

Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin

MLRA Explorer Custom Report

C - California Subtropical Fruit, Truck, and Specialty Crop Region
15 - Central California Coast Range

MLRA 15 - Central California Coast Range

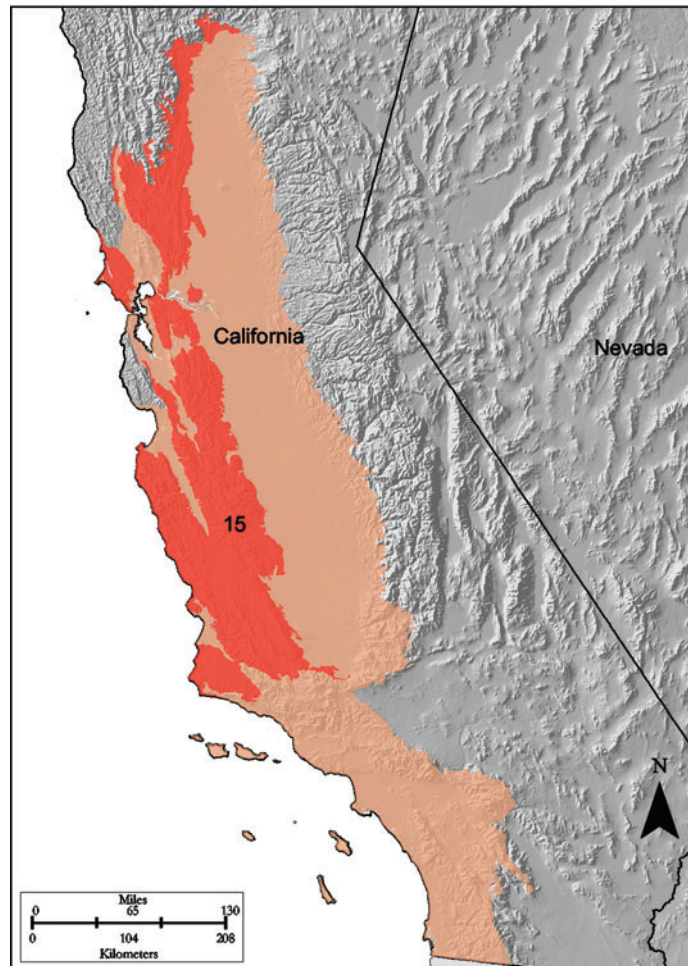


Figure 15-1: Location of MLRA 15 in Land Resource Region C

Introduction

This area is entirely in California (fig. 15-1). It makes up about 17,840 square miles (46,235 square kilometers). The town of Clearlake is almost in the center of the northern part of this MLRA, and the towns of Suisun City and Benicia are at the south end of the northern half. The towns of Martinez, Concord, Pleasant Hill, and Alamo are in the north end of the southern half of the area. The towns of Atascadero and Paso Robles are in the south end of the southern half. The Hunter Liggett and Camp Roberts Military Reservations, Vandenberg Air Force Base, and Santa Ynez Indian Reservation are in the southern half. Parts of the Mendocino and Trinity National Forests occur along the west edge of the northern half of the area. The Los Padres National Forest is in the south end of the southern half. Interstate 80 crosses the junction of the northern and southern halves of the area, directly north of the Carquinez Straits, which connect the Sacramento-San Joaquin Delta with San Pablo Bay.

Physiography

All of this area is in the Pacific Border Province of the Pacific Mountain System. Most of this MLRA is in the California Coast Ranges Section of the province. The extreme northern end is in the Klamath Mountains Section, and the southwest corner is in the Los Angeles Ranges Section. The MLRA is an area of gently sloping to steep, low mountains. The coastal plains are narrow and discontinuous, and stream valleys are narrow and widely separated. Elevation ranges from sea level to 2,650 feet (810 meters) in most of the area, but it is 4,950 feet (1,510 meters) in some of the mountains.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Central California Coastal (1806), 48 percent; Sacramento (1802), 20 percent; San Francisco Bay (1805), 12 percent; Tulare-Buena Vista Lakes (1803), 9 percent; San Joaquin (1804), 8 percent; and Klamath-Northern California Coastal (1801), 3 percent. Clear Lake and Lake Berryessa are in the northern half of the area. This half is drained by Sacramento River tributaries, such as Cache Creek and Putah Creek. Few perennial streams are in the southern half of the area. The streams in this half typically drain to the Pacific Ocean.

Geology

The landscape and geology of the Coast Range are strongly controlled by right-lateral strike-slip movement along the San Andreas and other active and inactive faults that dissect the range. The northwest-southeast orientation of the river courses and intervening ridges reflects the area's youthful geologic history along a transform boundary, where the Pacific tectonic plate is moving northwest relative to the North American plate to the east. Recent and historic earthquakes centered in the Coast Range attest to the active plate motion and associated seismicity that continue to shape the landscape. These quakes include the 1906 San Francisco earthquake, the Loma Prieta earthquake of 1989, and numerous large earthquakes centered near Parkfield (most recently in September 2004).

Most of the Northern Coast Range is underlain by deformed and metamorphosed sandstones and shales of the Franciscan Formation, which were deposited offshore during the Mesozoic, conveyed eastward towards the Franciscan trench, and then subducted as a series of terranes beneath the old ocean floor at the continental margin. Narrow bands of serpentine-bearing ophiolites, representing remnants of an old ocean floor, separate these Franciscan terranes from the relatively undisturbed marine sedimentary rocks of the Great Valley sequence, which is exposed along the eastern margin of the Northern Coast Range. The Central Belt of the Franciscan Formation consists of a highly disturbed *mélange*, which was intensely sheared and deformed when strike-slip movement along the San Andreas Fault replaced subduction through the Franciscan trench beginning very roughly 30 million years ago. *Mélange* consists of relatively resistant metamorphic rocks and boulders "floating" in intensely sheared and weak matrix material. Steep areas underlain by Franciscan *mélange* tend to be highly prone to landslides.

The geology of the Southern Coast Range is highly varied. It includes bands of the Franciscan Formation along the northeast edge of the San Andreas Fault and along the southeast edge of the Nacimiento Fault in the Santa Lucia Range; Mesozoic granitics of the Salinian block, which were "rafted" hundreds of miles to their present locations in Pinnacles National Monument and elsewhere in the Coast Range by movement along the transform boundary; and Tertiary and Pleistocene marine and nonmarine sedimentary formations, including the diatomaceous Monterey Shale, which is a significant source rock for oil reserves.

Climate

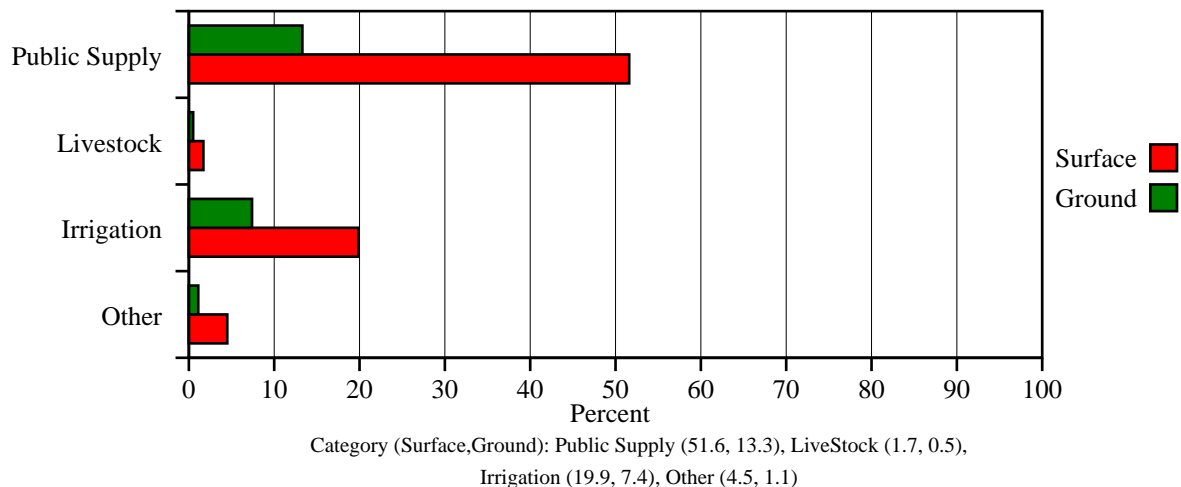
In the part of this MLRA south of San Francisco, the average annual precipitation is 6 to 20 inches (150 to 510 millimeters) and snowfall is rare. The northern half of the MLRA can be divided into two rainfall and snowfall zones. In the southern half of the part of the MLRA north of San Francisco, the average annual precipitation is 18 to 40 inches (455 to 1,015 millimeters) and snowfall is rare. In the northern half of the part north of San Francisco, the average annual precipitation is 40 to 79 inches per year (1,015 to 2,005 millimeters) and snowfall is common. Precipitation is evenly distributed throughout fall, winter, and spring but is very low in summer. Coastal areas receive some moisture from fog in summer. Most of the rainfall occurs as low- or moderate-intensity, Pacific frontal storms during the period October to May. The average annual temperature is 51 to 66 degrees F (10 to 19 degrees C), decreasing from south to north. The freeze-free period averages 275 days and ranges from 180 to 365 days, decreasing in length with elevation and from south to north.

Water

The total withdrawals average 680 million gallons per day (2,575 million liters per day). About 22 percent is from ground water sources, and 78 percent is from surface water sources. The low or moderate rainfall and moderate streamflow limit agriculture to dryfarming in most of the area. Reservoirs are used to store surface runoff for use during most of the year when streams are low. Surface water generally is of good quality and is suitable for almost all uses.

Ground water is limited in this area. There are some wells in alluvium and older sediments in the major river valleys and in low areas. This water is very hard and typically requires softening prior to its use. Levels of total dissolved solids exceed the national drinking water standard of 500 parts per million (milligrams per liter). Igneous rocks in this area have some ground water. Well yields are low since the water is in joints and fractures in the bedrock. Few test results are available, so little is known about the quality of this water.

MLRA 15 Water Use by Category



Soils

The dominant soil orders in this MLRA are Alfisols, Entisols, Mollisols, and Vertisols. The soils in the area dominantly have a thermic soil temperature regime, a xeric soil moisture regime, and mixed or smectitic mineralogy. They generally are very shallow to deep, somewhat excessively drained or well drained, and loamy or clayey. Haploxeralfs (Vallecitos series),

Xerorthents (Cieneba, Gaviota, and Shedd series), Argixerolls (Henneke, Los Gatos, and Los Osos series), Haploxerepts (Millsholm series), Dystroxerepts (Maymen series), Haploxerolls (Nacimiento, San Benito, Santa Lucia, and Sheridan series), and Haploxererts (Altamont, Diablo, and Sehorn series) formed in residuum on hills and mountains.

Biology

This area supports grasses, grass-oak, and shrub vegetation. Naturalized annuals, including soft chess, bromes, fescues, wild oats, filaree, and burclover, characterize the open and oak woodlands. Blue oak, valley oak, and canyon live oak are the dominant trees. California sagebrush, coyotebrush, chamise, manzanita, ceanothus, and scrub oak are the major brush species. Forests of Douglas-fir, madrone, grand fir, tanoak, and bigleaf maple and a few remnant stands of redwood trees are along the west side of the Coast Range. Stands of ponderosa pine with madrone, black oak, live oak, California buckeye, manzanita, and ceanothus are on the drier sites.

Some of the major wildlife species in this area are black-tailed deer, feral pig, turkey, blue grouse, valley quail, and band-tailed pigeon. The species of fish in the area include trout, largemouth bass, bluegill, minnow, stickleback, channel catfish, bullhead, carp, sculpin, steelhead, salmon, and crappie.

Land Use

More than four-fifths of this area consists of private land, mainly in farms and ranches. The rest generally is federally owned. About one-tenth of the area is used for dry-farmed grain, and slightly more than three-fifths is in range of native grasses and brush. Open woodland, also used for grazing, makes up about one-fourth of the area. A small acreage is used for urban development.

The major soil resource concerns are erosion, maintenance of the content of organic matter in the soils, water quality, and low infiltration rates resulting from hydrophobic soils. If the surface is unprotected in winter, the hazard of sheet and gully erosion is severe on the sloping soils on terraces and benches and on upland soils.

The conservation practices that are important on cropland include leaving crop residue on the surface. Prescribed grazing, fencing, and water management are the most important practices on rangeland and other grazing land.

MLRA 15 Land Use by Category

