

20. Craig's Creek (Imper 1991a)

Location

This recommended RNA is on the Six Rivers National Forest, Del Norte County. It is about 10 miles (16 km) E. of Crescent City and 13 miles (21 km) S. of the Oregon border, near the confluence of the Main and S. Forks of the Smith River. The area is included in portions of sects. 1, 2, 3, 10, 11, 12 T16N, R1E HBM (41°48'N., 124°03'W.), USGS Hiouchi quad (fig. 41). Ecological subsections – Western Jurassic (M261Aa) and Gasquet Mountain Ultramafics (M261Ab).

Target Element

Knobcone Pine (*Pinus attenuata*) Forest

Distinctive Features

Knobcone Pine: Knobcone pine occurs both in pure stands and mixed with Douglas-fir (*Pseudotsuga menziesii*) and hardwoods at Craig's Creek. These forests provide an interesting gradient in moisture availability, soil chemistry, and competitive abilities of the species present. They are representative of the Klamath Mountains ecological section.

Habitat and Floral Diversity: Habitat diversity at the rRNA is impressive due to the broad range of soils, abundant water, and topographic/microsite variability. Species richness is characteristic of the Klamath Mountains, in part a function of its large endemic component and relictual status.

Rare Plants: *Arctostaphylos hispidula* and *Erigeron delicatus* (*E. cervinus* in Hickman [1993]) on CNPS List 4 are present in the rRNA.

Plant Species of Special Interest: Many species present are endemic to the Klamath Mountains. Local endemics include *Holodiscus discolor* var. *delnortensis* and *Arctostaphylos hispidula*. *Juniperus communis* var. *jackii*, *Galium ambiguum* var. *siskiyouense*, *Stenanthium occidentale*, *Tofieldia glutinosa*, *Tauschia glauca*, and *Lomatium howellii* are all endemic to the region. The carnivorous *Pinguicula vulgaris* grows on rock outcrops adjacent to the S. Fork.

Physical Characteristics

The survey area covers about 950 acres (385 ha), but the acreage proposed in the forest plan is 1150 acres (465 ha). The study area occupies the entire S.-facing slope of one continuous ridge, extending for about 2.25 miles (4.0 km) E. of the S. Fork Bridge. Elevation ranges from about 140 ft (43 m) at the S. boundary to 1750 ft (533 m) at the ridgetop. Aspects tend to be S., with slopes ranging from 50 to 100 percent.

The area is underlain by gabbro and related rocks with a complex of dike rocks intruding into the W. half. An area of Wimer formation is mapped on the ridgetop at the S. boundary. Soils are Hugo family, moderately deep-Maymen family complex 50-70 percent in the W. portion, and Maymen family-Rock outcrop, metaigneous complex 70-90 percent in the E. portion. Soils of the Clallam-Skalan-Goldridge families occur in the far E. portion and along Craig's Creek.

Due to proximity to the coast and the Siskiyou Mountains to the E., weather in the area is relatively mild year-round. A small portion of the abundant precipitation occurs in summer. Mean annual precipitation averages 80-90 inches (2036-2290 mm), although nearby locations occasionally receive more than 200

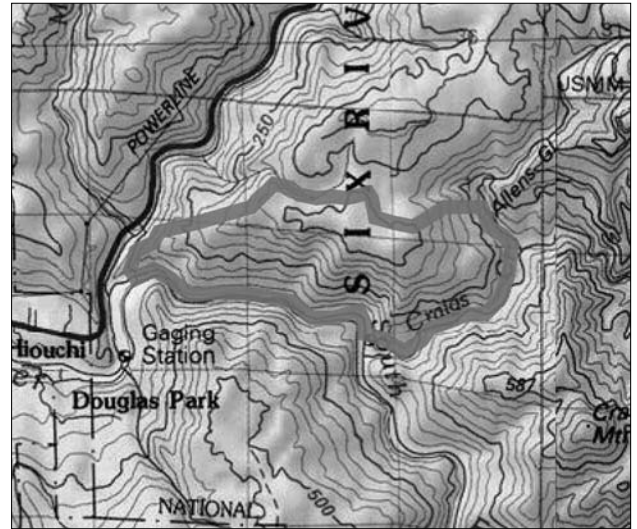


Figure 41—Craig's Creek rRNA

inches (5080 mm). Fog or low clouds are common. Snowfall is infrequent and light. The January mean minimum temperature is about 16 °F (-9 °C) and July's mean maximum is about 70 °F (21 °C). The average frost-free period extends from about April 1 to November 15.

Association Types

Twenty-two 0.1-acre circular plots were sampled within representative stands for each of the vegetation types present. An additional three plots were sampled in a 4-acre area that burned in 1978.

Knobcone Pine Forest (83210): 151 acres (61 ha). The stunted vegetation, the presence of indicator species such as tanoak (*Lithocarpus densiflorus* var. *echinoides*) and *Juniperus communis* var. *jackii*, and the absence of species common to the other vegetation types are all due to the ultramafic nature of the parent material. The even-aged stands of knobcone pine approach pygmy stature in this forest, with most individuals less than 4-5 inches (10-13 cm) dbh and 25 ft (8 m) tall at 50-65 years. Both Douglas-fir and sugar pine (*Pinus lambertiana*) are present, and the Douglas-fir is often stunted in appearance. Other species restricted to this vegetation type include *Lotus crassifolius* and *Castilleja applegatei*. *Rhododendron macrophyllum*, *Vaccinium ovatum*, and *Arctostaphylos columbiana* are among the few species able to make the transition in soils from the other forest types. *Xerophyllum tenax*, as usual, is most common on the ultramafics but also occurs on adjacent soils. Additional species typical of the knobcone pine forest are *Gaultheria shallon*, *Chrysolepis chrysophylla*, *Quercus vaccinifolia*, and *Pteridium aquilinum*. No sign of disease or fire is obvious, and no regeneration of knobcone is occurring in this fire-suppressed forest.

Knobcone-Tanoak Forest (83210): 256 acres (104 ha). This entire forest dates to a fire in the 1920s and appears to be transitional between the knobcone pine forest and tanoak forest (fig. 42). Here, knobcone pine competes well and attains sizes somewhat larger and taller than in the knobcone pine forest. In some cases the type approaches chaparral in appearance, with only scattered knobcone and Douglas-fir. This forest mostly occurs on ridgetops and relatively steep slopes, on poor, rocky soils that are shallow and coarse.

Vegetation composition and structure distinguish this forest from the mixed evergreen forest. Canopies are more open, tree basal area is lower, and understory more diverse. Tanoak is almost invariably scrubby, normally less than 6 inches (15 cm) in diameter. The forest shares several species with the canyon live oak (*Quercus chrysolepis*) forest, including *Arctostaphylos*

columbianum, *Mimulus aurantiacus*, *Whipplea modesta*, and others. *Rhododendron macrophyllum* is present in moister areas or sites exhibiting a stronger ultramafic influence. Occasional canyon live oak, madrone (*Arbutus menziesii*), and chinquapin (*Chrysolepis chrysophylla*) occur in the type. Other associated species are *Vaccinium ovatum*, *Gaultheria shallon*, poison oak (*Toxicodendron diversilobum*), *Eriodictyon californicum*, *Lonicera hispidula*, *Rubus vitifolius*, *Pteridium aquilinum*, *Trientalis latifolia*, and *Polystichum munitum* var. *imbricans*.

Figure 42—Craig's Creek, looking southwest from lateral ridge (ca. 700 ft [213 m]) at west end of Craig's Creek RNA, toward South Fork Bridge. The knobcone-tanoak forest is almost impenetrable, characterized by dense, stunted tanoak, and dense shrub layer of *Vaccinium ovatum*, *Arctostaphylos columbiana*, *Toxicodendron diversiloba*, *Rhododendron macrophyllum*, and *Gaultheria shallon*. (1990)



On a 4-acre patch in the W. portion of the forest, the 1978 fire burned sufficiently hot to stimulate knobcone pine regeneration. The lower portion and peripheral areas on either side of the core area burned only at the ground surface and suffered minimal dieback. Only an occasional knobcone pine seedling is seen in the marginal area compared to dense reproduction in the 4-acre core. Poor regeneration in these lightly burned areas is probably due to retention of much of the overstory and the thick litter layer. Vegetation composition in the core burn area differs significantly from that in the adjacent unburned area. It includes *Happlopappus arborescens*, *Ceanothus thyrsiflorus*, *Baccharis pilularis*, and *Arctostaphylos hispidula*. Some level of fire-adaptation is implied in species found here but not encountered elsewhere in the rRNA.

Mixed Evergreen Forest (81100): 233 acres (94 ha). The mixed evergreen forest is characterized by a consistently dense overstory canopy of mostly tall tanoak and madrone. Here, the tanoak is much smaller in stature than in the knobcone-tanoak forest. Soils are deeper and moister, with a higher clay content. Douglas-fir is normally present in various size classes and ages (up to 400+ years), some dating to the 1920s fire. Occasional knobcone pines, up to 16 inches (41 cm) or more in diameter, occur close to the river, but most of the forest at lower elevations contains little or no knobcone pine. This forest in general tends to be dark, with a poorly developed understory. The drier-site forest may include *Vaccinium ovatum*, *Rhododendron macrophyllum*, *Gaultheria shallon*, *Toxicodendron diversilobum*, and *Pteridium aquilinum*. More open, moist stands support a diverse understory. The forest in the protected Craig's Creek canyon is quite lush and equivalent to Douglas-fir forest but with little or no Douglas-fir. Added species may include *Alnus rubra*, *Corylus cornuta* var. *californica*, *Polystichum munitum*, *Oxalis oregano*, and most of the species listed below for Douglas-fir forest.

Canyon Live Oak Forest (81320): 220 acres (89 ha). This type occurs in the rockiest, driest portion of the area (except actual rock outcrops). Soils are more closely related to the knobcone-tanoak forest than the better soils of the mixed evergreen forest. Canyon live oak forest is commonly associated with the upper headwalls of small watersheds and other sites probably associated with massive soil failure in the past. The largest contiguous area lies just above the S. Fork of the Smith River, near the sharp river bend, where surface exposure of gravel and cobbles is high. Except for the steep slopes (75-100 percent) and frequent poison oak, this forest is easier to walk through than either the knobcone pine forest or knobcone-tanoak forest. The tree layer is characterized by high cover of canyon live oak and dense shrubby tanoak, variable amounts of madrone, and scattered Douglas-fir. This is the only forest in the rRNA in which rhododendron is consistently absent. The moderately dense shrub layer is dominated by *Vaccinium ovatum*, *Arctostaphylos columbiana*, *A. canescens*, and occasionally, *Quercus vaccinifolia*. *Gaultheria shallon*, *Garrya buxifolia*, *Lonicera hispidula*, and *Mimulus aurantiacus* are also present. The herbaceous layer is sparse and closely related to the rock outcrop community. It includes *Polystichum munitum* var. *imbricans*, *Polypodium californicum*, *Whipplea modesta*, *Trientalis latifolia*, *Eriophyllum lanatum*, *Galium ambiguum* var. *siskiyouense*, *Achillea borealis*, *Pteridium aquilinum*, *Hieracium albiflorum*, and *Maianthemum dilitatum*. Knobcone pine occurs only sporadically, probably due to moisture limitations.

Douglas-Fir Forest (82400): 16 acres (6 ha). Although it occupies only about 2 percent of the area, Douglas-fir forest is exceptionally well represented in old-growth stage and contributes significantly to the diversity of the rRNA. Little evidence of fire is present, and the stand appears to represent climax Douglas-fir forest. It is best developed on the low stream terrace and adjacent toeslope near the junction of Craig's Creek and the S. Fork of the Smith River. Douglas-fir ranges to 500+ years old, 6 ft (183 cm) dbh, and more than 200 ft (61 m) tall, although most trees are smaller than 4 ft (122 cm) dbh. Tanoak is the only hardwood generally present, in relatively low cover. Well-decayed logs are

scattered throughout. The dense shrub and herb layers cover as much as 98 percent of the log and ground surface. In addition to the most common shrubs of the other forest types, the following occur here: *Corylus cornuta* var. *californica*, *Toxicodendron diversilobum*, *Rubus spectabilis*, *R. parviflorus*, *Aralia californica*, *Berberis nervosa*, *Rhamnus purshiana*, *Rosa gymnocarpa*, and *Acer circinatum*. Common herbs are *Polystichum munitum*, *Oxalis oregana*, *Rubus vitifolius*, *Trillium ovatum*, *Pteridium aquilinum*, *Hierochloa occidentalis*, *Achlys triphylla*, *Maianthemum racemosum*, and *Vancouveria planipetala*.

Redwood Forest (82320): 74 acres (30 ha). All of this type occurs adjacent to the S. Fork of the Smith River and along some of the drainages at lower elevation, on moderate slopes and several high benches. Redwoods (*Sequoia sempervirens*) vary in size, but range up to 7 ft (213 cm) dbh or more. Douglas-fir and Port Orford-cedar (*Chamaecyparis lawsoniana*) are subdominants; tanoak, occasional madrone, and, rarely, California bay (*Umbellularia californica*) form a hardwood mid-story. Patches of pure Douglas-fir forest are interspersed within the area. The understory is usually dark, rather sparse, and includes the following species: *Vaccinium ovatum*, *Rhododendron macrophyllum*, *Gaultheria shallon*, *Myrica californica*, *Rubus parviflorus*, *Corylus cornuta* var. *californica*, *Rubus vitifolius*, *Rosa gymnocarpa*, *Polystichum munitum*, *Trientalis latifolia*, *Viola sempervirens*, *Pteridium aquilinum*, and *Festuca subuliflora*. There is abundant evidence of fire in this forest, ranging from char to large fire scars.

Riparian Zone (Red Alder Forest, 81A00): No acreage available. Lush riparian corridors follow each of the numerous creeks that flow across the lower slope of the area. Hardwoods grow somewhat larger in these corridors than in adjacent forest. Understories are dark and include a diverse complement of shade-tolerant species. The greatest diversity occurs along streams and seeps in the E. portion of the area, above Craig's Creek. Plants of the riparian corridor include *Alnus rubra*, *Rhamnus purshiana*, *Lithocarpus densiflorus*, *Acer macrophyllum*, *Umbellularia californica*, *Chamaecyparis lawsoniana*, *Sequoia sempervirens*, *Arbutus menziesii*, *Rhododendron macrophyllum*, *Berberis nervosa*, *Adiantum pedatum*, *Rubus parviflorus*, *Vaccinium ovatum*, *Polystichum munitum*, *Aralia californica*, *Aquilegia formosa*, and a host of herbaceous species. The riparian corridors along the S. Fork of the Smith River and Craig's Creek are well developed and contain unique elements. Dense vegetation is interspersed with rock outcrops with their own unique assemblage of plants. Some of the species generally restricted to or more common in those areas include *Cornus nuttallii*, *Stenanthium occidentale*, *Trifolium longipes*, *Petasites palmatus*, *Mimulus cardinalis*, *Juncus orthophyllus*, *Ligusticum apiifolium*, *Acer circinatum*, *Philadelphus lewisii*, and *Physocarpus capitatus*.

Rock Outcrops: No acreage available. Rock outcrops are commonly surrounded by canyon live oak forest, but they are floristically distinct. Exposed rocks are usually fine grained, and some are nearly covered by *Quercus vaccinifolia*. Most support open communities, including species such as *Garrya buxifolia*, *Mimulus aurantiacus*, *Selaginella oregana*, *Luina hypoleuca*, *Calochortus tolmiei*, *Eriodictyon californicum*, *Whipplea modesta*, *Sedum spathulifolium*, *Holodiscus discolor* var. *delnortensis*, *Madia minima*, *Calystegia polymorpha*, *Lonicera hispidula*, *Achillea borealis*, *Arctostaphylos canescens*, *A. columbiana*, and *Pinguicula vulgaris*.

Plant Diversity

One hundred seventy-three taxa are listed.

Conflicting Impacts

Recreational use may increase now that the National Recreation Area is established. Presence of the fatal *Phytophthora lateralis* root rot in stands of Port Orford-cedar may continue to affect the structural diversity of the forests in the lower portion of the area, but not where knobcone pine is present. Vegetation management by fire may be important in the near future in many of the vegetation types.