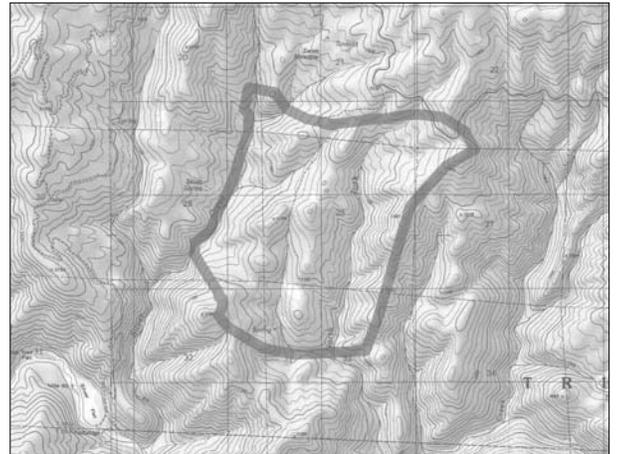


78. Smoky Creek (Taylor and Teare 1979a)

Location

This recommended RNA is located on Shasta-Trinity National Forest, in Trinity County, about 5 miles (8 km) SE. of Forest Glen. It includes portions of sects. 20, 21, 28, and 29 of T27N, R12W MDBM (40°22'N., 123°15'W.), USGS Pony Buck Peak quad (SW 1/4 Dubakella 15' quad) (fig. 157). Ecological subsection – Rattlesnake Creek (M261Au).



Target Elements

Pacific Ponderosa Pine-Douglas-Fir (*Pinus ponderosa*-*Pseudotsuga menziesii*) Forest and Jeffrey Pine (*Pinus jeffreyi*)

Distinctive Features

Rare Plants: Five species of rare plants occur in the vicinity of the rRNA. These are all serpentine endemics. Two species (*Haplopappus ophitidis* [CNPS List 1B] and *Helianthus exilis* [CNPS List 3]) occur on the study site.

Serpentine Jeffrey Pine Forest: Although this vegetation type is widespread on drier serpentine areas of the Klamath Mountains ecological section, this area is the only recommended RNA currently considered as representative of this vegetation in California. Numerous endemic plants occur in the serpentine Jeffrey pine forest and have been well-studied in other parts of the Klamath Mountains ecological section (Waring 1969, Whittaker 1960).

Figure 157—
Smoky Creek
rRNA

Physical Characteristics

The study area lies at the head of the easternmost fork of Silver Creek and on the North Fork of Smoky Creek, both of which drain into the South Fork of the Trinity River. Elevations range from 3200 to 4200 ft (975-1280 m). The recommended RNA encompasses 960 acres (389 ha).

Slopes average 10-20° with extensive interfluvies of lesser slope between Smoky and Silver creeks. Both streams are intermittent within the area, although several seeps and springs (e.g., Swim Meadow, Silver Springs) flow year-round.

The area is underlain by pre-Cretaceous metamorphic rocks, with extensive outcrops of altered ultrabasic rock (serpentine).

Soils are probably Sheetiron-Josephine families over the metamorphics and Dubakella-Neuns over the serpentine. Mean annual temperature is estimated at somewhat lower than 51 °F (10.8 °C). Mean annual precipitation is estimated at about 62 inches (1572 mm).

Association Types

Fifteen circular plots (10-m radius) and 24 releves were employed to sample the various types of vegetation in the area. The releve data are arranged into an association table. Acreages are not given.

Douglas-Fir (*Pseudotsuga menziesii*)-Ponderosa Pine (*Pinus ponderosa*) (84110): This is the most extensive vegetation in the area (fig. 158). This forest develops only over nonserpentine areas. A typical stand is open to semidense. The overstory is composed of older age-class individuals in low density. Dense conifer reproduction is patchy. Douglas-fir dominates the canopy, averaging 49.4 m²/ha basal area and 498 stems/ha. Sugar pine (*Pinus lambertiana*) and ponderosa pine share codominance at 14.6 and 18.2 m²/ha basal area,

respectively, and both occur in approximately equal densities of about 100 stems/ha. California black oak (*Quercus kelloggii*) and canyon live oak (*Q. chrysolepis*) form a subcanopy. The shrub understory is open, with *Toxicodendron*

diversilobum and occasional *Arctostaphylos viscida*, *Corylus cornuta* var. *californica*, and *Ceanothus integerrimus*. The herb layer is sparse, with few constant species. These include *Pyrola picta*, *Chimaphila umbellata* var. *occidentalis*, *Hieracium albiflorum*, *Bromus marginatus*, *Lathyrus polyphyllus*, and *Apocynum pumilum*.

White Alder (*Alnus rhombifolia*)-*Galium triflorum* (61510): This association lines the ephemeral streams. This type has a sparse overstory of white alder with bigleaf maple (*Acer macrophyllum*) and Douglas-fir as codominants, averaging 11.0, 1.1, and 3.1 m²/ha

basal area, respectively. Mesic shrubs such as *Rosa pisocarpa*, *Philadelphus lewisii* ssp. *gordonianus*, *Rubus parviflorus*, and *Euonymus occidentalis* are common. *Galium triflorum* dominates the sparse herb layer.

***Prunella vulgaris* ssp. *lanceolata*-*Carex bolanderi* (45400):** This association is typical of seeps and small springs. Occasional riparian species of the previous type are present, but this type has primarily a meadow physiognomy. *Carex bolanderi* is common, with *C. amplifolia*, *Torreyochloa* (*Puccinellia*) *pauciflora*, and the constant *Prunella vulgaris*.

***Deschampsia caespitosa*-*Carex buxbaumii* (45100, 45400):** This is the seep and meadow vegetation characteristic of serpentine areas such as Silver Spring and Swim Meadow. Swim Meadow is dominated by *Deschampsia caespitosa*, *Juncus covillei*, and *J. effusus*, with *Carex buxbaumii* and *Helenium bigelovii* as codominants. Silver Spring is more heavily mineralized than Swim Meadow and has *Sisyrinchium idahoense*, *Cirsium breweri*, and *Hastingsia* (*Schoenolirion*) *alba* along with *Rhynchospora glomerata* var. *minor*.

***Carex exsiccata* (52430):** One small pond is dominated by this sedge, related to the montane species *C. vesicaria* and *C. rostrata*.

Jeffrey Pine-*Haplopappus ophitidis* (84171): This association is typical of the most sparsely vegetated serpentine areas. The two namesake species characterize the tree and shrub layer, respectively. Jeffrey pine is widely spaced (300/ha), but represented by relatively large individuals (36 m²/ha basal area). Scattered small shrubs of *Ceanothus cuneatus* dominate the shrub layer; *Calamagrostis koelerioides* is the dominant grass of the herb layer. Other species characteristic of this open forest include *Phacelia corymbosa*, *Cirsium callipes*, *Senecio greenei*, *Arenaria rosei*, *Eriogonum strictum*, *Onychium densum*, *Rhamnus californica* ssp. *tomentella*, and *Allium* sp.

***Ceanothus cuneatus*-*Sitanion hystrix* (37810, 37600):** This association occurs on very rocky soils or serpentine outcrops. *Ceanothus cuneatus* forms a dense (50 percent cover) shrub layer about 3 ft (1 m) high. Herbs and occasional shrubs typical of the previous type also occur here, along with such serpentine chaparral species as *Quercus durata*. Soils are too poorly developed to allow widespread establishment of Jeffrey pine, although occasional stunted individuals occur.



Figure 158—Smoky Creek, view of the canopy of Pacific ponderosa pine – Douglas-fir forest, showing the characteristic structure of a mosaic of old-growth and younger successional stage stands in Smoky Creek rRNA (1979)

Jeffrey Pine-*Calamagrostis koelerioides* (85100): This association resembles the Jeffrey pine-*Haplopappus ophitidis* association, with an open overstory of Jeffrey pine (32.8 m²/ha cover and 381 stems/ha). It occurs on less heavily mineralized, more highly weathered soil than that association, and consequently it has a different set of associated species. These include incense-cedar, *Rhamnus californica* ssp. *tomentella*, *Toxicodendron diversilobum*, *Balsamorhiza sagittata*, *Monardella odoratissima* ssp. *pallida*, and *Iris tenuissima*.

Plant Diversity

One hundred sixty-six taxa are listed.

Conflicting Impacts

Current (1990) impacts include a lightly used jeep road that enters the rRNA and a number of timber sales in forests bordering the rRNA.