

Horse Rock Ridge

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Fine-grained basaltic dikes resistant to weathering protrude from the surrounding terrain in Horse Rock Ridge RNA. Photo by Cheshire Mayrsohn.

The grassy balds of Horse Rock Ridge Research Natural Area (RNA) are found on ridges and south-facing slopes within the Douglas fir forest of the Coburg Hills. These natural grasslands in the foothills of the Cascades bordering the southern Willamette Valley have fascinated naturalists with their contrast to the surrounding forests. The RNA was established to protect these meadows which owe their existence to thin soils associated with rock outcroppings. Surrounding old growth forest adds to the value of the Natural Area.

The Bureau of Land Management (BLM) recognized the site's botanical, wildlife, and scenic values by establishing it as an RNA/ACEC in June 1995 (Eugene District Resource Management Plan 1995). It had previously been established as an Area of Critical Environmental Concern (ACEC) in 1984. Contrasting habitats of moist forests, dry meadows, and rock outcrops enhance species diversity. Many of the meadow species are more common in eastern Oregon. The meadows at the site represent three native communities

defined by their dominant grass species: blue wildrye (*Elymus glaucus*), Oregon fescue (*Festuca roemeri*), and Lemmon's needlegrass (*Achnatherum lemmonii*)/hairy racomitrium moss (*Racomitrium canescens*) (Curtis 2003). Douglas fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*) dominate the forest, with an understory of Cascade Oregon grape (*Berberis nervosa*), salal (*Gaultheria shallon*), and creeping snowberry (*Symporicarpos mollis*).

The 378-acre RNA is located in Linn County, Section 1 Township 15 South Range 2 West, on land administered by the BLM Eugene District. A portion of the meadow extends onto adjacent Weyerhaeuser private land. The Nature Conservancy has recently acquired a conservation easement on 45 acres of the Weyerhaeuser property, providing protection for the rocky bald and a buffer of adjacent forest. Meadows in Horse Rock Ridge RNA are accessed by hiking through old growth forest from BLM road number 15S-1W-18.2, parking at the quarry site in section 1, T15S R2W (see map). The area is accessed from the Shotgun Creek Road.

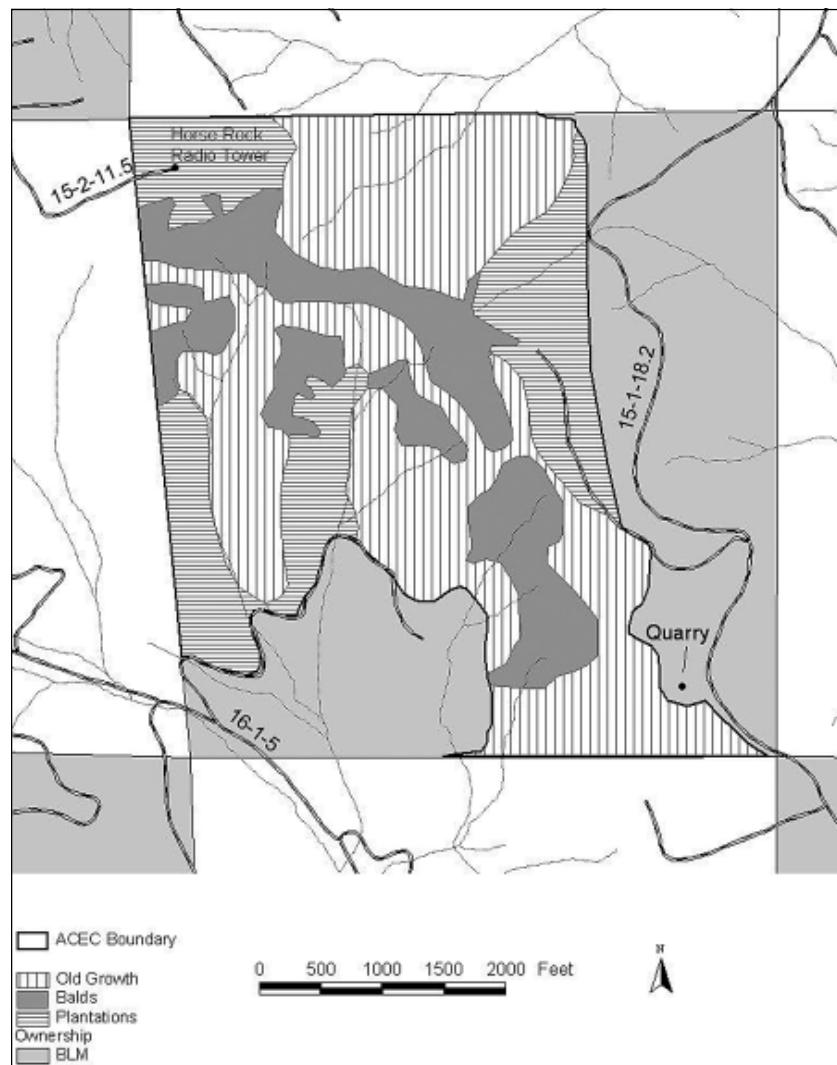
Plant Communities

With 83 acres of openings, Horse Rock Ridge ranks among the largest grass bards in the western Cascades. In addition to grassy openings, the RNA protects forest and rock outcrop communities.

Many species occur in the meadows that are more typical of eastern Oregon, such as prairie junegrass (*Koeleria macrantha*), Sandberg bluegrass (*Poa secunda*) eyelash flower (*Blepharipappus scaber*), and deltoid balsamroot (*Balsamorhiza deltoidea*). Of the three meadow types, the Oregon fescue community occurs on the deepest soils. It is found in moist concave areas, where the soil eroding from surrounding areas was deposited. The blue wildrye community grows on somewhat shallower soils, and is the most widespread type. Lemmon's needlegrass/*Racomitrium canescens* communities occupy the shallowest, gravelly soils and rock outcrops. *Racomitrium* is a bryophyte common on rocky sites; the other species are native grasses. California oatgrass (*Danthonia californica*), prairie junegrass, and Sandberg bluegrass are also common native grasses in the meadows. Vernal pools, seeps, and springs in open areas support common monkeyflower (*Mimulus guttatus*), Nuttall's quillwort (*Isoetes nuttallii*), and Kellogg's rush (*Juncus kelloggii*). The pools are quite small, less than 7 feet in diameter. A succession



Abrupt changes in soil depth create a sharp edge between old growth forest and grass bald. Photo by Cheshire Mayrsohn.



Map of Horse Rock Ridge.

of wildflowers begins in late April and runs through mid-July. Notable wildflowers include deltoid balsamroot, eyelash flower, hyacinth brodiaea (*Triteleia hyacinthina*), Clarkia, *Collinsia*, Menzies' larkspur (*Delphinium menziesii*), dwarf mountain fleabane (*Erigeron compositus* var. *glabratus*), barestem buckwheat (*Eriogonum nudum*), Oregon sunshine (*Eriophyllum lanatum*), common blue cup (*Githopsis specularioides*), spring gold (*Lomatium utriculatum*), and dwarf lupine (*Lupinus lepidus*).

Rock outcrops support a great diversity of lichens and bryophytes, including species of *Racomitrium* and *Umbilicaria*. In addition, rock outcrops provide habitat for a variety of vascular plants: American parsley fern (*Cryptogramma crispa*), gold back fern (*Pentagramma triangularis*), licorice fern (*Polypodium glycyrrhiza*), *Saxifraga*, *Sedum*, and Wallace's spikemoss (*Selaginella wallacei*).

A fringe of bristly manzanita (*Arctostaphylos columbiana*) occurs at the transition where the forest meets the grassland. It is often joined by Oregon white oak (*Quercus garryana*) and Pacific madrone (*Arbutus menziesii*). The forest/meadow ecotone appears to be relatively stable, as it generally consists of old trees, although a few younger trees are invading the meadows. Shrubs common in the ecotonal area include oceanspray (*Holodiscus discolor*), tall Oregon grape (*Berberis aquifolium*), poison oak (*Toxicodendron diversilobum*), and serviceberry (*Amelanchier alnifolia*).

About 293 acres are forested by stands of Douglas fir, bigleaf maple (*Acer macrophyllum*), western hemlock and western red cedar (*Thuja plicata*), with hemlock and cedar mostly on the north-facing slopes. The dense understory of

shrubs and ferns includes salal, Cascade Oregon grape, creeping snowberry, and western swordfern (*Polystichum munitum*). Old growth Douglas fir, probably to 300 years old, reaches 150 feet tall and 5 feet in diameter. Wind-thrown trees that extend into the southern edges of some meadows are thought to date from the 1962 Columbus Day Storm. Where wind-thrown trees were accessible, they were salvaged by logging soon after the storms. Areas clearcut within the RNA prior to its establishment, about 100 acres, are now densely stocked with trees 8 inches in diameter, 28 to 38 years old. The old growth preserved by the RNA is isolated from other old growth stands because the private land surrounding the RNA was clearcut relatively recently. Over the past century, most of the forest land has been harvested in the Coburg Hills, where the pattern of ownership forms a checkerboard of private, federal, and state ownership.

Rare Species

Four species located at the RNA are considered locally or regionally rare. Eyelash flower and common blue cup grow as widely scattered individuals in the meadows and rocky areas. These species are on the Lane County list C, meaning that they are of interest in Lane County for tracking or review purposes. (Although the RNA is in Linn County, it borders Lane County; hence the Lane County list was used to assess locally rare species). These two species are more common in eastern Oregon. The Lane County List of Rare and Endangered Vascular Plants, prepared by the Emerald Chapter of the Native Plant Society, indicates that these species are of limited occurrence in the county, and could be threatened by off road vehicle use. Eyelash flower is a small annual (to 16 inches) in the Asteraceae, with white flowers to $\frac{3}{4}$ inch



In the foreground, bristly manzanita (*Arctostaphylos columbiana*) softens the ecotone between forest and grassland; in the background, a view to the east of the Coburg Hills. Photo by Cheshire Mayrsohn.

across. The annual Campanulaceae, common blue cup, also grows to 16 inches tall, and has deep blue funnel shaped flowers that are about $\frac{1}{2}$ inch long.

Vernally wet seeps or small pools within the bals support Kellogg's rush, a BLM Tracking species, Oregon Natural Heritage Program list 3. It is a small annual species, only 2 inches tall. It has thin stems topped by a small inflorescence, and basal, acicular leaves. Discovered in 1992, the few populations scattered across the RNA are small, most comprising fewer than 50 individuals each.

The crustose lichen *Lecidea dolodes* that grows on the trunks of open grown Douglas fir is currently a BLM Tracking species, and on the Oregon Natural Heritage Program list 3.

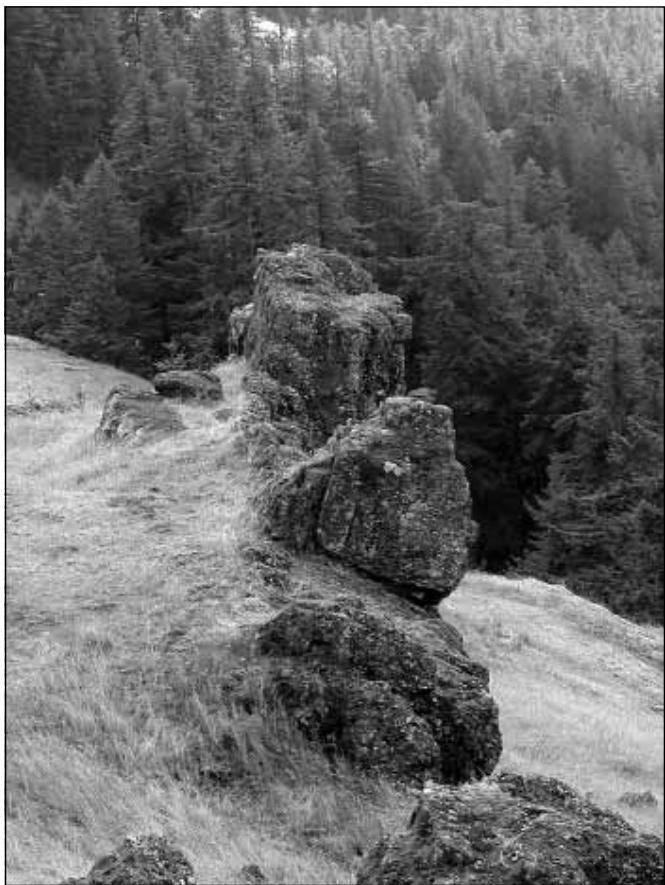


Meadows, rock outcrops, and forests form a mosaic in Horse Rock Ridge RNA. Photo by Cheshire Mayrsohn.

Geology and Soils

The Coburg Hills are a western extension of the Cascade foothills that rise from the east side of the Willamette Valley, bounded by the Calapooia River Valley on the north, and the Mohawk River Valley on the southeast. A main ridge divides the RNA so that about two thirds of the area, including the bals, faces southwest, while the rest faces northwest. Much of the RNA is steep and rocky, with elevations ranging from 1550 to 2864 feet.

The rocks consist of basalt and basaltic andesite dating from the Oligocene and early Miocene, about 24 million years ago. Vesicles formed by gases trapped in the lava were later filled by quartz and zeolite precipitated from water. Basalt with this feature is known as amygdaloidal. The amygdaloids can be found eroded from rock in the RNA. The prominent elongate rock outcrops in the RNA are the result of dikes of fine-grained basalt that formed in cracks in the amygdaloidal basalt. These dikes are more resistant to erosion than the surrounding rocks.



Erosion-resistant basalt dikes provide habitat for a variety of lichens, bryophytes, ferns, and native grasses. Photo by Cheshire Mayrsohn.

In the open areas, soils consist of rock outcrop and entisols, which are relatively young, poorly developed soils (i.e., lack well-defined diagnostic horizons). These entisols are shallow, generally 7 to 14 inches deep (up to 3 feet in partially forested areas), and contain a high proportion of gravel and cobble. In the forested area, most of the soils are in the Kinney Series (Curtis 2003). These soils derive from tuffaceous colluvium and consist of a 15-inch surface layer of cobbly loam over a subsoil of about 20 inches of cobbly clay loam. Depth to bedrock averages 4.5 feet.

Wildlife

Few wildlife surveys have occurred in the area, but a resident black bear, some-

times with cubs, has been sighted over a series of years. Sandhill cranes can be very numerous overhead during their migrations; they migrate along the foothills rather than over the central Willamette Valley. A spotted owl occurs within a mile of the RNA, which is within foraging range of the owl. Golden eagles have been reported near the RNA. It is likely that many other wildlife species use or travel through this area.

Human History

Native Americans of the Kalapuya tribes are thought to have frequented this site for vision quests, as high ridges with a view were generally preferred for these activities.

The meadow area is thought to have been heavily grazed by sheep early in the 20th century, but no grazing has occurred since at least the early 1960s. Evidence of grazing includes the abundance of introduced grasses, such as hedgehog dogtailgrass (*Cynosurus echinatus*), European silver hairgrass (*Aira caryophyllea*), soft brome (*Bromus hordeaceus*), ripgut brome (*B. rigidus*), and medusahead wildrye (*Taeniatherum caput-medusae*). Thirty-four introduced species have invaded the RNA, including the state-listed noxious weeds bull thistle (*Cirsium vulgare*), tansy ragwort (*Senecio jacobaea*), and St. John's wort (*Hypericum perforatum*). Much of the area previously occupied by a blue wildrye community is now dominated by introduced annual grasses. There have been no attempts to control non-native species in the RNA.

As mentioned previously, evidence of harvest activities are visible in portions of the RNA that were clearcut and replanted between 1960 and 1982. A trail created by hikers along the ridge receives occasional use. The RNA has been the destination for botany field



A hiking trail follows the prominent ridge that runs northwest-southeast across the RNA. Photo by Cheshire Mayrsohn.

trips by individuals and classes since the 1970s. A radio tower complex sits atop Horse Rock, in a young forest plantation, on land leased to the Bonneville Power Administration in the northwest corner of the RNA. In 2000, the BLM established permanent transects across the meadow/forest ecotone to monitor vegetation changes. Air quality is also being monitored by chemical analysis of lichens in the area.

Acknowledgments

Additional information was provided by Nancy Wogen and Cheshire Mayrsohn, botanists with the Eugene District BLM. The vascular plant list was compiled by Cheshire Mayrsohn, Nancy Wogen, Alan B. Curtis, John Christy, Peter Zika, Reid Schuller, and Bruce Newhouse. Dr. Bruce McCune compiled the lichen lists. John Christy and Bruce Newhouse compiled the bryophyte lists. All photographs are by Cheshire Mayrsohn.

References

- Curtis AB. 2003. Horse Rock Ridge Research Natural Area: Guidebook Supplement 27. Portland (OR): USDA Forest Service Gen Tech Rep PNW-GTR-571. 30 p.
 Vander Schaaf D. 1993. Horse Rock Ridge RNA/ACEC Management Plan (Draft). Unpublished document on file at BLM Eugene District office.

Vascular Plant Species List

Nomenclature for the vascular plants follows the Oregon Flora Project checklist. Names of taxa native to Oregon are printed in italic *Garamond*; alien taxa are in italic *Gill Sans*, a sans-serif type. Lists for nonvascular plants, fungi and lichens are available on the NPSO website, http://www.npsoregon.org/lists/plantlists/horse_rock_ridge.htm

FERNS AND THEIR ALLIES

DENNSTAEDTIACEAE (Bracken Family)

Pteridium aquilinum (L.) Kuhn var. *pubescens* Underw. (western brackenfern)

DRYOPTERIDACEAE (Wood Fern Family)

Athyrium filix-femina (L.) Mert. (lady fern)

Cystopteris fragilis (L.) Bernh. (brittle fern)

Polystichum munitum (Kaulfuss) K. Presl (western swordfern)

ISOETACEAE (Quillwort Family)

Isoetes nuttallii A. Br. (Nuttall's quillwort)

POLYPODIACEAE (Polypody Family)

Polypodium glycyrrhiza D.C. Eaton (licorice fern)

PTERIDACEAE (Brake Family)

Adiantum aleuticum (Rupr.) C.A. Paris (Aleutian maidenhair)

Aspidotis densa (Brack.) Lellinger (podfern)

Cheilanthes gracillima D.C. Eaton (lace lipfern)

Cryptogramma acrostichoides R. Br. (American parsley fern)

Pentagramma triangularis (Kaulf.) Yatsk., Windham, E. Wollenw. (gold back fern)

SELAGINELLACEAE (Spike-moss Family)

Selaginella wallacei Hieron. (Wallace's spikemoss)

GYMNOSPERMS

CUPRESSACEAE (Cypress Family)

Calocedrus decurrens (Torr.) Florin (incense cedar)

Thuja plicata D. Don (western red cedar)

PINACEAE (Pine Family)

Pseudotsuga menziesii (Mirbel) Franco var. *menziesii* (Douglas fir)

Tsuga heterophylla (Raf.) Sarg. (western hemlock)

TAXACEAE (Yew Family)

Taxus brevifolia Nutt. (Pacific yew)

DICOTYLEDONS

ACERACEAE (Maple Family)

Acer macrophyllum Pursh (bigleaf maple)

Acer circinatum Pursh (vine maple)

Acer glabrum Torr. var. *douglasii* (Hook.) Dippel (Douglas maple)

ANACARDIACEAE (Family)

Toxicodendron diversilobum (Torr. & A. Gray) Greene (poison oak)

APIACEAE (Carrot Family)

Daucus pusillus Michx. (American wild carrot)

Lomatium nudicaule (Nutt.) J.M. Coulter. & Rose (spring gold)

Osmorhiza berteroii DC. (mountain sweet cicely)

Perideridia montana (Blank.) Dorn (Gairdner's yampah)

Sanicula bipinnatifida Douglas ex Hook. (purple snakeroot)

Sanicula crassicaulis Poepp. (Pacific snakeroot)

APOCYNACEAE (Dogbane Family)

Apocynum androsaemifolium L. (spreading dogbane)

ASTERACEAE (Sunflower Family)

Achillea millefolium L. (common yarrow)

Adenocaulon bicolor Hook. (pathfinder)

Anisocarpus madioides Nutt. (woodland tarweed)

Balsamorhiza deltoidea Nutt. (deltoid balsamroot)

Blepharipappus scaber Hook. (eyelash flower)

Cirsium vulgare (Savi) Ten. (bull thistle)

Erigeron compositus Pursh var. *glabratus* Macoun (dwarf mountain fleabane)

Eriophyllum lanatum (Pursh) J. Forbes (Oregon sunshine)

Gnaphalium palustre Nutt. (lowland cudweed)

Hemizonella minima (A. Gray) A. Gray (least tarweed)

Hieracium albiflorum Hook. (white flowered hawkweed)

Hypochaeris glabra L. (smooth cat's ear)

Hypochaeris radicata L. (rough cat's ear)

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

Leontodon hirtus L. (rough hawkbit)

Leucanthemum vulgare Lam. (oxeye daisy)

Madia exigua (Sm.) A. Gray (little tarweed)

Madia gracilis (Sm.) D.D. Keck (slender tarweed)

Senecio integerrimus Nutt. var. *exaltatus* (Nutt.) Cronquist (tall western groundsel)

Senecio jacobaea L. (tansy ragwort)

Sonchus asper (L.) Hill (prickly sowthistle)

Taraxacum officinale Weber ex F.H. Wigg. (common dandelion)

BERBERIDACEAE (Oregon-grape Family)

Achlys triphylla (Sm.) DC. (vanillaleaf)

Berberis aquifolium Pursh (tall Oregon grape)

Berberis nervosa Pursh (Cascade Oregon grape)

BETULACEAE (Birch Family)

Alnus rubra Bong. (red alder)

Corylus cornuta Marshall var. *californica* (A. DC.) W.M. Sharp
(California hazelnut)

BORAGINACEAE (Borage Family)

Cryptantha intermedia (A. Gray) Greene (common cryptantha)
Myosotis discolor Pers. (yellow and blue scorpion grass)
Plagiobothrys scouleri (Hook. & Arn.) I.M. Johnst. var. *scouleri*
(Scouler's popcorn flower)

BRASSICACEAE (Mustard Family)

Arabis glabra (L.) Bernh. (tower mustard)
Athyrsanus pusillus (Hook.) Greene (sandweed)
Barbarea orthoceras Ledeb. (American wintercress)
Brassica rapa L. (field mustard)
Cardamine oligosperma Nutt. (little western bittercress)
Cardamine pulcherrima Greene var. *tenella* (Pursh) C.L. Hitchc.
(slender toothwort)
Draba verna L. (spring whitlowgrass)
Thysanocarpus curvipes Hook. (sand fringepeo)

CALLITRICHACEAE (Water-starwort Family)

Callitricha heterophylla Pursh var. *bolanderi* (Hegelm.) Fassett
(Bolander's water starwort)

Callitricha verna L. (spring starwort)

CAMPANULACEAE (Bellflower Family)

Campanula scouleri Hook. ex A. DC. (Scouler's harebell)
Githopsis specularioides Nutt. (common blue cup)
Heterocodon rariiflorum Nutt. (heterocodon)

CAPRIFOLIACEAE (Honeysuckle Family)

Linnaea borealis L. var. *longiflora* Torr. (western twinflower)
Lonicera ciliosa (Pursh) Poir. ex DC. (orange honeysuckle)
Lonicera hispidula (Lindl.) Douglas ex Torr. & A. Gray (hairy
honeysuckle)
Symporicarpos albus (L.) S.F. Blake (common snowberry)
Symporicarpos mollis Nutt. (creeping snowberry)
Viburnum edule (Michx.) Raf. (highbush cranberry)

CARYOPHYLLACEAE (Pink Family)

Arenaria serpyllifolia L. (thyme leaf sandwort)
Cerastium nutans Raf. (nodding chickweed)
Cerastium glomeratum Thuill. (sticky chickweed)
Minuartia tenella (Nutt.) Mattf. (slender sandwort)
Moehringia macrophylla (Hook.) Fenzl (bigleaf sandwort)
Silene gallica L. (windmill pink)
Stellaria nitens Nutt. (shining chickweed)

CELASTRACEAE (Staff-tree Family)

Paxistima myrsinifolia (Pursh) Raf. (Oregon boxwood)

CORNACEAE (Dogwood Family)

Cornus nuttallii Audubon ex Torr. & A. Gray (Pacific dogwood)

CUCURBITACEAE (Gourd Family)

Marah oregana (Torr. & A. Gray) Howell (old man in the ground)

CRASSULACEAE (Stonecrop Family)

Sedum lanceolatum Torr. (lanceleaf stonecrop)
Sedum oreganum Nutt. (Oregon stonecrop)

Sedum spathulifolium Hook. (Pacific stonecrop)

ERICACEAE (Heath Family)

Arbutus menziesii Pursh (Pacific madrone)
Arctostaphylos columbiana Piper (bristly manzanita)
Chimaphila menziesii (R. Br.) Spreng. (little prince's pine)
Chimaphila umbellata (L.) W. Bartram (prince's pine)
Gaultheria shallon Pursh (salal)
Vaccinium parvifolium Sm. (red huckleberry)

EUPHORBIACEAE (Spurge Family)

Euphorbia peplus L. (petty spurge)

FABACEAE (Legume Family)

Lathyrus polyphyllus Nutt. (leafy peavine)
Lotus micranthus Benth. (field lotus)
Lupinus bicolor Lindl. (miniature lupine)
Lupinus lepidus Douglas ex Lindl. (dwarf lupine)
Rupertia physodes (Hook.) J.W. Grimes (scurf pea)
Trifolium microcephalum Pursh (woolly clover)
Trifolium microdon Hook. & Arn. (thimble clover)
Trifolium repens L. (white clover)

Trifolium subterraneum L. (subterranean clover)

Trifolium variegatum Nutt. (whitetip clover)

Trifolium willdenovii Spreng. (tomcat clover)

Trifolium wormskjoldii Lehm. (springbank clover)

Vicia americana Muhl. ex Willd. (American vetch)

Vicia nigra Hook. & Arn. var. *gigantea* (Hook.) S.L. Broich
(giant vetch)

FAGACEAE (Oak Family)

Chrysolepis chrysophylla (Douglas ex Hook.) Hjelmq. (chinquapin)
Quercus garryana Douglas ex Hook. (Oregon white oak)

FUMARIACEAE (Fumitory Family)

Dicentra formosa (Andrews) Walp. (bleeding heart)

GENTIANACEAE (Gentian Family)

Centaurium muhlenbergii (Griseb.) W. Wight ex Piper (Monterey
centaury)

GERANIACEAE (Geranium Family)

Erodium cicutarium (L.) L'Hér. ex Aiton (redstem filaree)

Geranium dissectum L. (cutleaf geranium)

Geranium molle L. (dovefoot geranium)

GROSSULARIACEAE (Gooseberry Family)

Ribes sanguineum Pursh (red flowering currant)

HYDRANGEACEAE (Hydrangea Family)

Philadelphus lewisii Pursh (syringa)

Whipplea modesta Torr. (yerba de selva)

HYDROPHYLLACEAE (Waterleaf Family)

Nemophila parviflora Douglas ex Benth. (small flowered nemophila)

Phacelia linearis (Pursh) Holz. (threadleaf phacelia)

Phacelia nemoralis Greene (woodland phacelia)

Phacelia sericea (Graham) A. Gray var. *ciliosa* (Rydb.) J.M. Gillett
(blue alpine phacelia)

HYPERICACEAE (St. John's Wort Family)

Hypericum perforatum L. (Klamathweed)

LAMIACEAE (Mint Family)

Prunella vulgaris L. (self heal)

Satureja douglasii (Benth.) Briq. (yerba buena)

Stachys cooleyae A. Heller (great betony)

Trichostema lanceolatum Benth. (vinegar weed)

LINACEAE (Flax Family)

Linum usitatissimum L. (linseed)

MALVACEAE (Mallow Family)

Sidalcea virgata Howell (rose checkermallow)

ONAGRACEAE (Evening Primrose Family)

Circaeae alpina L. (enchanter's nightshade)

Clarkia amoena (Lehm.) A. Nelson & J.F. Macbr. (farewell to spring)

Clarkia gracilis (Piper) A. Nelson & J.F. Macbr. (slender godetia)

Clarkia purpurea (Curtis) A. Nelson & J.F. Macbr. (winecup fairyfan)

Epilobium brachycarpum C. Presl (tall annual willowherb)

Epilobium minutum Lindl. (small flowered willowherb)

OROBANCHACEAE (Broom-rape Family)

Orobanche fasciculata Nutt. (clustered broomrape)

Orobanche uniflora L. var. *minuta* (Suksd.) Beck (naked broomrape)

Orobanche uniflora L. var. *purpurea* (A. Heller) Achey (purple broomrape)

OXALIDACEAE (Oxalis Family)

Oxalis oregana Nutt. ex Torr. & A. Gray (Oregon wood sorrel)

PLANTAGINACEAE (Plantain Family)

Plantago lanceolata L. (English plantain)

POLEMONIACEAE (Phlox Family)

Collomia heterophylla Hook. (varied leaf collomia)

Gilia capitata Sims (bluefield gilia)

Linanthus bicolor (Nutt.) Greene (bicolored linanthus)

Phlox adsurgens Torr. (woodland phlox)

Phlox gracilis (Hook.) Greene (slender phlox)

POLYGONACEAE (Buckwheat Family)

Eriogonum nudum Douglas ex Benth. (barestem buckwheat)

Rumex acetosella L. (sheep sorrel)

Rumex crispus L. (curly dock)

PORTULACACEAE (Purslane Family)

Claytonia exigua Torr. & A. Gray ssp. *exigua* (pale springbeauty)

Claytonia perfoliata Donn ex Willd. (miner's lettuce)

Claytonia sibirica L. (candyflower)

Montia parvifolia (Moç. ex DC.) Greene (littleleaf miner's lettuce)

PRIMULACEAE (Primrose Family)

Dodecatheon hendersonii A. Gray (Henderson's shooting star)

Dodecatheon pulchellum (Raf.) Merr. var. *pulchellum* (yellowthroat shooting star)

Trifoliate latifolia Hook. (western starflower)

RANUNCULACEAE (Buttercup Family)

Anemone deltoidea Hook. (threeleaf anemone)

Aquilegia formosa Fisch. ex DC. (red columbine)

Delphinium menziesii DC. (Menzies' larkspur)

Ranunculus occidentalis Nutt. var. *occidentalis* (western buttercup)

Thalictrum occidentale A. Gray (western meadowrue)

ROSACEAE (Rose Family)

Prunus emarginata (Douglas ex Hook.) Walp. (bitter cherry)

Amelanchier alnifolia (Nutt.) Nutt. ex M. Roem. (serviceberry)

Crataegus monogyna Jacq. (English hawthorn)

Fragaria vesca L. var. *crinita* (Rydb.) C.L. Hitchc. (hairy woodland strawberry)

Fragaria virginiana Duchesne var. *platypetala* (Rydb.) H.M. Hall (broad petal strawberry)

Holodiscus discolor (Pursh) Maxim. (creambush oceanspray)

Physocarpus capitatus (Pursh) Kuntze (Pacific ninebark)

Potentilla glandulosa Lindl. var. *glandulosa* (sticky cinquefoil)

Rosa gymnocarpa Nutt. (little wild rose)

Rubus leucodermis Douglas ex Torr. & A. Gray (western black raspberry)

Rubus parviflorus Nutt. (thimbleberry)

Rubus ursinus Cham. & Schldl. (Pacific dewberry)

RHAMNACEAE (Buckthorn Family)

Rhamnus purshiana DC. (cascara)

Ceanothus sanguineus Pursh (redstem ceanothus)

Ceanothus velutinus Douglas ex Hook. (tobacco brush)

RUBIACEAE (Madder Family)

Galium oreganum Britton (Oregon bedstraw)

Galium aparine L. (cleavers)

Galium triflorum Michx. (sweetscented bedstraw)

Kelloggia galiooides Torr. (kelloggia)

Sherardia arvensis L. (blue fieldmadder)

SALICACEAE (Willow Family)

Salix geyeriana Andersson (Geyer's willow)

Salix scouleriana Barratt ex Hook. (Scouler's willow)

Salix sitchensis Sanson ex Bong. (Sitka willow)

SAXIFRAGACEAE (Saxifrage Family)

Heuchera micrantha Douglas ex Lindl. var. *micrantha* (crevice alumroot)

Lithophragma parviflorum (Hook.) Nutt. ex Torr. & A. Gray (small-flowered fringe cup)

Saxifraga cespitosa L. (tufted alpine saxifrage)

Saxifraga integrifolia Hook. (common western saxifrage)

Saxifraga nuttallii Small (Nuttall's saxifrage)

Saxifraga occidentalis S. Watson (western mountain saxifrage)

SCROPHULARIACEAE (Figwort Family)

Castilleja attenuata (A. Gray) T.I. Chuang & Heckard (narrowleaf paintbrush)

Castilleja hispida Benth. var. *hispida* (harsh paintbrush)

Castilleja tenuis (A. Heller) T.I. Chuang & Heckard (hairy owl clover)

Collomia grandiflora Douglas ex Lindl. (large flowered blue eyed Mary)

Collomia parviflora Douglas ex Lindl. (small flowered blue eyed Mary)

Digitalis purpurea L. (foxglove)

Gratiola ebracteata Benth. ex A. DC. (bractless hedge hyssop)

Mimulus alsinoides Douglas ex Benth. (chickweed monkeyflower)

Mimulus guttatus DC. (common monkeyflower)

Nothochelone nemorosa (Douglas ex Lindl.) Straw (woodland beardtongue)

Synthyris reniformis (Douglas ex Benth.) Benth. (snow queen)

Triphysaria pusilla (Benth.) T.I. Chuang & Heckard (dwarf owl clover)

Veronica arvensis L. (common speedwell)

VALERIANACEAE (Valerian Family)

Plectritis congesta (Lindl.) DC. (sea blush)

Valeriana sitchensis Bong. (mountain heliotrope)

VIOLACEAE (Violet Family)

Viola sempervirens Greene (evergreen violet)

MONOCOTYLEDONS

CYPERACEAE (Sedge Family)

Carex rossii W. Boott (Ross sedge)

IRIDACEAE (Iris Family)

Iris chrysophylla Howell (slender tubed iris)

Iris tenax Douglas ex Lindl. (Oregon iris)

JUNCACEAE (Rush Family)

Juncus bufonius L. (toad rush)

Juncus kelloggii Engelm. (Kellogg's rush)

Luzula comosa E. Mey. (Pacific woodrush)

LILIACEAE (Lily Family)

Allium acuminatum Hook. (tapertip onion)

Allium amplectens Torr. (slim leaf onion)

Allium crenulatum Wiegand (scalloped onion)

Brodiaea coronaria (Salisb.) Engl. (crown brodiaea)

Calochortus tolmiei Hook. & Arn. (Tolmie's mariposa)

Camassia leichtlinii (Baker) S. Watson (large camas)

Dichelostemma congestum (Sm.) Kunth (ookow)
Erythronium oregonum Applegate (Oregon fawnlily)
Fritillaria affinis (Schult.) Sealy (checker lily)
Maianthemum stellatum (L.) Link (starry false Solomon's seal)
Prosartes smithii (Hook.) Utech, Shinwari & Kawano
 (largeflower fairybells)
Trillium ovatum Pursh (western wakerobin)
Triteleia hyacinthina (Lindl.) Greene (hyacinth brodiaea)
Zigadenus venenosus S. Watson var. *venenosus* (meadow deathcamas)
POACEAE (Grass Family)
Achnatherum lemmoni (Vasey) Barkworth (Lemmon's needlegrass)
Agrostis capillaris L. (colonial bentgrass)
Agrostis exarata Trin. (spike bentgrass)
Aira caryophyllea L. (European silver hairgrass)
Aira praecox L. (little hairgrass)
Bromus hordeaceus L. ssp. *hordeaceus* (soft brome)
Bromus orcuttianus Vasey (Orcutt's brome)
Bromus pacificus Shear (Pacific brome)
Bromus rigidus Roth (ripgut brome)
Cynosurus echinatus L. (hedgehog dogtailgrass)
Danthonia californica Bol. (California oatgrass)
Elymus glaucus Buckley (blue wildrye)
Festuca occidentalis Hook. (western fescue)
Festuca roemeri Yu.E. Alexeev (Oregon fescue)
Festuca subulata Trin. (nodding fescue)
Holcus lanatus L. (common velvetgrass)
Hordeum marinum Huds. ssp. *gussonianum* (Parl.) Thell.
 (Mediterranean barley)
Koeleria macrantha (Ledeb.) Schult. (junegrass)
Melica subulata (Griseb.) Scribn. (Alaska oniongrass)
Poa pratensis L. (Kentucky bluegrass)
Poa secunda J. Presl (Sandberg bluegrass)
Trisetum canescens Buckley (tall trisetum)
Vulpia microstachys (Nutt.) Munro ex Benth. (small fescue)
Vulpia myuros (L.) C.C. Gmel. (foxtail fescue)
ORCHIDACEAE (Orchid Family)
Calypso bulbosa (L.) Oakes (fairy slipper orchid)
Corallorrhiza maculata (Raf.) Raf. (spotted coralroot)
Goodyera oblongifolia Raf. (rattlesnake plantain)
Piperia elegans (Lindl.) Rydb. (elegant rein orchid)
Spiranthes romanzoffiana Cham. (hooded ladies tresses)

Douglas Goldenberg is a botanist currently working with the Eugene District BLM. He has worked since 1989 as a botanist, with work in Oregon, California, Washington and Brazil. He completed biology and botany degrees at Humboldt State University (BS) and Oregon State University (MS).

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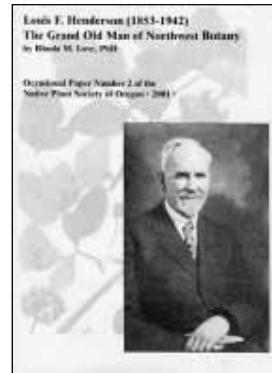


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