

COQUILLE RIVER FALLS RESEARCH NATURAL AREA¹

Port-Orford-cedar and Douglas-fir growing in a rugged mountain canyon in the southwestern Oregon Coast Ranges.

The Coquille River Falls Research Natural Area was established on January 31, 1945, to provide examples of virgin old-growth Port-Orford-cedar (*Chamaecyparis lawsoniana*) stands. The 202-ha. (500-acre) tract is located in Coos County, Oregon, and is administered by the Powers Ranger District, Powers, Oregon (Siskiyou National Forest). The natural area occupies portions of sections 16, 17, 18, 20, and 21, T. 33 S., R. 11 W., Willamette meridian. The natural area is bounded by Forest Road 333 on the northwest, by Forest Road 321 on the west, south, and east, and by the center line of sections 16 and 17 on the north (fig. CO-1). It lies at 42°44' N. latitude and 124 °03' W. longitude.

ACCESS AND ACCOMMODATIONS

Primary access is via State Highway 242 and Powers, which lies 29 km. (18 miles) south of State Highway 42 and about 34 and 48 km. (21 and 30 miles) from Myrtle Point and Coquille, respectively. To reach the natural area, travel south from Powers on Forest Road 333 for about 33 km. (20 miles) to the bridge across the South Fork of the Coquille River. This bridge is located on the northwest

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boundary of the tract. For the next several kilometers Roads 333 and 321 bound the natural area.

Generally, cross-country travel is necessary within the natural area. Immediately east of Squaw Creek an unmarked trail leads from Road 321 down to Coquille River Falls. The upper- and mid-slopes of the natural area on the south side of the river are reasonably accessible from the road. Access to the lower slopes and area of the river is difficult, however. The best way to reach the latter is from the northwestern corner of the natural area entering just north of the bridge where Road 333 crosses the South Fork of the Coquille River.

The nearest commercial accommodations are in Powers, Myrtle Point, Coquille, and Gold Beach; however, there are several improved forest camps along Forest Road 333 in the vicinity of the natural area: Daphne Grove, Myrtle Grove, and Boundary.

ENVIRONMENT

The Coquille River Falls Research Natural Area occupies a topographically rugged canyon area. Except for a few benches along Road 321, slopes are moderate to very steep. Cliffs and rock outcrops are occasionally encountered and are very common along the river itself (fig. CO-2). The South Fork of the Coquille River and numerous other streams such as Squaw and Drowned Out Creek flow through the southern part of the natural area. Spring and seep areas are also common. Elevations within the natural area range from 305 to 760 m. (1,000 to 2,500 ft.).

The natural area is relatively simple geologically (Diller 1903, Wells 1955, and Peck 1961). Bedrock is composed of sedimentary materials, primarily sand and siltstones, belonging to the Tyee formation of Eocene age.

The climate is wet and mild. Precipitation

is seasonal, with a peak in January and December and a minimum in July and August. The summer drought period is more pronounced than in the northern Oregon and Washington coastal mountains. The following climatic data are from the closest weather station at Powers (U.S. Weather Bureau 1965) :

Mean annual temperature	12.0°C. (53.6°F.)
Mean January temperature	6.6°C. (43.8°F.)
Mean July temperature	17.6°C. (63.6°F.)
Mean January minimum temperature	1.6°C. (34.8°F.)
Mean July maximum temperature	25.0°C. (77.0°F.)
Average annual precipitation	1,535 mm. (60.44 in.)
June through August precipitation	56 mm. (2.19 in.)

Since Powers is about 150 m. (500 ft.) lower in elevation, temperatures are lower and precipitation higher on the natural area; isohyetal maps (Oregon State Water Resources Board 1959) indicate 2,500 to 2,800 mm. (100 to 110 in.) annual precipitation.

Soils vary greatly in depth throughout the area. The profiles typically are not strongly developed. On better sites, soils tend toward Reddish-Brown Lateritics with 5- to 10-cm. (2- to 4- in.) thick Al horizons. These profiles are typically developed in relatively deep colluvial deposits. Soils are generally much shallower on the slopes north of the Coquille River, where either Brown Podzolic or Lithosolic types may be encountered.

BIOTA

All of the natural area is classed as SAF cover type 231, Port-Orford-Cedar-Douglas-Fir (Society of American Foresters 1954). The area falls within Kuchler's (1964) Type 2, Cedar-Hemlock-Douglas Fir Forest, and the *Tsuga heterophylla* Zone of Franklin and Dyrness (1969).

Port-Orford-cedar and Douglas-fir (*Pseudotsuga menziesii*) are the most important tree species within the natural area composing approximately 22 percent and 69 percent of the total timber volume (fig. CO-2). There are particularly fine specimens of Port-Orford-cedar on the benches along Forest Road 321 (fig. CO-2); these trees attain diameters in

excess of 130 cm. (50 in.) b.h. and heights in excess of 60 m. (200 ft.) Western hemlock (*Tsuga heterophylla*), grand fir (*Abies grandis*), sugar pine (*Pinus lambertiana*), and Pacific yew (*Taxus brevifolia*) are other coniferous tree species found within the tract. Hardwoods are well represented though not necessary in the highest canopy levels. These include red alder (*Alnus rubra*), tanoak (*Lithocarpus densiflorus*), golden chinkapin (*Castanopsis chrysophylla*), and Pacific madrone (*Arbutus menziesii*).

General successional trends are toward replacement of Douglas-fir and Port-Orford-cedar by western hemlock. Hemlock seedlings and saplings are the most abundant in mature forest stands, while those of grand fir and Port-Orford-cedar are relatively uncommon or absent. However, sprout and seedling reproduction of tanoak is as abundant as or more so than that of western hemlock in some stands, suggesting it may also be a major climax species.

There are a variety of distinctive forest communities found within the natural area. Most conspicuous are the old-growth coniferous stands dominated by Port-Orford-cedar and Douglas-fir which are concentrated south of the Coquille River. *Polystichum munitum* dominates the understory on moist benches as well as on well watered slopes or in seep areas. Typical associated species are *Oxalis oregana*, *Berberis nervosa*, *Galium triflorum*, *Viola sempervirens*, *Hierchloe occidentalis*, and *Trillium ovatum*. Shrubs commonly encountered on such sites are *Vaccinium ovatum*, tanoak, and *Gaultheria shallon*.

Other old-growth stands, e.g., those found on drier sites, may have a dense understory of shrubs and small trees such as *Rhododendron macrophyllum*, *Vaccinium parvifolium*, *P. ovatum*, tanoak, golden chinkapin, *Gaultheria shallon*, and *Berberis nervosa*. Herbaceous species include many of those found on moister sites (e.g., *Polystichum munitum*), but coverage of the herbaceous layer is typically much lower.

Younger, second-growth stands growing on relatively poor sites typify the natural area north of the Coquille River. Douglas-fir

and Port-Orford-cedar are the most important coniferous tree species present, but sugar pine is also found in these stands. Hardwoods, such as golden chinkapin, tanoak, and Pacific madrone, are much more important than in the older stands, and the understory is dominated by shrubs such as *Rhododendron macrophyllum*, *Gaultheria shallon*, and *Berberis nervosa*.

There are some small areas of *Alnus rubra*/*Polystichum munitum* communities scattered through the southern half of the natural area (fig. CO-2). There is relatively little evidence of successional direction in these stands; reproduction is lacking in almost all species.

Mammals believed to reside or occur as transients within the natural area are listed in table CO-I. A variety of amphibians, such as frogs and salamanders, are associated with the streams and seep areas. *Ensatina* (*Ensatina eschscholtzi*), Pacific giant salamander (*Dicamptodon ensatus*), and clouded salamanders (*Aneides ferreus*) have been collected within the natural area.

Specialized habitats within the Coquille River Falls Research Natural Area include the stream and stream side areas and the rock cliffs found along the South Fork of the Coquille River (fig. CO-2).

HISTORY OF DISTURBANCE

The most serious disruptive influence has been the recent invasion of an exotic root pathogen, *Phytophthora lateralis*, which is invariably fatal to Port-Orford-cedar. In 1966 the pathogen was not known to be present in the natural area and there were no cedar dying at that time. By 1968 dying Port-Orford-cedar were common along Road 321 and extended down the drainages north of this road. This follows the typical pattern of invasion for this pathogen. In 1970 nearly half (47 percent) of the Port-Orford-cedar volume was in snags and down trees in contrast to 16 percent in the nearby, but not yet infested, Port Orford Cedar Research Natural Area.² It is expected that most of the stands

² Unpublished cruise data on file at Powers Ranger Station, Siskiyou National Forest, Powers, Oregon.

on the south side of the South Fork of the Coquille River will eventually become infected.

Severe fire scars are present on the old Port-Orford-cedar and Douglas-fir (fig. CO-2). These scars and the scattering of youthful red alder stands are evidence of periodic wildfires in the area prior to the establishment of fire control programs. None appear to have occurred in recent years.

Human disturbance of the area is confined to the road and trail side areas and to the vicinity of Coquille River Falls which receives moderate visitor use.

RESEARCH

There are no research studies in progress on the Coquille River Falls Research Natural Area. Some data on community structure and limited plant collections have been obtained by Forest Service personnel.

This natural area compliments the larger Port Orford Cedar Research Natural Area located about 5 km. (2 miles) to the northwest. Research opportunities include studies of: (1) variation in forest composition, structure, and dynamics under contrasting environmental and stand conditions; and (2) fauna and flora associated with rock outcrops and cliffs found in a major river canyon. The recent and rapidly progressing invasion of the area by *Phytophthora lateralis* makes studies of the communities and the ecological impacts of the pathogen upon them especially timely.

MAPS AND AERIAL PHOTOGRAPHS

Special maps applicable to the natural area include: *Topography* - 15' Agness, Oregon quadrangle, scale 1:62,500, issued by the U.S. Geological Survey in 1954; and *geology* - *Description of the Port Orford Quadrangle*, scale 1:250,000 (Diller 1903), *Preliminary Geologic Map of Southwestern Oregon ...*, scale 1:250,000 (Wells 1955), and *Geologic Map of Oregon West of the 121st Meridian*, scale 1:500,000 (Peck 1961). Either the District Ranger (Powers Ranger District) or

Forest Supervisor (Siskiyou National Forest, Grants Pass, Oregon) can provide details on the most recent aerial photo coverage and forest type maps for the area.

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Table CO-1. — Tentative list of mammals for Coquille River Falls Research Natural Area¹

Order	Scientific name	Common name	
Insectivora	<i>Neurotrichus gibbsi</i>	shrew mole	
	* <i>Scapanus orarius</i>	coast mole	
	<i>Sorex bendirii</i>	marsh shrew	
	<i>Sorex pacificus</i>	Pacific shrew	
Chiroptera	* <i>Sorex trowbridgii</i>	Trowbridge shrew	
	<i>Antrozous pallidus</i>	pallid bat	
	<i>Eptesicus fuscus</i>	big brown bat	
	<i>Lasiomycteris noctivagans</i>	silver-haired bat	
	<i>Lasiurus borealis</i>	red bat	
	<i>Lasiurus cinereus</i>	hoary bat	
	<i>Myotis californicus</i>	California myotis	
	<i>Myotis evotis</i>	long-eared myotis	
	<i>Myotis lucifugus</i>	little brown myotis	
	<i>Myotis thysanodes</i>	fringed myotis	
	<i>Myotis volans</i>	long-legged myotis	
	<i>Myotis yumanensis</i>	Yuma myotis	
	<i>Plecotus townsendi</i>	Townsend big-eared bat	
	Lagomorpha	<i>Lepus americanus</i>	snowshoe hare
Rodentia		<i>Aplodontia rufa</i>	mountain beaver
	<i>Arborimus albipes</i>	white-footed vole	
	* <i>Arborimus longicaudus</i>	red tree vole	
	<i>Castor canadensis</i>	beaver	
	<i>Clethrionomys californicus</i>	California red-backed vole	
	<i>Erethizon dorsatum</i>	porcupine	
	* <i>Eutamias townsendi</i>	Townsend chipmunk	
	<i>Glaucomys sabrinus</i>	northern flying squirrel	
	<i>Microtus oregoni</i>	Oregon or creeping vole	
	* <i>Peromyscus maniculatus</i>	deer mouse	
	* <i>Tamiasciurus douglasi</i>	chickaree	
	<i>Zapus trinotatus</i>	Pacific jumping mouse	
	Carnivora	<i>Bassariscus astutus</i>	ringtail or miner's cat
		<i>Canis latrans</i>	coyote
<i>Felis concolor</i>		mountain lion or cougar	
<i>Lutra canadensis</i>		river otter	
<i>Lynx rufus</i>		bobcat	
<i>Martes americana</i>		marten	
<i>Mustela erminea</i>		short-tailed weasel or ermine	
<i>Mustela frenata</i>		long-tailed weasel	
<i>Mustela vison</i>		mink	
<i>Procyon lotor</i>		raccoon	
<i>Spilogale putorius</i>		spotted skunk or civet cat	
Artiodactyla	<i>Ursus americanus</i>	black bear	
	* <i>Cervus canadensis roosevelti</i>	Roosevelt elk	
	* <i>Odocoileus h. columbianus</i>	black-tailed deer	

¹ Asterisk (*) indicates habitation verified by sign, sighting, or collection.

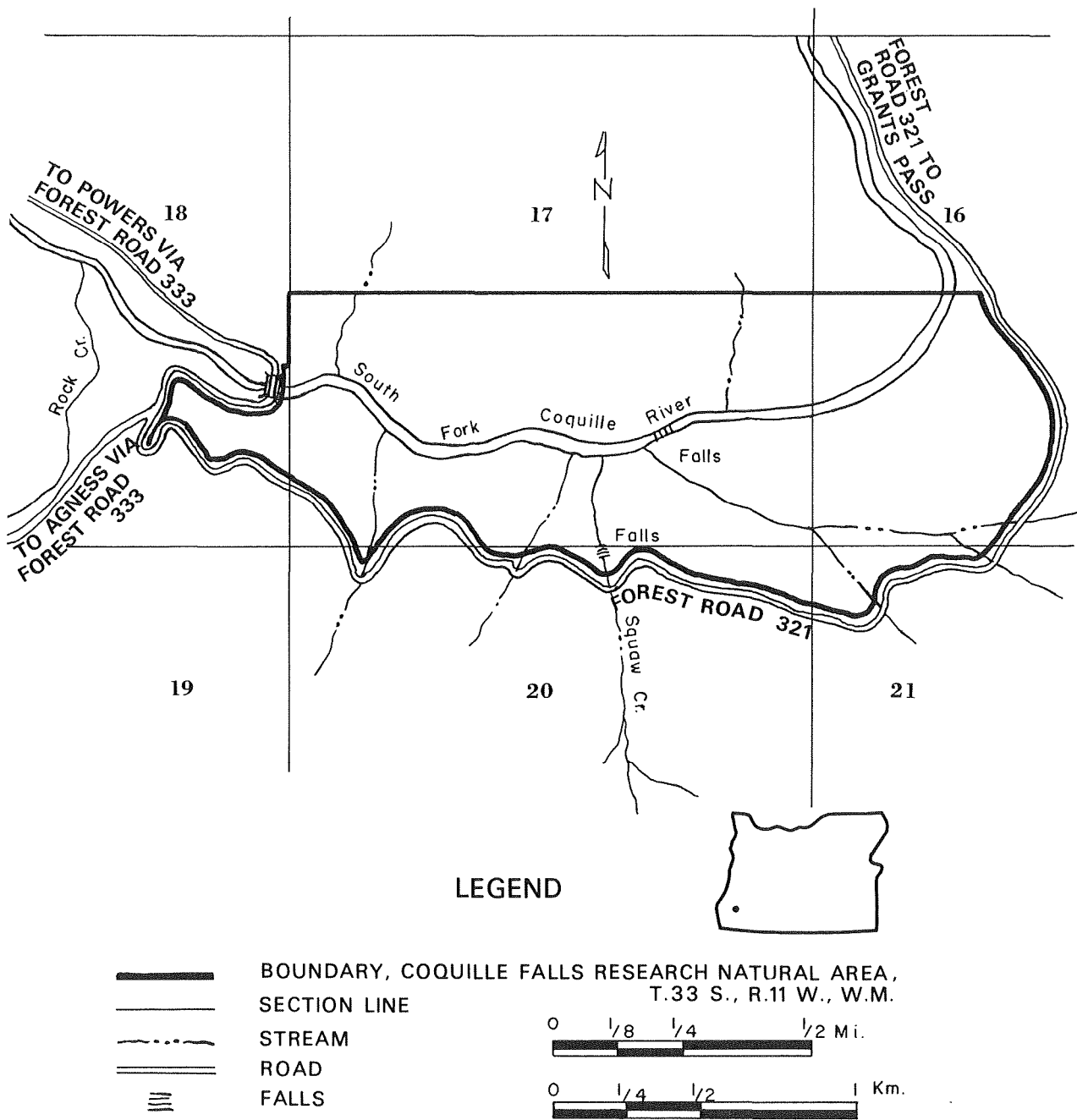


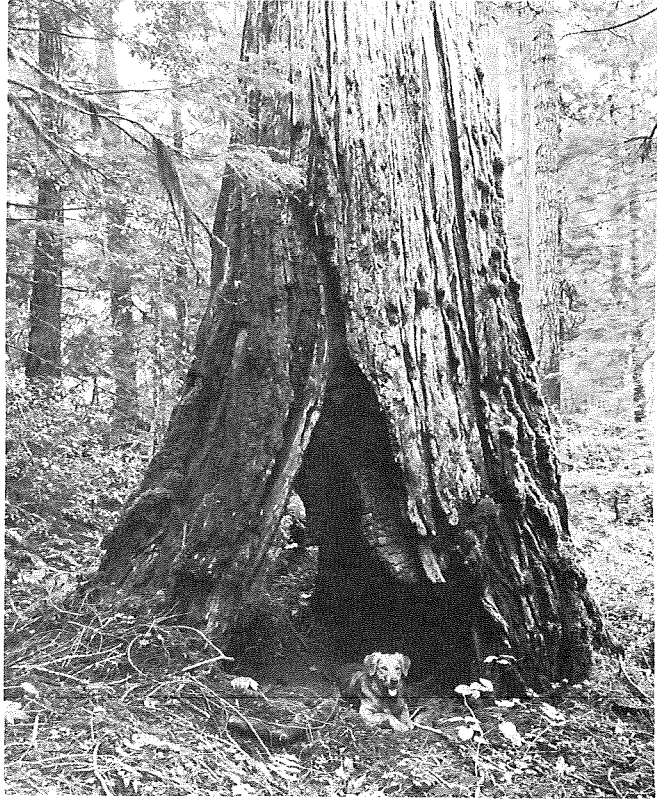
Figure CO-1.- Coquille River Falls Research Natural Area, Coos County, Oregon.

Figure CO-2.-Natural features of the Coquille River Falls Research Natural Area. A: Coquille River Falls near the center of the natural area. B: Fire scar on otherwise vigorous specimen of Port-Orford-cedar; scars are common on old-growth cedars and Douglas-fir within the natural area. C: Grove of old-growth Port-Orford-cedar on a bench near the southern edge of the natural area.

A



B



C

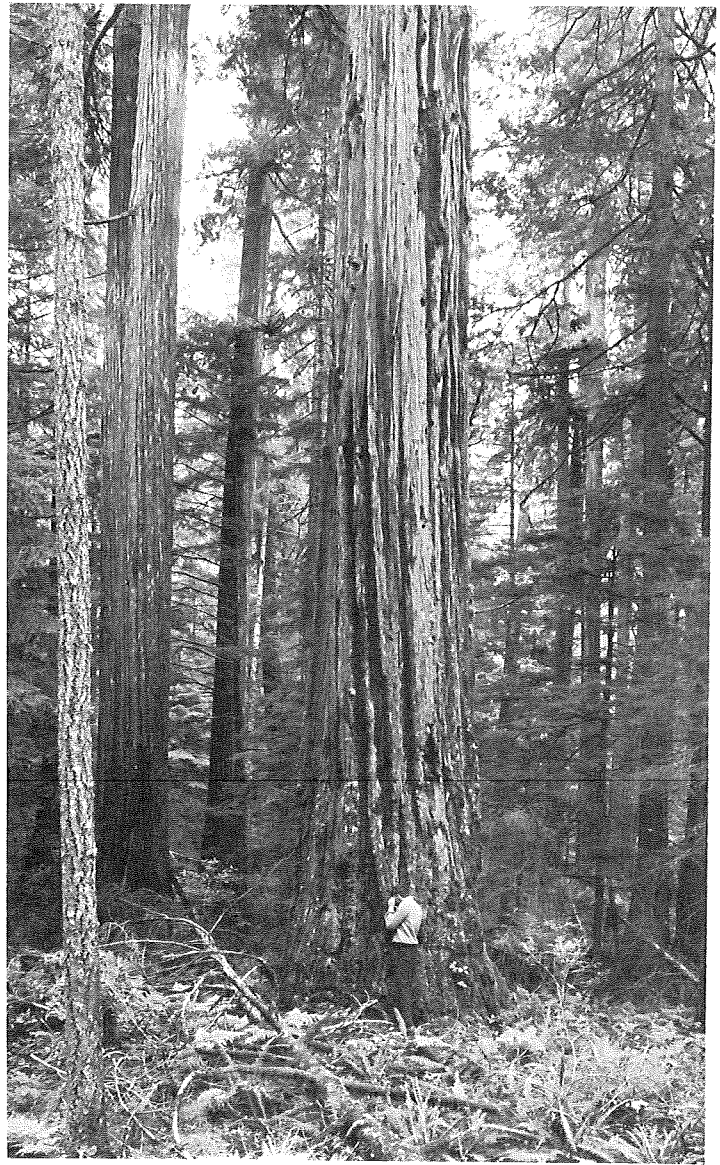


*Figure CO-2.-Natural features of the Coquille River Falls Research Natural Area (continued). D: Mixed forest of Douglas-fir (left and center background), tanoak (right), and Port-Orford-cedar (center background); note the dense understory of *Polystichum munitum*. E: Typical example of the *Alnus rubra/Polystichum munitum* communities scattered through the southern half of the natural area. F: Typical mature specimen of Port-Orford-cedar.*

D



E



F