

43. Indian Creek (Keeler-Wolf 1986c, 1990d)

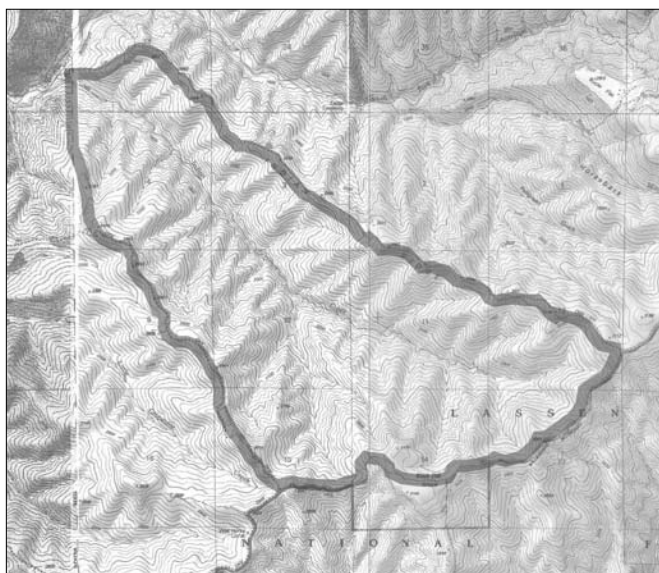


Figure 89—Indian Creek rRNA

Location

This recommended RNA is on the Lassen National Forest, Tehama County. It is about 9 miles (14 km) SE. of Paynes Creek. It occupies portions of sects. 33 and 34 T28N, R1E, sects. 2, 3, 4, 9, 10, 11, 12, 13, 14, and 15 T27N, R1E MDBM (40°13'N., 121°50'W.), USGS Panther Spring and Dewitt Peak quads (fig. 89). Ecological subsection – Tuscan Flows (M261Fa).

Target Element

Blue Oak/Foothill Pine (Quercus douglasii/Pinus sabiniana)

Distinctive Features

Blue Oak Woodland: Many blue oak stands throughout California are not reproducing as a result of varying effects of livestock browsing, rodent predation, and insect predation. The

relatively even size-class representation at Indian Creek is indicative of a healthier population than in several other areas sampled elsewhere in the State (Griffin 1977). Recent reproduction is fairly good, with seedlings and small saplings on 32 percent of the sample points. Four size classes encompassing trees ranging from 2 to 16 inches (5-41 cm) dbh have frequencies greater than 15 percent.

Rare Plants and Range Extensions: *Calycadenia fremontii* and *Fritillaria eastwoodiae* (phaenothera) are members of CNPS List 3. The following species are on List 4 of CNPS: *Mimulus glaucescens*, *Astragalus pauperculus*, *Navarretia subuligera*, and *Polygonum bidwelliae*. A number of species were found N. of their listed ranges in Munz (1968). These include *Dyaleya cymosa*, *Clarkia arcuata*, *Centaureum floribundum*, *Parvisedum pumilum*, *Fritillaria eastwoodiae* (phaenothera), *Filago californica*, *Polygonum bolanderi*, *Layia platyglossa* ssp. *campestris*, *Polypodium californicum*, *Limnanthes alba*, *Melica torreyana*, *Githopsis pulchella*, and *Navarretia prolifera*. Two species (*Symphoricarpos mollis*, *Lomatium californicum*) are typically N. Coast Ranges species, not reported from the Cascade Range of California.

Riparian and Stream Biota: For a relatively small stream, Indian Creek contains a diverse mixture of plants and animals associated with it. Large populations of rainbow trout (*Salmo gairdneri*) and other fish as well as western pond turtles (*Clemmys marmorata*), California newts (*Taricha torosa*), aquatic garter snakes (*Thamnophis couchii*), and many species of aquatic invertebrates are associated with the stream. The riparian vegetation is well-developed and shows little evidence of human disturbance.

Physical Characteristics

The rRNA covers about 3900 acres (1578 ha) and includes nearly all of the Indian Creek drainage. Indian Creek is a small permanent tributary to Antelope Creek. The basin is about 1.5 miles wide, 4 miles long (2.4 km by 6.4 km). Elevations are 1320-3131 ft (402-954 m). The drainage is oriented NW.-SE. with Indian Creek flowing NW. Predominant exposures are SW. and NE. Slopes are variable, from gentle atop the ridges to moderate in the majority of the drainage and steep on many small escarpments.

Rocks are late Pliocene volcanic breccias (Tuscan formation), deposited in horizontal layers of varying resistance. The vegetation often conforms to these

layers, showing up as distinct bands along the slopes. Soils are largely Toomes and Supan series. The latter series is deeper and supports denser oak woodland than the former, which is shallow and rocky, dominated by grassland and scrub.

Association Types

Twenty-two random points (point center-quarter method) were sampled in the blue oak woodland. The remainder of the vegetation is qualitatively described.

Live Oak Woodland-Scrub (37110, 37900, 37A00, 71150, 71322, 81330): 1265 acres (512 ha). This is a dense sclerophyll vegetation intermediate between woodland and chaparral. It is most extensive on NE.-facing slopes, but also occurs on sheltered W.- and SW.-facing slopes on rocky soil. Interior live oaks (*Quercus wislizenii*) dominate typically as shrubby, multi-stemmed individuals. Other woody species include California buckeye (*Aesculus californica*), *Rhamnus crocea*, *R. californica*, *Juniperus californica*, *Ceanothus cuneatus*, *Toxicodendron diversilobum*, *Cercocarpus betuloides*, *Cercis occidentalis*, *Arctostaphylos manzanita*, *Lonicera interrupta*, and scrubby canyon live oak (*Quercus chrysolepis*).

Foothill pine is unevenly distributed, tending to be most common on lower SW.-facing slopes. Beneath the scattered emergent foothill pines, the shrub layer is variable with some species (e.g., *Fraxinus dipetala* and *Cercocarpus betuloides*) attaining 13-20 ft (4-6 m). Herbs are uncommon.

At higher elevations and on more sheltered slopes, *Quercus dumosa* tends to replace interior live oak. Other species such as *Fraxinus dipetala*, *Rhus trilobata*, *Ceanothus integerrimus*, *Fremontodendron californicum*, and *Ptelea crenulata* become more important. *Eriodictyon californica* may be common in rocky areas. These sites resemble Holland's northern mixed chaparral and scrub oak chaparral (37110, 37900).

Ceanothus Scrub (37810): 945 acres (382 ha). This association occurs on NE.-, E.-, and S.-facing slopes. Dominated by one species, *Ceanothus cuneatus*, the scrub is relatively open and appears senescent, with no evidence of fire for the past 50-75 years. The shrubs are more widely spaced than in most *Ceanothus* chaparral. This scrub frequently surrounds areas of grassland, and has small grassy openings between the shrubs.

Grassland (42110, 42200, 45400): 875 acres (354 ha). Dominants of this grassland do not change appreciably with varying slope exposure and include *Bromus mollis*, *B. diandrus*, *Avena barbata*, and *Erodium cicutarium*, all introduced. Many native herbs also occur. These subordinates do tend to vary more in composition as a result of slope. Those species characteristic of SW.-facing slopes include *Orthocarpus litho-spermoides*, *O. attenuatus*, *Clarkia arcuata*, *Astragalus pauperculus*, *Filago californica*, *Lupinus vallicola*, *Linanthus ciliatus*, *Trifolium microcephalum*, *T. ciliolatum*, *T. tridentatum*, *Lotus humistratus*, *Vulpia* (*Festuca*) *myuros*, *Dichelostemma multiflorum*, and *Centaureum floribundum*.

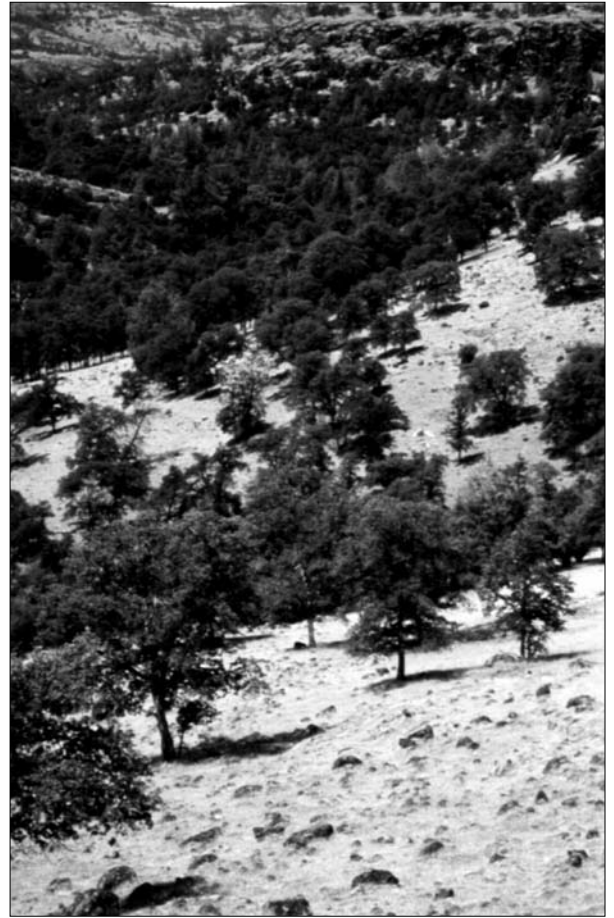


Figure 90—Indian Creek, blue oak woodland on southwest-facing slopes of lower Indian Creek watershed. (1986)

Native species on more sheltered NE.-facing slopes include *Lotus denticulatus*, *Linanthus dichotomus* ssp. *meridianus*, *Vulpia* (*Festuca*) *microstachys*, *Sanicula tuberosa*, *Trifolium depauperatum*, *Dichelostemma pulchella*, *Allium amplexans*, *Draba verna*, and *Platystemon californicus*.

In very rocky soils where rocks cover more surface area than vegetation does, the grassland changes in character and becomes dominated by such species as *Selaginella hansenii*, *Dudleya cymosa*, *Lasthenia chrysostoma*, *Erodium cicutarium*, *Phacelia egea*, *Tunica prolifera*, *Parvisedum pumilum*, *Polygonum bolanderi*, *P. bidwelliae*, *Tillaea erecta*, *Triteleia* (*Brodiaea*) *hyacinthina* var. *greenei*, *Gilia tricolor*, *Arenaria douglasii*, *Chorizanthe stellulata*, *C. polygonoides*, *Githopsis pulchella*, and *Navarretia prolifera*.

The annual grassland also contains small springy areas with several characteristic species. These include *Mimulus glaucescens*, *Trifolium varigatum*, *T. cyathiferum*, *Limnanthes alba*, *Briza minor*, *Hypericum anagalloides*, *Scutellaria austinae*, *Boisduvalia stricta*, *Juncus bufonius*, *Sisyrinchium bellum*, and *Epilobium* sp.

Blue Oak Woodland/Savanna (71140, 71410): 485 acres (196 ha). This association occurs largely on S.- and SW.-facing slopes. Blue oak is the most important species, averaging 128 stems/ha with a relative density of 80 percent. Basal area cover for blue oak averages 8.3 m²/ha. Other species on the plots, in order of importance, include canyon live oak, *Rhamnus crocea*, *Rhamnus californica*, foothill pine, and *Juniperus californica*. Interior live oak also occurs in rocky areas. Areas on shallow soil tend to be more open savanna; on deep Supan soil they are a woodland (>100 stems/ha) (fig. 90).

The understory of typical woodland is dominated by herbs and grasses (more than 50 species noted) with only scattered shrubs of *Ceanothus cuneatus*, *Rhamnus californica*, *R. crocea*, and *Toxicodendron diversilobum*. The shrubs are characteristic of rocky areas. Herbs and grasses include *Bromus mollis*, *Avena barbata*, *Erodium botrys*, *Tunica prolifera*, *Trifolium microcephalum*, and *T. ciliolatum*. Several native perennial grasses occur; the most common are *Stipa lemmonii* and *Poa scabrella*. Saplings and seedlings of blue oak are fairly common.

Deciduous Oak Woodland/Scrub (71120, 37541): 147 acres (60 ha). At higher elevations on NE.-facing slopes, small California black oaks (*Quercus kelloggii*) and dense thickets of Brewer oak (*Quercus garryana* var. *breweri*) occur. These deciduous species tend to occur adjacent to one another under similar ecological conditions. California black oak forms islands of 30- to 50-ft (9- to 15-m) tall stands surrounded by low scrubby (10 ft, 3 m) Brewer oak. Brewer oak covers a larger area than California black oak.

There are occasional small shrubs of *Ribes roezlii* and *Berberis dictyota* and a moderate cover of herbs and grasses including *Agoseris grandiflora*, *Crepis monticola*, *Senecio integerrimus*, *Calochortus monophyllus*, *Bromus marginatus*, *Cynoglossum grande*, *Lithophragma bolanderi*, and *Delphinium nudicaule*.

This association occurs on rocky, well-drained soil and is often bordered by open *Ceanothus* scrub. The deciduous oak woodland is analogous to the live oak woodland scrub at slightly higher and more mesic sites.

Canyon Bottom Woodland (81320): 147 acres (60 ha). Canyon live oak dominates the mesic canyon bottoms in the area. The dominants may be large, up to 3 ft dbh (1 m) and 70 ft (21 m) tall. The canyon live oaks coexist with smaller numbers of valley oak (*Quercus lobata*), California black oak, bigleaf maple (*Acer macrophyllum*), California bay (*Umbellularia californica*), and isolated individuals of ponderosa pine (*Pinus ponderosa*) and incense-cedar (*Libocedrus decurrens*).

The overall dominant understory species are *Toxicodendron diversilobum* and *Symphoricarpos mollis*. However, other mesophilic species occur, including *Philadelphus lewisii*, *Aristolochia californica*, *Asarum hartwegii*, *Saxifraga californica*, *Erythronium multiscapoideum*, *Trientalis latifolia*, *Adiantum jordanii*, *Dryopteris arguta*, *Polypodium californicum*, *Dicentra formosa*, *Melica torreyana*, *Osmorhiza chilensis*, *Galium aparine*, *Aquilegia formosa*, *Potentilla glandulosa*, *Heuchera micrantha*, *Lomatium californicum*, and *Hydrophyllum occidentale*.

Riparian Woodland (61510): 36 acres (15 ha). This association occurs along the perennially flowing part of Indian Creek in the lower half of the drainage. It is dominated by white alder (*Alnus rhombifolia*). Stem density is high along this creek, and there are several areas where an uninterrupted arching canopy of the dominant species covers several hundred meters of creekbed. Typical dominant white alders are 12-14 inches (31-36 cm) dbh and 50-70 ft (15-21 m) tall. Also occurring are occasional individuals of Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), bigleaf maple, and *Salix laevigata*. These species may attain large girth, up to 37 inches (94 cm) dbh in California sycamore.

Vitis californica is a common liana, and other common woody understory species include *Calycanthus occidentalis*, *Cornus glabrata*, *Clematis ligusticifolia*, *Philadelphus lewisii*, *Symphoricarpos rivularis*, *Rubus ursinus*, and *R. leucodermis*. Herbaceous species include *Carex senta*, *Erigeron philadelphicus*, *Mimulus cardinalis*, *Peltiphyllum peltatum*, *Artemisia douglasiana*, *Woodwardia fimbriatum*, and *Adiantum pedatum*.

Plant Diversity

Two hundred twenty-nine taxa are listed in the establishment record, an updated version of the list in the ecological survey.

Conflicting Impacts

Cattle grazing has had some negative impact by increasing browsing pressure on trees and reproduction of blue oak and also by trampling and eroding stream banks and hillsides. A network of fences occurs throughout much of the area. These are in various states of repair but may serve to act as exclosures for cattle once the area is established.