

16. Church Dome (Keeler-Wolf 1989g, 1991d)

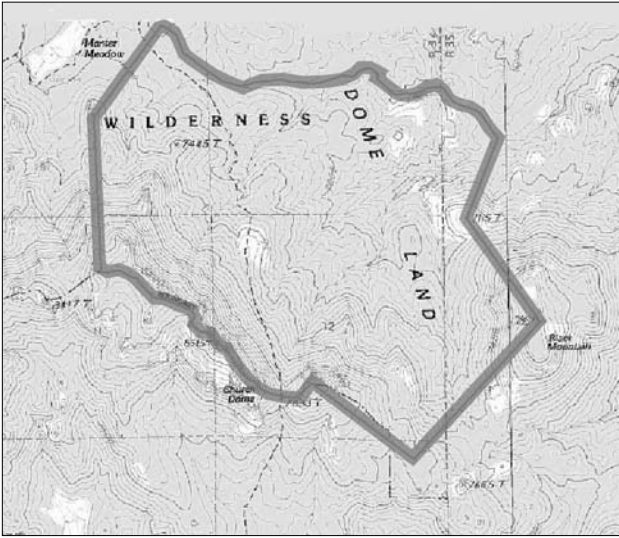


Figure 32—Church Dome RNA

Location

This established RNA is on the Sequoia National Forest and lies entirely within the Dome Land Wilderness, which is part of the Cannell Meadow Ranger District. It is located in the far S. end of Kern Plateau in the Sierra Nevada, bordering the Mojave Desert and the foothills of cismontane California. The trailhead is approximately 52 miles (84 km) from Kernville. The RNA is included in portions of sections 1, 2, 11, 12, and 13 T24S, R34E and sections 6, 7, and 18 T24S, R35E MDM (35°52'N., 118°15'W.), USGS White Dome and Cannell Peak quads (fig. 32). Ecological subsection – Kern Plateau (M261Eu).

Target Element

Jeffrey Pine (*Pinus jeffreyi*)

Distinctive Features

The Jeffrey pine forest of the RNA is the only one selected to represent this target element for the S. part of Sierra Nevada ecological section. Additionally, this RNA is distinct because, compared to the more clearly Great Basin flora of other Jeffrey pine forest areas (i.e., Indiana Summit RNA), the Jeffrey pine forest here is composed of more cismontane California flora with an infusion of S. Sierra Nevada and S. California endemics.

The RNA also supports a range of habitats for the Jeffrey pine. At low elevations, the Mojave Desert and California woodland elements intermingle with the Jeffrey pine vegetation. At upper elevations, other typically Sierran montane elements (white fir [*Abie concolor*] and sugar pine [*Pinus lambertiana*]), are present.

S. Sierra Nevada Endemics: *Ceanothus pinetorum*, *Gilia leptantha* ssp. *purpusii*, *Frasera tubulosa*, *Orochaenactis thysanocarpha*, *Cordylanthus ferrisianus*, *Ivesia campestris*, and *Linanthus oblongeolatus*.

S. Extents: A number of typical Sierran montane species are at or near their S. limits. These include *Chaenactis douglasii* var. *rubricaulis*, *Heuchera rubescens* var. *alpicola*, *Monardella odoratissima* spp. *parviflora*, *Silene bridgesii*, *Cynoglossum occidentale*, *Stipa pinetorum*, *Oreonana clematis*, *Arnica mollis*, *Erigeron peregrinis* ssp. *callianthemus*, and *Lupinus grayi*.

Fire History: The most recent fire occurred approximately 50 years ago. This is evident by small fire scars on some Jeffrey pine trees at mid-elevations. In another area, a small stand of mountain mahogany (*Cercoparpus* spp.) appears to have been rejuvenated by fire.

At the highest elevation, along the ecotone with Jeffrey pine-fir, occurs a small, even-aged stand of Jeffrey pine approximately 90 years old. This stand appears to have regenerated after a fire approximately 100 years ago.

Rare Plants: No Federally-listed endangered or rare plants are known to occur in the area; however, habitat for *Nemacladus twisselmannii* (CNPS List 1B) lies within the RNA.

Cultural: The RNA was part of the territory of the Tubatulabal group whose primary staple crops were acorns and pinyon nuts (Smith 1978).

Zoological: The Goshawk (*Accipiter gentilis*) is a Forest Service-listed sensitive species. The presence of several types of lower elevation species of birds (i.e., wren-underscores the area's affinity to desert and lowland cismontane habitat.

Physical Characteristics

The area covers 1380 acres (558 ha) between 6640 and 8515 ft (2024-2595 m). The highest slopes are sheer granite cliffs. Above 7600 ft (2317 m), the area is steep and NE.-facing. The RNA occupies a part of the SE.-flowing Manter Creek drainage. All streams within the RNA are ephemeral, drying typically by early summer, except for one perennial spring occurring near the N. boundary.

The RNA is underlain primarily by granitic basement rocks; it is part of the Sierra Nevada batholith (a huge area of cretaceous granitic rock covering the majority of the S. Sierra Nevada). In general, the granitics of the RNA outcrops are coarse-textured with large porphyritic boulders and many phenocrysts of plagioclase and quartz.

Jointing planes of granitic rock play an important role in shaping the topography. A small area along the SE. boundary is Pleistocene basalt flow. It forms the top and sides of Black Mountain (approximately 50 m thick). The Jeffrey pine forest on the basalt here has substantially different understory than on the granitic substrate.

The order-three soil survey of Sequoia National Forest divides the soil into four mapping units: 1) Rock outcrop-Brader-Siskiyou families complex (20-60 percent slope, shallow) occupies the largest area at middle elevations. Also included in this unit are small areas of Dome, Chaix, and Chawanakee soils. 2) Chaix-Chawanakee-Rock complex (5-30 percent slope). Included in this unit are small areas of Dome and Holland soils. This soil unit has the largest Jeffrey pines and the fastest growth rate within the Jeffrey pine forest. 3) Rock outcrop consists of small to very large outcrops of granitic rocks; and 4) Rock outcrop-Xerothents association (30-50 percent slope) occurs on the slopes and top of Black Mountain.

Temperatures are mild with highs of 80-85 °F (26.6-29.4 °C) in late July and lows of 20-25 °F (-6.6 to -3.9 °C) in the winter. Snowfall is light (10-25 inches [25.4-63.5 cm]). The SW. arm of the Sierra Nevada creates a rain shadow, so that the RNA receives only 20-25 inches (508-635 mm) of precipitation per year. This rain-shadow effect, augmented by the area's association with the Mojave Desert, contributes to the xeric aspects of the RNA.

Association Types

Jeffrey Pine Forest (85100): 1075 acres (435 ha). This association covers the majority (approx. 80 percent) of the area below 7600 ft (2317 m) elevation. The Jeffrey pine forest of the RNA is varied, ranging from mature, multi-age forests



Figure 33—
Church Dome,
the upper north-
east-facing slopes at
the base of Church
Dome. The forest
is co-dominated by
Jeffery pine and
white fir. Manter
Meadow is in the
middle distance
with the Sierretta
Peak highlands in
the far distance
across the upper
Manter Creek
drainage. (1988)

on gently-sloping flats and terraces to young, even-aged forests on steep slopes. The density of the forest also varies from open stands (shallow, rocky soils of S. exposure) to dense stands (stream courses).

The canopy is almost pure Jeffrey pine (89 percent cover); however, a few other trees also occur. At upper elevations, in a narrow belt of Jeffrey pine, individuals of California black oak (*Quercus kelloggii*) and occasional individuals of incense-cedar (*Libocedrus decurrens*) are found. A small Jeffrey pine forest atop Black Mountain represents a more mixed forest with species such as canyon oak (*Quercus chrysolepis*), single-leaf pinyon (*Pinus monophylla*), white fir, and western juniper (*Juniperus occidentalis* ssp. *australis*) (fig. 33).

The forest is open with scattered shrubs of montane chaparral species such as *Arctostaphylos patula* and *Ceanothus pinetorum* intermixed with Great Basin desert species such as *Purshia tridentata*, *Tetradymia canescens*, *Chrysothamnus nauseosus* spp. *Albicaulis*, and *C. viscidiflorus*. The understory averages about 25 percent cover, although some areas have up to 50 percent cover (mostly *Arctostaphylos patula*). There are at least 39 species of herbs, but only a few, such as *Eriogonum umbellatum*, *Gilia leptantha* spp. *purpusii*, *Orochaenactis thysanocarpha*, and *Gayophytum diffusum* are relatively high in frequency. The average tree density is 231 trees/ha. The average basal area cover is 25.1 m²/ha. Seedling and sapling density are low (average is 92 saplings/ha, 5 seedlings/ha), 95 percent of which is Jeffrey pine. Most of the seedlings and saplings are found in deep, stream-bottom soils. The Jeffrey pines average 80 ft (24.4 m) tall and 30 inches (76.2 cm) dbh, but some can reach up to 110 ft (35.5 m) tall and 54 inches (132.3 cm) dbh.

Jeffrey Pine-Fir Forest (85210): 204 acres (83 ha). This association occurs on NE.-facing slopes at upper elevations. The forest is codominated by Jeffrey pine and white fir (white fir dominating at higher elevations), with a small percentage of sugar pine.

Compared to the Jeffrey pine forest association, this area has a higher density and basal area (310 trees/ha, 39.6 m²/ha). Total sapling density is 250/ha (72 percent white fir, 24 percent Jeffrey pine, 4 percent sugar pine), and seedling density is 40/ha (50 percent white fir, 25 percent Jeffrey pine, 25 percent sugar pine), which is 8 times the seedling density of the Jeffrey pine forest association. In general, the Jeffrey pine trees here are larger than in the Jeffrey pine forest association (35-40 inches [89-102 cm] dbh).

Great Basin Pinyon Woodland (72122): 52 acres (21 ha). This association is limited to the W. slopes and N. summit area of Black Mountain. It occurs primarily on basaltic flow or colluvium and is dominated by low trees (about 7-11 m tall) of single-leaf pinyon pine bordered by Jeffrey pine on less steep and rocky slopes. Some canyon oak also occur. Tree density is the highest in the RNA (1040 trees/ha). Basal area cover is 42.2 m²/ha. The understory vegetation is sparse with a mean cover of 9 percent, probably due to heavier duff and more shade. The two most common shrubs are Great Basin sagebrush (*Artemisia tridentata*) and bitterbrush (*Purshia tridentata*).

Freshwater Seep (45400): 3 acres (1.2 ha). This association is limited to the perennially moist spring in the N. part of the RNA. This habitat is also approximated along branches of S. Manter Creek. Surface water is absent here through most of the summer, but sufficient moisture exists to support a limited version of the spring and seep vegetation. Species associated with the spring and streambeds include *Arnica mollis*, *Artemisia ludoviciana*, *Juncus mexicanus*, *J. macrandrus*, *Carex nebrascensis*, *C. hassei*, *C. fracta*, *C. teneraeformis*, *Nasturtium officinale*, and *Madia elegans* ssp. *wheeleri*.

Alpine Talus and Scree (91200): 46 acres (19 ha). The area represented in the RNA is not technically alpine, but the cliffs and colluvial deposits around Church Dome support a small number of montane species typical of high-elevation, rocky

situations. The association is divided into mesic and xeric subtypes. The mesic subtype occurs in crevices on NE.-facing slopes. It includes species such as *Potentilla saxosa* ssp. *sierrae*, *Heuchera rubescens* var. *alpicola*, *Senecio fremontii* var. *occidentalis*, *Silene bridgesii*, and *Stipa pinetorum*. The xeric subtype includes *Penstemon newberryi*, *Zauschneria latifolia*, *Eriogonum saxatile*, and *Haplopappus cuneatus*.

Plant Diversity

At least one hundred sixty-four species of vascular plants were collected for the area.

Conflicting Impacts

The area receives little recreational impact. The trail through the W. portion of the RNA has some light use. A small cement cap (dated 1931) is in place at the head of the spring, and the spring itself is scooped out and dammed at this spot to provide a basin for dipping water.

There is evidence of past grazing use, but no current grazing occurs, and there appears to be no habitat alteration as a result of past usage.

Forest litter is minimal, and the need for controlled burning is low.