Ecological site group F004BN102CA
Strongly dissected mountain slopes

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Key Characteristics

- Santa Cruz Mountains – LRU N
- Strongly dissected mountain slopes, deep ‘V’ shaped drainages and narrow ridges

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Physiography

These forests occupy a very limited area within LRU N and are limited to cold air canyons and upper most elevations that receive the coldest temperatures and occasional snow in the winter months, which is too cold or too dry for the typical tree species of LRU N such as coast redwood.

Climate

The average annual precipitation in this MLRA is 23 to 98 inches (585 to 2,490 millimeters), increasing with elevation inland. Most of the rainfall occurs as low-intensity, Pacific frontal storms. Precipitation is evenly distributed throughout fall, winter, and spring, but summers are dry. Snowfall is rare along the coast, but snow accumulates at the higher elevations directly inland. Fog is a significant variable that defines this MLRA from other similar MLRAs. Summer fog frequency values of greater than 35% are strongly correlated to the extent of coast redwood distribution, which is a primary indicator species in this MLRA. Nighttime fog is approximately twice as common as daytime fog and seasonally, it reaches its peak frequency in early August, with the greatest occurrence of fog from June through September (Johnstone and Dawson 2010). The average annual temperature is 49 to 59 degrees F (10 to 15 degrees C). The freeze-free period averages 300 days and ranges from 230 to 365 days, decreasing inland as elevation increases.

Climate varies from the west to the east in LRU N, the Santa Cruz Mountains, as the high mountain ridges reduce the penetration of maritime air. Winters are cool and wet with the occasional snowstorms at the highest elevations. Heavy rains are also known to cause mudslides throughout this LRU, and on the west side, summers are cooler, and fog or low overcast skies are only around for the mornings and carry through the low slopes and stream terraces but typically fails to reach the highest elevations.

Soil features

The soils for this ESG vary considerably, but the most common soils are fine-loamy, mesic Typic Haploxerults on parent materials weathered from sandstone.

Representative soils include Josephine, a well drained, fine-loamy, mesic Typic Haploxerult. Other soils include Hecker, Sur and Zayante. Hecker is a loamy-skeletal, mesic Mollic Haploxeralf, Sur is a loamy-skeletal, mesic Entic Haploxeralf, and Zayante is sandy, mesic Entic Xerumbrept.

Vegetation dynamics

This provisional ecological site concept attempts to describe the mixed conifer-pine-chapparal dominated mountain slopes that can be found within this LRU. This concept is primarily supported through literature and available soil survey descriptions and is limited to the upper most elevations and tight, steep canyons within this LRU where cold

air may sit longer, and snow is occasionally present in the winter months. Depending on the location within LRU N, the species found will vary considerably. Douglas-fir, knobcone pine, and various hardwoods, such as live oaks, madrone, and chaparral species are common. Ponderosa pine is rare but present in some locations. Many unique and sensitive species occur here. Future work will need to be done to better understand the soil and site characteristics that drive the vegetation expression for this provisional ecological site concept and the unique suite of plant species that occur here.

Primary Disturbances

Fire is likely the principal disturbance, however, the historic frequency of fires and their impact to this sporadic and infrequently occurring site remains difficult to ascertain. Lightning-ignited fires are considered somewhat rare relative to the rest of California but lightning strikes do occur with fair regularity in the Santa Cruz Mountains (Van Wagtendonk and Cayan, 2008). Native American burning is thought to have played a major role in most areas of the Central Coast for many centuries (Greenlee and Langenheim, 1990, Stephens and Fry, 2005).

Other potential disturbances may include either a series of colder than normal or warmer than normal winters that adversely or beneficially affect species growing here on the periphery of their environmental tolerance. Winter storms can also cause top breakage and blowdown. This breakage may kill individual or groups of trees and create small openings from windfall which can produce areas with conditions preferential for seedling germination and development, or the colonization by light dependent shrubs and chapparal species.

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Major Land Resource Area

MLRA 004B
Coastal Redwood Belt

Stage

Provisional

Contributors

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State and transition model

Citations