grassy gravel soil near a stream. The plant was associated with a variety of grasses and was not shaded to any degree. Flowers were evident in the second week of June.

Delphinium menziesii var. menziesii D.C. (Menzie's larkspur)

Rare; found in the Quercus dry clope and Rhacomitrium rock outcrop communities. Flowering occurs in late June.

Ranunculus occidentalis var. occidentalis Nutt. (Western buttercup)

Fairly common in shady soil pockets in the Rhacomitrium rock outcrop and Quercus dry slope communities. Flowers can be observed in May and June; seeds are released from mid-July onwards.

BERBERIDACEAE - BARBERRY FAMILY

Berberis nervosa Pursh. (Dull Oregon grape)

Sparse; often associated with Pseudotsuga menziesii and Arbutus menziesii stands in mesic sites.

CRUCIFERAE [BRASSICACEAE] - MUSTARD FAMILY

Athysanus pusillus (Hook.) Greene (Sandweed)

Sparse on this face of Mt. Maxwell in the Rhacomitrium rock outcrop community. Flowering generally occurs before May; seeds are ripened by early June.

Cardamine oligosperma var. oligosperma Nutt. (Little western bittercress)

Abundant; found in the Rhacomitrium rock outcrop community in sunny or shaded conditions. Also found, perhaps more abundantly, in the Quercus dry slope community. Cardamine digosperma flowers before mid-May and dies by mid-July or August.

CRASSULACEAE - STONECROP FAMILY

Sedum spathulifolium Hook. (Broadleaf sedum)

Rare; found in the Rhacomitrium rock outcrop community on the shoulders

and vertical faces of some cliffs. Flowers appear in mid-June; seeds set in July or August.

SAXIFRAGACEAE - SAXIFRAGE FAMILY

Heuchera micrantha var. diversifolia R.B. & L. (Smallflower alumroot)

Rare; occurs in soil pockets and crevices in the Rhacomitrium rock outcrop community and in seepage areas. Flowers occur in early June if the plant is in sunshine and to late August in increasing shade.

Lithophragma parviflora (Hook.) Nutt. (Small flower fringe-cup)

Sparse; flowering in the Rhacomitrium rock outcrop or Pseudotsuga - Quercus mixed forest communities from April to June.

Tiarella trifoliata L. (Foam flower)

Abundant in shaded plots - especially in the Pseudotsuga menziesii stands. Flowering occurs from late June to early July; seeds are mature and shed to passing animals in early August.

GRO

CRASSULARIACEAE - CURRANT AND GOOSEBERRY FAMILY

Ribes lacustre (Pers.) Poir (Prickly currant)

Rare; found in disturbed areas such as the Pteridium logged slope community often growing in clay or gravel soils.

Ribes sanguinum Pursh. (Redflower currant)

Rare; found in similar locations as Ribes lacustre.

## ROSACEAE - ROSE FAMILY

Fragaria vesca L. (Woods strawberry)

Sparse; growing in warm, gently sloping gravel soils and associated with Bromus sterilis, Aira praecox, Aira caryophylla, Festuca myuris and Bromus mollis. Flowers can be detected from May to June; fruit from June to July.

Holodiscus discolor var. discolor (Pursh.) Maxim. (Creambush ocean-spray)

Fairly common; often primary shrub under Quercus garryana, Pseudotsuga menziesii, Arbutus menziesii and complexes of these three as well as in open, disturbed regions. Flowering occurs in June and early July.

Prunus emarginata var. mollis (Dougl.) Brew. (Bittercherry)

Rare; growing in deep but gravelly soils close to the seepage stream draining the southerly portion of the reserve. Often associated with Thuja plicata or Pseudotsuga menziesii stands. Flowers occur in June.

Rosa gymnocarpa Nutt. (Wild rose)

Rare to sparse; similar in habitat and environmental ranges as Holodiscus discolor. Rosa gymnocarpa blooms in June and July; the hips mature in August and September.

Rubus parviflorus Nutt. (Thimbleberry)

Rare; found beside streams and drainage areas where moisture is constant and plentiful. Flowers occur in May; berries ripen in July.

Rubus ursinus Weih. & Nees. (Pacific blackberry)

Sparse; this creeping blackberry is particularly prevalent in partially shaded sites which have been disturbed by logging and slash burning. Flowers can be seen in late May and early June; berries are ripe in mid to late July.

LEGUMINOSAE [FABACEAE] - PEA FAMILY

Cystius scoparius (L.) Link (Scot's broom)

Sparse; characteristic of the Pteridium logged slope community. Flowers start appearing in May, maximize in June and continue spasmodically until September to October. Seeds start maturing and are released starting in July.

Lathyrus nevidensis L. (Sweet pea)

Fairly common; usually found in the Quercus dry slope or Pseudotsuga menziesii complexed communities. This plant grows best in partially shaded conditions in reasonably good soil.

Lotus micranthus Benth. (Small-flowered deer vetch)

Abundant on Mt. Maxwell in the Rhacomitrium rock outcrop, Quercus dry slope and Pseudotsuga - Quercus mixed forest communities. Flowers are most evident in June.

Trifolium dubium Sibth. (Suckling clover)

Fairly common; characteristic of disturbed, grassy areas such as evident in the Pteridium logged slope community. Flowering occurs to the end of July.

Trifolium microcephalum Pursh. (Smallhead clover)

Common; found in rock outcrop areas and within stands of Quercus garryana and Pseudotsuga Quercus mixtures. Flowers are recorded from May to June.

Trifolium microdon H. & A. (Thimble clover)

Common; features similar habitat requirements and flower phenology as Trifolium microcephalum.

Trifolium diganthum Stevd. (Few-flowered clover)

Sparse; growing in the Rhacomitrium rock outcrop and Quercus dry slope communities producing flowers from May to June.

Trifolium tridentatum Lindl (Sand clover)

Rare to sparse; associated with other previously-mentioned Trifolium species. Flower phenology was not recorded for this species.

Trifolium variegatum Nutt. (White-tip clover)

Abundant; widespread in the Rhacomitrium rock outcrop and Quercus dry slope communities. Flowers were noted from May to June; seeds were dried and released by mid-July.

Trifolium wormskjoldii Lehm. (Springbank clover)

Rare; flowers of this species were collected in May and June in rock outcrop regions and under Quercus garryana and Quercus-complexed stands.

Vicia hirsuta (L.) S.F. Gray (Hairy vetch)

Rare; several specimens of this plant were noted in a partially shaded site in the community. No blossoms or seeds were found on any plant.

Vicia sativa var. augustifolia (L.) Wahlb. (Common vetch)

Common in the Quercus dry slope and Pseudotsuga - Polystichum moist slope communities. Flowers occur in June; die in early July and release mature seeds in late July and August.

GERANEACEAE - GERANIUM FAMILY

Erodium cicutarium (L.) L'Her. (Stork's bill)

Common; in the Rhacomitrium rock outcrop, Quercus dry slope and Pseudotsuga - Quercus mixed forest communities in sites affording partial shading. Flowering is completed, for the most part, by mid-May and seeds are released by mid to late June.

Geranium dissectum L. (cut-leaf geranium)

Rare; interspersed with the grasses, mosses and Geranium molle in the Rhacomitrium rock outcrop community and in Quercus garryana or Pseudotsuga - Quercus stands. The occasional plant was also listed as growing in the Pteridium logged slope community. Flowering occurs in June.

Geranium molle L. (Dove foot geranium)

Abundant on the reserve in a wide variety of habitats and associations in exposed to partially shaded sites. Soil depth, providing

it is greater than one inch, seems immaterial. Flowering is recorded as peaking in June although the flowering period extends from May to early August.

ACERACEAE - MAPLE FAMILY

Acer macrophyllum Pursh. (Broadleaf maple)

Common; mixed with Pseudotsuga menziesii in depressions on upper elevations of the reserve and forming part of the Pteridium logged slope community and scrub forest in the lower elevations.

ONAGRACEAE - EVENING PRIMROSE FAMILY

Epilobium minutum Lindl. (Small-flowered willow herb)

Fairly common in the Pteridium logged slope, Rhacomitrium rock outcrop and Quercus dry slope communities in xeric, sunny soils.

UMBELLIFERAE [APIACEAE] - PARSLEY FAMILY

Caucalis microcarpa H. & A. (Hedge parsley)

Sparse on Mt. Maxwell; generally found in the Rhacomitrium community. Flowers must be seen before May.

Daucus pusillus Michx. (Rattlesnake weed)

Fairly common; often associated with plants characteristic of the Rhacomitrium rock outcrop, Quercus dry slope and Pseudotsuga - Quercus mixed forest communities. Plants were first noticed immigrating in late May; flowers first appeared in mid-July.

Osmorhiza sp. Raf.

Rare to common; often recorded in Pseudotsuga menziesii stands.  
Flowers occur in late June and early July.

Sanicula crassicaulis Poepp. (Pacific sanicle)

Abundant in regions dominated by outcropping or in the Quercus dry slope community. Flowers occur in June; seeds are set in late July or August.

## CORNACEAE - DOGWOOD FAMILY

Cornus nuttalli Aud. (Dogwood)

Sparse; found with Salix sitchensis, Acer macrophyllum and Arbutus menziesii in disturbed areas at low elevations. The distinctive white bracts indicate flowering occurs in the mid-May to early June time sequence.

## ERICACEAE - HEATHER FAMILY

Arbutus menziesii Pursh. (Pacific madroña)

Sparse; found in open, dry rocky regions near the Pteridium logged slope community, either dominant or subdominant to Pseudotsuga menziesii, Salix sitchensis, Cornus nuttali or Acer macrophyllum in the natural regrowth. Flowers occur in late April and during May; fruit ripens in August.

Gaultheria shallon Pursh. (Salal)

Sparse in the reserve on Mt. Maxwell; generally associated with stands of Pseudotsuga menziesii.

## PRIMULACEAE - PRIMROSE FAMILY

Trientalis latifolia Hook. (Broad-leaved starflower)

Sparse; associated with the Pseudotsuga - Polystichum moist slope community. It is often located near Gaultheria shallon in these instances.

## PLUMBAGINACEAE - PLUMBAGO FAMILY

Armeria maritima (Mill.) Willd. (Seablush)

Rare; found very occasionally, but in reasonable quantities at each sighting in the Rhacomitrium rock outcrop community. Flowers had not been initiated at the end of June.

## POLEMONIACEAE - PHLOX FAMILY

Linanthus bicolor Nutt. Greene (Bicolored linanthus)

Sparse; located in the Rhacomitrium rock outcrop and Quercus dry slope communities. Flowers open in early June.

Microsteris gracilis (Hook.) Greene

Similar to Linanthus bicolor in relative abundance, habitat and flower phenology.

## HYDROPHYLLACEAE - WATERLEAF FAMILY

Nemophila parviflora var. parviflora Dougl. (Small-flowered nemophila)

Common in most communities mapped as occurring on the reserve - perhaps with the exception of the regions disturbed by logging

operations and fire. Although this species is generally found in shaded or partially shaded conditions (where it reaches maximum size), it is common in a stunted form in the Rhacomitrium rock outcrop community.

BORAGINACEAE - BORAGE FAMILY

Myosotis discolor Pers. (Forget-Me-Not)

Abundant in the Rhacomitrium rock outcrop community and in lightly shaded forest communities such as under pure stands of Quercus garryana and in mixed forests of Pseudotsuga menziesii and Quercus garryana.

LABIATAE [LAMIACEAE] - MINT FAMILY

Satureja douglasii (Benth.) Brig. (Savory)

Rare; found most commonly on rock outcrops surrounded by Pseudotsuga menziesii forests. Flowers were noted in July and August.

SCROPHULARIACEAE - FIGWORT FAMILY

Castilleja miniata Dougl. (Indian paintbrush)

Rare, found growing from mineral clay and mineral podzol soil layers close to the shoreline. The bright orange flowers of this species were first noticed late in May.

Collinsia parviflora Lindl. (Small-flowered Blue-eyed Mary)

Commonly flowering in May and June in soil pockets and moss mats of the Rhacomitrium rock outcrop community.

Digitalis purpurea L. (Foxgloves)

Common, in addition to deer and sheep trails Digitalis purpurea is found in the Rhacomitrium rock outcrop and Pteridium logged slope communities. The plant seems to flower continuously from May to September or later.

Mimulus gluttatus D.C. (Yellow monkey-flower)

Common in small soil pockets alongside or directly in seepage areas. This small, yellow-flowered Mimulus is therefore associated with mosses such as Ceratodon purpurea, Dicranum fuscens.

Verbascum thapsus L. (Flannel mullein)

Sparse, often found associated with Digitalis purpurea in the Rhacomitrium rock outcrop and Pteridium logged slope communities and other disturbed areas. The large flower spikes can be seen in July and early August.

Veronica arvensis L. (Common speedwell)

Abundant; widespread in exposed, sunny communities such as those on the rock outcrops and in logged regions with a southwest aspect. Flowers were seen in May; seeds set shortly after the flowers had finished blooming.

PLANTAGINACEAE - PLANTAIN FAMILY

Plantago lanceolata L. (English plantain)

Sparse on Mt. Maxwell; characteristic of roadsides and disturbed, grassy areas, Plantago lanceolata flowers throughout the summer.

## RUBIACEAE - MADDER FAMILY

Gallium aparine var. echinospermum (Wallr.) Farw. (Goose-grass)

Abundant in dry or mesic forest communities - especially those with some Pseudotsuga menziesii in the canopy. Lesser amounts of this plant grow in the Quercus dry slope community. Flowers occur in June and seeds are picked up by passing animals from July to October.

## CAPRIFOLIACEAE - HONEYSUCKLE FAMILY

Linnaea borealis var. longiflora Torr. (Western twinflower)

Sparse; prevalent in partial shaded to sunny patches of the Pseudotsuga - Polystichum moist slope community which are not occupied by Berberis nervosa or Gaultheria shallon. Blossoms appear in June and July.

Lonicera ciliosa (Pursh.) D.C. (Orange honeysuckle)

Fairly common on Mt. Maxwell in the disturbed, but still lightly forested regions approximately 25 chains from the coast. This vine creeps over the ground or twines itself around young trees and shrubs such as Holodiscus discolor. Bright orange flowers were reported from mid-June to early August.

Lonicera hispidula (Lindl.) Dougl. (Hairy honeysuckle)

Common; widespread in Pseudotsuga menziesii stands or under canopies of Pseudotsuga/Quercus. The presence or absence of dense understory does not appear to effect the distribution of this species in these communities. Flowers were observed from mid-June to July.

Sambucus curulea Raf. (Blue elderberry)

Rare; only one or two trees of this species were observed on the reserve. It is likely that the spread of this species is limited by its high moisture preferences. The plants that were sighted were near seepage flows. Flowering occurs from May to early June.

Symphoricarpos albus (L.) Blake (Snowberry)

Sparse; found on disturbed land (such as the Pteridium logged slope community) as well as on the border of Pseudotsuga menziesii, Quercus menziesii or Pseudotsuga/Quercus stands.

VALERIANACEAE - VALERIAN FAMILY

Plectritus congesta Lindl. (Rosy plectritus)

Sparse; one small concentration of this species was noted on a flat portion of muck soil formed from the partial blockage of a seepage stream. The Plectritus was growing from dense mats of Dicranum fuscens and purpurea.

COMPOSITAE [ASTERACEAE] - SUNFLOWER FAMILY

Achillea millifolium L. (Yarrow)

Occasional in the Rhacomitrium rock outcrop community. Yarrow seems to grow most extensively on sunny sites where two to four inches of rocky soil have been built over flat expanses of rock. Flowers were observed in July.

Adenocaulon bicolor Hook. (Trail plant)

Sparse; growing in shaded areas with little development of the herb layer. These conditions are most commonly met in dense stands of Pseudotsuga menziesii, although several plants were seen in a dense tangle of Arbutus menziesii, Salix sitchensis and Holodiscus discolor.

Agoseris heterophylla (Nutt.) Greene

Common; appearing on outcroppings and in the Pteridium logged slope community where flowers were seen from the end of June to early August. Population seed production paralleled flower production.

Cirsium vulgare (Savi) Tenore (Common thistle)

Common; often characteristic of open, disturbed areas such as roadsides or heavily logged and burnt land. This species is often associated with large populations of Pteridium aquifolium, another indicator of disturbance. Flowers were recorded from June to August. Seeds were first released in late June.

Graphalium sp. L. (Everlasting)

Common; often growing from, or through, mats of Rhacomitrium canescens in the Rhacomitrium rock outcrop community. Each head has one or two flowers in bloom from late June to August. Seeds are dispersed two to three weeks after the death of each flower.

Hieracium albiflorum Hook. (White-flowered hawkweed)

Sparse; in podzol soils and sunny patches of the Pseudotsuga - Polystichum moist slope community and in soil pockets of the Rhacomitrium rock outcrop community. Flowers occur in late June and July.

Lactuca muralis (L.) Fresen. (Wall lettuce)

Abundant; found in moist to mesic, often shaded, sites such as roadside ditches, rock crevices and Pseudotsuga menziesii stands. An extensive flowering period (from late May to October) was observed. Seeds are continuously being produced on the same plant during this period.

Madia madiodes (Nutt.) Greene (Woodland tarweed)

Sparse; found in thin soil of the Rhacomitrium rock outcrop community. Madia seems able to survive and bloom in the driest months of the year (July and August) despite its full exposure to the sun.

Senecio sylvaticus L. (Wood groundsel)

Sparse; usually found in the Rhacomitrium rock outcrop community, although occasional plants occurred in the Quercus dry slope community.

Sonchus asper (L.) Hill (Prickly sow-thistle)

Sparse; indicative of open disturbed areas with mineral clay soils (Pteridium logged slope community). Flowers are reported from May to June.

Taraxacum officinale Weber (Common dandelion)

Sparse; generally found in dappled shade or more mesic sites of the Rhacomitrium rock outcrop, Quercus dry slope and Pteridium logged slope communities. Flowers are recorded in maximum densities in August.

## DIVISION BRYOPHYTA

## CLASS MUSCI

## BARTRAMIACEAE FAMILY

Philonotis fontana (Hedw.) Brid.

Sparse; found in and along seepage flows. The current velocity of these rivulets seems quite important in the distribution of this moss as it seems to prefer slowly flowing to stagnant or swiftly flowing velocities.

## BRACHYTHECIACEAE FAMILY

Eurynchium oreganum (Sull.) Jaeg. & Saverb.

Abundant; perhaps the most common moss of the reserve. Densest mats are found in the higher elevations of the reserve under Pseudotsuga menziesii canopies. It has been recorded in all community types mapped where mesic conditions exist for the majority of the year.

Homalothecium lutescens (Hedw.) Robins

Common; usually located in dry to dry-mesic sites with some shading - as in Quercus garryana and Pseudotsuga Quercus stands on the reserve. Its most common microhabitat was rotting Quercus garryana logs.

Homalothecium pinnatifidon (Sull. & Lesq.) Lawt.

Sparse; found on rocks of the mass wasting which occurred in many dry Quercus garryana stands.

Isothecium spiculiferum var. stoloniferum (Mitt.) Ren. & Card.

Abundant; usually found on rocks, trees and rotting logs in shaded, dry to mesic sites. This moss is often intermixed with Eurynchium oreganum in these circumstances.

#### CRYPHAECEAE FAMILY

Antitricha curtipendula (Hedw.) Brid.

Fairly common; on rocks and logs in dry to mesic sites within forest stands composed of Pseudotsuga menziesii and Pseudotsuga/Quercus mixtures.

#### DICRANACEAE FAMILY

Dichodontium flavescens (Turn.) Dixon

Sparse; found in cliff crevices where seepage water continually flows.

Dicranum fuscens Turn.

Abundant; a dry to mesic site moss found on rocks and logs in the Racomitrium rock outcrop and Pseudotsuga - Polystichum moist slope communities. Sporophytes were evident in May.

Dicranoweisia cirrhata (Hedw.) Lindb.

Common; particularly noted in tiny rock crevices (abrasions) or in cracks in logs in the Racomitrium rock outcrop community. This moss is a dry to mesic site moss.

## DISTRICHACEAE FAMILY

Ceratodon purpureus (Hedw.) Brid.

Common; exhibiting tolerance to extreme ranges in water levels. It can be found in very dry sites on rock outcroppings and very wet conditions in a seepage area. Color was observed from bright green to plum-purple. Substrates on the reserve included rocks, logs, and gravel soil.

## GRIMMIACEAE FAMILY

Rhacomitrium canescens (Hedw.) Brid.

Abundant; a dry site moss growing on particularly exposed outcroppings in the Rhacomitrium rock outcrop community. These sites which are generally shared with Selaginella wallacei.

## HYLOCOMIACEAE FAMILY

Hylocomium splendens (Hedw.) B.S.G.

Sparse; a mesic site moss growing on rocks and logs in regions where there are few herbs.. or in the Pseudotsuga - Polystichum moist slope community; sporophytes were noted from June to August.

## HYNACEAE FAMILY

Hypnum subimponens Lesq.

Common; found in a wide range of habitats from dry sites in the Rhacomitrium rock outcrop community to the mesic Pseudotsuga -

Polystichum moist slope community. This moss is often intertwined with Eurynchium oreganum on rocks, logs, trees and soil.

#### MNIACEAE FAMILY

##### Mnium glabrescens Kindb.

Sparse; generally found on rocks, rotting logs, soil and trees in well-shaded, very moist sites such as are found in some areas of the Pseudotsuga menziesii forest. It seems intolerant of a dense herb layer.

##### Mnium insigne Mitt.

Common; covering a wide range of habitats in dry to mesic moisture regimes. This species is most frequently spotted on soil and logs of highly shaded regions in the Pseudotsuga - Polystichum moist slope community.

##### Mnium spinulosum B.S.G.

Sparse; growing on substrates and in habitats similar to Mnium insigne.

##### Leucolepis menziesii (Hook.) Steere

Sparse; a moist site moss most often found in shaded seepage areas and in Pseudotsuga menziesii stands.

#### PLAGIOTHECIACEAE FAMILY

##### Plageothecium undulatum (Hedw.) B.S.G.

Rare on the reserve; a wet site moss growing in the seepage area.

## POLYTRICHIACEAE FAMILY

Polytrichum juniperinum Hedw.

Abundant on exposed rock surfaces in the Rhacomitrium rock outcrop community. It is often located with Rhacomitrium canescens and Selaginella wallacei.

## POTTIACEAE FAMILY

Tortula muralis Hedw.

Common; usually integral with species of the Rhacomitrium rock outcrop community. It is often found on thin mantles of soil rather than a rock substrate.

## RHYTIDIADACEAE FAMILY

Rhytidiadelphus triquetrus (Hedw.) Warnst.

Commonly found associated with Polytrichum juniperinum in shaded portions of the Rhacomitrium rock outcrop or Quercus dry slope communities.