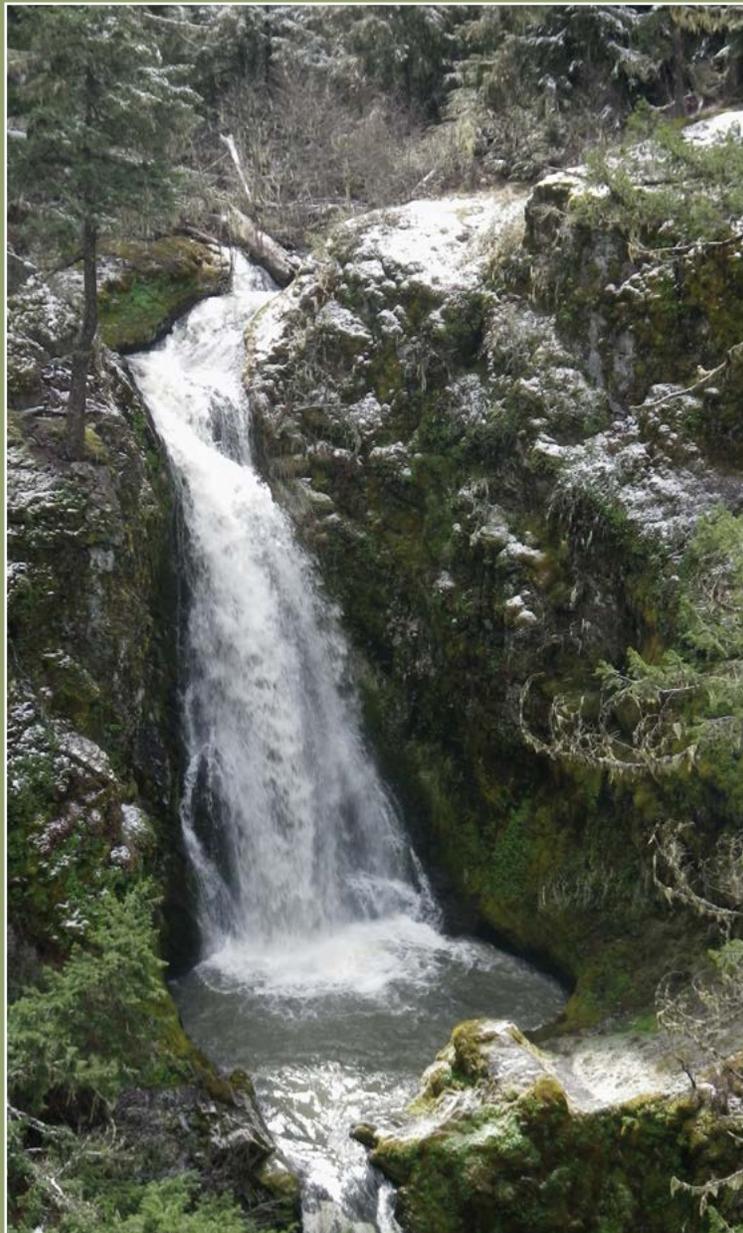




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Lost Lake Research Natural Area: Guidebook Supplement 48

Reid Schuller and Bryan Wender



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Authors

Reid Schuller is a plant ecologist, Western Stewardship Science Institute, P.O. Box 1173, Bend, OR 97709; **Bryan Wender** is a botanist with the Medford District, Bureau of Land Management, Grants Pass, OR 97526.

The Pacific Northwest Research Station is publishing this guidebook as part of a continuing series of guidebooks on federal research natural areas that began in 1972.

Cover photograph: Lost Lake Creek and plunge pool, Lost Lake Research Natural Area by Jonas Parker.

Abstract

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This guidebook describes major biological and physical attributes of the 155-ha (384-ac) Lost Lake Research Natural Area (RNA), in Jackson County, Oregon. The RNA has been designated because it contains examples of a landslide-dammed lake; and a low-elevation lake with aquatic beds and fringing marsh, surrounded by mixed-conifer forest (ONHAC 2010).

Keywords: Research natural area, area of critical environmental concern, landslide-dammed lake, mixed-conifer forest, glade, white fir (*Abies concolor*), Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), Pacific madrone (*Arbutus menziesii*), Oregon white oak (*Quercus garryana*), California black oak (*Quercus kelloggii*).

Preface

The research natural area (RNA) described in this supplement¹ is administered by the Medford District, Bureau of Land Management (BLM), U.S. Department of the Interior.

Lost Lake RNA is part of a federal system² of natural areas established for research and educational purposes.³ Of the 183 federal RNAs established in Oregon and Washington, 45 are described in *Federal Research Natural Areas in Oregon and Washington: a Guidebook for Scientists and Educators* (see footnote 1). This report is a supplement to the guidebook.

Each RNA is a site where elements⁴ are protected or managed for scientific purposes and natural processes are allowed to dominate. The objectives for establishing research natural areas are to:

- Maintain a wide spectrum of high-quality areas that represent the major forms of variability found in forest, shrubland, grassland, alpine, and natural situations that have scientific interest and importance that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity.
- Preserve and maintain genetic diversity, including threatened, endangered, and sensitive species.
- Protect against human-caused environmental disruptions.
- Serve as reference areas for the study of natural ecological processes, including disturbance.
- Provide onsite and extension educational activities.
- Serve as baseline areas for measuring long-term ecological changes.

¹Supplement No. 43 to Franklin, J.F.; Hall, F.C.; Dyrness, C.T.; Maser, C. 1972. Federal research natural areas in Oregon and Washington: a guidebook for scientists and educators. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 498 p.

²Six federal agencies cooperate in this program in the Pacific Northwest: U.S. Department of the Interior, Bureau of Land Management, Fish and Wildlife Service, and National Park Service; U.S. Department of Agriculture, Forest Service; U.S. Department of Energy; and U.S. Department of Defense. In addition, the federal agencies cooperate with state agencies and private organizations in Oregon and Washington in the Pacific Northwest Interagency Natural Area Committee. Taken from Wilson, T.M.; Schuller, R.; Holmes, R.; Pavola, C.; Fimbel, R.A.; McCain, C.N.; Gamon, J.G.; Speaks, P.; Seevers, J.I.; DeMeo, T.E.; Gibbons, S. 2009. Interagency strategy for the Pacific Northwest Natural Areas Network. Gen. Tech. Rep. PNW-GTR-798. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 33 p.

³See Wilson et al. (2009) for a more complete discussion of rationale for establishment of research natural areas.

⁴Elements are the basic units to be represented in a natural area system. An element may be an ecosystem, community, habitat, or organism. Taken from Dyrness, C.T.; Franklin, J.F.; Maser, C.; Cook, S.A.; Hall, J.D.; Faxon, G. 1975. Research natural area needs in the Pacific Northwest: a contribution to land-use planning. Gen. Tech. Rep. PNW-38. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 231 p.

- Serve as control areas for comparing results from manipulative research.
- Monitor effects of resource management techniques and practices.

The guiding principle in managing RNAs is to maintain natural ecological processes or conditions for which the site is designated. Activities that impair scientific or educational values are not permitted within RNAs. Management practices necessary to maintain or restore ecosystems may be allowed.

Federal RNAs provide a unique system of publicly owned and protected examples of relatively unmodified ecosystems where scientists can conduct research with minimal interference and reasonable assurance that investments in long-term studies will not be lost to logging, land development, or similar activities. Scientists and educators wishing to visit or use Lost Lake RNA for scientific or educational purposes should contact the Medford BLM district office manager in advance and provide information about research or educational objectives, sampling procedures, and other prospective activities. Research projects, educational visits, and collection of specimens from the RNA require prior approval. There may be limitations on research or educational activities.

A scientist or educator wishing to use the RNA is obligated to:

- Obtain permission from the appropriate administering agency before using the area (see footnote 2)
- Abide by the administering agency's regulations governing use, including specific limitations on the type of research, sampling methods, and other procedures.
- Inform the administering agency on progress of the research, published results, and disposition of collected materials.

The purpose of this approval process is to:

- Ensure that the ecological integrity and scientific and educational values of the RNA are not compromised.
- Provide information to scientists about other research occurring on the RNA so that potential collaborations may be fostered and conflicts avoided.
- Maintain records of research activities and research results to benefit the BLM, other agencies, and future researchers.

Appropriate uses of RNAs are determined by the administering agency.

Destructive analysis of vegetation is generally not allowed, nor are studies requiring extensive substrate modification such as soil excavation. Collection of plant and animal specimens is generally restricted to voucher specimens or approved research activities. Under no circumstances may collecting significantly reduce species populations. Collecting must also be carried out in accordance with all other federal and state agency regulations.

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Introduction

Lost Lake Research Natural Area (RNA) is located approximately 24 km (14.9 mi) east-northeast of Ashland, Oregon, in Jackson County. The 155-ha (383-ac) site was established as an Area of Critical Environmental Concern/RNA in 1995. This management designation was subsequently reaffirmed in the Medford District Resource Management Plan (Federal Register 1995, USDI BLM 1995).

The RNA has been designated because it contains examples of a landslide-dammed lake, and a low-elevation lake with aquatic beds and fringing marsh, surrounded by mixed-conifer forest within the Western Cascades ecoregion (ONHAC 2010).

Access and Accommodations

The RNA is located in Section 35, Township 37 South, Range 2 East, Willamette Meridian, in Jackson County, Oregon. To access the eastern portion of the RNA starting at the intersection of highways 140 and 62 in White City, Oregon, proceed east on highway 140 for 20.1 km (12.5 mi) (fig. 1). Turn right at Lake Creek Loop Road and proceed on a paved road, bearing right onto S. Fork Little Butte Creek Road at 22.4 km (13.6 mi), passing Lake Creek Store at 22.7 km (14.1 mi). Continue to 35.9 km (22.3 mi) and turn right onto Soda-Conde Road (38-3E-17) at a sign reading, “Dead Indian Road 11 miles.” At 36.0 km (22.4 mi), proceed over a cattle guard onto Conde Creek Road 38-3E-17 (sign along roadside). Continue to 43.0 km (26.7 mi), and turn right onto gravel road 37-3E-32, located within an old clearcut. Take the fork (on the main gravel road) onto 37-3E-31 at 43.6 km (27.1 mi). At 44.4 km (27.6 mi), take a right fork (do not take the road with the sign that reads “37-3E-32”) and continue to 46.2 km (28.7 mi). Take a right on top of a “flat” to 37-2E-36.4 (where a sign reads “36.4”). Continue to 47.2 km (29.3 mi), and take a right onto 37-2E-13. At 47.8 km (29.7 mi), bear left onto 37-2E-36.1. Continue to 49.6 km (30.8 mi) and park. Walk about 0.7 miles on 4-wheel-drive track to the end of the road. From this point, the Lost Lake RNA boundary is 250 m (820 ft), at a bearing of 240° from the road’s end (fig. 1).

Prior to visiting the site, obtain permission to access the area for research or educational purposes at the Bureau of Land Management (BLM) Medford District office in Medford, Oregon. Maps and additional directions to the area are available at this office. Lodging is available in Ashland, Oregon, and Medford, Oregon.

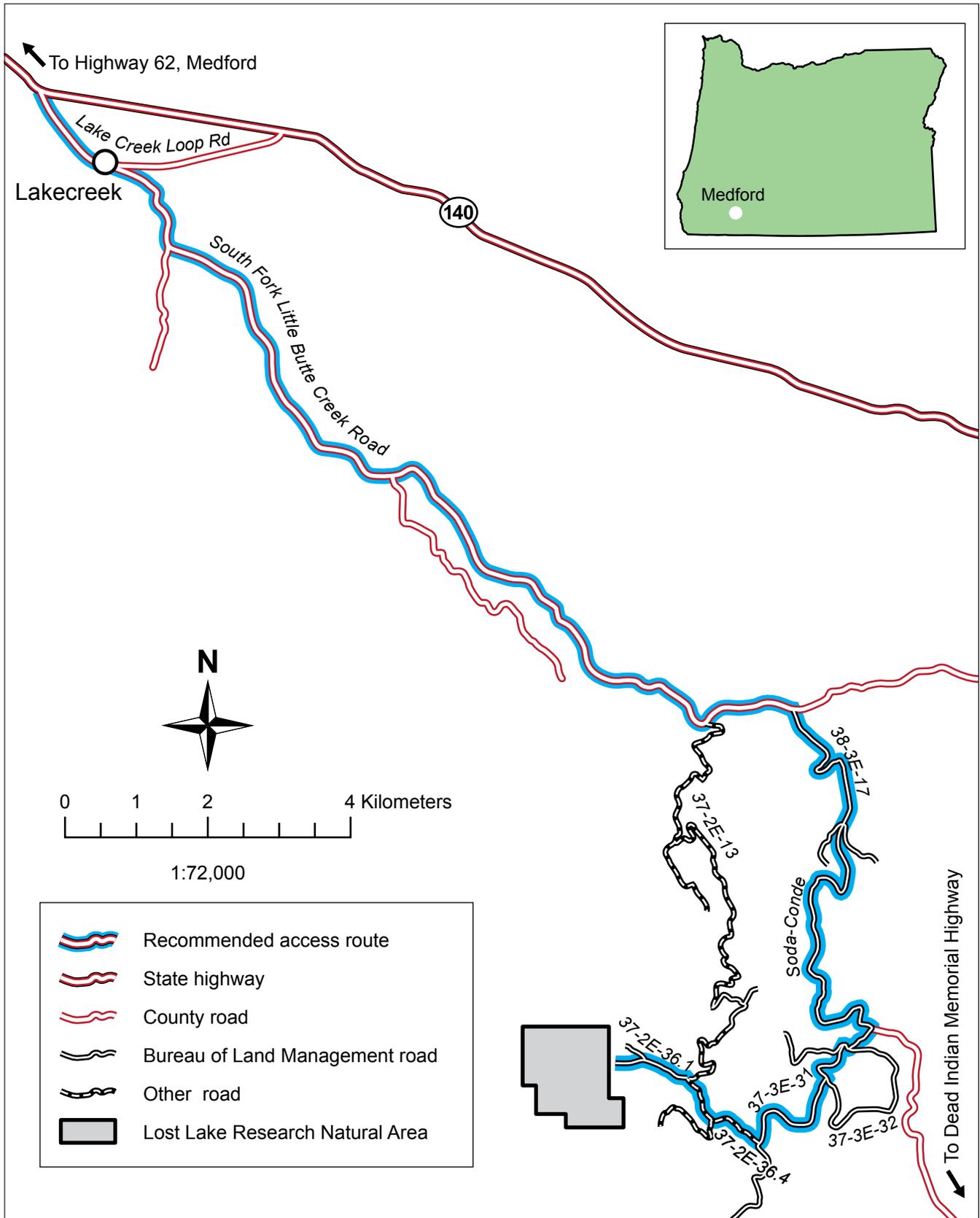


Figure 1—Lost Lake Research Natural Area location and access.

Environment

The RNA is situated within the Lost Creek drainage basin in the southern Oregon Cascade Mountains. Elevations within the RNA range from 1066 m (3,497 ft) at the northern RNA boundary adjacent to Lost Lake to 1372 m (4,501 ft) on the upper slopes of the south boundary (fig. 2). Lost Creek flows northwest over a 25-m-tall (82 ft) waterfall into a narrow rock canyon 46 to 61 m (150 to 200 ft) in height (fig. 2). Before reaching Lost Lake, Lost Creek flows underground beneath a series of step-like alluvial terraces, each of these likely representing a former lake level. The creek resurfaces before draining into the lake in the northwestern part of the RNA. Lost Lake was formed by a landslide that occurred thousands of years ago, obstructing the natural flow of Lost Creek (PNWINAN 2013, USDI BLM 1988). Slopes within the RNA predominantly face northeast to northwest and are steeply inclined, approaching the angle of repose. The upper reaches of Lost Creek occur outside of the RNA to the southeast.

Bedrock geology consists of lava flows, volcanic tuff, and breccia of the Western Cascade Range. Large unfissured rock faces occur just downstream of the waterfall. Mantle creep and rock slides are present in this area. A large portion of the upland forest is covered with cobble and rock fragments (PNWINAN 2013, USDI BLM 1988).

Three major soil complexes make up the area. Soils are clayey and loamy, represented by McNull, McMullin, and Medco soil series (USDA NRCS 2013a, USDI BLM 1988). McNull soils and Medco soils have formed in colluvium from andesite, tuff, and breccia. They are moderately deep well-drained, and occur on moderate to steep slopes. McMullin soils have formed in colluvium derived from igneous rock. They are generally shallow and well-drained. The Medco-McMullin soil complex and the McNull-McMullin soil complexes are widely distributed within the RNA (USDA NRCS 2013a, USDA SCS 1993, USDI BLM 1988).

Climate

The Lost Lake RNA has a Mediterranean-like climate of hot, dry summers and cool, wet winters. Most precipitation is received as rainfall. From late fall through spring, unstable low-pressure air masses from the Pacific Ocean bring frequent storms, sometimes accompanied by high winds. During the summer, stable high-pressure air masses generally bring clear skies and temperature inversions (USDA SCS 1993).

The Howard Prairie Dam, Oregon, weather station, is located about 24 km (15 mi) from Lost Lake at 1402 m (4,600 ft) elevation. Extended periods of cloudiness and heavy periods of precipitation occur during the winter. About 70 percent of average annual precipitation falls from November through March.

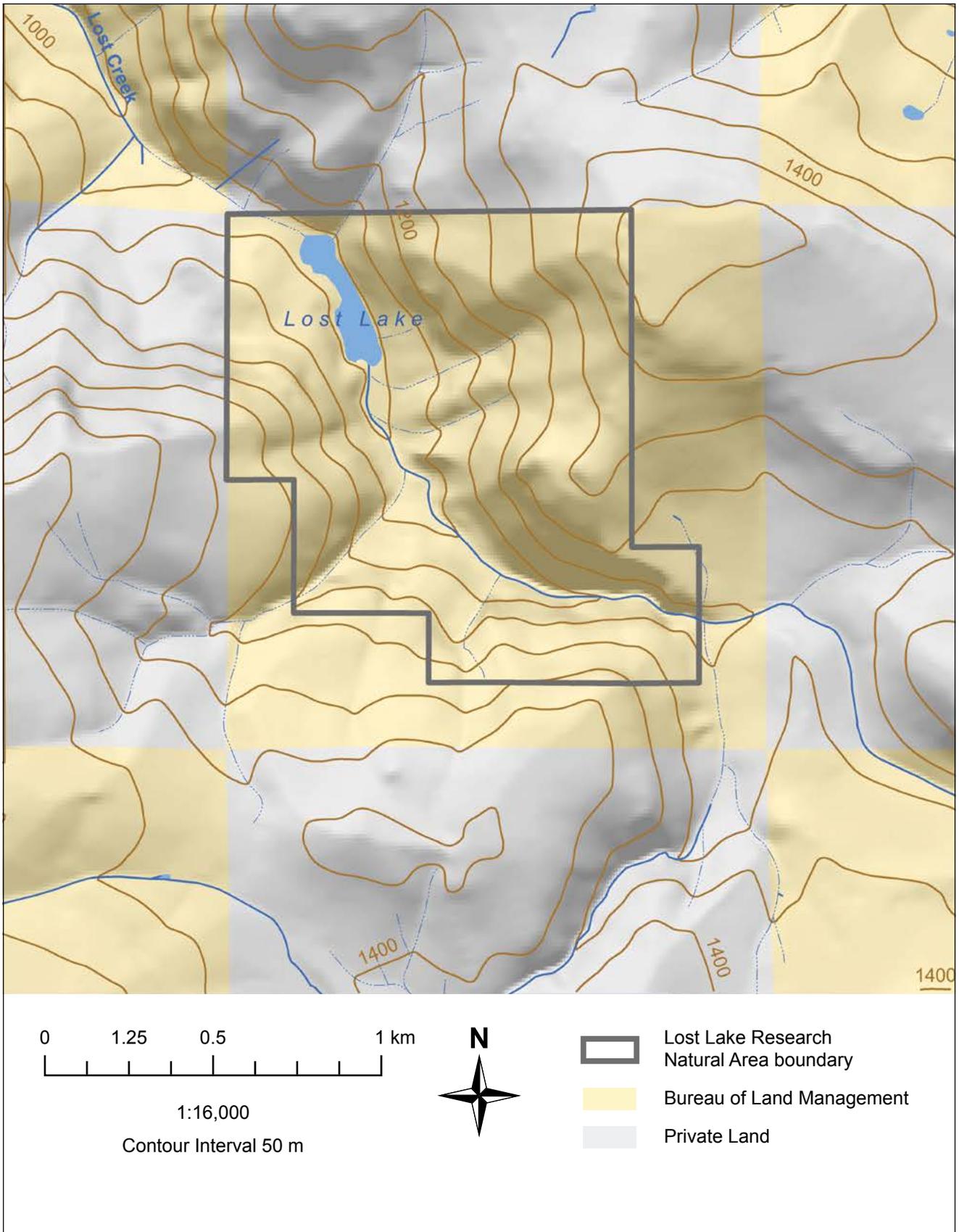


Figure 2—Lost Lake Research Natural Area topography, elevation, hydrology, and boundary.

Precipitation occurs primarily as rain and averages 818 mm (32.2 in) per year. Thirteen percent of the average annual precipitation falls from May through August. Snowfall typically begins in November and often extends through April. January receives the heaviest average snowfall of 729 mm (28.7 in) (WRCC 2013). Table 1 provides an approximation of precipitation and temperature regimes affecting the area.

Table 1—Temperature and precipitation summary; period of record: 9/21/1960 to 9/30/2012, Howard Prairie Dam, Oregon

Average minimum January temperature	0.8°C (20.5°F)
Average maximum January temperature	7.9°C (37.3 °F)
Average minimum July temperature	10.8°C (44.9 °F)
Average maximum July temperature	28.0°C (79.1 °F)
Average annual precipitation	1145 mm (32.2 in)
Average June–August precipitation	63 mm (2.34 in)

Vegetation

Forest canopies are dominated by Douglas-fir (*Pseudotsuga menziesii*) and scattered stands containing old-growth sugar pine (*Pinus lambertiana*) and ponderosa pine (*Pinus ponderosa*). White fir (*Abies concolor*) occupies the forest canopy and subcanopy in some areas, and occurs sporadically as a sapling in other areas, or does not occur at all. Incense cedar (*Calocedrus decurrens*) and Pacific madrone (*Arbutus menziesii*) often occur as minor components of the mid- and sub-canopy in mixed stands. Both structural and compositional differences between stands characterize the forest stands at Lost Lake. Figure 3 illustrates conditions present in monitoring plots 947 and 948, where light penetrates the semi-open canopy, resulting in a mixture of coniferous and deciduous tree species and a moderate shrub and herb diversity. Figure 4 shows tree density by species and diameter-at-breast-height (d.b.h.) size class in the more open forest stands. The closed-canopy conditions in monitoring plots 271 and 399, located in another part of the RNA, are illustrated in figure 5, where less light penetrates to the forest floor, resulting in a depauperate understory. Tree reproduction in these areas is predominately white fir. Figure 6 shows tree density by species and d.b.h. size class in these presumably more mesic sites. Large trees (e.g., d.b.h. > 85 to 105 cm) occur in all four plots (Schuller et al. 2013).



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Figure 3—Understory conditions beneath semi-open Douglas-fir canopy where sunlight penetrates to the forest floor. Note the vigor of understory tree reproduction and the relative abundance of low Cascade barberry (*Berberis nervosa*).

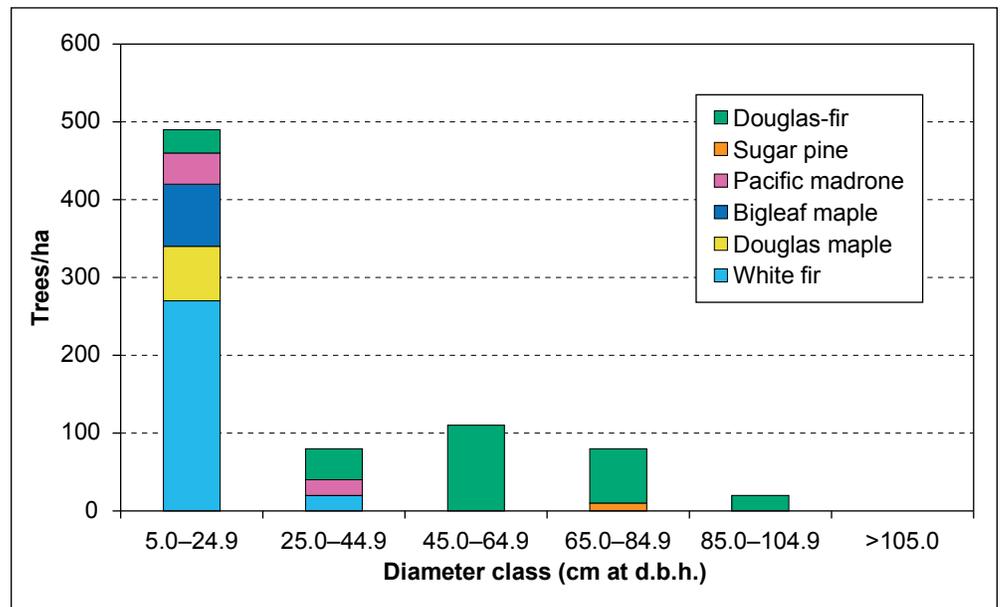


Figure 4—Diameter class distribution of trees within two permanent vegetation plots, 947 and 948, Lost Lake Research Natural Area.



Brian Wender

Figure 5—Understory conditions beneath closed-canopy Douglas-fir–white fir-dominated forest. Sunlight seldom reaches the forest floor which has contributed to a depauperate understory and a lower number of tree species.

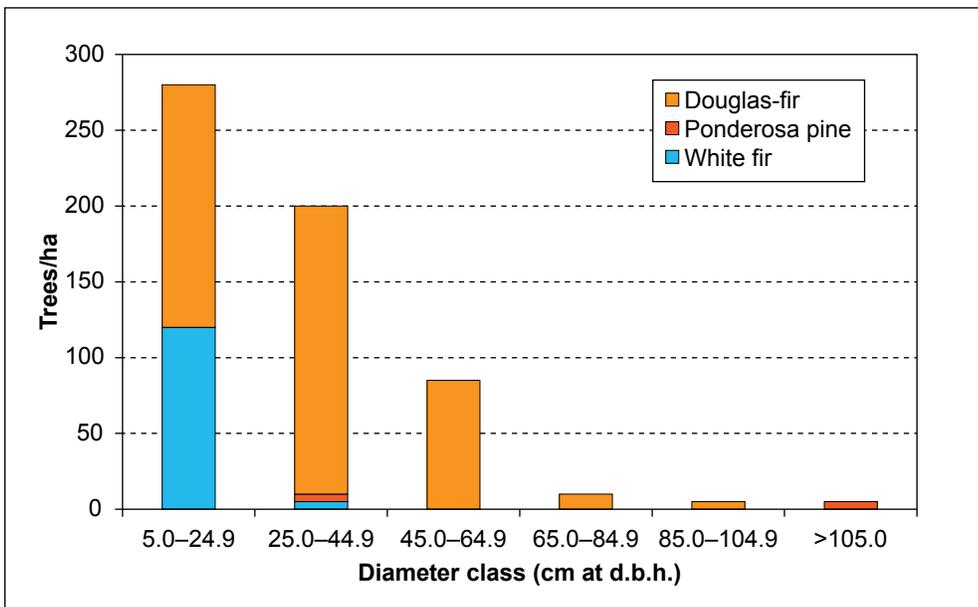


Figure 6—Diameter-class distribution of trees within two permanent vegetation plots, 271 and 899, Lost Lake Research Natural Area.

The distribution of forested and nonforested cover types occurring within the RNA is shown in figure 7. Table 2 shows the typical shrub and herbaceous species that occur beneath the conifer stands (Schuller et al. 2013). Numerous small glades are present within the conifer forest matrix. Here, Oregon white oak (*Quercus garryana*) and California black oak (*Quercus kelloggii*) patches alternate with small canopy openings on the driest sites, where soils are shallow and rock rubble is present. Other characteristic tree species include giant chinquapin (*Chrysolepis chrysophylla*) in drier areas, and Pacific yew (*Taxus brevifolia*) in more mesic sites. Bigleaf maple (*Acer macrophyllum*) occurs as an overstory dominant surrounding Lost Lake and the stream terraces up to the waterfalls (USDI BLM 1988).

Shrubs are conspicuous beneath most of the conifer forest (fig. 8). Major tall shrubs include western serviceberry (*Amelanchier alnifolia*) and oceanspray (*Holodiscus discolor*). Holly leaved barberry (*Berberis aquifolium*) and common whipplea (*Whipplea modesta*) are major shrubs west of Lost Lake, while Cascade barberry (*Berberis nervosa*) is the major low shrub on the east side of the lake. Birchleaf mountain mahogany (*Cercocarpus betuloides* var. *betuloides*) is conspicuous within glades and openings in semi-closed conifer forest. Many other shrub species occur within the RNA, but most often in small patches and as scattered individuals.

Numerous herbaceous species occur within the RNA. Within the conifer forest, crevice alumroot (*Heuchera micrantha*), pale bellflower (*Campanula scouleri*), broadleaf starflower (*Trientalis borealis* ssp. *latifolia*), pipsissewa (*Chimaphila umbellata* ssp. *occidentalis*), and leafy pea (*Lathyrus polyphyllus*) are typical herbs. Grasses such as Alaska oniongrass (*Melica subulata*), western fescue (*Festuca occidentalis*), bearded fescue (*Festuca subulata*) and California fescue (*Festuca californica*) are common species in the forest and the meadows.

Ferns are abundant in some areas. Western swordfern (*Polystichum munitum*) occupies mesic sites in the forest understory. Rock faces and boulders support xerophytic species such as coffee cliffbrake (*Pellaea andromedifolia*) and arrowleaf swordfern (*Polystichum imbricans*), along with the herb creamy stonecrop (*Sedum oregonense*).

Lists of scientific names and common names for vascular plants, lichens, bryophytes, and fungi known to occur within the RNA appear in appendixes 1, 2, 3, and 4, respectively.

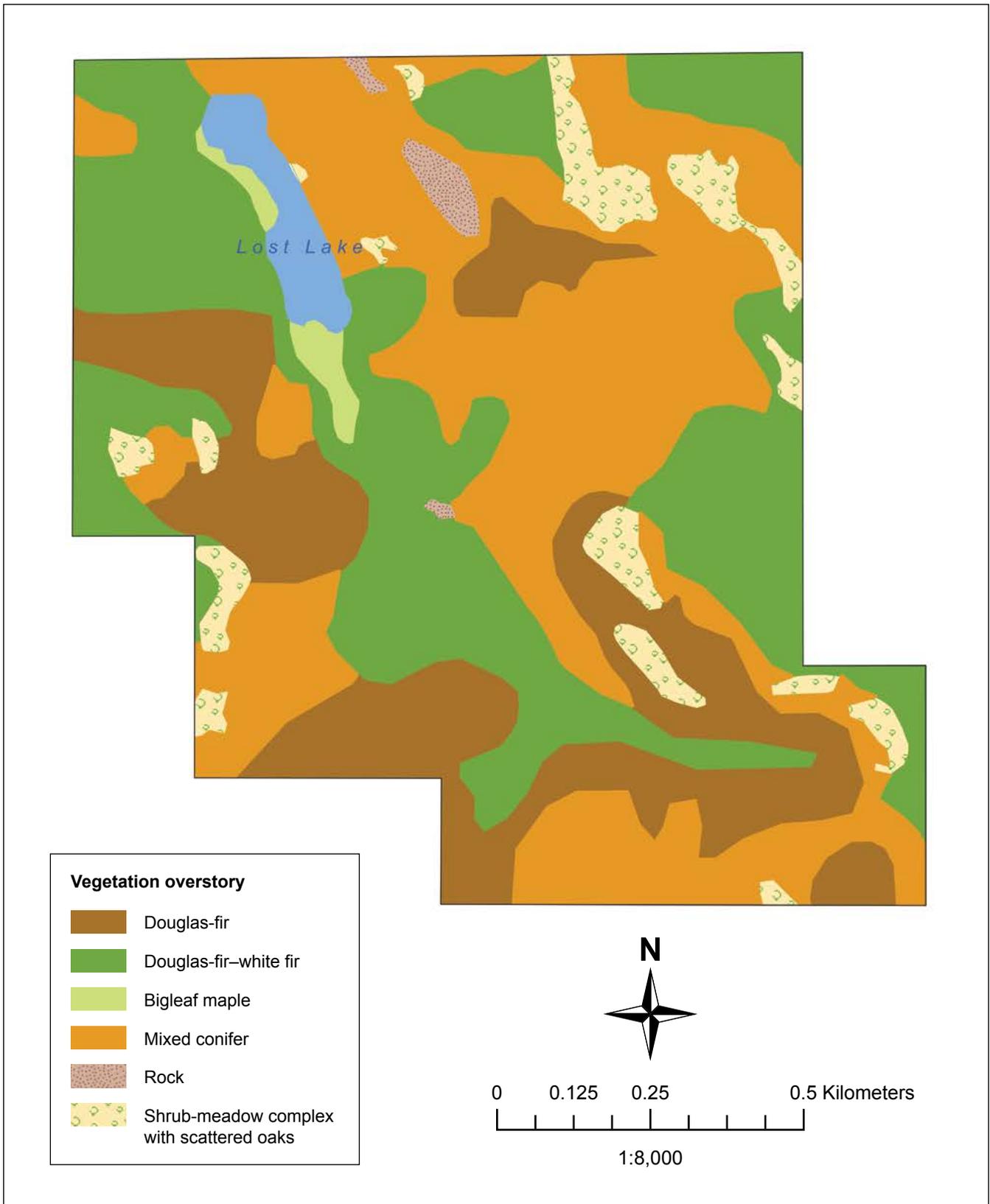


Figure 7—Vegetation map of dominant canopy species within Lost Lake Research Natural Area.

Table 2—Plant association, understory coverage, and frequency of four permanent plots in Lost Lake Research Natural Area, Oregon

Scientific name	Plant association ^a							
	PSME/ABCO ^b							
	Plot 947		Plot 948		Plot 899		Plot 271	
	Frequency ^c	Cover	Frequency	Cover	Frequency	Cover	Frequency	Cover
	<i>Percent</i>							
Shrubs:								
<i>Amelanchier alnifolia</i> ^d	50	5	50	1				
<i>Berberis aquifolium</i>	25	+					25	1
<i>Berberis nervosa</i>	100	10	100	19	25	1		
<i>Corylus cornuta</i> var. <i>californica</i>	25	1					25	5
<i>Holodiscus discolor</i>			25	+				
<i>Lonicera hispidula</i>	75	1	50	1				
<i>Ribes sanguineum</i>			25	+			25	1
<i>Rosa gymnocarpa</i>	50	1	25	+				
<i>Symphoricarpos albus</i>	75	1	75	3				
<i>Toxicodendron diversilobum</i>	25	+	75	9				
Herbs, grasses, and subshrubs								
<i>Anemone deltoidea</i>			4	+				
<i>Anemone oregana</i>	4	+						
<i>Campanula scouleri</i>			11	+	4	+	11	+
<i>Chimaphila umbellata</i> var. <i>occidentalis</i>	4	1	29	2				
<i>Claytonia perfoliata</i>							14	+
<i>Erythronium hendersonii</i>			7	+				
<i>Festuca californica</i>							7	1
<i>Festuca occidentalis</i>	18	1	32	+				
<i>Festuca subulata</i>	11	+	21	+	11	+	18	1
<i>Galium aparine</i>			4	+	4	+	21	+
<i>Galium triflorum</i>			4	+				
<i>Goodyera oblongifolia</i>	11	+	4	+				
<i>Heuchera micrantha</i>	7	1	4	+			4	+
<i>Hieracium albiflorum</i>	7	+	14	+			25	1
<i>Iris chrysophylla</i>	7	+						
<i>Lathyrus polyphyllus</i>							14	1
<i>Melica subulata</i>					4	+	50	3
<i>Moehringia macrophylla</i>	18	+	21	+	4	+	39	1
<i>Nemophila parviflora</i>							21	+
<i>Osmorhiza berteroi</i>	7	+	7	+	4	+	32	+

Table 2—Plant association, understory coverage, and frequency of four permanent plots in Lost Lake Research Natural Area, Oregon (continued)

Scientific name	Plant association ^a							
	PSME/ABCO ^b							
	Plot 947		Plot 948		Plot 899		Plot 271	
	Frequency ^c	Cover	Frequency	Cover	Frequency	Cover	Frequency	Cover
	<i>Percent</i>							
<i>Polystichum munitum</i>	4	+						
<i>Prosartes hookeri</i>	11	+	4	+				
<i>Trientalis borealis</i> ssp. <i>latifolia</i>	11	+	21	1				
<i>Viola sheltonii</i>							50	2

^a Plant associations are named based on a combination of the dominant life form plus the characteristic or dominant plant species in the various plant layers (trees, shrubs, and herbs). Plant association acronyms are a shorthand form for communicating the plant association name. Each acronym is made up of the first two letters of the genus name of the dominant or characteristic species within a layer, and combined with the first two letters of the specific epithet of the species (e.g., *Tsuga heterophylla* is shortened to TSHE). Plant associations are generally defined by the dominant or characteristic species which occupies, or has the biological potential to occupy, the uppermost vegetation layer. In forested plant associations, this is the tree layer. Additional names are used for understory layers when they contain dominant, characteristic, or diagnostic species (e.g., western hemlock/Oregongrape-salal (*Tsuga heterophylla*/*Berberis nervosa*–*Gaultheria shallon*)). Life form layers are separated by a “/”. Co-dominants within a layer are separated by a “-”.

^b PSME – *Pseudotsuga menziesii*, ABCO—*Abies concolor*, + = trace (<0.5 percent foliar cover), — = not recorded.

^c Frequency is expressed as percentage of relative frequency cover is expressed as percentage of foliar cover. Zero values are not included.

^d See Appendix 1 for a listing of scientific and common names.



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Figure 8—Typical understory conditions with tall Cascade barberry (*Berberis aquifolium*), oceanspray (*Holodiscus discolor*), western serviceberry (*Amelanchier alnifolia*), and common snowberry (*Symphoricarpos albus*). White fir (*Abies concolor*) is present in the center background in the reproduction layer beneath a predominantly Douglas-fir canopy.

Fauna

Few formal wildlife surveys have been conducted in the watershed to date. However, appendix 5 lists amphibians, reptiles, birds, and mammals known or expected to occur within the RNA based on species distribution, life history characteristics, and availability of habitat (Csuti et al. 1997).

Disturbance History

Grazing began many years ago on Dead Indian Plateau. The following description of grazing history on the plateau suggest similar impacts within the meadows and forest openings in and around Lost Lake. Early access (into meadows in the vicinity of Lost Lake) by road from Bear Creek Valley may have contributed to livestock grazing impacts. Part of the area was accessible by road as early as 1850. Heavy grazing by sheep occurred on much of Dead Indian Plateau from 1890 until 1940. Some grazing by cattle occurred during this period; cattle grazing increased after 1940 as the sheep were phased out. In 1913, Dead Indian was the most extensively grazed district on the Crater National Forest, and by 1917 the Cottonwood Glades and Conde Creek areas were reported to be overgrazed (Minore 1978, USDI BLM 1988).

Throughout southwestern Oregon, fire exclusion has resulted in significant increases in stand density (stems per acre); shifts in species composition (e.g., increases in fire-intolerant, shade-tolerant species); and changes in stand structure. These transformations have increased the forest's susceptibility to large, severe fires, and epidemic attack by insects and disease, and have likely affected the habitat quality for native organisms in unknown ways. Evidence of past fire activity can be found throughout Lost Lake RNA although wildfires have not occurred in recent history (USDI BLM 1988).

Major fires have not been recorded within the RNA, although several small lightning-ignited fires have been recorded in the vicinity since 1960 (ODF 2013). In July 2002, lightning ignited a fire on the ridgetop between Lost Lake and Eagle Butte (ODF 2013), 1 km north of the RNA's boundary, burning approximately 89 ha, and reaching within 0.4 km of the RNA (USDI BLM 2013). Twice in the 1990s, small fires were started from a campfire within the RNA, but each fire was suppressed before reaching 0.2-ha (0.49-ac) in size.

The Northern Takelma, a subgroup of the Takelma Tribe of Indians, occupied the area east of the Rogue River and north of Little Butte Creek. They may have visited the Lost Lake area because of the abundant food sources, such as deer, elk, jackrabbit, squirrel, acorns, camas, mariposa lily, brodiaea, manzanita berries, pine nuts, tarweed, and grass seeds (Atwood and Gray 1995).

Research History

Atzet et al. (1996) collected data from the mixed-conifer forest within the RNA in developing a regional plant association guide for southwestern Oregon (1996). Schuller et al. (2013) established long-term vegetation monitoring plots in unburned stands within the mixed-conifer forest adjacent to Lost Lake in 2013.

Maps

Maps applicable to Lost Lake RNA: Topographic—Grizzly Peak, Oregon, 7.5 minute; 1:24,000 scale, 1988; Transportation—Western portion, Medford BLM District map, 1.27 cm = 1.6 km (½ inch = 1 mile) [2004].

Acknowledgments

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English Equivalents

When you know:	Multiply by:	To find:
Millimeter (mm)	0.0394	Inch
Centimeter (cm)	0.394	Inch (in)
Meter (m)	3.28	Feet (ft)
Square meter (m ²)	10.76	Square feet (ft ²)
Kilometer (km)	0.62	Mile (mi)
Hectare (ha)	2.47	Acres (ac)
Degrees Fahrenheit	(°F – 32)/1.8	Degrees Celsius (°C)

References

- Atwood, K.; Gray, D.J. 1995.** People and the river: a history of the human occupation of the middle course of the Rogue River of southwestern Oregon. Volume 1. Grants Pass (OR): U.S. On file with: U.S. Department of the Interior, Bureau of Land Management, Medford District Office, 3040 Biddle Road, Medford, OR 97504. 140 p.
- Atzet, T.; White, D.E.; McCrimmon, L.A.; Martinez, P.A.; Fong, P.R.; Randall, V.D. 1996.** Field guide to the forested plant associations of southwestern Oregon. Tech. Paper R6-NR-ECOL-TP-17-96. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. <http://www.fs.usda.gov/detail/rogue-siskiyou/maps-pubs/?cid=stelprdb5319390>. (7 April 2013).
- Bury, R.B.; Welsh, Jr., H.H.; Germano, D.J.; Ashton, D.T. 2012.** Objectives, nomenclature and taxonomy, description, status, and needs for sampling. Northwest Fauna. 7: 1–7.
- Cook, T.; Sundberg, S. eds. 2013.** Oregon vascular plant checklist. Version 1.2. <http://www.oregonflora.org/checklist.php>. (21 March 2013).
- Crosby, M.R.; Magill, R.E. 2005.** Index of bryophytes 2005. St. Louis, MO: Missouri Botanical Garden. <http://www.mobot.org/MOBOT/tropicos/most/IOB2005.pdf>. (30 March 2015).
- Csuti, B.; Kimerling, A.J.; O'Neil, T.A.; Shaughnessy, M.M.; Gaines, E.P.; Huso, M.M.P. 1997.** Atlas of Oregon wildlife. Corvallis, OR: Oregon State University Press. 427 p. + map.
- Dyrness, C.T.; Franklin, J.F.; Maser, C.; Cook, S.A.; Hall, J.D.; Faxon, G. 1975.** Research natural area needs in the Pacific Northwest: a contribution to land-use planning. Gen. Tech. Rep. PNW-38. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 231 p.
- Esslinger, T.L. 2014.** A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. Fargo, ND: North Dakota State University. <http://www.ndsu.edu/pubweb/~esslinge/chcklst/chcklst7.htm>. (23 January 2015).

- Federal Register. 1995.** Notices. Medford District resource management plan and record of decision. Volume 60, Number 141 (Monday, July 24, 1995). p. 37900–37902. <http://www.gpo.gov/fdsys/pkg/FR-1995-07-24/html/95-18063.htm>. (11 August 2016).
- Flora of North America [FNA]. 1993+.** Partial nomenclature of vascular plants, ferns, and fern allies within Oregon. http://www.efloras.org/flora_page.aspx?flora_id=1. (11 January 2011).
- Franklin, J.F.; Hall, F.C.; Dyrness, C.T.; Maser, C. 1972.** Federal research natural areas in Oregon and Washington: a guidebook for scientists and educators. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 498 p.
- Minore, D. 1978.** Personal correspondence. Unpublished report. On file with: Bureau of Land Management, Medford District Office, 3040 Biddle Road, Medford, OR 97504.
- Mycobank. 2014.** Fungal databases, nomenclature and species banks. http://www.mycobank.org/Biolomics.aspx?Table=Mycobank&MycoBankNr_=101927. (19 December 2014).
- Oregon Department of Forestry [ODF]. 2013.** Historic fires (GIS database). Salem, OR. <http://www.oregon.gov/odf/pages/gis/gisdata.aspx>.
- Oregon Natural Heritage Advisory Council [ONHAC]. 2010.** Oregon natural areas plan. Portland, OR: Oregon Biodiversity Information Center, Institute for Natural Resources, Portland State University, Portland, OR. 198 p.
- Pacific Northwest Interagency Natural Areas Network [PNWINAN]. 2013.** <http://www.fsl.orst.edu/rna/>. (26 September 2013).
- Schuller, R.; Greene, S.; Wender, B.; Hartwein, B. 2013.** Unpublished vegetation monitoring data. On file with: Bureau of Land Management, Medford District, 3040 Biddle Road, Medford, OR 97504.
- U.S. Department of Agriculture, Natural Resources Conservation Service [USDA NRCS]. 2013a.** Soil maps from Jackson County, Oregon. <http://websoilsurvey.nrcs.usda.gov/app/>. (17 April 2013).
- U.S. Department of Agriculture, Natural Resources Conservation Service [USDA NRCS]. 2013b.** Plants database. <http://plants.usda.gov/>. (4 November 2013).

U.S. Department of Agriculture, Soil Conservation Service [USDA SCS]. 1993.
Soil survey of Jackson County Area, Oregon. In cooperation with: USDI BLM, USDA Forest Service, and Oregon Agricultural Research Station. 3 vols.

U.S. Department of the Interior, Bureau of Land Management [USDI BLM] 1988. Research natural area nomination: Area of Critical Environmental Concern review for Lost Lake. Unpublished report. On file with: Bureau of Land Management, Medford District Office, 3040 Biddle Road, Medford, OR 97504. 7 p. + attachments.

U.S. Department of the Interior, Bureau of Land Management [USDI BLM]. 1995. Medford District record of decision and resource management plan. On file with: Bureau of Land Management, Medford District Office, 3040 Biddle Road, Medford, OR 97504. 248 p. + tables and maps.

U.S. Department of the Interior, Bureau of Land Management, Medford District [USDI BLM]. 2008. Unpublished field notes. On file with: Bureau of Land Management, Medford District, 3040 Biddle Road, Medford, OR 97504.

U.S. Department of the Interior, Bureau of Land Management [USDI BLM]. 2013. BLM Oregon fire history polygon (GIS database). Portland, OR: Oregon/Washington state office. <http://www.blm.gov/or/gis/data.php>.

Western Regional Climate Center [WRCC]. 2013. Monthly climate summary for Howard Prairie Dam (354060) 9/21/1960 to 9/30/2012. <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?or4060>. (25 April 2013).

Wilson, T.M.; Schuller, R.; Holmes, R.; Pavola, C.; Fimbel, R.A.; McCain, C.N.; Gamon, J.G.; Speaks, P.; Seevers, J.I.; DeMeo, T.E.; Gibbons, S. 2009. Interagency strategy for the Pacific Northwest Natural Areas Network. Gen. Tech. Rep. PNW-GTR-798. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 33 p.

Appendix 1: Plants^{a,b}

Scientific name	Common name
Coniferous trees:	
<i>Abies concolor</i> (Gord. & Glend.) Lindl. ex Hildebr.	White fir
<i>Calocedrus decurrens</i> (Torr.) Florin	Incense cedar
<i>Juniperus occidentalis</i> Hook.	Western juniper
<i>Pinus lambertiana</i> Dougl.	Sugar pine
<i>Pinus ponderosa</i> Laws. & C. Laws.	Ponderosa pine
<i>Pseudotsuga menziesii</i> (Mirbel) Franco	Douglas-fir
<i>Taxus brevifolia</i> Nutt.	Pacific yew
Deciduous trees >8 m (26.3 ft) tall:	
<i>Acer macrophyllum</i> Pursh	Bigleaf maple
<i>Arbutus menziesii</i> Pursh	Pacific madrone
<i>Chrysolepis chrysophylla</i> (Dougl. ex Hook.) Hjelmq. var. <i>chrysophylla</i>	Giant chinquapin
<i>Corylus cornuta</i> L. var. <i>californica</i> (DC.) Sharp	Hazelnut
<i>Quercus garryana</i> Dougl. ex Hook.	Oregon white oak
<i>Quercus kelloggii</i> Newberry	California black oak
<i>Rhamnus purshiana</i> (DC.) Cooper	Cascara buckthorn
Tall shrubs 2–8 m (6.6-26.3 ft) tall:	
<i>Acer glabrum</i> Torr. var. <i>douglasii</i> (Hook.) Dippel	Douglas maple
<i>Amelanchier alnifolia</i> Nutt. ex M. Roem.	Western serviceberry
<i>Ceanothus integerrimus</i> Hook. & Arn.	Deerbrush
<i>Holodiscus discolor</i> (Pursh) Maxim	Oceanspray
<i>Prunus subcordata</i> Benth.	Klamath plum
<i>Salix</i> L.	Willow
Medium shrubs 0.5–2 m (1.6-6.6 ft) tall:	
<i>Arctostaphylos patula</i> Greene	Greenleaf manzanita
<i>Arctostaphylos viscida</i> Parry	Sticky whiteleaf manzanita
<i>Berberis aquifolium</i> Pursh	Hollyleaved barberry
<i>Cercocarpus betuloides</i> Nutt. var. <i>betuloides</i>	Birchleaf mountain mahogany
<i>Ericameria nauseosa</i> (Pall. ex Pursh) G.L. Nesom & Baird	Rubber rabbitbrush
<i>Garrya buxifolia</i> A. Gray	Dwarf silktassel
<i>Paxistima myrsinites</i> (Pursh) Raf.	Oregon boxleaf
<i>Ribes sanguineum</i> Pursh	Redflower currant
<i>Rosa gymnocarpa</i> Nutt.	Baldhip rose
<i>Rubus</i> L.	Blackberry
<i>Rubus parviflorus</i> Nutt.	Thimbleberry
<i>Symphoricarpos albus</i> (L.) S.F. Blake.	Common snowberry
<i>Toxicodendron diversilobum</i> (T. & G.) Greene	Poison oak
<i>Viburnum ellipticum</i> Hook.	Common viburnum

Scientific name	Common name
Low shrubs <0.5 m (1.6 ft) tall:	
<i>Berberis nervosa</i> (Pursh) Nutt.	Cascade barberry
<i>Lonicera hispidula</i> (Lindl.) Douglas ex Torr. & A. Gray	Pink honeysuckle
<i>Rubus ursinus</i> Cham. & Schldl.	California blackberry
<i>Whipplea modesta</i> Torr.	Common whipplea
Herbs:	
<i>Achillea millefolium</i> L.	Common yarrow
<i>Adenocaulon bicolor</i> Hook.	American trailplant
<i>Agoseris retrorsa</i> (Benth.) Greene	Spearleaf agoseris
<i>Anemone deltoidea</i> Hook.	Columbian windflower
<i>Anemone oregana</i> A. Gray	Blue windflower
<i>Balsamorhiza deltoidea</i> Nutt.	Deltoid balsamroot
<i>Campanula prenanthoides</i> (Dur.) McVaugh	California harebell
<i>Campanula scouleri</i> Hook. ex A. DC.	Pale bellflower
<i>Cardamine oligosperma</i> Nutt.	Little western bittercress
<i>Castilleja pruinosa</i> Fernald	Frosted Indian paintbrush
<i>Cephalanthera austiniiae</i> (A. Gray) A. Heller	Phantom orchid
<i>Chimaphila umbellata</i> (L.) W.P.C. Barton var. <i>occidentalis</i> (Rydb.) Hultén	Pipsissewa
<i>Cirsium arvense</i> (L.) Scop.	Canada thistle
<i>Cirsium vulgare</i> (Savi) Ten.	Bull thistle
<i>Clarkia</i> Pursh	Clarkia
<i>Claytonia sibirica</i> L.	Siberian springbeauty
<i>Claytonia perfoliata</i> Donn ex Willd.	Miner's lettuce
<i>Clinopodium douglasii</i> (Benth.) Kuntze	Yerba buena
<i>Corallorhiza maculata</i> (Raf.) Raf.	Summer coralroot
<i>Dicentra formosa</i> (Haw.) Walp.	Pacific bleeding heart
<i>Epilobium brachycarpum</i> C. Presl	Tall annual willowherb
<i>Eriogonum compositum</i> Dougl. ex Benth.	Arrowleaf buckwheat
<i>Eriogonum nudum</i> Dougl. ex Benth.	Naked buckwheat
<i>Eriophyllum lanatum</i> (Pursh) Forbes var. <i>integrifolium</i> (Hook.) Smiley	Common woolly sunflower
<i>Erythronium hendersonii</i> S. Watson	Henderson's fawnlily
<i>Fragaria vesca</i> L.	Woodland strawberry
<i>Galium aparine</i> L.	Stickywilly
<i>Goodyera oblongifolia</i> Raf.	Western rattlesnake plantain
<i>Heuchera micrantha</i> Dougl. ex Lindl.	Crevice alumroot
<i>Hieracium albiflorum</i> Hook.	White hawkweed

Scientific name	Common name
<i>Hypochaeris radicata</i> L.	Hairy cat's ear
<i>Iris chrysophylla</i> Howell	Yellowleaf iris
<i>Lathyrus polyphyllus</i> Nutt.	Leafy pea
<i>Linnaea borealis</i> L. var. <i>longiflora</i> (Torr.) Hultén	Longtube twinflower
<i>Listera</i> R. Br.	Twayblade
<i>Lomatium californicum</i> (Nutt.) Mathias & Constance	California lomatium
<i>Lomatium nudicaule</i> (Pursh) J.M. Coult. & Rose	Barestem biscuitroot
<i>Madia elegans</i> D. Don ex Lindl.	Common madia
<i>Maianthemum stellatum</i> (L.) Link	Starry false lily of the valley
<i>Mitella</i> L.	Miterwort
<i>Moehringia macrophylla</i> (Hook.) Fenzl	Largeleaf sandwort
<i>Nemophila</i> Nutt.	Baby blues eyes
<i>Osmorhiza berteroi</i> DC.	Sweetcicely
<i>Pedicularis racemosa</i> Dougl. ex Benth.	Sickletop lousewort
<i>Perideridia howellii</i> (J.M. Coult. & Rose) Mathias	Howell's yampah
<i>Phacelia heterophylla</i> Pursh	Varileaf phacelia
<i>Potentilla glandulosa</i> Lindl.	Sticky cinquefoil
<i>Prosartes hookeri</i> Torr.	Drops-of-gold
<i>Prunella vulgaris</i> L.	Common selfheal
<i>Pterospora andromedea</i> Nutt.	Woodland pinedrops
<i>Pyrola picta</i> Sm.	Whiteveined wintergreen
<i>Saxifraga</i> L.	Saxifrage
<i>Sedum oregonense</i> (S. Watson) M. Peck	Cream stonecrop
<i>Senecio integerrimus</i> Nutt. var. <i>exaltatus</i> (Nutt.) Cronq.	Columbia ragwort
<i>Streptopus amplexifolius</i> (L.) DC.	Claspleaf twistedstalk
<i>Synthyris reniformis</i> (Dougl. ex Benth.) Benth.	Snowqueen
<i>Tiarella trifoliata</i> L. var. <i>unifoliata</i> (Hook.) Kurtz	Oneleaf foamflower
<i>Torilis arvensis</i> (Huds.) Link	Spreading hedgeparsley
<i>Trientalis borealis</i> Raf. ssp. <i>latifolia</i> (Hook.) Hultén	Broadleaf starflower
<i>Urtica dioica</i> L.	Stinging nettle
<i>Vancouveria hexandra</i> (Hook.) Morren & Decne.	White inside-out flower
<i>Veratrum californicum</i> Durand	California false hellebore
<i>Vicia americana</i> Muhl. ex Willd. ssp. <i>americana</i>	American vetch
<i>Viola glabella</i> Nutt.	Pioneer violet
<i>Viola sheltonii</i> Torr.	Shelton's violet
<i>Wyethia angustifolia</i> (DC.) Nutt.	California compassplant

Scientific name	Common name
Ferns:	
<i>Cheilanthes</i> Sw.	Lipfern
<i>Pellaea andromedifolia</i> (Kaulf.) Fée	Coffee cliffbrake
<i>Polystichum imbricans</i> (D.C. Eaton) D.H. Wagner	Narrowleaf swordfern
<i>Polystichum munitum</i> (Kaulf.) C. Presl	Western swordfern
Grasses and sedges:	
<i>Achnatherum</i> P. Beauv.	Needlegrass
<i>Agrostis exarata</i> Trin.	Spike bentgrass
<i>Aira caryophyllea</i> L.	Silver hairgrass
<i>Bromus laevipes</i> Shear	Chinook brome
<i>Bromus sterilis</i> L.	Poverty brome
<i>Bromus tectorum</i> L.	Cheatgrass
<i>Carex</i> L.	Sedge
<i>Cynosurus echinatus</i> L.	Hedgehog dogtail
<i>Dactylis glomerata</i> L.	Orchardgrass
<i>Danthonia californica</i> Bol.	California oatgrass
<i>Elymus elymoides</i> (Raf.) Swezey	Squirreltail
<i>Elymus glaucus</i> Buckl. ssp. <i>glaucus</i>	Blue wildrye
<i>Festuca californica</i> Vasey	California fescue
<i>Festuca occidentalis</i> Hook.	Western fescue
<i>Festuca subulata</i> Trin.	Bearded fescue
<i>Melica subulata</i> (Griseb.) Scribn.	Alaska oniongrass
<i>Pseudoroegneria spicata</i> (Pursh) Á. Löve	Bluebunch wheatgrass
<i>Scirpus microcarpus</i> J. Presl & C. Presl	Panicled bulrush

^a Scientific nomenclature for vascular plants, ferns, and fern-allies follows the *Flora of North America* (1993+) and the Oregon Flora Project website (Cook and Sundburg 2013).

^b Compiled from field surveys (Schuller et al. 2013, USDI BLM 2008).

Appendix 2: Lichens^{a,b}

Species name	Authorities
<i>Alectoria sarmentosa</i>	(Ach.) Ach.
<i>Bryoria capillaris</i>	(Ach.) Brodo & D. Hawksw.
<i>Bryoria fremontii</i>	(Tuck.) Brodo & D. Hawksw.
<i>Candellariella vitellina</i>	(Hoffm.) Müll. Arg.
<i>Cladonia fimbriata</i>	(L.) Fr.
<i>Cladonia transcendens</i>	(Vainio) Vainio
<i>Evernia prunastri</i>	(L.) Ach.
<i>Hypocenomyce scalaris</i>	(Ach. ex Lilj.) M. Choisy
<i>Hypogymnia imshaugii</i>	Krog
<i>Hypogymnia inactiva</i>	(Krog) Ohlsson
<i>Hypogymnia occidentalis</i>	L. Pike
<i>Lecidea atrobrunnea</i>	(Raymond ex Lam. & DC.) Schaerer
<i>Leptochidium albociliatum</i>	(Desmaz.) M. Choisy
<i>Leptogium palmatum</i>	(Hudson) Mont.
<i>Leptogium lichenoides</i>	(L.) Zahlbr.
<i>Letharia columbiana</i>	(Nutt.) J.W. Thomson
<i>Letharia vulpina</i>	(L.) Hue
<i>Lichenomphalia umbellifera</i>	(L. : Fr.) Redhead, Lutzoni, Moncalvo & Vilgalys
<i>Lobaria hallii</i>	(Tuck.) Zahlbr.
<i>Lobaria pulmonaria</i>	(L.) Hoffm.
<i>Nephroma helveticum</i>	Ach.
<i>Nephroma resupinatum</i>	(L.) Ach.
<i>Parmelia hygrophila</i>	Goward & Ahti
<i>Parmelia saxatilis</i>	(L.) Ach.
<i>Parmelia sulcata</i>	Taylor
<i>Parmeliopsis ambigua</i>	(Wulfen) Nyl.
<i>Parmeliopsis hyperopta</i>	(Ach.) Arnold
<i>Peltigera collina</i>	(Ach.) Schrader
<i>Peltigera leucophlebia</i>	(Nyl.) Gyelnik
<i>Peltigera membranacea</i>	(Ach.) Nyl.
<i>Physconia americana</i>	Essl.
<i>Platismatia glauca</i>	(L.) W. L. Culb. & C. F. Culb.
<i>Pseudocyphellaria anomala</i>	Brodo & Ahti
<i>Pseudephebe pubescens</i>	(L.) M. Choisy
<i>Pseudocyphellaria anthraspis</i>	(Ach.) H. Magn.
<i>Ramalina farinacea</i>	(L.) Ach.

Species name	Authorities
<i>Rhizocarpon geographicum</i>	(L.) DC.
<i>Rhizoplaca melanophthalma</i>	(DC.) Leuckert & Poelt
<i>Tuckermannopsis chlorophylla</i>	(Willd.) Hale
<i>Tuckermannopsis platyphylla</i>	(Tuck.) Hale
<i>Umbilicaria americana</i>	Poelt & T. Nash
<i>Umbilicaria phaea</i>	Tuck.
<i>Umbilicaria torrefacta</i>	(Lightf.) Schrader
<i>Usnea filipendula</i>	Stirton
<i>Xanthoparmelia cumberlandia</i>	(Gyelnik) Hale
<i>Xanthoparmelia plittii</i>	(Gyelnk) Hale

^a Nomenclature taken from Esslinger (2012).

^b Compiled from field surveys (USDI BLM 2008).

Appendix 3: Bryophytes^{a,b}

Scientific name	Common name
Mosses	
<i>Antitrichia californica</i> Sull.	California antitrichia moss ³
<i>Aulacomnium androgynum</i> (Hedw.) Schwägr.	Aulacomnium moss
<i>Brachythecium albicans</i> (Hedw.) Schimp.	Brachythecium moss
<i>Brachythecium frigidum</i> (Müll. Hal.) Besch.	Cold brachythecium moss
<i>Brachythecium velutinum</i> (Hedw.) Schimp	Brachythecium moss
<i>Dendroalsia abietina</i> (Hook.) E. Britton	Dendroalsia moss
<i>Dicranoweisia cirrata</i> (Hedw.) Lindb. ex Milde	Dicranoweisia moss
<i>Dicranum scoparium</i> Hedw.	Dicranum moss
<i>Eurhynchium oreganum</i> (Sull.) A. Jaeg.	Oregon eurhynchium moss
<i>Fontinalis neomexicana</i> Sull. & Lesq.	New Mexican fontinalis moss
<i>Grimmia</i> Hedw.	-
<i>Homalothecium aeneum</i> (Mitt.) E. Lawton	Bight copper homalothecium moss
<i>Homalothecium fulgescens</i> (Mitt. ex Müll. Hal.) E. Lawton	Tree mat homalothecium moss
<i>Homalothecium pinnatifidum</i> (Sull. & Lesq.) E. Lawton	Pinnatifid homalothecium moss
<i>Hypnum circinale</i> Hook.	Hypnum moss
<i>Hypnum subimponens</i> Lesq.	Hypnum moss
<i>Leucolepis acanthoneuron</i> (Schwägr.) Lindb.	Leucolepis umbrella moss
<i>Metaneckera menziesii</i> (Hook.) Steere	Menzies' metaneckera moss
<i>Mnium spinulosum</i> Bruch & Schimp.	Large-tooth calcareous moss
<i>Neckera douglasii</i> Hook.	Douglas' neckera moss
<i>Orthodicranum strictum</i> Broth.	Orthodicranum moss
<i>Orthotrichum lyellii</i> Hook. & Taylor	Lyell's orthotrichum moss
<i>Plagiomnium insigne</i> (Mitt.) T. Kop.	Plagiomnium moss
<i>Polytrichum juniperinum</i> Hedw.	Juniper polytrichum moss
<i>Polytrichum piliferum</i> Hedw.	Polytrichum moss
<i>Porella navicularis</i> (Lehm. & Lindenb.) Lindb.	Porella moss
<i>Ptychomitrium gardneri</i> Lesq.	Gardner's ptychomitrium moss
<i>Racomitrium heterostichum</i> (Hedw.) Brid.	Racomitrium moss
<i>Rhytidiadelphus triquetrus</i> (Hedw.) Warnst.	Rough goose neck moss
<i>Roellia roellii</i> (Broth.) Andrews ex H.A. Crum	Roell's moss
<i>Scleropodium obtusifolium</i> (A. Jaeger) Kindb.	Obtuseleaf scleropodium moss
<i>Tortula princeps</i> De Not.	Tortula moss
<i>Trachybryum megaptilum</i> (Sull.) Schof.	Trachybryum moss

Scientific name	Common name
Liverworts:	
<i>Cephalozia bicuspidata</i> (L.) Dumort.	—
<i>Cephalozia lunulifolia</i> (Dumort.) Dumort.	—
<i>Chiloscyphus polyanthos</i> (L.) Corda	—
<i>Conocephalum conicum</i> (L.) Dumort.	—
<i>Geocalyx graveolens</i> (Schrad.) Nees	—
<i>Lepidozia reptans</i> (L.) Dumort.	—
<i>Lophozia incisa</i> (Schrad.) Dumort.	—
<i>Lophozia ventricosa</i> (Dicks.) Dumort.	—
<i>Marchantia polymorpha</i> L.	—
<i>Marsupella emarginata</i> (Ehrh.) Dumort.	—
<i>Pohlia</i> Hedw.	—
<i>Porella navicularis</i> (Lehm. & Lindenb.) Lindb.	—
<i>Radula bolanderi</i> Gottsche	—
<i>Riccardia</i> sp.	—
<i>Scapania bolanderi</i> Austin	—
<i>Scapania umbrosa</i> (Schrad.) Dumort.	—
<i>Scapania undulata</i> (L.) Dumort.	—

^a Nomenclature taken from Index of bryophytes database (Crosby and Magill 2005)

^b Compiled from field surveys (USDI BLM 2008)

Appendix 4: Fungi^{a, b}

Scientific name	Common name
<i>Fomitopsis cajanderi</i> P. Karst.) Kotl. & Pouzar	Rosy conk
<i>Fomitopsis pinicola</i> (Sw.) P. Karst.	Red-belted conk
<i>Inocybe</i> sp.	
<i>Phaeolus schweinitzii</i> (Fr.) Pat.	Dyer's polypore
<i>Trichaptum abietinum</i> (Pers. ex J.F. Gmel.) Ryvarden	

^a Nomenclature taken from Mycobank (2014).

^b Compiled from field surveys (USDI BLM 2008).

Appendix 5: Amphibians, Reptiles, Birds, and Mammals^{a, b}

Family	Scientific name	Common name
Amphibians		
Salamandridae	<i>Taricha granulosa</i>	Roughskin newt
Hylidae	<i>Pseudacris regilla</i>	Pacific chorus frog
Ranidae	<i>Rana boylei</i>	Foothill yellow-legged frog
	<i>Rana catesbeiana</i>	Bullfrog
Reptiles		
Emydidae	<i>Emys marmorata marmorata</i> ^c	Northwestern pond turtle
Anguillidae	<i>Elgaria coerulea</i>	Northern alligator lizard
	<i>Elgaria multicarinata</i>	Southern alligator lizard
Scincidae	<i>Eumeces skiltonianus</i>	Western skink
Colubridae	<i>Pituophis catenifer</i>	Gopher snake
	<i>Thamnophis sirtalis</i>	Common garter snake
Iguanidae	<i>Sceloporus occidentalis</i>	Western fence lizard
Viperidae	<i>Crotalus oreganus</i>	Northern Pacific rattlesnake
Birds		
Ardeidae	<i>Ardea herodias</i>	Great blue heron
Cathartidae	<i>Cathartes aura</i>	Turkey vulture
Accipitridae	<i>Accipiter gentilis</i>	Northern goshawk
	<i>Accipiter striatus</i>	Sharp-shinned hawk
	<i>Accipiter cooperii</i>	Cooper's hawk
	<i>Buteo jamaicensis</i>	Red-tailed hawk
Falconidae	<i>Falco sparverius</i>	American kestrel
Phasianidae	<i>Bonasa umbellus</i>	Ruffed grouse
	<i>Callipepla californica</i>	California quail
	<i>Meleagris gallopavo</i>	Wild turkey
	<i>Oreortyx pictus</i>	Mountain quail
Columbidae	<i>Columba fasciata</i>	Band-tailed pigeon
	<i>Zenaidura macroura</i>	Mourning dove
Strigidae	<i>Strix nebulosa</i>	Great gray owl
	<i>Strix occidentalis</i>	Spotted owl
	<i>Strix varia</i>	Barred owl
Trochilidae	<i>Selasphorus rufus</i>	Rufous hummingbird
Alcedinidae	<i>Ceryle alcyon</i>	Belted kingfisher
Picidae	<i>Colaptes auratus</i>	Northern flicker
	<i>Dryocopus pileatus</i>	Pileated woodpecker
	<i>Melanerpes lewis</i>	Lewis' woodpecker
	<i>Picoides villosus</i>	Hairy woodpecker
	<i>Sphyrapicus nuchalis</i>	Red-naped sapsucker

Family	Scientific name	Common name
Tyrannidae	<i>Contopus borealis</i>	Olive-sided flycatcher
	<i>Empidonax hammondii</i>	Hammond's flycatcher
	<i>Empidonax traillii</i>	Willow flycatcher
	<i>Empidonax difficilis</i>	Pacific-slope flycatcher
Corvidae	<i>Aphelocoma coerulescens</i>	Western scrub jay
	<i>Corvus corax</i>	Common raven
	<i>Cyanocitta stelleri</i>	Steller's jay
Paridae	<i>Baeolophus inornatus</i>	Oak titmouse
	<i>Poecile atricapilla</i>	Black-capped chickadee
	<i>Poecile gambeli</i>	Mountain chickadee
Sittidae	<i>Sitta caroliniensis</i>	White-breasted nuthatch
Certhiidae	<i>Certhia americana</i>	Brown creeper
Troglodytidae	<i>Troglodytes aedon</i>	House wren
Muscicapidae	<i>Sialia mexicana</i>	Western bluebird
	<i>Turdus migratorius</i>	American robin
Vireonidae	<i>Vireo cassinii</i>	Cassin's vireo
Emberizidae	<i>Ammodramus savannarum</i>	Grasshopper sparrow
	<i>Icterus bullockii</i>	Bullock's oriole
	<i>Junco hyemalis</i>	Dark-eyed junco
	<i>Melospiza melodia</i>	Song sparrow
	<i>Passerina amoena</i>	Lazuli bunting
	<i>Pheucticus melanocephalus</i>	Black-headed grosbeak
	<i>Pipilo maculatus</i>	Spotted towhee
	<i>Piranga ludoviciana</i>	Western tanager
	<i>Spizella passerina</i>	Chipping sparrow
	<i>Vermivora ruficapilla</i>	Nashville warbler
Fringillidae	<i>Carduelis psaltria</i>	Lesser goldfinch
Mammals		
Vespertilionidae	<i>Antrozous pallidus</i>	Pallid bat
	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat
Sciuridae	<i>Sciurus griseus</i>	Western gray squirrel
Canidae	<i>Canis latrans</i>	Coyote
Felidae	<i>Felis concolor</i>	Mountain lion
Cervidae	<i>Cervus elaphus</i>	Elk
	<i>Odocoileus hemionus</i> ssp. <i>columbianus</i>	Black-tailed deer

^a Nomenclature taken from Csuti et al. 1997. Atlas of Oregon wildlife. Corvallis, OR: Oregon State University Press. 492 p. + map.

^b Compiled from habitat descriptions and distribution maps in: Csuti et al. 1997. Atlas of Oregon wildlife. Corvallis, OR: Oregon State University Press. 492 p. + map.

^c See Bury et al. (2012) for current nomenclature.

Pacific Northwest Research Station

Website	http://www.fs.fed.us/pnw/
Telephone	(503) 808-2592
Publication requests	(503) 808-2138
FAX	(503) 808-2130
E-mail	pnw_pnwpubs@fs.fed.us
Mailing address	Publications Distribution Pacific Northwest Research Station P.O. Box 3890 Portland, OR 97208-3890



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