

WHEELER CREEK RESEARCH NATURAL AREA

Supplement No. 1¹

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The Research Natural Area described in this supplement is administered by the Forest Service. Forest Service Research Natural Areas are located within Ranger Districts which are themselves administrative subdivisions of National Forests. Normal management and protective activities are the responsibility of District Rangers and Forest Supervisors. However, scientific and educational uses made of these tracts are a responsibility of the research branch of that organization. Therefore, a scientist interested in using one of these tracts in Oregon and Washington should contact the Director of the Pacific Northwest Forest and Range Experiment Station (P.O. Box 3141, Portland, Oregon 97208) and outline the activity he plans. If extensive use of one or more Forest Service Research Natural Area is planned, a brief cooperative agreement between the scientist and the Forest Service may be necessary. The Forest Supervisor and the District Ranger administering the affected Research Natural Area will be informed of mutually agreed upon activities by the Experiment Station Director. However, a scientist should still visit the administering ranger station when beginning his studies and explain the nature, purpose, and duration of his activities. Permission for brief visits to Research Natural Areas for observational purposes can be obtained from the District Ranger.

The Research Natural Area described within is a part of a Federal system of such tracts established for research and educational purposes. Each of these constitutes a site where some

natural features are preserved for scientific purposes and natural processes are allowed to dominate. Their main purposes are to provide:

1. Baseline areas against which effects of human activities can be measured;
1. Sites for study of natural processes in undisturbed ecosystems; and
2. Gene pool preserves for all types of organisms, especially rare and endangered types.

The total Federal system is outlined in "A Directory of the Research Natural Areas on Federal Lands of the United States of America."³ Of the 48 established Research Natural Areas in Oregon and Washington, 45 are described in "Federal Research Natural Areas in Oregon and Washington: A Guidebook for Scientists and Educators,"⁴ along with details on management and use of such tracts; this is the first supplement to that guidebook.

¹ Supplement No.1 to "Federal Research Natural Areas in Oregon and Washington: A guidebook for scientists and educators," by Jerry F. Franklin, Frederick C. Hall, C. T. Dyrness, and Chris Maser (USDA Forest Service, Pacific Northwest Forest & Range Experiment Station, 498 p., illus., 1972). The guidebook is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for \$3.50; stock number 0101.0225.

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³ Federal Committee on Research Natural Areas. A directory of Research Natural Areas on Federal lands of the United States of America. Washington, D.C., Superintendent of Documents, 129 p., 1968.

⁴ See footnote 1.

The guiding principle in management of Research Natural Areas is to prevent unnatural encroachments, activities which directly or indirectly modify ecological processes on the tracts. Logging and uncontrolled grazing are not allowed, for example, nor is public use which threatens significant impairment of scientific or educational values. Management practices necessary for maintenance of the ecosystem may be allowed.

Federal Research Natural Areas provide a uniquely valuable system of publicly owned and protected examples of undisturbed ecosystems which are available to the scientist. He can conduct his research with minimal interference and reasonable assurance that investments in long-term studies will not be lost to logging, land development, or similar activities. In return, the scientist wishing to use a Research Natural Area has some obligations. He must:

1. Obtain permission from the appropriate administering agency before using the area;
 2. Abide by the administering agency's regulations governing the use of the natural area including specific limitations on the type of research, sampling methods, etc., allowed; and
- :L Inform the administering agency on the progress of the research, published results, and disposition of collected materials.

The purposes of these limitations are simple-to insure that the scientific and educational values on the tract are not impaired, to accumulate a documented body of knowledge about the tract, and to avoid conflict between new and old studies. Research on Research Natural Areas must be essentially nondestructive in character; destructive analysis of vegetation is generally not allowed nor are studies requiring extensive forest floor modification or extensive soil excavation. Collection of plant and animal specimens should be restricted to the minimum necessary for provision of vouchers and other research needs and in no case to a degree which significantly reduces species population levels. Such collections must also be carried out in accordance with applicable State and Federal agency regulations. Within these broad guidelines, the appropriate uses of Research Natural Areas are determined on a case-by-case basis by the administering agency.

A scientist wishing to use a particular Research Natural Area must determine the administering agency,⁵ contact it regarding the proposed use, and obtain the necessary permission. Each agency differs slightly in its requirements.

⁵ There are five agencies cooperating in this program in the Pacific Northwest: Forest Service in the U.S. Department of Agriculture; Bureau of Land Management, Bureau of Sport Fisheries and Wildlife, and the National Park Service in the U.S. Department of Interior; and the Atomic Energy Commission.

WHEELER CREEK RESEARCH NATURAL AREA

Redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*) stands near the northern limits of redwood in the western Siskiyou Mountains, southwestern Oregon.

The Wheeler Creek Research Natural Area was established on August 10, 1972, to preserve an example of SAF forest cover type 232 (Society of American Foresters 1954), Redwood, near the northern limits of its range (fig. WH-1). The 135ha. (334-acre) tract is located in Curry County and is administered by the Chetco Ranger District (Brookings, Oregon), Siskiyou National Forest. The natural area lies principally in sections 15 and 16, T. 40 S., R. 12 W., Willamette meridian but includes small portions of sections 21 and 22 in the same township. The southern boundary of the natural area lies atop a major dividing ridge, the east and west boundaries are on subsidiary ridgetops, and the northern boundary parallels Wheeler Creek 65 m. (200 ft.) to the north of the stream (fig. WH-2). The natural area lies at 42° 05' N. latitude and 124° 10' W. longitude.

Access & Accommodations

Primary access to the natural area is via Brookings, Oregon, which is situated on U.S. Highway 101 approximately 11.3 km. (7 miles) north of the California border. To reach the natural area, travel southwest on U.S. 101 for 0.8 km. (0.5 mi.) from the Chetco Ranger Station to the junction with South Bank Road, then along the South Bank Road for 8.4 km. (5.2 mi.) to the intersection with Forest Road 4013, and then along Forest Road 4013 for 20.4 km. (12.7 mi.) to the boundary of the natural area.

Forest Road 4039, situated just to the north of the ridgetop, crosses the upper portion of the natural area in an east-west direction. Access to the southwestern corner of the area is provided by an un-surfaced spur road. Since no trails are located within the natural area, interior portions are accessible only by rather arduous cross-country travel.

Commercial accommodations are available in Brookings. The nearest improved public campground is situated in Alfred A. Loeb State Park approximately 27 km. (17 mi.) by road northwest of the natural area. There are also several unimproved campsites along Wheeler Creek about 4.8 km. (3 mi.) south of the natural area.

Environment

The Wheeler Creek Research Natural Area occupies, for the most part, a steep north-facing slope extending from ridgetop to Wheeler Creek. With the exception of the saddle area near the southwestern corner and a few small benches, the slopes range from 60 to 80 percent and are smooth and uninterrupted. Six incised drainage channels, three of which contain perennial streams, drain the area. Elevations range from 168 m. (550 ft.) along Wheeler Creek to 540 m. (1,771 ft.) on the ridgetop constituting the southern boundary of the area.

Bedrock in the area is composed of massive beds of sandstone intercalated with relatively thin beds of shaley mudstone. Apparently, these materials belong to the Dothan Formation of Jurassic age (Peck 1961), despite the fact that Dott (1971) shows the natural area within his "Mt. Emily intrusive" (dacite) delineation. Dott describes these sandstones as feldspathic and lithic wackes. The sand grains are angular and poorly sorted with the following approximate composition: quartz, 25 percent; chert, 10 percent; plagioclase, 30 percent; potassium feldspar, less than 0.1 percent; volcanic rock fragments, 15 percent; and sedimentary clasts, 20 percent.

The climate is typically wet and mild in the winter, with a dry summer season beginning in June and extending into September. The lack of rain in the summer is sometimes ameliorated by dense coastal fogs. The area is also characterized by strong southwesterly winds and infrequent snowfalls. The following climatic data are from the closest weather station at Brookings (U.S. Weather Bureau 1965):

Mean annual temperature	11.9° C. (53.4°F.)
Mean January temperature	8.4° C. (47.1°F.)
Mean July temperature	15.0° C. (58.9°F.)
Mean January minimum temperature	4.4° C. (40.0°F.)
Mean July maximum temperature	19.3° C. (66.7°F.)
Mean annual precipitation	2,068 mm. (81.40 in.)
Mean precipitation, June through August	92 mm. (3.62 in.)



Figure WH-1.—Typical old growth redwood trees within the Wheeler Creek Research Natural Area.

Temperatures are undoubtedly higher in the summer and lower during the winter on the natural area. Brookings is about 350 m. (1,000 ft.) lower in elevation, and situated directly on the coast. In addition, it is safe to assume that the natural area receives appreciably more rainfall than does Brookings; isohyetal maps for the area (Oregon State Water Resources Board 1959) indicate that this difference may amount to almost 508 mm. (20 in.). Thus, annual precipitation in the natural area probably totals about 2,500 mm. (100 in.).

Soils in the natural area generally exhibit poorly developed profiles derived from sandstone and mudstone colluvium. Limited observations indicate that the soils tend to reflect parent material characteristics, especially with respect to soil texture. Surface horizons in mudstone areas are silty clay loam in texture. Soils derived from sandstone have silt loam or loam surface layers. As geologic descriptions suggest, sandstone parent materials appear to be more abundant than mudstone. Soils are generally stony with rock fragments occupying from about 5 to 50 percent of the total volume. Effective rooting depths range to perhaps over 3 m. (10 ft.) in deep colluvial deposits near the toe of the slope.

The following are brief soil profile descriptions for reconnaissance plots R2 and R3. Plot R2 was located on a 60-percent northwest-facing slope approximately halfway between ridge and stream bottom. Plot R3 was situated just above Wheeler Creek on a northwest-facing toe slope with a gradient of 70 percent.

Plot R2

02	2 to 0 cm.	Fresh litter with occasional rounded sandstone fragments.
A	0 to 20 cm.	Dark grayish brown (10 YR 4/2, moist) silt loam of moderate fine and very fine subangular blocky structure; 5 percent stone content.
B2	20 to 51 cm.	Dark yellowish brown (10 YR 4/4, moist) silty clay of moderate medium subangular blocky structure; 10 percent stone content.
B3	51 to 60 cm.+	Dark yellowish (10 YR 4/4, moist) massive silty clay loam with pockets of decomposed sandstone.

The soil is well drained, and effective rooting depth is estimated to be approximately 1 to 2 m. (3 to 6 ft.).

Plot R3

02	4 to 0 cm.	Fresh litter.
A	0 to 20 cm.	Black (10 YR 2/1, moist) cobbly silt loam of moderate medium and coarse granular structure; 50 percent angular sandstone fragments.
AC	20 to 48 cm.	Very dark grayish brown (10 YR 3/2, moist) loose, single-grained cobbly silt loam; 50 percent angular sandstone fragments.
IIC	48 to 60 cm.+	Brown (7.5 YR 4/4, moist) loose, single-grained cobbly loam; 40 percent angular sandstone fragments.

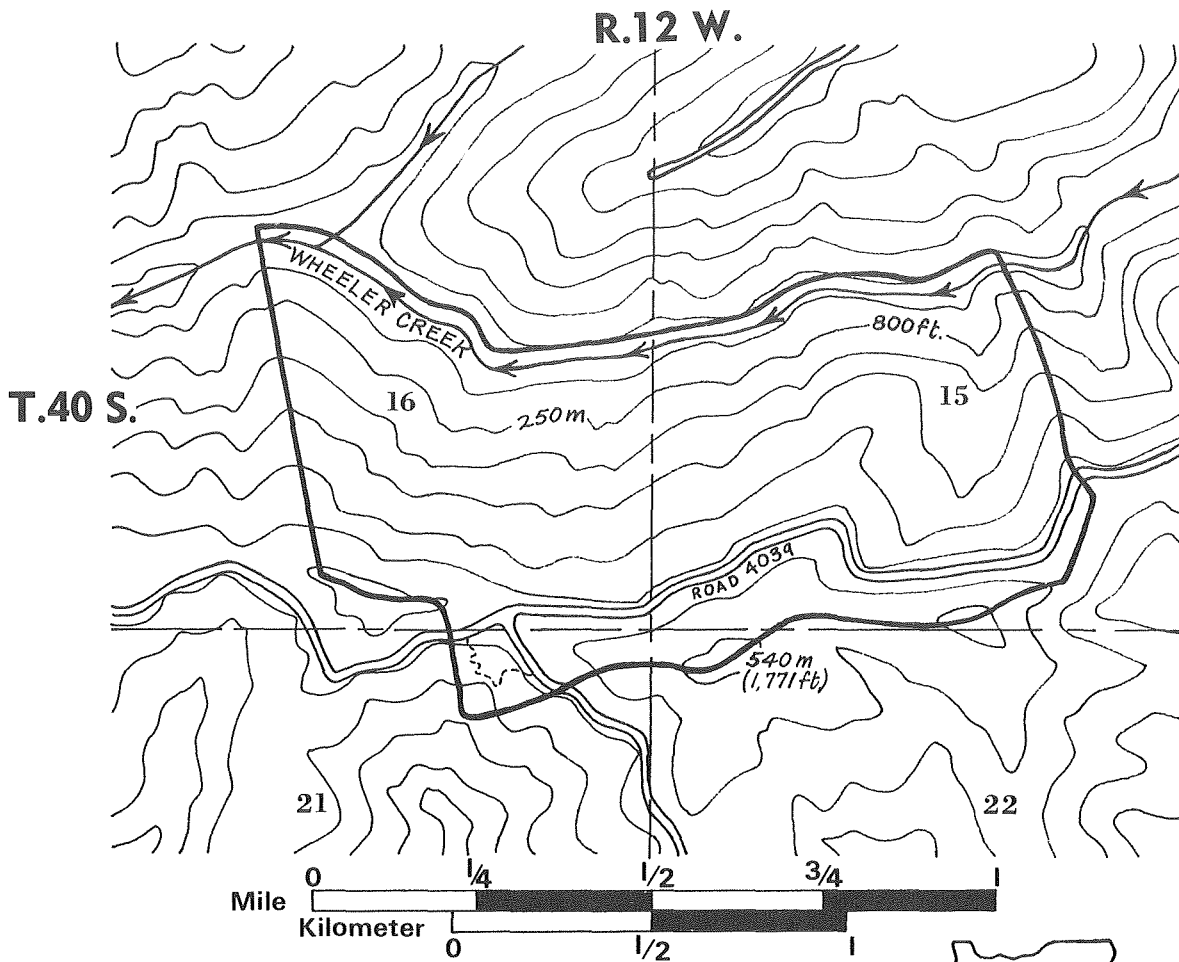
The soil is well drained, and effective rooting depth is estimated to be approximately 3 m. (10 ft.).

Biota

Except for about 12 ha. (30 acres) of road clearing, the natural area is forested by a mosaic of SAF forest cover types 232, Redwood, and 229, Pacific Douglas-fir, with the former predominating (Society of American Foresters 1954). Most of the area contains some redwood, but the amount is sometimes near the 20percent (redwood) breaking point between the two cover types, making it difficult to assign acreage to one or the other. The area is probably assignable to Kiichler's (1964) type 6, Redwood Forest (*Sequoia-Pseudotsuga*). It is difficult to position the tract within the vegetation zones of Franklin and Dyrness (1969) who mention redwood forests only as an extension of the *Picea sitchensis* Zone.¹ In fact, the Wheeler Creek Area appears to be located either within the *Tsuga heterophylla* Zone or at its boundary with the Mixed Evergreen Zone. The redwood forests found within the natural area are characteristic of those found near the northern limits of the species² and relate well to Waring and Major's (1964) Hedwood III-Douglas-fir III vegetation type group.

¹ Dr. Dale Thornburgh, Forestry Program Leader at Humboldt State University in Arcata, California, has suggested the tract is within *Tsuga heterophylla* Zone based on the occurrence of excellent western hemlock (*Tsuga heterophylla*) stands east of the redwood type in adjacent California (personal communication, November 3, 1972).

² The tract was selected as the most suitable of four candidate areas although two other areas were 3 to 6 km. (2 to 4 miles) farther north and individual redwood trees are known to occur 11 km. (8 miles) farther north.



LEGEND







-  BOUNDARY, WHEELER CREEK RESEARCH NATURAL AREA
-  CONTOUR LINES (Contour interval approximately 50m or 160 ft.)
-  STREAM
-  ROAD
-  PROPOSED TRAIL
-  APPROXIMATE SECTION LINES (Area is unsurveyed)
- 15 SECTION NUMBER

Figure WH-2.- Wheeler Creek Research Natural Area and vicinity, Curry County, Oregon. Unsurveyed but principally in sections 15 and 16, small portions in sections 21 and 22, T. 40 S., R. 12 W., Willamette meridian.

FIORA

The major tree species within the natural area are redwood, Douglas-fir, and tanoak (*Lithocarpus densiflorus*). In moister habitats, e.g., in ravines, on lower slopes, and along Wheeler Creek, bigleaf maple (*Acer macrophyllum*), California laurel (*Umbellularia californica*), and red alder (*Alnus rubra*) are common. Western hemlock (*Tsuga heterophylla*) occurs sporadically throughout all but the driest portions of the tract. Pacific madrone (*Arbutus menziesii*) is occasional to common on drier habitats. Knobcone pine (*Pinus attenuata*) is found along some portions of the ridgetop which forms the southern boundary of the tract.

Composition of both overstory and understory in communities varies markedly with the moisture status of the site (figs. WH-3 to WH6). A series of four stands sampled during the reconnaissance of the tract partially illustrates this phenomenon (tables WH-1 and WH-2). These stands were located as follows:

Plot	Topographic position	Elevation	Slope percent	Aspect	VMI ³
R1	Ridgetop	380 m. (1,250 ft.)	10	NE	32
R2	Midslope	310 m. (1,050 ft.)	60	NW	35
R3	Lower slope	170 m. (560 ft.)	70	NW	47
R4	Midslope	210 m. (700 ft.)	70	NW	40

³ Vegetation Moisture Index calculated according to Waring and Major (1964). The higher the VMI the greater the available soil moisture and more mesic the stand.

Table WH-1. — Maximum dimensions and basal area of tree species in four stands within the Wheeler Creek Research Natural Area¹

Species and total	Plot number											
	R1			R2			R3			R4		
	Max. ht.	Max. d.b.h.	Basal area	Max. ht.	Max. d.b.h.	Basal area	Max. ht.	Max. d.b.h.	Basal area	Max. ht.	Max. d.b.h.	Basal area
	m.	cm.	m. ² /ha.	m.	cm.	m. ² /ha.	m.	cm.	m. ² /ha.	m.	cm.	m. ² /ha.
<i>Sequoia sempervirens</i>	50	110	19	60	150	31	—	—	—	70	210	69
<i>Pseudotsuga menziesii</i>	50	125	19	45	30	38	50	60	19	45	50	19
<i>Lithocarpus densiflorus</i>	14	38	19	13	8	—	—	—	—	22	20	—
<i>Acer macrophyllum</i>	—	—	—	—	—	—	25	60	19 ²	—	—	—
<i>Umbellularia californica</i>	—	—	—	—	—	—	15	35	25 ²	—	—	—
<i>Tsuga heterophylla</i>	—	—	—	—	—	—	50	65	—	—	—	—
All species	—	—	57	—	—	69	—	—	63	—	—	88

¹ Basal area data obtained from wedge prism counts from the plot center.

² Stems of these species usually occur in clumps rather than being evenly distributed over the plot area.

Table WH-2. — Abundance and coverage of plants in four stands within the Wheeler Creek Research Natural Area¹

Community layer and species	Stand number							
	R1		R2		R3		R4	
	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover
Percent		Percent		Percent		Percent		
Trees (mature):								
<i>Pseudotsuga menziesii</i>	5	45	6	65	4	30	5	25
<i>Sequoia sempervirens</i>	4	35	5	50	1	1	6	70
<i>Lithocarpus densiflorus</i>	6	70	5	15	—	—	4	20
<i>Acer macrophyllum</i>	—	—	—	—	5	35	—	—
<i>Umbellularia californica</i>	—	—	—	—	5	65	—	—
<i>Tsuga heterophylla</i>	—	—	—	—	1	1	—	—
Trees (reproduction):								
<i>Pseudotsuga menziesii</i>	1	1	1	1	—	—	—	—
<i>Sequoia sempervirens</i>	1	1	2	3	1	2	4	10
<i>Lithocarpus densiflorus</i>	5	20	4	15	2	3	5	15
<i>Acer macrophyllum</i>	—	—	—	—	1	1	—	—
<i>Umbellularia californica</i>	—	—	—	—	2	2	—	—
<i>Tsuga heterophylla</i>	—	—	—	—	1	3	—	—
Shrubs:								
<i>Vaccinium ovatum</i>	6	70	5	60	1	2	4	45
<i>Rhododendron macrophyllum</i>	4	60	4	50	—	—	4	35
<i>Gaultheria shallon</i>	—	—	1	1	—	—	2	3
<i>Berberis nervosa</i>	—	—	2	1	—	—	2	2
<i>Corylus cornuta californica</i>	—	—	—	—	2	5	—	—
<i>Acer circinatum</i>	—	—	—	—	1	3	—	—
<i>Vaccinium parvifolium</i>	—	—	—	—	1	1	1	2
Herbs:								
<i>Xerophyllum tenax</i>	2	3	2	2	—	—	—	—
<i>Polystichum munitum</i>	—	—	2	1	6	95	2	10
<i>Pteridium aquilinum</i>	1	1	1	1	—	—	—	—
<i>Viola sempervirens</i>	—	—	2	1	—	—	2	1
<i>Achlys triphylla</i>	—	—	1	1	—	—	2	1
<i>Disporum smithii</i>	—	—	—	—	2	2	2	2
<i>Whipplea modesta</i>	—	—	—	—	—	—	2	1
<i>Oxalis oregana</i>	—	—	—	—	3	5	1	1
<i>Vancouveria planipetala</i>	—	—	—	—	1	1	1	1
<i>Hierochloe occidentalis</i>	—	—	—	—	—	—	1	1
Other grasses	—	—	—	—	2	2	1	1
<i>Trillium ovatum</i>	—	—	—	—	1	1	1	1
<i>Streptopus</i> sp.	—	—	—	—	—	—	2	1
<i>Adiantum pedatum</i>	—	—	—	—	2	1	—	—
<i>Galium</i> sp.	—	—	—	—	2	1	—	—
<i>Boykinia</i> sp.	—	—	—	—	1	1	—	—
<i>Polypodium vulgare</i>	—	—	—	—	1	1	—	—
Mosses	2	2	2	2	3	6	4	5

¹ Abundance is rated by subjective classes with 1 = very rare, 2 = rare, 3 = occasional, 4 = common, 5 = abundant, and 6 = very abundant. Cover is estimated percent of canopy coverage.



Figure WH-3.—Lower slope and riparian forests have a major component of hardwoods, such as bigleaf maple, and high herbaceous cover; vine maple, which is also visible here, is most common on such habitats.



Figure WH-4.—Typical depauperate forest understory on drier habitats; understory dominants visible here are tanoak, *Vaccinium ovatum*, and, behind and to the left of the redwood, *Rhododendron macrophyllum*.



Figure WH-5.—Typical understory in midslope forest stand dominated by tanoak, *Vaccinium ovatum*, and *Rhododendron macrophyllum* with a scattering of other species such as *Polystichum munitum*.



Figure WH-6.—Wheeler Creek in September and some of the riparian vegetation which is dominated by hardwoods, by shrubs such as *Corylus*, *Acer circinatum*, and *Rubus spectabilis*, and by a variety of herbs.

The driest of this series is stand R1 (tables WH -] and WH -2) which is characterized by an overstory of redwood and Douglas-fir with a lower tree stratum of tanoak. The understory is a dense tangle of *Rhododendron macrophyllum* and *Vaccinium ovatum*. Only three other vascular plants are present, and they contribute negligible coverage. Such depauperate understories are characteristic of the dry ridgetops (fig. WH -4). The driest of the habitats (not sampled) is occupied by hardwood stands dominated exclusively by tanoak and Pacific madrone. Basal areas on drier habitats are generally around 50 to 60 m.²/ha.(200 to 250 ft.²/ acre).

More typical forest stands, modal for this area, are represented by plots R2 and R4 (tables WH-1 and WH-2). Redwood and Douglas-fir are the dominants with a lower stratum of tanoak. Normally the redwoods are the larger and older trees with the Douglas-firs representing one or more younger age classes; this is a consequence of wildfires as will be discussed later. The understory is again dominated by *Rhododendron* and *Vaccinium ovatum* but there is a scattering of seven to 14 additional plant species (fig. WH]) and table WH-2). Basal areas in these types of stands are generally around 70 to 80 m.²/ha.(300 to 350 ft.²/ acre) with values occasionally approaching 90 m.²/ha. (400 ft.²/acre) in "groves" of redwood.

The most mesic of the forests are the ravine and lower-slope stands (fig. WH-3) of which stand R3 is an example. Bigleaf maple and California laurel are common overstory trees with a scattering of Douglas-fir, tanoak, redwood, and, occasionally, western hemlock. The clumpy distribution of the hardwoods gives an impression of low density stands; however, measured basal areas appear similar to other stands (table 1). The most conspicuous difference in the communities is the near absence of *Rhododendron* and *Vaccinium ovatum* and the dominance of herbs, primarily *Polystichum munitum* (table WH-2).

The riparian communities, which were not sampled, add considerable diversity to the tract (fig. WH-6). Among the species noted are Pacific dogwood (*Cornus nuttallii*), *Rubus spectabilis*, vine maple (*Acer circinatum*), *Stachys rigida*, *Carex* sp., *Athyrium filix-femina*, *Blechnum spicant*, *Equisetum* sp., and *Asarum caudatum*.

Most of the forest stands are dominated by old-growth trees which appear to range from 200 to over 500 years. These old-growth trees are associated with much smaller and younger specimens, however, and there is a significant area occupied exclusively by this relatively younger age class (fig. WH-7). Douglas-fir is most common in such stands although young redwoods are typically also present.

Successional relationships among the tree species are not clear. It appears a major fire burned through the area some 50 to 100 years ago partially opening the area to establishment of the younger age classes of Douglas-fir and redwood so common today; many of the large redwoods and some of the larger Douglas-fir survived. Old-growth redwoods bear massive fire scars and frequently have hollow trunks as a result of past fires. At present, the only species reproducing in significant amounts is tanoak (table WH-2), although a scattering of redwood and Douglas-fir seedlings and saplings is present with redwood somewhat more common (fig. WH-S). Western hemlock is an enigma. Its present sporadic distribution could reflect confinement to particularly favorable habitats in a generally unsuitable landscape or could represent early stages in re-invasion after earlier elimination by fire. In any case, tanoak is clearly one major climax species with Douglas-fir probably playing the role of a long-lived seral species. Western hemlock is the one conifer that could conceivably attain major climax status, but study will be necessary to clarify its role.⁴

Fauna

Mammals, birds, reptiles, and amphibians which are believed or known to utilize the natural area are listed in tables WH-3, WH-4, and WH-.5. Mammals of particular interest because of their rare or endangered status or biogeographically (e.g., species near the edge of their range) include the Oregon species of the red tree vole and ringtail cat. Several mammals are largely confined to the edges of the natural area, their main habitat consisting of adjacent cutover tracts; e.g., the brush rabbit, California

⁴ Dr. Dale Thornburgh has suggested that the major climax species will be tanoak, western hemlock, and redwood with the redwood remaining the dominant overstory species with or without fires. His suggestion is based on studies of similar stands in adjacent California. See also footnote 2.



Figure WH-7.—Young stand of redwood and Douglas-fir; such stands with or without a scattering of old-growth trees are typical of the Research Natural Area (note the burned out snag on the left and redwood sapling in the center of the picture).



Figure WH-8.—Three generations of redwoods including a seedling, sapling, pole, and old, fire-scarred veteran; redwood regeneration is scattered throughout the forest stands on the Research Natural Area.

ground squirrel, and long-tailed vole. Elk (*Cervus canadensis*) have been introduced in the vicinity of the natural area by the Oregon Game Commission.

Wheeler Creek Research Natural Area is particularly rich in amphibians, specifically

salamanders (table WH-5). A large proportion of these are of interest since several species are near their range limits and include both northwestern and California elements. These include the California slender and Del Norte salamanders.

TABLE WH-3.—Tentative list of mammals which utilize the Wheeler Creek Research Natural Area as residents or transients

Order	Scientific name	Common name	
Insectivora	<i>Neurotrichus gibbsi</i> ¹	shrew mole	
	<i>Scapanus orarius</i> ¹	coast mole	
	<i>Sorex bendirii</i>	marsh shrew	
	<i>Sorex pacificus</i> ¹	Pacific shrew	
	<i>Sorex trowbridgii</i> ¹	Trowbridge shrew	
Chiroptera	<i>Sorex vagrans</i>	wandering shrew	
	<i>Antrozous pallidus</i>	pallid bat	
	<i>Eptesicus fuscus</i> ¹	big brown bat	
	<i>Lasionycteris noctivagans</i> ¹	silver-haired bat	
	<i>Lasiurus borealis</i>	red bat	
	<i>Lasiurus cinereus</i> ¹	hoary bat	
	<i>Myotis californicus</i> ¹	California myotis	
	<i>Myotis evotis</i>	long-eared myotis	
	<i>Myotis lucifugus</i> ¹	little brown myotis	
	<i>Myotis thysanodes</i>	fringed myotis	
	<i>Myotis volans</i> ¹	long-legged myotis	
	<i>Myotis yumanensis</i> ¹	Yuma myotis	
	<i>Plecotus townsendi</i>	Townsend big-eared bat	
<i>Tadarida brasiliensis</i>	Brazilian free-tailed bat		
Lagomorpha	<i>Sylvilagus bachmani</i> ¹	brush rabbit	
Rodentia	<i>Aplodontia rufa</i> ¹	mountain beaver	
	<i>Arborimus albipes</i>	white-footed vole	
	<i>Arborimus longicaudus</i> ¹	red tree vole	
	<i>Clethrionomys californicus</i> ¹	California red-backed vole	
	<i>Erethizon dorsatum</i>	porcupine	
	<i>Eutamias townsendi</i> ¹	Townsend chipmunk	
	<i>Glaucomys sabrinus</i> ¹	northern flying squirrel	
	<i>Microtus longicaudus</i>	long-tailed vole	
	<i>Microtus oregoni</i>	Oregon or creeping vole	
	<i>Microtus townsendi</i>	Townsend vole	
	<i>Neotoma fuscipes</i> ¹	dusky-footed wood rat	
	<i>Peromyscus maniculatus</i> ¹	deer mouse	
	<i>Sciurus griseus</i> ¹	western gray squirrel	
	<i>Spermophilus beecheyi</i> ¹	California ground squirrel	
	<i>Tamiasciurus douglasi</i> ¹	chickaree	
	<i>Zapus trinotatus</i>	Pacific jumping mouse	
	Carnivora	<i>Bassariscus astutus</i> ¹	ringtail or miner's cat
		<i>Canis latrans</i> ¹	coyote
		<i>Felis concolor</i>	mountain lion or cougar
		<i>Lynx rufus</i> ¹	bobcat
<i>Martes americana</i>		marten	
<i>Mustela erminea</i> ¹		short-tailed weasel or ermine	
<i>Mustela frenata</i>		long-tailed weasel	
<i>Mustela vison</i> ¹		mink	
<i>Procyon lotor</i> ¹		raccoon	
<i>Spilogale putorius</i> ¹		spotted skunk or civet cat	
Artiodactyla	<i>Ursus americanus</i> ¹	black bear	
	<i>Odocoileus h. columbianus</i> ¹	black-tailed deer	

¹ Presence of the animal has been verified by sign, sighting, or capture.

TABLE WH-4.—Partial list of birds which utilize the Wheeler Creek Research Natural Area

Order	Scientific name	Common name
Falconiformes	<i>Accipiter cooperi</i> ¹	Cooper's Hawk
	<i>Accipiter striatus</i>	Sharp-shinned Hawk
	<i>Buteo jamaicensis</i> ¹	Red-tailed Hawk
	<i>Cathartes aura</i> ¹	Turkey Vulture
	<i>Falco sparverius</i>	Sparrow Hawk
Galliformes	<i>Dendragapus obscurus</i>	Sooty Grouse
	<i>Oreortyx pictu</i>	Mountain Quail
Strigiformes	<i>Aegolius acadicus</i> ¹	Saw-whet Owl
	<i>Asio otus</i>	Long-eared Owl
	<i>Bubo virginianus</i> ¹	Great Horned Owl
	<i>Glaucidium gnoma</i>	Pygmy Owl
Apodiformes	<i>Selasphorus rufus</i> ¹	Rufous Hummingbird
Piciformes	<i>Asyndesmus lewis</i>	Lewis's Woodpecker
	<i>Colaptes cafer</i> ¹	Red-shafted Flicker
	<i>Dendrocopos pubescens</i> ¹	Downy Woodpecker
	<i>Dendrocopos villosus</i> ¹	Hairy Woodpecker
	<i>Dryocopus pileatus</i> ¹	Pileated Woodpecker
	<i>Sphyrapicus varius</i>	Red-breasted Sapsucker
Passeriformes	<i>Certhia familiaris</i> ¹	Brown Creeper
	<i>Chordeiles minor</i> ¹	Common Nighthawk
	<i>Corvus corax</i>	Common Raven
	<i>Cyanocitta stelleri</i> ¹	Steller's Jay
	<i>Dendroica auduboni</i>	Audubon's Warbler
	<i>Dendroica coronata</i>	Myrtle Warbler
	<i>Hylocichla guttata</i> ¹	Hermit Thrush
	<i>Hylocichla ustulata</i> ¹	Swainson's Thrush
	<i>Iridoprocne bicolor</i>	Tree Swallow
	<i>Ixoreus naevius</i> ¹	Varied Thrush
	<i>Junco oregonus</i> ¹	Oregon Junco
	<i>Melospiza melodia</i> ¹	Song Sparrow
	<i>Nuttallornis borealis</i> ¹	Olive-sided Flycatcher
	<i>Parus rufescens</i> ¹	Chestnut-backed Chickadee
	<i>Perisoreus canadensis</i>	Gray Jay
	<i>Pipilo erythrophthalmus</i>	Rufous-sided Towhee
	<i>Piranga ludoviciana</i>	Western Tanager
	<i>Sitta canadensis</i> ¹	Red-breasted Nuthatch
	<i>Spinus pinus</i>	Pine Siskin
	<i>Tachycineta thalassina</i> ¹	Violet-green Swallow
<i>Troglodytes troglodytes</i> ¹	Winter Wren	
<i>Turdus migratorius</i> ¹	Robin	

¹ The bird's presence has been verified by sound, sighting, or collection.

TABLE WH-5—Tentative list of reptiles and amphibians which reside within the Wheler Creek Research Natural Area

Order	Scientific name	Common name
Salientia	<i>Ascaphus truei</i> ¹	tailed frog
	<i>Hyla regilla</i> ¹	Pacific treefrog
	<i>Rana boylei</i> ¹	foothill yellow-legged frog
	<i>Rana aurora</i>	red-legged frog
Caudata	<i>Ambystoma gracile</i>	northwestern salamander
	<i>Ambystoma macrodactylum</i>	long-toed salamander
	<i>Aneides ferreus</i> ¹	clouded salamander
	<i>Batrachoceps attenuatus</i> ¹	California slender salamander
	<i>Dicamptodon ensatus</i> ¹	Pacific giant salamander
	<i>Ensatina eschscholtzi</i>	Oregon salamander
	<i>Plethodon dunnii</i>	Dunn's salamander
	<i>Plethodon elongatus</i> ¹	Del Norte salamander
	<i>Rhyacotriton olympicus</i> ¹	Olympic salamander
<i>Taricha granulosa</i> ¹	rough-skinned newt	
Squamata	<i>Eumeces skiltonianus</i> ¹	western skink
	<i>Gerrhonotus coeruleus</i> ¹	northern alligator lizard
	<i>Sceloporus occidentalis</i> ¹	western fence lizard
Serpentes	<i>Charina bottae</i> ¹	rubber boa
	<i>Coluber constrictor</i>	racer
	<i>Diadophis punctatus</i>	ringneck snake
	<i>Thamnophis couchi</i> ¹	western aquatic garter snake
	<i>Thamnophis ordinoides</i> ¹	northwestern garter snake
	<i>Thamnophis sirtalis</i> ¹	common garter snake

¹ Presence of the animal has been verified by sighting or collection.

A few collections of invertebrates have been made which include pill bugs (*Armadillidium vulgare*), sow bugs (*Porcellio scaber*), millipedes (*Harpaghe haydeniana* and *Nearctodesmus* sp.), centipedes (*Scolopocryptops sexspinosa*), tigerbeetle (*Omus* sp.), ground beetles (*Pterostichus validus* and *P. lama*, *Scaphinotus barrensi*, *Metrius contractus*), carpenter ants (*Camponotus* sp.), scorpions (*Uroctonus mordax*), and snails (*Haplotrema vancouverense* and *Monodenia fidelis*).

History of Disturbance

The major natural disturbance to Wheeler Creek Research Natural Area appears to have been wildfire. As mentioned earlier, the last major fire appears to have been some 50 to 100 years ago.

The disturbance associated with building the road along the southern edge of the natural area constitutes the major human influence. Fortunately, sidecast from the road extends only a short distance down-slope.

Several short trails are planned within the tract. One of these will go to a historical site on a ridgetop at the southern boundary. A Japanese incendiary balloon set a fire there during World War II. A second trail will be constructed in the extreme southwest corner of the natural area in connection with the dedication of this tract as the 100th Forest Service Research Natural Area. This will traverse a small grove of large redwood trees.

Research

There are no active research projects underway within the natural area at the present time. The results of Waring and Major's (1964)

study of the vegetation of the coastal redwood region have some applicability to the area; however, their study was centered in the Eel River drainage in California.

The area offers many excellent research opportunities. Since the natural area represents the northernmost range of redwood, research here may help explain those site factors responsible for the distribution of redwood. Although the area encompasses a relatively uniform north-facing slope, there are striking floristic differences which apparently are correlated with position on the slope. Studies along ridgetop to creek bottom transects would offer a good opportunity to relate these vegetative changes to additional site characteristics such as available soil nutrients and water. Animal populations on the natural area offer a wide range of research possibilities since they include a number of rare or biogeographically interesting species, the amphibian fauna in the area being particularly rich and diverse.

Maps & Aerial Photographs

Special maps applicable to the natural area are: *Topography-15*, Mt. Emily, Oregon quadrangle, scale 1:62,500, issued by the U.S. Geological Survey in 1955; and *Geology-Geologic Map of Oregon West of the 121st Meridian*, scale 1:500,000 (Peck 1961) and *Geologic Compilation Map of Western Curry County, Oregon*, scale 1:250,000 (Dott 1971). Either the District Ranger (Chetco Ranger District Brookings) or Forest Supervisor (Siskiyou National Forest, Grants Pass, Oregon) can provide information regarding the most recent aerial photos and forest type maps for the area.

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