

10. Black Butte (Hrusa and Hunter 1996, Phillips 1998a)

Location

This established RNA lies within the Santa Lucia Wilderness, Los Padres National Forest, NE. of the city of San Luis Obispo, San Luis Obispo County. The RNA comprises portions of sections 5, 6, 7, 8, 9, 16, and 17 in T30S, R13E MDM (35°18'N., 120°40'W.), USGS Lopez Mtn. 7.5' quad (fig. 20). Ecological subsection – South Coastal Santa Lucia Range (261 Ak).

Target Element

Knobcone Pine (*Pinus attenuata*)

Distinctive Features

Diverse Vegetation: Because of its location and steep elevation gradient, this RNA supports a complex mosaic of vegetation types. These include extensive stands of knobcone pine, various forms of chaparral including areas dominated by the narrow endemic Santa Lucia manzanita, and woodlands dominated by coast live oak (*Quercus agrifolia*). In addition, relictual stands of tanoak (*Lithocarpus densiflora*) occur in mesic, mixed evergreen woodlands dominated by canyon live oak (*Quercus chrysolepis*), which also contain significant proportions of madrone (*Arbutus menziesii*) and California bay (*Umbellularia californica*). Scattered individuals of Coulter pine (*Pinus coulteri*) are found on steeply dipping rock outcrops at ecotones between chaparral and the mixed woodlands. Riparian habitats are present in the bottoms of the two unnamed streams.

Rare Flora: Santa Lucia manzanita (*Arctostaphylos luciana*, CNPS 1B), Hoover's bentgrass (*Agrostis hooveri*, CNPS 4), and Club-haired mariposa lily (*Calochortus clavatus* var. *clavatus*, CNPS 4)

Physical Characteristics

The RNA covers 540 acres (218 ha). Elevations range from 1400 to 2742 ft (427-836 m). It is situated near the S. end of the Santa Lucia Mountains. Along the ridge summit, the RNA occupies the NW. side of the steep, SE.-trending ridge. Terrain is steep, rising 1300 ft (396 m) in approximately 0.6 mile (1.0 km). Slopes of 80 percent or more are common (fig. 21). The underlying parent material of the RNA is of the Monterey formation, a moderately acidic, siliceous marine shale of Miocene age. The RNA is considered part of a syncline; it contains many areas of steeply tilted bedrock typical of such geologic formations. Most of the soils are shallow and well drained, with a very gravelly clay loam surface layer. Some areas have moderately deep, well-drained soil with a clay loam surface layer. Two unnamed streams drain E. from Mount Lowe. The annual precipitation is approximately 12 inches (3047 mm). Temperatures range from about 47.2-70.7 °F (8.4-21.5 °C).

Association Types

Knobcone Pine Forest (83210): The knobcone pine forms more or less even-aged on ridges, and occasionally, on steep side slopes. On ridges, Santa Lucia manzanita may be an understory component, but often there is no understory at all. Typical associated shrub species are *Arctostaphylos glandulosa* var. *cushingiana*, *Garrya veatchii*, and *Quercus wislizenii* var. *frutescens*.

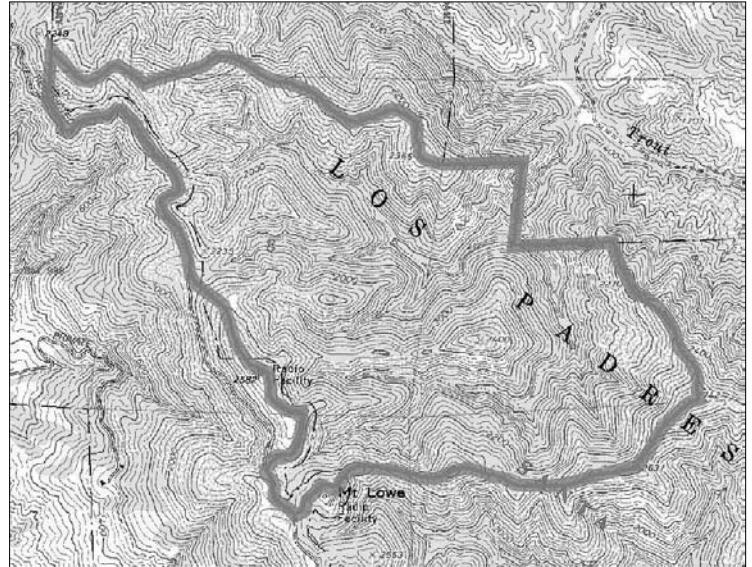


Figure 20—Black Butte RNA

Chamise Chaparral (37200) and Interior Live Oak Chaparral (37A00): Santa Lucia manzanita dominates or sometimes mixes with *Lotus junceus* and *Adenostoma fasciculatum* on less steep ridgetops. Nearly pure stands of chamise form on some steep slopes, but they also mix with knobcone pine on ridgetops and upper slopes. Scrub oak (*Quercus berberidifolia*) and interior live oak most often occur near ridgetops where soil conditions are less amenable to Santa Lucia manzanita, but these three species may also occur together. The shrubby oak types sometimes occur on steep, rocky slopes from which chamise appears to be excluded and on the edges of knobcone pine stands, although rarely within them. Less common are *Garrya veatchii*, *Quercus durata*, *Pickeringia montana*, *Dendromecon rigida*, *Eriodictyon traskiae*, *Helianthemum scoparium*, *Rhamnus ilicifolia*, *Prunus ilicifolia*, *Cercocarpus betuloides*, *Artemisia californica*, and *Lupinus albi-frons*. Coulter pine (*Pinus coulteri*) is restricted to areas with rock outcrops, which have played a role helping the pine survive frequent fires in the area.

Coast Live Oak Woodland (71160): Areas with deeper soils on S.-facing or sometimes W.-facing slopes have open, nearly pure stands of coast live oak. Associated shrubs are *Holodiscus discolor*, *Antirrhinum multiflorum*, *Rhamnus californica*, and *Lupinus albifrons*. Herbaceous species in the understory and openings are *Bromus diandrus*, *Pteridium aquilinum*, *Avena barbata*, and *Melica imperfecta*.

Mixed Evergreen Forest (81100): Mixed evergreen forest primarily occurs on higher N.-facing slopes or on lower sites where shading provides cool, moderately moist conditions. Biogeographically, this vegetation type is a remnant of the cool, moist, late-Pleistocene climates, and many species are near their S. range limits. The overstory is dominated by tanoak, canyon live oak, and madrone. Bigleaf maple (*Acer macrophyllum*), coast live oak, and California bay are locally important. In canyon bottoms these forests are more or less closed-canopied, reaching 66 ft (20 m). The understory is composed of a shrub layer and a diverse herbaceous layer. Where the forest extends upslope, the tree

layer becomes shorter and more open and the herbaceous layer is sparse and has fewer species.

Fire History: Two major occurrences have been recorded, in 1985 and 1994. Vegetation and floristic observations before and after the 1994 fire are available from the ecological survey.

Plant Diversity

Two hundred seven taxa are listed.

Conflicting Impacts

Potential development of the Santa Margarita Ranch may increase horse use in the lowest portions of the canyon; however, the use is unlikely to be at levels detrimental to the RNA's integrity.

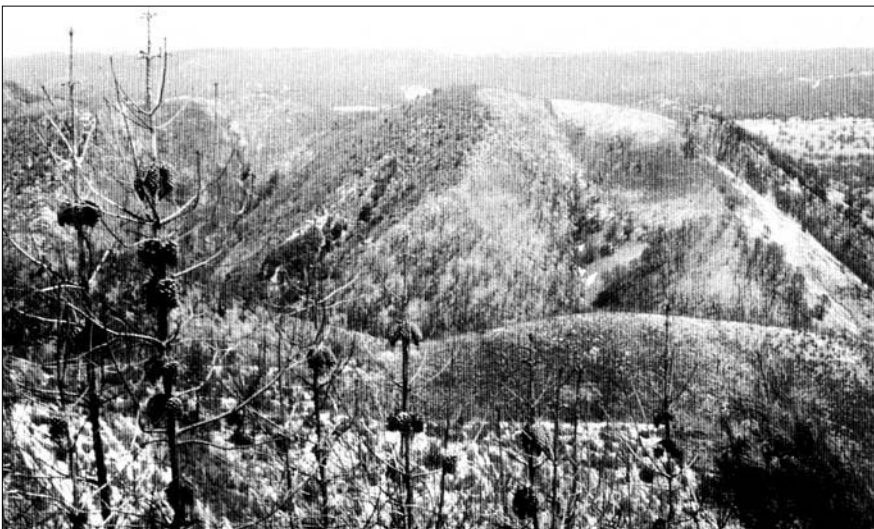


Figure 21—Black Butte, northeast view from near Mt. Lowe summit. This site had experienced fires in 1985 and 1994. (1995)