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Cherry Creek Research Natural Area

Guidebook Supplement 41

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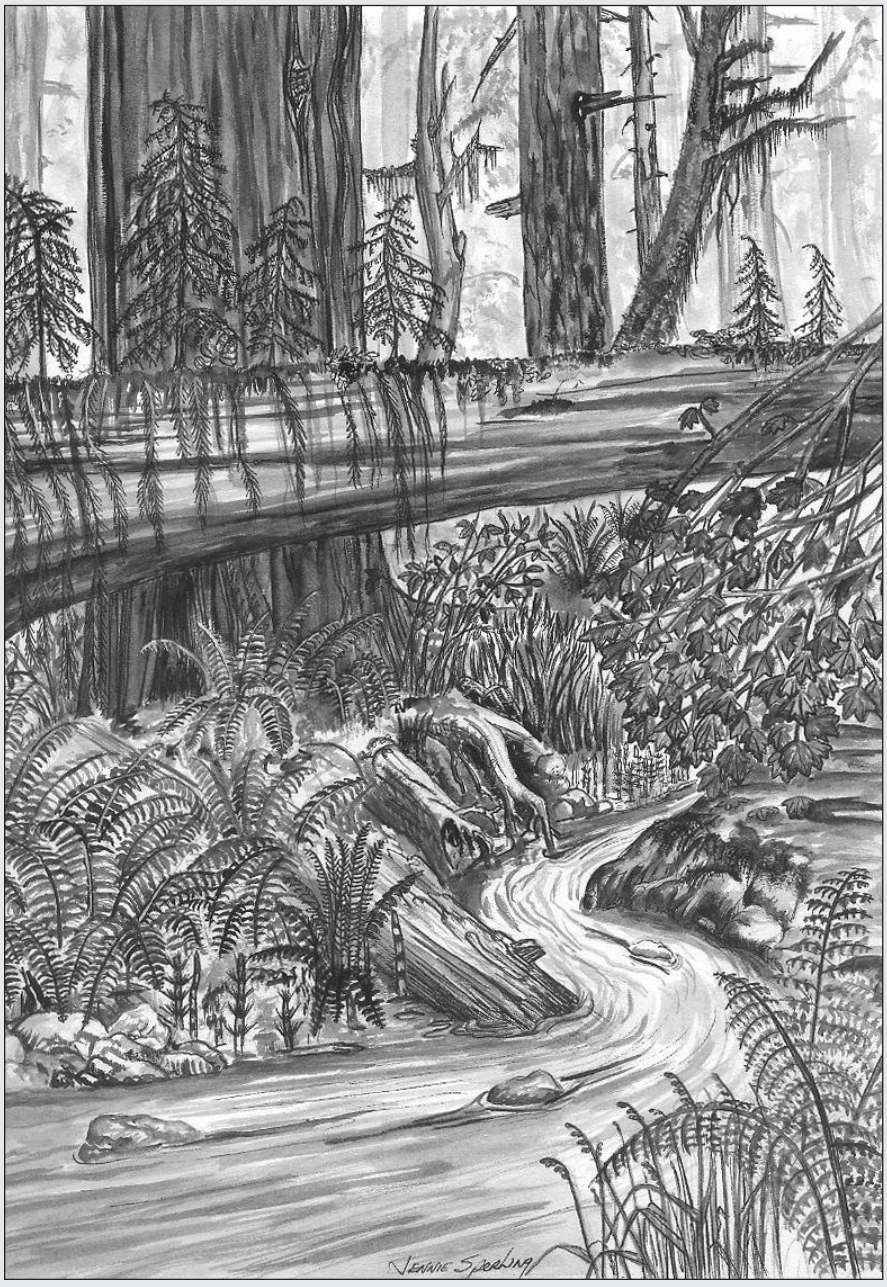

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Cover: Cherry Creek Research Natural Area. Original illustration by Jennie Sperling.

Abstract

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This guidebook describes Cherry Creek Research Natural Area, a 239-ha (590-ac) area that supports old-growth Douglas-fir-western hemlock (*Pseudotsuga menziesii-Tsuga heterophylla*) forest occurring on sedimentary materials in the southern Oregon Coast Range. Major plant associations present within the area include the western hemlock/Oregon oxalis (*Oxalis oregana*) plant association, the western hemlock/evergreen huckleberry (*Vaccinium ovatum*) plant association, and the western hemlock/rhododendron-Oregon grape (*Rhododendron macrophyllum-Berberis nervosa*) plant association. A northern spotted owl population (*Strix occidentalis caurina*) also uses the area.

Keywords: Research natural area, area of critical environmental concern, riparian vegetation, old-growth Douglas-fir (*Pseudotsuga menziesii*), western hemlock/Oregon oxalis plant association, western hemlock/evergreen huckleberry plant association, western hemlock/rhododendron-Oregon grape plant association, *Tsuga heterophylla*/*Oxalis oregana*, *Tsuga heterophylla*/*Vaccinium ovatum*, *Tsuga heterophylla*/*Rhododendron macrophyllum-Berberis nervosa* plant association, northern spotted owl, *Strix occidentalis caurina*.

Preface

The research natural area (RNA) described in this supplement[1] is administered by the Coos Bay District, Bureau of Land Management (BLM), U.S. Department of the Interior.

Cherry Creek RNA is part of a federal system[2] 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 ecological elements[4] are protected or managed for scientific purposes and natural processes are allowed to dominate. Their main purposes are to provide:

- Baseline areas against which effects of human activities can be measured or compared.
- Sites for study of natural processes in undisturbed ecosystems.
- Gene pool preserves for all types of organisms, especially for those that are rare and endangered.

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[1] Supplement No. 41 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.

[2] Six 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.A.; 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.

[3] Federal Committee on Ecological Reserves. 1977. A directory of the research natural areas on federal lands of the United States of America. Washington, DC: U.S. Department of Agriculture, Forest Service.

[4] Elements are the basic units represented in a natural area system. An element may be an ecosystem, community, habitat, or organism. Adapted from Oregon Natural Heritage Program [ONHP]. 2003. Oregon natural heritage plan. Salem, OR: Department of State Lands. 167 p.; and 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.

The guiding principle in managing RNAs is to maintain natural ecological processes or conditions for which the sites were designated. Timber harvesting and uncontrolled grazing are not allowed, nor is public use that might impair scientific or educational values. Management practices necessary to maintain or restore ecosystems may be allowed.

Federal RNAs provide a unique system of publicly owned and protected examples of undisturbed 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 this RNA for scientific or educational purposes should contact the Coos Bay BLM District 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 all 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 tract are not compromised.
- Allow the agency to document research or educational use of the tract.
- Help promote the dissemination and use of information collected at the site.
- Avoid conflict between ongoing studies and activities.

Appropriate uses of RNAs are determined by the administering agency (see footnote 2). Analysis involving destruction of vegetation is generally not allowed, nor are studies requiring extensive substrate modification such as extensive 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.

Contents

Introduction

Cherry Creek Research Natural Area (RNA) is a 239-ha (590-ac) area located in Coos County, Oregon (fig. 1). The site was established in 1965 (Franklin et al. 1972) as an RNA, and the designation was reaffirmed by the Coos Bay District Resource Management Plan (USDI BLM 1995). A short guidebook was written for the area in 1972 (Franklin et al. 1972). Since that time, more comprehensive information has been compiled for the area, including a plant association guide for the northern Oregon Coast Range coniferous forests (McCain and Diaz 2002), and publication of the Oregon Natural Heritage Plan (ONHP 2003).

The original rationale for designating this site as an RNA was that it exemplified old-growth Douglas-fir-western hemlock (*Pseudotsuga menziesii-Tsuga heterophylla*) forest occurring on sedimentary materials in the southern Oregon Coast Range (Franklin et al. 1972). Recent inventory and classification (McCain and Diaz 2002) work have provide further basis for protecting the important elements[1] occurring within the RNA. These are listed in the 2003 Natural Heritage Plan (ONHP 2003) as:

- Western hemlock/Oregon oxalis (*Oxalis oregana*) plant association.
- Western hemlock/rhododendron-Oregon grape (*Berberis nervosa-Rhododendron macrophyllum*) plant association.
- Northern spotted owl (*Strix occidentalis caurina*).

Access and Accommodations

From the intersection of Oregon State Highway 42 and N Central Boulevard in Coquille, Oregon, set odometer at 0 and proceed on N Central Boulevard for 1.3 km (0.8 mi) and turn right onto Fairview Road. Continue to 15.3 km (9.5 mi) on Fairview Road to the intersection at Four Corners. At Four Corners, turn right onto Lone Pine Road and continue to 26.1 km (16.2 mi) to the intersection with Cherry Creek Road (gravel) and turn left onto Cherry Creek Road. At 29 km (18.0 mi), take left fork at "Y." At 30.6 km (19.0 mi), take left fork (do NOT cross bridge at this point). Continue to 32.8 km (20.4 mi) and cross the bridge over Cherry Creek. At 34.4 km (21.4 mi), pull off and park along the road shoulder (fig. 1). Upper elevations of the RNA may be accessed via Bureau of Land Management roads 27-11-27, 27-10-18, and 27-11-12. Maps and additional directions to the area are also available at the Coos Bay District office once permission to access the area has been granted. Lodging is available in Coquille, Coos Bay, and North Bend, Oregon.

[1] Elements are the basic units represented in a natural area system. An element may be an ecosystem, community, habitat, or organism (Dyrness et al. 2003).

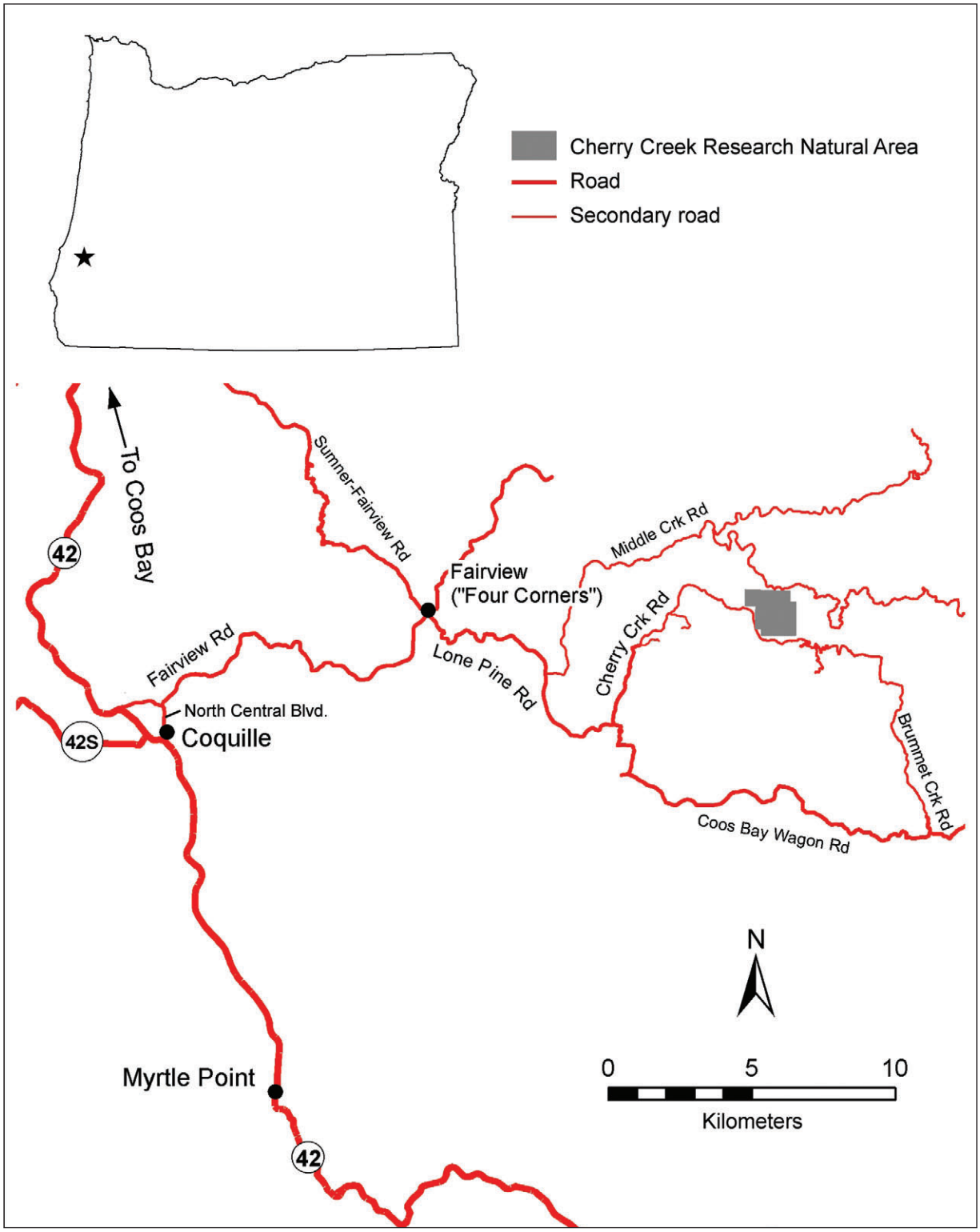

Figure 1—Cherry Creek Research Natural Area (RNA) location and access.

Environment

The RNA includes first- to third-order stream reaches and adjoining upper slopes of the North Fork Cherry Creek drainage basin, and limited portions of the South Fork Cherry Creek basin. Elevations range from 190 m (623 ft) located along the northwestern boundary (fig. 2) adjacent to an abandoned recreational site along the main access road into the area to 450 m (1,476 ft) along the divide separating the North Fork and South Fork drainages in the south-central portion of the RNA. Slopes incline steeply toward the riparian basins, which drain toward the west.

Sedimentary rock underlies the entire natural area. Bedrock consists of massive, rhythmically bedded, micaceous lithic sandstone and siltstone of the Flournoy Formation of lower to middle Eocene age, roughly 50 million years before present. The Flournoy Formation is unconformable over the Lookingglass Formation and is overlain and unconformable with the Tyee Formation (Baldwin et al. 1973).

Soils are relatively deep, and are developed in colluvium and residuum derived from the underlying siltstone and sandstone bedrock. Depth to bedrock is 100 to 150 cm (40 to 60 in). The Bohannon soil series with Preacher, Milbury, and Umpcoos associations occupies the majority of the site (USDA NRCS 2010a). A typical profile of the Bohannon series follows (table 1) (USDA NRCS 2010b).

Climate

The climate is characterized by cool, wet winters and warm, moist summers tempered by the influence of cyclonic westerlies that approach the Oregon Coast Range from the Pacific Ocean. Precipitation occurs primarily as rain and averages 1507 mm (59.3 in) per year. Winters are dominated by low-pressure systems, and conditions are wet and cool, with extended periods of cloudiness and heavy periods of precipitation. Average winter minimum temperatures of 1.8 °C (35.3 °F) occur in January. Temperature extremes are muted, and diurnal fluctuations are minor: 6 °C to 10 °C (11 °F to 18 °F) (Franklin and Dyrness 1988). Winter snow occurs at higher elevations from November through February, with the majority of snowfall occurring between January and February (table 2). Average annual snowfall is 51 mm (2.0 in) (WRCC 2010). During the drier, summer months, storm tracks move northward, resulting in dominant high-pressure systems with extended periods of warm, dry weather. Average summer maximum temperatures of 25.3 °C (77.5 °F) occur in July. Advection fog often occurs in the summer and may extend into lower elevation valleys of the Coast Range. Only 5 percent of the total average precipitation occurs during the June through August period (table 1) (WRCC 2010). The nearest weather station to the RNA is the Dora 2 West Oregon (352370) weather station located about 16 km (10 mi) to the south of Cherry Creek RNA at the same elevation as the lower portions of the RNA.

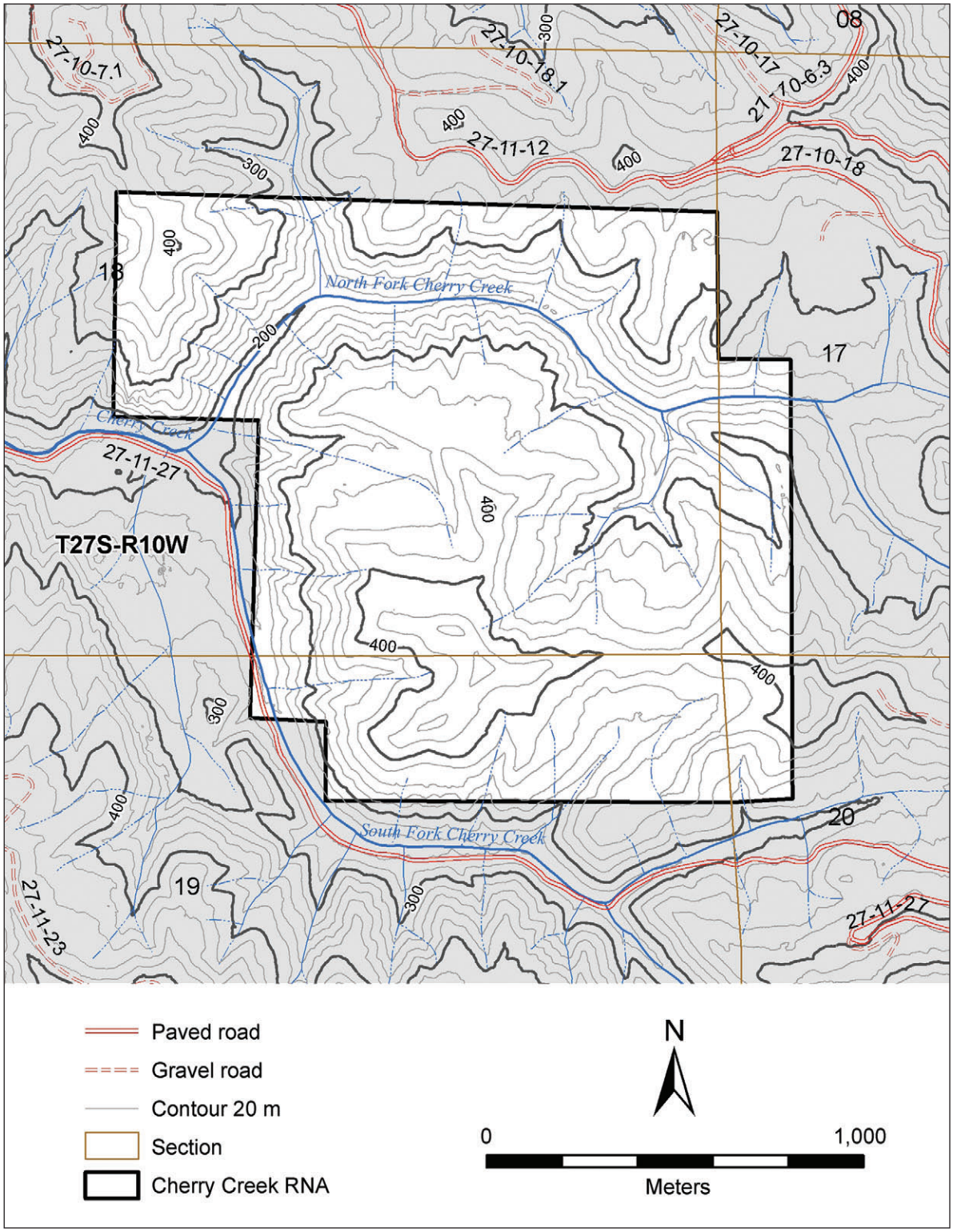

Figure 2—Cherry Creek Research Natural Area (RNA) topography and boundary.

Table 1—Generalized soil profile of the Bohannon series, Oregon Coast Range

Horizon	Depth	Characteristics
Oi	0 to 1 in	Intermittent horizon of freshly fallen needles and fern fronds.
A	1 to 5 in	Dark brown (10YR 3/3) gravelly medial loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, friable, nonsticky and nonplastic; weakly; smeary common roots; many fine and very fine irregular pores; 20 percent gravel; moderately acid (pH 5.9); abrupt smooth boundary.
AB	5 to 12 in	Dark brown (10YR 3/3) gravelly medial loam, brown (10YR 4/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common roots; common fine and very fine irregular pores; 20 percent gravel, cobbles, and stones; moderately acid (pH 6.0); clear smooth boundary.
Bw	12 to 18 in	Dark brown (7.5YR 3/4) gravelly loam, brown (10YR 5/3) dry; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common roots; many fine pores; few, fine, distinct darker colored coatings in pores; 20 percent gravel, cobbles, and stones; moderately acid (pH 6.0); clear smooth boundary.
Bc	18 to 25 in	Brown (7.5YR 4/4) gravelly loam, yellowish brown (10YR 5/4) dry; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common roots; many fine pores; few, fine distinct darker colored coatings in pores; 30 percent gravel, cobbles, and stones; moderately acid (pH 6.0); clear smooth boundary.
Cr1	25 to 59 in	Fractured sandstone with dark yellowish brown (10YR 4/4) loam in fractures; soil material similar to above horizon and accounts for about 10 percent of the horizon; fractured at intervals of 18 to less than 40 inches; gradual irregular boundary.
Cr2	> 59 in	Moderately cemented, partially weathered arkosic; sandstone fractured at intervals of 18 to less than 40 inches.

Source: USDA NRCS 2010b.

Table 2—Temperature and precipitation summary for the Dora 2 W, Oregon (352370) weather station near Cherry Creek Research Natural Area[a]

Average minimum January temperature	1.8 °C (35.3 °F)
Average maximum January temperature	12 °C (53.6 °F)
Average minimum July temperature	10.6 °C (51.0 °F)
Average maximum July temperature	25.3 °C (77.5 °F)
Average annual precipitation	1507 mm (59.34 in)
Average June–August precipitation	75 mm (2.94 in)
Average annual snowfall	51 mm (2.0 in)

[a] Period of record: 5/21/1969 to 4/30/1999 – Dora 2 W, Oregon (352370).

Vegetation

Two primary forest plant associations occur within the RNA: western hemlock/Oregon oxalis (fig. 3), and western hemlock/evergreen huckleberry (fig. 4; sensu McCain and Diaz 2002). Upper side slopes and narrow ridgetops also support a western hemlock-Douglas-fir/Pacific rhododendron-Oregongrape plant association. This latter community typically occupies south- and west-facing slopes and includes small hardwoods such as tanoak (*Lithocarpus densiflorus*) and giant chinquapin (*Chrysolepis chrysophylla*) (Franklin et al. 1972).

About 3.2 km (2 mi) of riparian vegetation occurs along the North Fork and the South Fork of Cherry Creek within the RNA. Typical vegetation includes ladyfern (*Athyrium filix-femina*), salmonberry (*Rubus spectabilis*), Siberian miner's lettuce (*Claytonia sibirica*), oneleaf foamflower (*Tiarella trifoliata* var. *unifoliata*), and slough sedge (*Carex obnupta*) (fig. 5).

Figure 3— Douglas-fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*) dominate the forest overstory and western swordfern (*Polystichum monitum*) and Oregon oxalis (*Oxalis oregana*) occupy major portions of the forest understory within the western hemlock/Oregon oxalis plant association.

Four 0.1-ha (2.47-ac) long-term monitoring plots were established in 2009 to quantify forest stand structure and composition. Plots were distributed across the full elevation gradient found within the RNA (table 3). Douglas-fir, western hemlock, and western redcedar (*Thuja plicata*) were the dominant overstory trees throughout the natural area. Other trees included California laurel (*Umbellularia californica*), and bigleaf maple (*Acer macrophyllum*). Douglas-firs averaged 125 to 175 cm (50 to 70 in) diameter at breast height (d.b.h.)[2] and western redcedars averaged 69 to 112 cm (27 to 44 in) d.b.h. Western hemlocks were the most common small and mid-sized trees in the understory and midstory based upon d.b.h. Tree regeneration was sparse in closed forest stands (table 4).

[2] Diameter at breast height is a measurement taken at 1.47 m above the ground.

Figure 4—Douglas-fir (*Pseudotsuga menziesii*) and western red cedar (*Thuja plicata*) dominate the forest canopy, and Pacific rhododendron (*Rhododendron macrophyllum*) and evergreen huckleberry (*Vaccinium ovatum*) are well represented in the shrub layer within the western hemlock/evergreen huckleberry plant association.

Figure 5—Riparian vegetation along the South Fork Cherry Creek with salmonberry (*Rubus spectabilis*), western swordfern (*Polystichum monitum*), and ladyfern (*Athyrium filix-femina*) comprising a major portion of the forest understory vegetation along with a variety of less conspicuous but typical herbaceous species.

Table 3—Physiographic attributes of four permanent plots sampled in 2009, Cherry Creek Research Natural Area

Plot number	990	991	992	993
Elevation (m)	259	342	400	346
Aspect (degrees)	272	244	170	120
Slope grade (degrees)	36	29	16	16
Slope position	Lower 1/3	Upper 1/3	Upper 1/3	Upper 1/3

Table 4–Size class density and median diameters of live trees occurring within four permanent 0.1-ha monitoring plots, Cherry Creek Research Natural Area

	Plot 990				Plot 991			
Species	**Small saplings[a]**	**Large saplings**	**Live trees**	**Median d.b.h. (cm)**	**Small saplings**	**Large saplings**	**Live trees**	**Median d.b.h. (cm)**
TSHE[b]	0	0	16	20.3	3	0	9	20.1
PSME	0	0	3	145.3	0	0	5	156.0
THPL	0	0	4	107.8	0	0	2	70.1
UMCA	1	1	0	0	1	1	5	14.1
ACMA	0	0	1	32.2	0	0	0	0

	Plot 992				Plot 993			
	Small saplings[a]	**Large saplings**	**Live trees**	**Median d.b.h. (cm)**	**Small saplings**	**Large saplings**	**Live trees**	**Median d.b.h. (cm)**
TSHE[b]	0	0	28	18.8	0	0	16	25.9
PSME	0	0	4	165.9	0	0	5	124.4
THPL	0	0	4	111.5	0	0	3	69.3
UMCA	0	0	5	31.9	1	0	7	35.6
ACMA	0	0	0	0	0	0	0	0

[a] Small saplings = 0.1 to 1.47 m tall, large saplings = < 5 cm diameter at breast height (d.b.h.) and > 1.47 m tall; live trees = ≥ 5 cm d.b.h.
[b] TSHE = *Tsuga heterophylla*, PSME = *Pseudotsuga menziesii*, THPL = *Thuja plicata*, UMCA = *Umbellularia californica*, ACMA = *Acer macrophyllum*.

Understory shrub cover was sparse to moderate (table 5). Major tall shrubs included Pacific rhododendron (*Rhododendron macrophyllum*), and vine maple (*Acer circinatum*). Low to mid-sized shrubs were locally dominant in small patches. These included evergreen huckleberry (*Vaccinium ovatum*), red huckleberry (*Vaccinium parvifolium*), and Oregongrape (*Berberis nervosa*). The herbaceous understory was low in species diversity and dominated by Oregon oxalis (*Oxalis oregana*) and western swordfern (*Polystichum munitum*).

A full list of scientific (FNA 1993+; Oregon Flora Project 2010) and common names (USDA NRCS 2010b) for vascular plants (app. 1) and bryophytes and lichens (Esslinger 2009, McCune and Geiser 2009, Missouri Botanical Garden 2010; app. 2) known or likely to occur within the area is provided at the end of the document.

Table 5—Understory cover and frequency within four permanent vegetation plots, Cherry Creek Research Natural Area

	TSHE/OXOR[a b]				TSHE/VAOV2[a b]			
	Plot 990		Plot 991		Plot 992		Plot 993	
	Cover	Frequency	Cover	Frequency	Cover	Frequency	Cover	Frequency
	Percent							
Shrub cover:[c]								
Acer circinatum	+	—	4	—	2	—		—
Berberis nervosae[d]		—		—	1	—	1	—
Vaccinium ovatum	3	—	3	—	23	—	16	—
Vaccinium parvifolium	4	—		—		—		—
Rhododendron macrophyllum		—		—	7	—		—
Herb cover and frequency:[c]								
Oxalis oregana	15	75	13	89			3	36
Polystichum munitum	25	75	43	89	12	36	22	68
Streptopus amplexifolius var. *americanus*	+	4	+	4				
Trillium ovatum	+	4						
Achlys triphylla	+	4						
Vancouveria hexandra	+	4						

[a] TSHE = *Tsuga heterophylla*, OXOR = *Oxalis oregana*, VAOV2 = *Vaccinium ovatum*, + = trace (< 0.5 percent foliar cover), — = data not collected.
[b] Plant association assigned based on potential vegetation dominants in forest overstory and understory sensu McCain and Diaz (2002).
[c] Cover is expressed as percentage of foliar cover; frequency is expressed in percentage to reflect the proportion of 2 × 5 decimeter microplots in which a species occurs compared to the total number of microplots sampled. Zero values are not included.
[d] Some taxonomic authorities use *Mahonia nervosa* (USDA NRCS 2010c).

Fauna

Amphibians, reptiles, birds, and mammals known or expected to occur within the RNA are listed in appendix 3. These lists have been derived from field observations by local BLM staff and published literature (Csuti et al. 1997).

Disturbance History

Road construction and maintenance along the RNA boundary have influenced adjoining slopes adjacent to the northern boundary. There is no evidence that stand-replacing wildfires have affected the site for at least the past 220 years. Similarly, there is little evidence of windthrow along the RNA boundary or extensive damage to the forest interior from bark beetles such as Douglas-fir beetle (*Dendroctonus pseudotsugae*), or western redcedar bark beetles (*Phloeosinus* spp.) (Franklin et al. 1972).

Elk (*Cervus elaphus*) heavily use the area and influence the forest understory through their browsing and trampling activities (Franklin et al. 1972).

Research History

In addition to the vascular plant, bryophyte and lichen field inventories (app. 1, 2, and 3) completed for the area, the following research and monitoring projects have been undertaken within the Cherry Creek RNA (Greene et al. 1986):

Unpublished vegetation monitoring data. (Schuller, R.; Greene, S.; Sperling, J.; Rodenkirk, T. 2009).

Large wood recruitment and redistribution in headwater streams of the Oregon Coast Range, U.S.A. (May, C.L.; Gresswell, R.E. 2003).

Patterns of coarse woody debris in a chronosequence of Douglas-fir stands in the western Cascades of Oregon and Washington. (Spies, T.A.; Franklin, J.F.; Thomas, T.B. [and others]. 1985).

Cherry Creek stream discharge data. (Oregon Water Resources Department 1983 to 1996).

Summer water temperature. (Bureau of Land Management, Coos Bay District. 1997, 1999, and 2000).

Studies on the incidence of coniferous needle endophytes in the Pacific Northwest. (Carroll, G.C.; Carroll, F.E. 1978).

The location, composition, and structure of old-growth forests of the Oregon Coast Range. (Juday, G.P. 1976).

Maps

Maps applicable to Cherry Creek RNA: Topographic—Dora, Oregon 7.5 minute, 1:24,000 scale, 2006; Bureau of Land Management Coos Bay District transportation map, 15-minute, 1:63,360 scale, 2008.

Acknowledgments

We thank the following people for their time and expertise on the project: John Guetterman, geographic information specialist, Bureau of Land Management (BLM) Coos Bay District, who created the maps that appear as figures 1 and 2; and Holly Witt, wildlife biologist, BLM Coos Bay District, for review and improvement of the list of animals in appendix 3. We also thank the three manuscript reviewers: Todd Wilson, wildlife biologist and research natural area coordinator, U.S. Forest Service (USFS), Pacific Northwest (PNW) Research Station; Susan Carter, botanist, BLM Roseville District; and Ron Halvorson (retired), botanist, BLM Prineville District. We also acknowledge the BLM Coos Bay District for funding this project and the USFS PNW Research Station for publishing this guidebook supplement.

English Equivalents

1 hectare (ha) = 2.47 acres (ac)
1 kilometer (km) = 0.62 mile (mi)
1 meter (m) = 3.28 feet (ft)
1 centimeter (cm) = 0.394 inch (in)
1 millimeter (mm) = 0.0394 inch
Degrees Celsius (°C) = 0.56 (degrees Fahrenheit – 32)

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Appendix 1: Plants[1 2]

Scientific name	Common name
Coniferous trees:	
Pseudotsuga menziesii (Mirb.) Franco	Douglas-fir
Taxus brevifolia Nutt.	Western yew
Thuja plicata Donn ex D. Don	Western redcedar
Tsuga heterophylla (Raf.) Sarg.	Western hemlock
Deciduous trees >8 m (26.3 ft) tall:	
Acer macrophyllum Pursh	Bigleaf maple
Alnus rubra Bong.	Red alder
Corylus cornuta Marsh var. *californica* (DC.) Sharp	California hazelnut
Chrysolepis chrysophylla (Dougl. ex Hook.) Hjelmq.	Giant chinquapin
Lithocarpus densiflorus (Hook. & Arn.) Rehd.	Tanoak
Umbellularia californica (Hook. & Arn.) Nutt.	California laurel
Tall shrubs 2 to 8 m (6.6 to 26.3 ft) tall:	
Acer circinatum Pursh	Vine maple
Holodiscus discolor (Pursh) Maxim.	Oceanspray
Philadelphus lewisii Pursh	Mock orange
Rhamnus purshiana (DC.) Cooper	Cascara buckthorn
Rhododendron macrophyllum D. Don ex G. Don	Pacific rhododendron
Salix scouleriana Barratt ex Hook	Scouler's willow
Salix sitchensis Sans. ex Bong.	Sitka willow
Sambucus racemosa L.	Red elderberry
Medium shrubs 0.5 to 2 m (1.6 to 6.6 ft) tall:	
Baccharis pilularis DC.	Coyotebrush
Gaultheria shallon Pursh	Salal
Lonicera hispidula (Lindl.) Dougl. ex Torr. & A. Gray	Honeysuckle
Ribes bracteosum Dougl. ex Hook.	Stink currant
Ribes sanguineum Pursh	Red-flowering currant
Rosa gymnocarpa Nutt.	Baldhip rose
Rubus leucodermis Dougl. ex Torr. & A. Gray	Whitebark raspberry
Rubus parviflorus Nutt.	Thimbleberry
Rubus spectabilis Pursh	Salmonberry
Sambucus racemosa L. var. *arborescens* (Torr. & Gray) A. Gray	Red elderberry
Toxicodendron diversilobum (Torr. & A. Gray) Greene	Poison oak
Vaccinium ovatum Pursh	Evergreen huckleberry
Vaccinium parvifolium Sm.	Red huckleberry
Low shrubs <0.5 m (1.6 ft) tall:	
Berberis nervosa Pursh	Oregongrape
Rubus ursinus Cham. & Schldtl.	California dewberry
Herbs (including ferns and allies):	
Actaea rubra (Ait.) Willd.	Baneberry
Achlys californica I. Fukuda & H.G. Baker	California vanilla leaf
Achlys triphylla (Sm.) DC.	Vanilla leaf; deer foot
Adenocaulon bicolor Hook.	American trail plant
Adiantum pedatum L.	Maidenhair fern
Anaphalis margaritacea (L.) Benth. & Hook.	Pearly everlasting
Anemone deltoidea Hook.	Columbian windflower

Scientific name	Common name
Aquilegia formosa Fisch. ex DC.	Red columbine
Asarum caudatum Lindl.	Wild ginger
Athyrium filix-femina (L.) Roth	Ladyfern
Blechnum spicant (L.) Sm.	Deer fern
Cardamine oligosperma T. & G.	Little western bittercress
Circaea alpina L.	Small enchanter's nightshade
Cirsium remotifolium (Hook.) DC.	Fewleaf thistle
Cirsium vulgare (Savi) Ten.	Bull thistle
Claytonia sibirica (L.) Howell	Siberian miner's lettuce
Corallorhiza maculata (Raf.) Raf. var. *maculata*	Spotted coralroot
Crepis capillaris (L.) Wallr.	Smooth hawksbeard
Dicentra formosa (Andr.) Walpers	Pacific bleeding heart
Digitalis purpurea L.	Foxglove
Dryopteris carthusiana (Vill.) H.P. Fuchs	Spinulose woodfern
Epilobium ciliatum Raf.	Purple-leaved willowherb
Equisetum telmateia Ehrh.	Giant horsetail
Galium aparine L.	Stickywilly
Galium triflorum Michx.	Sweet scented bedstraw
Gnaphalium sp.	Cudweed
Goodyera oblongifolia Raf.	Western rattlesnake plantain
Heuchera micrantha Lindley	Small-flowered alumroot
Hieracium albiflorum Hook.	White-flowered hawkweed
Hydrophyllum tenuipes A. Heller	Slender-stem waterleaf
Hypochaeris radicata L.	Hairy cat's-ear
Iris tenax Dougl.	Oregon iris
Lotus corniculatus L.	Bird's foot-trefoil
Maianthemum racemosum (L.) Link	Feathery false lily-of-the-valley
Maianthemum stellatum (L.) Link	Starry false lily-of-the-valley
Marah oreganus (Torr. & Gray) Howell	Wild cucumber
Mimulus guttatus DC.	Common monkeyflower
Mitella caulescens Nutt.	Leafy miterwort
Mitella ovalis Greene	Coastal miterwort
Monotropa uniflora L.	Indianpipe
Montia parvifolia (Moc. ex DC.) Greene	Streambank springbeauty
Oxalis oregana Nutt.	Oregon oxalis
Oxalis trilliifolia Hook.	Three-leaf wood sorrel
Polypodium glycyrrhiza DC. Eat.	Licorice fern
Polystichum munitum (Kaulf.) C. Presl	Western swordfern
Prosartes smithii (Hook.) Utech, Shinwari & Kawano	Smith's fairybells
Prunella vulgaris L. var. *vulgaris*	Self heal
Pteridium aquilinum (L.) Kuhn.	Brackenfern
Ranunculus repens L.	Creeping buttercup
Ranunculus uncinatus D. Don ex G. Don	Woodland buttercup
Rumex obtusifolius L.	Bitter dock
Selaginella wallacei Hieron.	Wallace's spikemoss
Senecio vulgaris L.	Common groundsel
Senecio sp.	Groundsel
Sidalcea cusickii Piper	Cusick's checkerbloom
Silene sp.	Catchfly
Sonchus asper (L.) Hill	Spiny sowthistle

Scientific name	Common name
Stachys sp.	Hedgenettle
Stellaria crispa Cham. & Schltdl.	Curled starwort
Stellaria longipes Goldie	Long-leaved starwort
Streptopus amplexifolius (L.) DC.	Clasping twisted stalk
Synthyris reniformis (Douglas ex Benth.) Benth.	Snowqueen
Tellima grandiflora (Pursh) Dougl. ex Lindl.	Fringecup
Thalictrum occidentale A. Gray	Western meadowrue
Tiarella trifoliata L. var. *trifoliata*	Three-leaf foamflower
Tiarella trifoliata L. var. *unifoliata* (Hook.) Kurtz	Oneleaf foamflower
Tolmiea menziesii (Pursh) Torr. & A. Gray	Piggy back plant
Torilis arvensis (Huds.) Link ssp. *arvensis*	Spreading hedgeparsley
Trientalis borealis Raf. ssp. *latifolia* (Hook.) Hultén	Broadleaf starflower
Trifolium sp.	Clover
Trillium ovatum Pursh	Western trillium
Vancouveria hexandra (Hook.) Morr. & Dec.	Inside-out flower
Viola glabella Nutt.	Pioneer violet
Viola sempervirens Greene	Redwoods violet
Whipplea modesta Torr.	Common whipplea
Xerophyllum tenax (Pursh) Nutt.	Common beargrass
Grasses, sedges and rushes:	
Agrostis sp.	Bentgrass
Alopecurus sp.	Foxtail
Bromus vulgaris (Hook.) Shear	Columbia brome
Carex hendersonii L.H. Bailey	Henderson's sedge
Carex leptopoda Mack.	Taperfruit shortscale sedge
Carex obnupta L.H. Bailey	Slough sedge
Danthonia californica Bol.	California oatgrass
Deschampsia danthonioides (Trin.) Munro	Annual hairgrass
Elymus glaucus Buckley	Blue wildrye
Festuca occidentalis Hook.	Western fescue
Festuca subulata Trin.	Bearded fescue
Glyceria striata (Lam.) Hitchc.	Fowl mannagrass
Hierochloe occidentalis Buckley	California sweetgrass
Holcus lanatus L.	Common velvet grass
Lolium perenne L.	Perennial ryegrass
Luzula comosa E. Mey.	Pacific woodrush
Luzula parviflora (Ehrh.) Desv.	Small flowered woodrush
Poa sp.	Bluegrass
Scirpus microcarpus J. Presl & C. Presl	Panicled bulrush

[1] Compiled from 2009 field surveys by J. Sperling, T. Rodenkirk, and R. Schuller.
[2] Nomenclature for vascular plants, ferns, and fern-allies follows the *Flora of North America* (1993+) and the Oregon Flora Project Web site (2010). Common names follow USDA NRCS *Plants Database* (2010c).

Appendix 2: Bryophytes and Lichens[1 2]

Scientific name	Authority
Hornworts:	
Anthoceros fusiformis	Austin
Liverworts:	
Calypogeia azurea	Stotler & Crotz
Calypogeia sp.	Raddi
Cephalozia bicuspidata	(L.) Dumort.
Cephalozia lunulifolia	(Dumort.) Dumort
Cephaloziella divaricata	(Sm.) Warnst.
Chiloscyphus pallescens	(Ehrh. ex Hoffm.) Dumort
Chiloscyphus polyanthos	(L.) Corda
Conocephalum conicum	(L.) Underw.
Diplophyllum plicatum	Lindb.
Frullania nisquallensis	Sull.
Gymnomitrion obtusum	(Lindb.) Pears.
Lepidozia reptans	(L.) Dumort
Lophocolea coadunata	(Sw.) Mont.
Lophocolea profunda	Nees
Metzgeria conjugata	Lindb.
Pellia neesiana	(Gottsche) Limpr.
Plagiochila porelloides	(Torr. ex Nees) Lindenb.
Porella cordaeana	(Hueb.) Moore
Porella navicularis	(Lehm. & Lindenb.) Pfeiff.
Porella roellii	Stephani
Radula bolanderi	Gottsche
Riccardia chamedryfolia	(With.) Grolle
Riccardia multifida	(L.) Gray
Riccardia palmata	(Hedw.) Carruth.
Riccardia sp.	Gray
Scapania americana	K. Müll.
Scapania bolanderi	Austin
Scapania undulata	(L.) Dumort
Mosses:	
Amphidium californicum	(Hampe ex C. Müll.) Hal.
Antitrichia curtipendula	(Timm ex Hedw.) Brid.
Aulacomnium androgynum	(Hedw.) Schwa.
Brachythecium sp.	Schimp.
Bryum miniatum	Lesq.
Buxbaumia sp.	Hedw.
Campylopus introflexus	(Hedw.) Brid.
Ceratodon purpureus	(Hedw.) Brid.
Claopodium bolanderi	Best
Claopodium crispifolium	(Hook.) Renauld & Cardot
Claopodium whippleanum	(Sull.) Renauld & Cardot
Codriophorus aciculare	(Hedw.) Pali.
Codriophorus varius	(Mitt.) Jaeg.
Codriophorus sp.	Beauv.
Dendroalsia abietina	(Hook.) Britt.

Scientific name	Authority
Dichodontium pellucidum	(Hedw.) Schimp.
Dicranoweisia cirrata	(Hedw.) Lindb. ex Milde
Dicranum fuscescens	Turn.
Dicranum howellii	Renauld & Cardot
Didymodon vinealis var. *vinealis*	(Brid.) Zand.
Eurhynchium oreganum	(Sull.) Jaeg.
Eurhynchium praelongum	(Hedw.) Schimp.
Fissidens bryoides	Hedw.
Fissidens crispus	Mont.
Fissidens ventricosus	Lesq.
Grimmia sp.	Hedw.
Heterocladium macounii	Best
Homalothecium fulgescens	(Mitt. ex Müll.) Jaeg.
Homalothecium nuttallii	(Wils.) Jaeg.
Hookeria lucens	(Hedw.) Sm.
Hygrohypnum luridum	(Hedw.) Jenn.
Hypnum circinale	Hook.
Hypnum dieckii	Renauld & Cardot
Isothecium stoloniferum	Brid.
Leucolepis acanthoneura	(Schwaegr.) Lindb.
Metaneckera menziesii	(Hook. in Drumm.) Steere
Neckera douglasii	Hook.
Orthotrichum consimile	Mitt.
Orthotrichum lyellii	Hook. & Tayl.
Philonotis fontana	(Hedw.) Brid.
Plagiomnium insigne	(Mitt.) T. Kop.
Plagiomnium venustum	(Mitt.) T. Kop.
Plagiothecium undulatum	(Hedw.) Schimp.
Pohlia cruda	(Hedw.) Lindb.
Porotrichum bigelovii	(Sull.) Kindb.
Pseudotaxiphyllum elegens	(Brid.) Iwats.
Rhizomnium glabrescens	(Kindb.) T. Kop.
Rhytidiadelphus loreus	(Hedw.) Warnst.
Rhytidiadelphus triquetrus	(Hedw.) Warnst.
Schistidium strictum	(Turner) Loeske
Scleropodium obtusifolium	(Mitt.) Kindb.
Tetraphis pellucida	Hedw.
Lichens:	
Alectoria subsarmentosa	Stirton
Alectoria vancouverensis	(Gyelnik) Gyelnik ex Brodo & D. Hawksw.
Bryoria fuscescens	(Gyelnik) Brodo & D. Hawksw.
Cetraria orbata	(Nyl.) Fink
Chaenotheca furfuracea	(L.) Tibell
Cladonia furcata	(Huds.) Schr.
Cladonia sp.	P. Browne
Hypogymnia enteromorpha	(Ach.) Nyl.
Hypogymnia imshaugii	Krog
Hypogymnia inactiva	(Krog) Ohlsson
Hypogymnia physodes	(L.) Nyl.

Scientific name	Authority
Hypogymnia tubulosa	(Schaerer) Hav.
Icmadophila ericetorum	(L.) Zahlbr.
Leptogium palmatum	(Huds.) Mont.
Lobaria oregana	(Tuck.) Müll. Arg.
Nephroma helveticum	Ach.
Nephroma resupinatum	(L.) Ach.
Parmelia sulcata	Taylor
Peltigera collina	(Ach.) Schrader
Peltigera membranacea	(Ach.) Nyl.
Peltigera neopolydactyla	(Gyelnik) Gyelnik
Pertusaria subambigens	Dibben
Platismatia glauca	(L.) Culb. & C. Culb.
Platismatia herrei	(Imshaug) Culb & C. Culb.
Ramalina thrausta	(Ach.) Nyl.
Sphaerophorus tuckermanii	Räsänen
Spaerophorus vernabilis	Wedin, Högnabba & Goward
Usnea filipendula	Stirton
Usnea longissima	Ach.
Usnea scabrata	Nyl.
Usnea sp.	Dill. ex Adans.

[1] Compiled from 2009 field surveys by J. Sperling and T. Rodenkirk.
[2] Nomenclature follows Missouri Botanical Garden, http://www.Tropicos.org (2010) database for hornworts, liverworts, and mosses; and Esslinger (2009) for lichens.

Appendix 3: Amphibians, Reptiles, Birds, and Mammals[1]

Family	Scientific name	Common name
Amphibians:		
Ambystomatidae	*Ambystoma gracile*	Northwestern salamander
	Ambystoma macrodactylum	Long-toed salamander
Dicamptodontidae	*Dicamptodon tenebrosus*	Pacific giant salamander
	Rhyacotriton variegatus	Southern torrent salamander
Plethodontidae	*Aneides ferreus*	Clouded salamander
	Ensatina eschscholtzi	Ensatina
	Plethodon dunni	Dunn's salamander
	Plethodon vehiculum	Western redback
Salamandridae	*Taricha granulosa*	Rough-skinned newt
Bufonidae	*Bufo boreas*	Western toad
Hylidae	*Pseudacris regilla*	Pacific chorus frog
Leiopelmatidae	*Ascaphus truei*	Tailed frog
Ranidae	*Rana aurora*	Red-legged frog
	Rana boylii	Foothill yellow-legged frog
	Rana catesbeiana	Bullfrog
Reptiles:		
Anguidae	*Elgaria coerulea*	Northern alligator lizard
Scincidae	*Eumeces skiltonianus*	Western skink
Boidae	*Charina bottae*	Rubber boa
Colubridae	*Contia tenuis*	Sharptail snake
	Diadophis punctatus	Ringneck snake
	Thamnophis elegans	Western terrestrial garter snake
	Thamnophis ordinoides	Northwestern garter snake
	Thamnophis sirtalis	Common garter snake
Birds:[2]		
Ardeidae	*Ardea herodias*	Great blue heron
	Butorides virescens	Green heron
Anatidae	*Aix sponsa*	Wood duck
	Mergus merganser	Common merganser
	Lophodytes cucullatus	Hooded merganser
Cathartidae	*Cathartes aura*	Turkey vulture
Accipitridae	*Pandion haliaetus*	Osprey
	Accipiter striatus	Sharp-shinned hawk
	Accipiter cooperii	Cooper's hawk
	Buteo jamaicensis	Red-tailed hawk
Falconidae	*Falco sparverius*	American kestrel
	Falco peregrinus	Peregrine falcon

Family	Scientific name	Common name
Phasianidae	*Phasianus colchicus*	Ring-necked pheasant
	Dendragapus obscurus	Blue grouse
	Bonasa umbellus	Ruffed grouse
	Callipepla californica	California quail
	Oreortyx pictus	Mountain quail
Charadriidae	*Charadrius vociferous*	Killdeer
Scolopacidae	*Actitis macularia*	Spotted sandpiper
Alcidae	*Brachyramphus marmoratus*	Marbled murrelet
Columbidae	*Columba fasciata*	Band-tailed pigeon
	Zenaida macroura	Mourning dove
Strigidae	*Otus kennicottii*	Western screech-owl
	Bubo virginianus	Great-horned owl
	Glaucidium gnoma	Northern pygmy-owl
	Strix occidentalis	Spotted owl
	Strix varia	Barred owl
	Aegolius acadicus	Northern saw-whet owl
Caprimulgidae	*Chordeiles minor*	Common nighthawk
Apodidae	*Chaetura vauxi*	Vaux's swift
Trochilidae	*Calypte anna*	Anna's hummingbird
	Selasphorus rufus	Rufous hummingbird
Alcedinidae	*Ceryle alcyon*	Belted kingfisher
Picidae	*Sphyrapicus ruber*	Red-breasted sapsucker
	Picoides pubescens	Downy woodpecker
	Picoides villosus	Hairy woodpecker
	Colaptes auratus	Northern flicker
	Dryocopus pileatus	Pileated woodpecker
Tyrannidae	*Contopus borealis*	Olive-sided flycatcher
	Contopus sordidulus	Western wood peewee
	Empidonax hammondii	Hammond's flycatcher
	Empidonax traillii	Willow flycatcher
	Empidonax difficilis	Pacific-slope flycatcher
	Tyrannus verticalis	Western kingbird
Hirundinidae	*Hirundo pyrrhonota*	Cliff swallow
	Hirundo rustica	Barn swallow
	Progne subis	Purple martin
	Tachycineta bicolor	Tree swallow
	Tachycineta thalassina	Violet-green swallow
Corvidae	*Perisoreus canadensis*	Gray jay
	Cyanocitta stelleri	Steller's jay
	Corvus brachyrhynchos	American crow
	Corvus corax	Common raven
Paridae	*Parus atricapillus*	Black-capped chickadee
	Parus rufescens	Chestnut-backed chickadee

Family	Scientific name	Common name
Aegithalidae	*Psaltriparus minimus*	Bushtit
Sittidae	*Sitta canadensis*	Red-breasted nuthatch
Certhiidae	*Certhia americana*	Brown creeper
Troglodytidae	*Thryomanes bewickii*	Bewick's wren
	Troglodytes aedon	House wren
	Troglodytes troglodytes	Winter wren
Cinclidae	*Cinclus mexicanus*	American dipper
Muscicapidae	*Chamaea fasciata*	Wrentit
	Catharus guttatus	Hermit thrush
	Catharus ustulatus	Swainson's thrush
	Ixoreus naevius	Varied thrush
	Myadestes townsendi	Townsend's solitaire
	Regulus satrapa	Golden-crowned kinglet
	Sialia mexicana	Western bluebird
	Turdus migratorius	American robin
Bombycillidae	*Bombycilla cedrorum*	Cedar waxwing
Vireonidae	*Vireo cassinii*	Cassin's vireo
	Vireo gilvus	Warbling vireo
	Vireo huttonii	Hutton's vireo
Emberizidae	*Dendroica coronata*	Yellow-rumped warbler
	Dendroica petechia	Yellow warbler
	Dendroica nigrescens	Black-throated gray warbler
	Dendroica occidentalis	Hermit warbler
	Junco hyemalis	Dark-eyed junco
	Melospiza melodia	Song sparrow
	Molothrus ater	Brown-headed cowbird
	Oporornis tolmiei	MacGillivray's warbler
	Passerella iliaca	Fox sparrow
	Pheucticus meelanocephalus	Black-headed grosbeak
	Pipilo maculatus	Spotted towhee
	Piranga rubra	Western tanager
	Spizella passerina	Chipping sparrow
	Wilsonia pusilla	Wilson's warbler
	Zonotrichia leucophrys	White-crowned sparrow
Fringillidae	*Carduelis pinus*	Pine siskin
	Carduelis tristis	American goldfinch
	Coccothraustes vespertinus	Evening grosbeak
	Loxia curvirostra	Red crossbill
Mammals:		
Didelphidae	*Didelphis virginiana*	Virginia opossum
Soricidae	*Sorex sonomae*	Fog shrew
	Sorex pacificus	Pacific shrew
	Sorex bendirii	Pacific marsh shrew
	Sorex trowbridgii	Trowbridge's shrew
	Neurotrichus gibbsii	Shrew-mole

Family	Scientific name	Common name
Vespertilionidae	*Myotis volans*	Long-legged myotis
	Myotis thysanodes	Fringed myotis
	Myotis evotis	Long-eared myotis
	Lasionycteris noctivagans	Silver-haired bat
	Eptesicus fuscus	Big brown bat
Leporidae	*Sylvilagus bachmani*	Brush rabbit
Aplodontidae	*Aplodontia rufa*	Mountain beaver
Sciuridae	*Tamias townsendii*	Townsend's chipmunk
	Sciurus griseus	Western gray squirrel
	Tamiasciurus douglasii	Douglas' squirrel
	Glaucomys sabrinus	Northern flying squirrel
Castoridae	*Castor canadensis*	American beaver
Muridae	*Peromyscus maniculatus*	Deer mouse
	Neotoma fuscipes	Dusky-footed woodrat
	Neotoma cinerea	Bushy-tailed woodrat
	Clethrionomys californicus	Western red-backed vole
	Phenacomys albipes	White-footed vole
	Phenacomys longicaudus	Red tree vole
	Microtus longicaudus	Long-tailed vole
	Microtus oregoni	Creeping vole
Dipodidae	*Zapus trinotatus*	Pacific jumping mouse
Erethizontidae	*Erethizon dorsatum*	Common porcupine
Canidae	*Canis latrans*	Coyote
	Urocyon cinereoargenteus	Common gray fox
Ursidae	*Ursus americanus*	Black bear
Procyonidae	*Procyon lotor*	Common raccoon
Mustelidae	*Martes americana*	American marten
	Mustela erminea	Ermine
	Mustela frenata	Long-tailed weasel
	Spilogale gracilis	Western spotted skunk
	Mephitis mephitis	Striped skunk
Felidae	*Felis concolor*	Mountain lion
	Lynx rufus	Bobcat
Cervidae	*Cervus elaphus*	Elk
	Odocoileus hemionus ssp. *columbianus*	Black-tailed deer

[1] Nomenclature taken from Csuti et al. 1997.
[2] List partially compiled by 2009 field surveys by T. Rodenkirk and supplemented by habitat and distribution information in Csuti et al. 1997. Atlas of Oregon wildlife.

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