

53. Lyon Peak/Needle Lake (Nachlinger 1988b, Martin 1991a)

Location

This established RNA is on the Tahoe National Forest, Placer County. It lies in the Truckee District approximately 9.5 miles (15 km) SE. of Soda Springs and 9.5 miles (15 km) SW. of Truckee. Its boundaries include sections 22, 27, 28, and 34 of T16N, R15E MDBM (39°13'N., 120°18'W.), USGS Granite Chief quad (fig. 108). Ecological subsection – Upper Batholith and Volcanic Flows (M261Eh).

Target Element

Mountain Hemlock (*Tsuga mertensiana*)

Distinctive Features

The mountain hemlock stands of the RNA feature a diversity of stand size and age structures encompassing most, if not all, of the major types throughout the Lake Tahoe region. In addition to the mountain hemlock, other undisturbed plant communities such as shrub lands, meadows, fell-fields, and a subalpine lake are also present.

Rare Plants: No Federally-listed endangered or rare plants are known to occur in the area; however, two CNPS sensitive species occur within the watershed of the RNA. *Silene invisa* (CNPS List 4) and *Veronica cusickii* (CNPS List 4) are found at mid-level elevations in the drainage flowing N. from Lyon Peak. Potential habitat for these species occurs just N. of the RNA boundary.

Rare Fauna: The northern goshawk (*Accipiter gentilis*, California species of special concern, Forest Service-listed sensitive species) and marten (*Martes americana*, Forest Service-listed sensitive species), as well as the golden eagle (*Aquila chrysaetos*, California State species of special concern), have been observed within the RNA. Additionally, the State-listed threatened species wolverine (*Gulo gulo*) has been observed on properties adjacent to the RNA. Potential habitat for the Sierra Nevada red fox (*Vulpes vulpes necator*), another State-listed threatened species and Forest Service-listed sensitive species, also exists on the RNA.

Archeological: Many projectile points and other cultural artifacts from native people, the Washoe and Nisenan (Maidu), have been discovered within the RNA. Prehistoric rock-art sites of the headwaters basin have been recorded in the vicinity, although these are outside the RNA boundaries.

Physical Characteristics

The area covers about 700 acres (283 ha) at 7040-8971 ft (2145-2735 m). The RNA encompasses the uppermost reaches of the N. Fork of the American River immediately adjacent to the main Sierra Nevada crest. The higher elevations of the RNA include isolated peaks, rock walls, small cirques, talus slopes, and rocky basins, as well as the distinctive Lyon Peak/Needle Peak ridgeline. Needle Lake, a subalpine lake sculpted from glacier ice, is just below Needle Peak. A full range of slope aspects is present, but the most common are W., NW., N., NE., and E.

Two rock types predominate in the RNA. Jurassic-Cretaceous granitics (Granite Chief area), and Pliocene andesitic volcanics (Lyon Peak and Needle Peak areas).

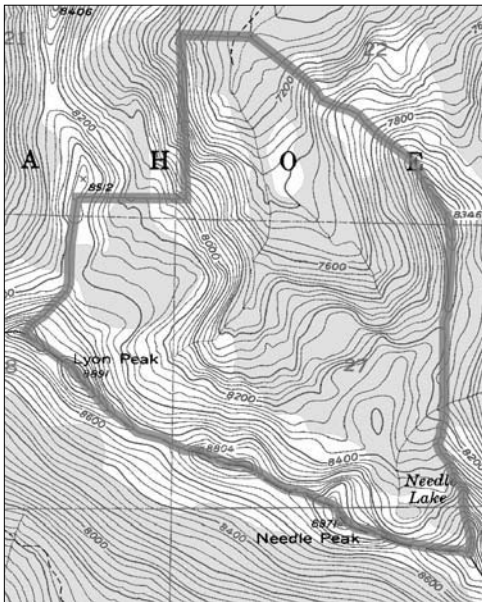


Figure 108—Lyon Peak/Needle Lake RNA

Although no comprehensive soil survey has been conducted for the RNA, the Tahoe National Forest has conducted a reconnaissance-level survey of the area. Thirteen soil mapping units can be found within the RNA. They are: Aquolls and Borolls (0-5 percent slopes), Rock outcrop-granitic, Meiss-Gullied land-Rock outcrop complex (30-75 percent slopes), Meiss-Rock outcrop complex (30-75 percent slopes), Meiss-Waca-Rock outcrop complex (30-50 percent slope), Meiss-Waca-Cryumbrepts (2-30 percent slope), Meiss-Waca-Cryumbrepts (30-75 percent slopes), Rock outcrop-granitic-Tinker Cryumbrepts (30-75 percent slopes), Rubble land-Rock outcrop complex, Tinker-Rock outcrop-Granitic Cryumbrepts (2-30 percent slopes), Tinker-Rock outcrop-Granitic Cryumbrepts (30-75 percent slopes), Rock outcrop-volcanic, and Ledford Variant-Rock outcrop complex (30-75 percent slopes).

No climate data exist specifically for the RNA. General climate in the region is Mediterranean. The nearest weather stations are at the Central Sierra Snow Laboratory in Soda Springs (6890 ft [2100 m]), 9 miles (14 km) from the RNA, with an average annual precipitation of 62.6 inches (1592 mm) (no temperature data) and at the Squaw Valley Fire Department (6240 ft [1902 m]), 5 miles (8 km) E. of the RNA where the average annual precipitation is 60 inches (1538 mm) (no temperature data). Both stations are lower in elevation than the RNA, and thus probably have drier, warmer climates. A botanical researcher familiar with the area (Grove 1978) estimated mean annual precipitation at Lyon Peak to be 79 inches (2000 mm), and mean annual temperature to be 38 °F (3.1 °C).

Association Types

Mountain Hemlock Forest (White Bark Pine-Mountain Hemlock Forest) (86210): 370 acres (150 ha). Mountain hemlock forests account for the greatest vegetation cover within the RNA, and they tend to dominate the upper elevations of the RNA (*fig. 109*). On gentle, protected slopes, the forests are open with well-spaced, old growth individuals with *Evernia* growing on the trunks. Steeper slopes support stands of smaller, tightly clumped trees and are often pistol-butted on the steepest slopes, indicating snow creep. The most exposed sites at tree line support groves of stunted, and sometimes krummholz, tree forms.

Density and basal area for the climax forests average 530-571 stems/acre (1310-1410 stems/ha) and 340-462 ft²/acre (78-106 m²/ha).

Other conifers commonly present are red fir (*Abies magnifica*), white bark pine (*Pinus albicaulis*), western white pine (*Pinus monticola*), and Sierra lodgepole pine (*Pinus contorta* var. *murrayana*). Under-story vegetation is usually depauperate, except in moist openings or along minor stream courses, and includes *Arabis platysperma* var. *howellii*, *Carex rossii*, *C. luzualefilia*, *Juncus parryi*, *Ligusticum grayi*, *Lupinus lyallii*, *Luzula divaricata*, and *Phyllodoce breweri*.

Acreages of the following four types (37530, 37550, 45220, 86100) are combined with that of mountain hemlock forest type.

Montane Ceanothus Chaparral (37530): This is a minor plant community type dominated by *Ceanothus velutinus*. It is found on relatively moist substrates in openings of the upper montane coniferous forest, most often as a snowbank community in hollows and avalanche paths. This community forms dense stands about 5 ft (1.5 m) tall. Associates include *Amelanchier pallida*, *Ceanothus integerrimus*, *Chrysolepis sempervirens*, *Prunus emarginata*, and *Quercus vaccinifolia*.

Bush Chinquapin Chaparral (37550): This is a minor plant community type dominated by *Chrysolepis sempervirens*. It is found typically on drier, rocky slopes and in openings. It forms fairly dense thickets about 3 ft (1 m) tall. Associates include *Arctostaphylos nevadensis*, *A. patula*, *Ceanothus velutinus*, *Prunus emarginata*, and *Quercus vaccinifolia*.

Dry Subalpine Meadow (45220): This is a minor community type found at edges of the mountain hemlock forest where grasses, sedges, and forbs form a low, fairly open vegetation. Com-mon species include *Achillea lanulosa*, *Bromus marginatus*, *Calyptridium umbellatum*, *Carex athrostachya*, *C. exserta*, *C. stramineiformis*, *Erigeron peregrinus* ssp. *callianthemus*, *Penstemon oreocharis*, *Stipa occidentalis*, *Taraxacum officinale*, and *Trisetum spicatum*.

Lodgepole Pine Forest (86100): This forest type does not form pure stands on the RNA. It is a minor community type in ecotonal situations on rocky, well-drained soils between Jeffrey pine-fir and mountain hemlock forests. The lodgepole pines are generally dense, slender trees about 100 ft (30 m) tall. The understory is sparse and includes *Arctostaphylos nevadensis*, *Chrysopsis breweri*, *Pedicularis semibarbata*, and *Phyllodoce breweri*.

Jeffrey Pine-Fir Forest (85210): 180 acres (73 ha). This is the dominant plant community at middle elevations on coarse textured, well drained rocky soils. It comprises the upper montane coniferous forest zone within the RNA. Jeffrey pine (*Pinus jeffreyi*) dominates drier, higher elevations, while red fir dominates moister sites. White fir (*Abies concolor*) is more common at lower elevations. Other conifers present, generally at upper boundaries, include western white pine and lodgepole pine. On drier sites, the understory is typically sparse, with scattered evergreens such as *Arctostaphylos patula* and *Ceanothus cordulatus*. Red-fir-dominated forests are denser, and the understory is broad-leaved, with shrubs such as *Ribes* and *Symphoricarpos*.

The following three types (63500, 45100, 45210) cover 65 acres (25 ha).

Montane Riparian Scrub (63500): This association type is found lining drainages throughout the area and in close association with montane meadows. The canopies are open to closed and often form streamside thickets. Several species of *Salix* dominate the riparian areas including *S. eastwoodiae*, *S. jepsonii*, *S. lemonii*, and *S. orestera*. *Alnus tenuifolia* is a common codominant, and *Cornus stolonifera* is often present at lower elevations. The understory is sparse, except where adequate sunshine penetrates the canopy. Understory species include *Cardamine breweri*, *Carex scopulorum*, *Dodecatheon jeffreyi*, *Glyceria elata*, *Juncus chlorocephalus*, *Lupinus polyphyllus* ssp. *superbus*, and *Poa pratensis*.

Montane Meadow (45100): Montane meadows are found on flat depressions where the groundwater table is shallow. A diverse flora of herbaceous plants dominates, but woody shrubs, including *Salix*, are often present. The dense vegetation is usually less than 3 ft (1 m) tall. Common species include *Agrostis variabilis*, *Calamagrostis canadensis*, *Carex aquatilis*, *C. nigicans*, *C. rostrata*, *Castilleja miniata*, *Erigeron coulteri*, *Hordeum brachyantherum*, *Mimulus guttatus*, *Muhlenbergia filiformis*, *Poa pratensis*, *Scirpus congdonii*, *Senecio triangularis*, *Sphenosciadium capitellatum*, *Stellaria longipes*, *Trifolium longipes*, and *Veratrum californicum*.

Wet Subalpine Meadow (45210): This association is restricted mostly to the margins of streams, forming stringer meadows within mountain hemlock forests. The short herbaceous vegetation usually provides 100 percent cover. Dominant species include *Aster alpigenus* ssp. *andersonii*, *Carex rostrata*, *C. scopulorum*, *Deschampsia cespitosa*, *Dodecatheon alpinum* ssp. *majus*, *Eleocharis pauciflora*, *Gentiana simplex*, *Juncus orthophyllus*, *Minulus primuloides*, *Pedicularis groenlandica*, *Phleum alpinum*, *Potentilla breweri*, and *Ranunculus alismaefolius* var. *alismellus*.

Sierra Nevada Fell-Field/Alpine Talus and Scree Slope (91120/91200): 85 acres (35 ha). The fell-field community occurs along principal ridgelines at the highest elevations or between mountain hemlock stands near the tree line. Slopes are often gentle but occasionally steep. Common species include *Carex spectabilis*,

Cassiope mertensiana, *Haplopappus acaulis*, *Kalmia polifolia* var. *microphylla*, *Leptodactylon pungens* ssp. *pulchriflorum*, *Penstemon newberryi*, *Phoenicaulis cheiranthoides*, and *Primula suffrutescens*.

Although no truly alpine habitats occur within the RNA, talus and scree slope plant communities have developed as a minor community type in certain areas. In the RNA it occurs scattered on the rocky, well-drained, high flanks of Lyon Peak and Needle Peak. Common species include *Carex spectabilis*, *Epilobium obcordatum*, *Eriogonum ovalifolium* var. *nivale*, *Haplopappus macronema*, *Oxyria digyna*, *Saxifraga tolmiei*, and *Sitanion hystrix*.

Grove (1978) describes plant associations for the fell-field and talus and scree slope areas. They are *Leptodactylon pungens* ssp. *pulchriflorum*-*Sitanion hystrix* and *Eriogonum umbellatum* ssp. *polyanthum*-*Phoenicaulis cheiranthoides* for the fell-field and *Phoenicaulis*-*Haplopappus acaulis* for the scree-slope plant community.

Plant Diversity

Three hundred eighty-seven species of vascular plants are listed.

Conflicting Impacts

The RNA is near pristine and rather isolated. It is surrounded on all sides by either Federally and State wilderness areas and reserves, or private lands managed in a manner compatible with protection and research.

The Pacific Crest Trail provides access into the upper basin of the N. Fork of the American River; however, traffic is relatively light. Needle Lake is an occasional overnight camping spot for hikers in the area. Overall, recreational use is light except near Needle Lake and probably poses no serious impacts to the RNA.

The Squaw Valley ski area abuts the upper watershed of the N. Fork of the American River, but the boundary is clear and little ski traffic extends into the N. Fork basin.



Figure 109—Lyon Peak/Needle Lake, view of the mountain hemlock forest in upper elevations of the Lyon Peak/Needle Lake RNA. (around 1987/88)