

65. Pearch Creek (Keeler-Wolf 1987d)

Location

This study area (dropped for RNA consideration in 1987) is on the Six Rivers National Forest about 3 miles (5 km) E. of the town of Orleans. It lies within portions of sects. 26, 27, 28, 32, 33, 34, 35 T11N, R6E and sects. 2, 3, and 4 T10N, R6E HBM (41°18'N., 123°30'W.), USGS Orleans and Orleans Mtn. quads (fig. 131). Ecological subsection – Lower Salmon Mountains (M261Af).

Target Element

Douglas-Fir-Tanoak-Pacific Madrone (Mixed Evergreen Forest)

Distinctive Features

Great Elevation Span: This relatively small area has an elevational difference of nearly 1 mile (1.6 km) in 3 horizontal miles (4.8 km). The diversity of slope exposures ensures a broad sample of Klamath Mountains ecological section vegetation from low to moderately high elevations, although none of these vegetation associations is particularly well represented. This is especially true for the upper-elevation noble fir (*Abies procera*) forest, montane chaparral, rock outcrop, and white fir (*Abies concolor*) forest.

Mixed Evergreen Forest Formation: The potential variety of mixed evergreen vegetation types is limited by the effects of the 1959 Pearch Fire, which burned nearly all of the area (fig. 132). Much of the canopy was destroyed in the S.- and W.-facing exposures while the understory of N.-facing forests was virtually eliminated. Thus, much of the area is in relatively early stages of secondary succession. Unlike many areas of the W. Klamath Mountains ecological section, there is no pronounced band of giant chinquapin (*Chrysolepis chrysophylla*) subdominance on mesic N. exposures. This may be the result of fire and relatively low precipitation for this vegetation type (Keeler-Wolf 1988a).

Physical Characteristics

The area (about 2800 acres, 1133 ha) includes the upper watershed of Pearch Creek, a 4-mile long permanent tributary to the Klamath River. Elevations range from 700 to 5865 ft (213-1788 m). Topography is relentlessly steep, with upper slopes ranging from 50° to 90°; lower slopes average only slightly less steep. Elevation gradients of up to 3300 ft/mile (625 m/km) occur. This area lies on the W. side of the Salmon Mountains 4 miles (6 km) S. of the junction of the Klamath River and Salmon River. The drainage is oriented W. with principal exposures being N. and S., with some W. exposures along the Salmon Divide.

Rocks are primarily low-grade metamorphics of the greenschist faces belonging to the Western Paleozoic and Triassic Plate of the Klamath Mountains ecological section. There are also small outcroppings of gabbro, andesite, and graywacke. Soils are generally thin and rocky with many upper-slope areas having small cliffs and outcrops. Climate is variable because of the great elevational range. Upper slopes may receive up to 70 inches (1778 mm) precipitation per year with much snow, while lower elevations average about 50 inches (1270 mm) of rain, primarily,



**Figure 131—
Pearch Creek
ecological survey
area**

per year. Summer temperatures at the lower elevations may occasionally approach 100 °F (38 °C) although upper-elevation maxima may be about 85 °F (29 °C). Winter minima at highest elevations may drop to 15 °F (-9 °C).

Association Types

Mixed Evergreen Forest Formation (81100, 82420): 1972 acres (798 ha). Nine 100-m² quadrats were sampled in this vegetation zone. This general vegetation formation covers the majority of the area. It is divided into the following six associations.

Douglas-Fir (*Pseudotsuga menziesii*)-Dominated Forest (82420): 576 acres (233 ha). This association occurs largely on N.-facing slopes below 4500 ft (1372 m). It has a canopy of even-aged Douglas-fir averaging 2-3 ft (61-91 cm) dbh and 120-140 ft (37-43 m) tall, with ages between 180 and 220 years.

The most mesic of these forests have understories of *Acer circinatum*, Pacific yew (*Taxus brevifolia*), *Linnaea borealis*, and *Corylus cornuta* var. *californica*. The modal type has a dense understory dominated by spindly tan oak (*Lithocarpus densiflorus*) with *Berberis piperiana*, *Rosa gymnocarpa*, and *Smilacina racemosa* var. *amplexicaulis*. Forests on NW. exposures tend to have lower density of Douglas-fir with more xerophilic understory species such as Pacific madrone (*Arbutus menziesii*), canyon live oak (*Quercus chrysolepis*), and *Toxicodendron diversilobum* along with tanoak.

On five plots in this forest, Douglas-fir has an importance value of 155, with tanoak 97, Pacific dogwood (*Cornus nuttallii*) 32, Pacific madrone 8, and Pacific yew 8. Total basal area cover is 126 m²/ha, and total stem density is 1460/ha. Douglas-fir clearly dominates in relative cover (91 percent) while tanoak dominates in relative density (55 percent). Bigleaf maple (*Acer macrophyllum*) also occurs in this forest, although it is not represented in the sample. Understory shrubs and herbs of this association cover 25-60 percent and include *Gaultheria shallon*, *Berberis piperiana*, *Polystichum munitum*, *Rosa gymnocarpa*, *Vancouveria hexandra*, and *Disporum hookeri*.

Canyon Live Oak Woodland (81320): 488 acres (197 ha). This association, dominated by low canyon live oak, is extensive on upper S.-facing slopes. It suffers frequent fire damage, and most trees are shrubby resprouts. Very few other species occur.

Successional N.-Facing Forest (81400): 466 acres (189 ha). Fire damaged much of the vegetation of the area in 1959. When fire destroys the canopy of Douglas-fir on N.-facing slopes, tanoak resprouts dominate much of the area. Pacific madrone, canyon live oak, and occasionally giant chinquapin also occur as sprouts. Douglas-fir has densely colonized logging spurs and skid trails in a portion of the area which was logged after the 1959 fire. The remainder of the clearcut is strongly dominated by 25-year-old sprouts of tanoak.

Forests on W.- and S.-Facing Exposures (81100): 366 acres (148 ha). Douglas-fir decreases in importance on these exposures relative to ponderosa pine (*Pinus ponderosa*), Pacific madrone, and canyon live oak. On xeric S. exposures tanoak is reduced in density, but it remains important on most W.-facing exposures. This trend is present regardless of fire history. Certain W.-facing slopes contain large Douglas-fir, up to 5 ft (1.5 m) dbh, which have survived fire damage for several hundred years. This forest is the classic mixed evergreen forest with sclerophylls and conifers codominants.

Transitional Mixed Evergreen-White Fir-Douglas-Fir Forest (84240, 82420): No acreage given. This association takes in the narrow mixing zone between lower-slope Douglas-fir forest and upper-slope white fir forest. This zone generally occurs on N.-facing slopes between 3600 and 4100 ft (1097-1250 m).

Four 100-m² plots were sampled. Douglas-fir dominates the tree stratum with an importance value (IV) of 178. White fir follows (IV 67), along with Pacific yew (*Taxus brevifolia*) (IV 37) and tanoak (IV 19). Total basal area is 101 m²/ha, and total stem density is 530/ha. The understory sclerophylls are typically stunted as a result of frequent snow loading. Average ground cover is 30 percent. Shrubs and herbs are represented by 27 species in the sample. The most frequent species are *Berberis piperiana*, *Rosa gymnocarpa*, *Quercus vaccinifolia*, *Holodiscus discolor*, *Vancouveria hexandra*, *Achlys triphylla*, and *Whipplea modesta*.

Knobcone Pine (*Pinus attenuata*) Woodland (83210): 76 acres (31 ha). One dense stand of knobcone pine occurs adjacent to canyon live oak woodland on upper S.-facing slopes. It is essentially a subtype of canyon live oak woodland with little else to distinguish it floristically.

White Fir-Douglas-Fir Forest (84240): 490 acres (198 ha). Above about 4400 ft (1341 m) white fir becomes the principal reproducer. The sclerophylls characteristic of the understory and subcanopy of the lower-elevation Douglas-fir-dominated forest and transitional mixed evergreen-white fir forest drops out, and the understory is very sparse and herb dominated. Seven 100-m² plots were sampled in this type. Douglas-fir dominates the canopy (88 percent relative basal area, total 158 m²/ha), with white fir the most abundant species (67 percent relative density, total 630 trees/ha). There are very few saplings and seedlings, with an average density of only 20/ha, probably because the 1959 fire thinned the understory and subsequent reestablishment has been slow in the dense shade of the canopy.

The shrub and herb understory is poorly developed, averaging less than 15 percent cover, and represented by 11 shrub species and 25 herb species. Among the most important species are *Berberis piperiana*, *Rosa gymnocarpa*, *Symphoricarpos acutus*, *Vaccinium membranaceum*, *Disporum hookeri*, *Achlys triphylla*, *Chimaphila umbellata*, *Polystichum munitum*, *Chimaphila menziesii*, *Stellaria jamesiana*, *Arnica latifolia*, *Campanula prenanthoides*, *Vancouveria hexandra*, and *Hieracium albiflorum*.

Sugar Pine (*Pinus lambertiana*)-Douglas-Fir Forest (84110): 139 acres (56 ha). On a few W.- and NW.-facing slopes between 3800 and 4500 ft (1158-1372 m), sugar pine dominates, with Douglas-fir, white fir, and incense-cedar (*Libocedrus decurrens*) as subdominants. This forest is similar to more interior mixed conifer forests of the E. Klamath Mountains ecological section. The understory is open and sparse.

Rock Outcrop (no Holland equivalent): 81 acres (33 ha). Numerous small rock outcrops occur throughout the area; most conspicuous are those along the Salmon Divide. These outcrops include *Lewisia cotyledon*, *Streptanthus tortuosus*, *Hieracium greenei*, *Holodiscus boursieri*, *Zauschneria californica* ssp. *latifolia*, *Eriogonum lobbii*, *Brickellia greenei*, and *Sedum obtusatum* ssp. *boreale*. *Saxifraga fragarioides*, *Cheilanthes gracillima*, *Cryptogramma acrostichoides*, *Sedum purdyi*, and *Polystichum munitum* var. *imbricans* are characteristic of sheltered mesic sites. Brewer spruce is also typical of mesic upper-elevation rock outcrops, but it does not occur in high enough density to be considered a distinct vegetation type. A recently-cut tree

Figure 132—Pearch Creek, successional resprouts of tanoak, Pacific madrone, and giant chinquapin surrounding dead and damaged Douglas-fir, the result of the 1959 fire in Pearch Creek study area. Sommes Mountain in background. (1986)



stump with 450 annual rings and a diameter of 30 inches (76 cm, at the height 35.5 inches [90 cm] from the base) probably is the largest Brewer spruce seen in the area.

Riparian Vegetation (61510, 63500): 35 acres (14 ha). Many of the small drainages within the study area have permanent moisture. At elevations below about 3500 ft (1067 m), riparian vegetation is dominated by *Salix lasiolepis* (and other willows), white alders (*Alnus rhombifolia*), and Oregon ash (*Fraxinus latifolia*), along with understory species such as *Aralia californica*, *Rubus ursinus*, *Dicentra formosa*, and *Mimulus cardinalis*. Above about 3500 ft (1067 m) along steeper gradient rivulets, montane species such as *Alnus sinuata* dominate with understory species such as *Circaea alpina* var. *pacifica*.

Noble Fir Forest (85310): 28 acres (11 ha). This type, dominated by trees with several noble fir characteristics (with a lower number of Shasta red fir, *Abies magnifica* ssp. *shastensis*, characteristics), dominates the highest N.-facing slopes of the area. At about 5700 ft (1737 m), the forest is composed of 100- to 150-ft (31- to 46-m) tall noble fir with noble fir saplings and seedlings common in areas of light shade. Dominants are between 28 and 33 inches (71-84 cm) dbh. Western white pine (*Pinus monticola*) also occurs occasionally at the highest elevations.

At slightly lower elevations on Antenna Ridge the forest is more mixed. A sample plot in this forest at about 5600 ft (1707 m) includes a mixed canopy of noble fir, Douglas-fir, and white fir, with Douglas-fir dominant but with noble fir in highest density. There is a sparse shrub and herb understory averaging 15 percent cover. Typical understory species include *Vaccinium membranaceum*, *Rosa gymnocarpa*, *Berberis piperiana*, *Ribes sanguineum*, *Penstemon anguineus*, *Pyrola secunda*, *Arnica latifolia*, *Campanula prenanthoides*, *Hieracium albiflorum*, *Goodyera oblongifolia*, *Corallorhiza maculata*, *Chimaphila umbellata*, and *C. menziesii*.

Montane Chaparral (37510, 37542): 11 acres (4 ha). Little of this vegetation occurs in the area. A few patches exist on the upper portions of S.- and W.-facing slopes and are dominated by *Arctostaphylos nevadensis*, *A. patula*, *Prunus emarginata*, and *Holodiscus boursieri*. A slightly different type occurs on small areas of the upper, rocky NE.-facing slopes of Antenna Ridge. *Quercus vaccinifolia*, *Amelanchier pallida*, and *Arctostaphylos nevadensis* are the dominants. Herbs associated with the montane chaparral are sparse and include *Monardella odoratissima* ssp. *pallida*, *Polygonum davisiae*, *Streptanthus tortuosus*, *Lomatium macrocarpum*, and *Apocynum pumilum*.

Plant Diversity

One hundred fifty taxa are listed.

Conflicting Impacts

The previously mentioned fire, clear-cutting, and road construction within the SW. portion of the area, as well as the possibility of the construction of a small hydroelectric plant are among the real and potential conflicts. These points, in conjunction with the extremely difficult travel within the area because of the steep slopes and the successional nature of much of the vegetation, combine to make this area undesirable for scientific use. The Region 5 RNA committee elected to remove this area from further RNA consideration in 1987.