

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

MLRA Explorer Custom Report

D - Western Range and Irrigated Region
22B - Southern Cascade Mountains

MLRA 22B - Southern Cascade Mountains



Figure 22B-1: Location of MLRA 22B in Land Resource Region D

Introduction

This area (shown in fig. 22B-1) is entirely in California. It makes up about 5,855 square miles (15,175 square kilometers). The most prominent town in this MLRA is Burney. U.S. Highway 97 crosses the western part of the area. Lassen Volcanic National Park occurs in the area. A major portion of this MLRA is in national forests, including the Lassen and Klamath National Forests and portions of the Shasta-Trinity National Forest. The area has several Indian reservations, including the Big Bend Rancheria, Montgomery Creek Rancheria, and Roaring Creek Rancheria Reservations.

Physiography

The area lies within the southern end of the Middle Cascade Mountains Section of the Cascade-Sierra Mountains Province of the Pacific Mountain System. A small area in the southeast part of the MLRA is in the Great Basin Section of the Basin and Range Province of the Intermontane Plateaus. This MLRA is the southernmost extent of the Cascade Mountain Range trending north-south. It lies east of the Trinity Mountains and the Northern Sacramento Valley and west of the Modoc Plateau and the Great Basin and is bordered on the north by Butte Valley and the Central Cascade Mountains. It extends to the Sierra Nevada Mountains to the south.

Elevation generally ranges from a low in the foothills of about 1,500 feet (455 meters) to 8,200 feet (2,500 meters). It is as high as 14,162 feet (4,318 meters) on Mount Shasta. This MLRA consists mostly of rolling volcanic mountains and intermontane basins.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this area is as follows: Sacramento (1802), 78 percent; Klamath-Northern California Coastal

(1801), 13 percent; and North Lahontan (1808), 9 percent. The McCloud and Sacramento Rivers originate in this area, and the Pit River flows through the area from east to west.

Geology

The Southern Cascade Mountains are made up primarily of Tertiary and Quaternary volcanics (basalt, andesite, dacite, and rhyolite) exposed as prominent peaks and volcanic uplands, surrounded by lower, moderately steep and steep shield and composite volcanoes and cinder cones. Prominent peaks and recently active volcanic areas in this portion of the Southern Cascades include the Medicine Lake Highlands and Medicine Lake Volcano (located on the border with the Modoc Plateau and characterized by silicic to basaltic eruptions as recently as 200 to 300 years ago); Mount Lassen (composed of andesite and dacite with some glacial deposits), which most recently erupted from 1914 to 1921; and Mount Shasta. Mount Shasta is an active stratovolcano with two eruptive centers that have produced pyroclastic flows, andesitic lava flows, and debris flows. Active glaciers and associated deposits extend downslope from the summit of Mount Shasta.

Paleozoic to Mesozoic metamorphics, sedimentary formations, and volcanics, flanked on the east by a thin band and stringers of Eocene sandstones, shales, and conglomerates, are exposed in the west-central portion of the MLRA, in a band that extends southward from the Siskiyou County line to the uplands east of Shasta Lake. Quaternary alluvial, fluvial, and lacustrine deposits have accumulated in small depressions on lava flows, in larger depressions between lava flows, and in stream valleys and basins.

Climate

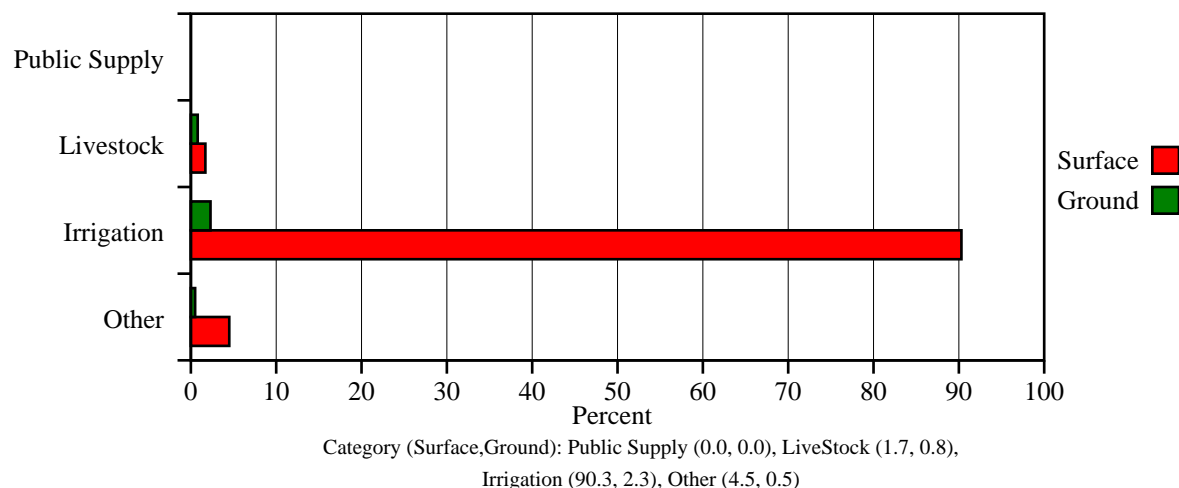
The average annual precipitation in this MLRA typically is 15 to 80 inches (380 to 2,030 millimeters). It is as high as 125 inches (3,175 millimeters). The precipitation falls mainly from fall to spring, mostly as snow. Winter precipitation is from Pacific storms that are frontal in nature. The amount of precipitation decreases from west to east. Summers are typically warm and dry, but there are occasional thunderstorms. The average annual temperature is 33 to 62 degrees F (1 to 17 degrees C). The freeze-free period averages 215 days and ranges from 85 to 350 days. The lowest annual temperatures and the shortest freeze-free periods occur in the mountains.

Water

The total withdrawals average 220 million gallons per day (835 million liters per day). About 4 percent is from ground water sources, and 96 percent is from surface water sources. The abundant rainfall and snowfields on the higher mountain slopes provide water for forestland and rangeland. Also, they meet part of the water needs of the lower adjacent areas by supplying water to perennial streams. The major amounts of snow during wet, cold storms in winter provide considerable runoff for the summer water supply. The surface water is of high quality and has few impurities.

Ground water is in fractures, in rubble zones, and in sand and gravel layers interbedded in the lava flows. Some also is in the alluvial fill in the valleys. The use of ground water is minimal in this MLRA. Recharge to the aquifers exceeds withdrawals.

MLRA 22B Water Use by Category



Soils

The dominant soils in this area are Alfisols, Andisols, Entisols, Inceptisols, and Mollisols. The soil temperature regimes are mostly mesic in the foothills and frigid in the mountains. They are cryic at the highest elevations. The soils on uplands are mostly well drained and have a xeric soil moisture regime, and the soils in basins are somewhat poorly drained or poorly drained and have a xeric to aquic soil moisture regime. The soils on volcanic flows and mountains are mostly Haploxeralfs (Cohasset, Eaglelake, and Lyonsville series), Palexeralfs (Jimmerson series), Vitrixerands (Jiggs, Neer, Ponto, Scarface, and Windy series), Haploxerands (McCarthy series), Xerorthents (Avis series), Dystroxerepts (Iller, Inskip, and Nanny series), and Argixerolls (Chirpchatter and Pinehurst series). The soils in intermountain valleys and basins include very deep Endoaqualfs (Gardens series), Xerorthents (Orset series), Humaquepts (Chummy series), Endoaquolls (Esro series), Epiaquolls (Swanberger series), and Haploxerolls (Jacksback series).

Biology

This MLRA has three main vegetation types—low-elevation mixed conifer (ponderosa pine) forest, mixed conifer forest, and upper montane red fir forest. The oak grasslands of the foothills on the western slopes grade into a mixed conifer forest in which ponderosa pine is the dominant species and incense cedar and California black oak are important associated species. Important understory plants include sticky whiteleaf manzanita, whiteleaf manzanita, and poison oak. At the higher elevations on the western slopes, the mixed conifer forest consists of white fir, sugar pine, ponderosa pine, incense cedar, Douglas-fir, California black oak, and Oregon white oak. The understory species include snowbrush ceanothus, bitter cherry, sharp-leaf snowberry, and Sierra gooseberry. The upper montane forest communities at the higher elevations consist dominantly of red fir and lodgepole pine. The communities on the eastern slopes are dominated by Jeffrey pine and ponderosa pine with an understory of antelope bitterbrush, big sagebrush, and greenleaf manzanita. Three types of meadows are throughout areas of these forest types. Wet meadows consist mainly of perennial sedges, rushes, and grasses. Woodland meadows consist mainly of scattered grasses and forbs interspersed with lodgepole pine, willows, quaking aspen, and black cottonwood. The shorthair sedge type occurs on the drier meadow sites. It consists mainly of shorthair sedge, Brewer's lupine, western needlegrass, and spike trisetum.

Some of the major wildlife species in this area include black-tailed deer, mule deer, mountain lion, coyote, bobcat, yellow-bellied marmot, marten, fisher, Sierra Nevada red fox, wolverine, and porcupine. Birds include eagles, hawks, owls, woodpeckers, falcons, osprey, quail, northern goshawk, and blue grouse. Species of concern include the California and northern spotted owl. The

species of fish in the area include rainbow, brown, brook, and redband trout, anadromous salmonids, and northern pike minnow.

Land Use

More than half of the area is federally owned land, primarily in national forests. The rest is privately owned forestland, farms, and ranches. About 72 percent of the land consists of forests used for timber, recreation, wildlife habitat, and watershed. Approximately 17 percent is pasture and range, and less than 2 percent is cropland.

The major soil resource concerns include the hazard of water erosion, which can be severe if the soils are disturbed by logging, fires, overgrazing, or cultivation. Other management concerns include compaction resulting from farming activities, the impacts of catastrophic wildfire on forestland, and maintenance of the content of organic matter in the soils. The soils in the mountain valleys and meadows are susceptible to gullying and streambank erosion. The older or improperly designed roads contribute sediment to streams.

Conservation practices on all kinds of land in this MLRA include measures that control erosion on access roads and protect riparian areas. Conservation practices on forestland generally include forest stand improvement, forest site preparation, reforestation, control of erosion on roads and log landings, control of competing understory vegetation, streambank and shoreline protection, riparian area management, stream corridor habitat protection and improvement, wetland wildlife management, and prescribed grazing.

Conservation practices on cropland and pasture generally include irrigation water management, water-control structures, protection of riparian areas, control of streambank erosion, and nutrient and pesticide management. Prescribed grazing, fences, and water management are the most important conservation practices on rangeland and other grazing land.

MLRA 22B Land Use by Category

