

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
31 - Lower Colorado Desert

MLRA 31 - Lower Colorado Desert



Figure 31-1: Location of MLRA 31 in Land Resource Region D

Introduction

This area (shown in fig. 31-1) is in California (93 percent) and Arizona (7 percent). It makes up about 11,615 square miles (30,100 square kilometers). The most prominent towns in the area are Blythe, El Centro, Indio, and Oasis, California. Interstates 8 and 10 cross the southern and central parts of this area, respectively. Numerous national wilderness areas and State recreation areas and a small part of the Joshua Tree National Monument are in this MLRA. The El Centro Naval Air Facility is in the part of this area in California. The area also includes the Cabezon, Augustine, Torres-Martinez, and Fort Yuma Indian Reservations in California and the Cocopah Indian Reservation in Arizona. The Colorado River Indian Reservation straddles the State line between California and Arizona in this MLRA.

Physiography

This area is in the Basin and Range Province of the Intermontane Plateaus. It is mostly in the Salton Trough Section, but small portions of the area are in the Sonoran Desert and Mexican Highland Sections. This MLRA is west of the Colorado River, is east of the Peninsular Ranges, and is bordered on the north by a gradual ecotone around 34 to 35 degrees north latitude into the Mojave Desert. To the south, it extends into Baja California Norte in Mexico. Landforms consist of mountains, alluvial fans, alluvial fan remnants, and alluvial valleys, including active drainages and fluvial terraces, and internally drained basins, including dry lakes and lake terraces. The area is subdivided into the Imperial Valley, where intermittent streams, canals, and the New and Alamo Rivers drain into the Salton Sea; the lower Colorado River Valley; and smaller internally drained basins that terminate at playas, including those in the Chuckawalla Valley. The terminal sink basin in the Imperial Valley was occupied during the Pleistocene by Lake Cahuilla and is presently

occupied by the Salton Sea, which was accidentally created in 1905 when the Colorado River passed uncontrolled through an irrigation diversion.

Elevation ranges from approximately 275 feet below sea level (-84 meters) at the lowest point of the Salton Trough below the southern part of the Salton Sea to 1,650 feet above sea level (505 meters) along low mountain ranges trending northwest and southeast within this area. The elevation in some mountain ranges exceeds 1,650 feet (505 meters), but higher elevations are more typical of MLRAs 30 and 29.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Southern Mojave-Salton Sea (1810), 68 percent, and Lower Colorado (1503), 32 percent.

Geology

Most of this area is underlain by Quaternary (Pleistocene to Recent) alluvial fan deposits and by alluvial and lacustrine deposits beneath the valley floors. Recent alluvial fans and alluvial fan remnants typically grade from boulder-strewn deposits and coarse desert pavement near the fan apex to finer grained sands, silts, and clays at the distal ends, where they interfinger with valley floor alluvium and basin fill. The lowest elevations are variably underlain by silty lacustrine and playa deposits of Pleistocene Lake Cahuilla, evaporitic playa deposits in internally drained basins, and relatively coarse grained alluvium along the Colorado River. Eolian deposits are typically along the downwind fringes of the playas. The aerially extensive Algodones dunes of the Sand Hills are along the southeast edge of the Imperial Valley.

Upland areas to the west are principally underlain by Mesozoic granites and pre-Cenozoic metamorphics of the Southern California Batholith, which form the Peninsular Ranges of California and Mexico. Portions of the lower uplands to the west are alternately underlain by moderately consolidated to loosely consolidated sedimentary deposits of Tertiary age. Uplands east of the Imperial Valley are variably underlain by Precambrian to Mesozoic igneous and metamorphic rocks and by Tertiary volcanics and sedimentary rocks.

The tectonic setting of this MLRA is dominated by oblique right-lateral strike slip motion along the South Branch San Andreas, Imperial Valley, and San Jacinto Fault Zones. Aligned from northwest to southeast, these zones pass through the western, south-central, and northeastern parts of the Imperial Valley, respectively.

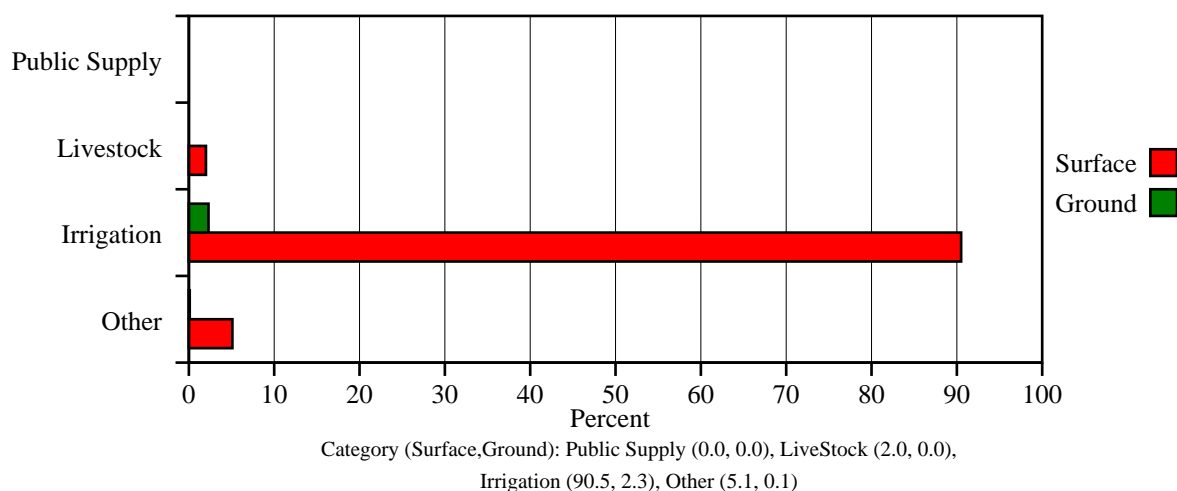
Climate

The Colorado Desert has the lowest annual precipitation and the highest temperature in North America. The average annual precipitation is 3 to 22 inches (75 to 560 millimeters) and displays high temporal and spatial variability. Precipitation is bimodal in nature. The winter precipitation is from Pacific storms that are frontal in nature. The summer precipitation is from subtropical convection storms coming from the south. The winter precipitation decreases from west to east, whereas the summer rainfall decreases from east to west. The summer (July through September) precipitation makes up 20 to 35 percent of the total annual precipitation. It typically occurs as high-intensity storms that produce high runoff and contribute little to the soil moisture supply. The average annual temperature is 53 to 74 degrees F (12 to 24 degrees C). The freeze-free period averages 290 days and ranges from 220 to 365 days.

Water

The total withdrawals average 1,080 million gallons per day (4,105 million liters per day). About 2 percent is from ground water sources, and 98 percent is from surface water sources. The low rainfall in this area maintains the desert vegetation, but water is scarce. The public water supply and irrigation water for agriculture are obtained almost entirely from the Colorado River, but wells in river alluvium provide some irrigation water locally. The river water is of good quality and is suitable for most uses. It has 770 parts per million (milligrams per liter) total dissolved solids. This is equivalent to slightly more than 1 ton (910 kilograms) of salts per 325,850 gallons (1,233,340 liters) of water. The solids are dominantly neutral calcium salts.

MLRA 31 Water Use by Category



Soils

The dominant soil orders in this MLRA are Entisols and Aridisols. The soils in the area have a hyperthermic soil temperature regime and an extremely aridic soil moisture regime. They generally are very deep, well drained to excessively drained, and coarse textured to fine textured. Level and nearly level, coarse textured to fine textured Torrifluvents formed in recent lacustrine sediments from igneous sources (Coachella series) or from mixed sources (Imperial series) in basins; in alluvium from mixed sources (Glenbar series) on flood plains and stream terraces; or in mixed alluvium (Antho, Holtville, Indio, and Ripley series) on flood plains and alluvial fans. Nearly level to gently sloping, coarse textured Torriorthents (Carrizo series) and coarse textured Torripsamments (Carsitas, Lagunita, Myoma, and Rositas series) formed in recent alluvium on alluvial fans. Nearly level, moderately fine textured Haplargids (Orita series) formed in recent alluvium from mixed sources on alluvial fan remnants. Nearly level, coarse textured Haplocalcids (Aco series) formed in recent alluvium from mixed sources on stream terraces.

Biology

Plant growth in this area is typically both open and simple, reflecting the intense competition between plants for the scarce water resource. A large number of Colorado Desert plants are in the Mojave and Sonoran Deserts. The most widespread vegetative type in the area is dominated by creosotebush and white bursage. This type is typically on alluvial fan piedmonts, reaching the greatest development on coarse textured, somewhat excessively drained or well drained soils. Other common species include ocotillo, brittlebush, and white ratany. Important perennial grasses include big galleta, California threeawn, and fluffgrass. The most common species along large

drainageways are frost-sensitive species, such as smoketree, desert ironwood, desert lavender, blue paloverde, and catclaw acacia. Several species occur only within this MLRA, including California lotebush, California indigobush, desert apricot, rose sage, and Vasey sage. The California fan palm, an endemic species, occurs only in isolated microhabitats.

Some of the major wildlife species of this area include desert bighorn sheep, southern mule deer, coyote, bobcat, and black-tailed jackrabbit. Rare animals include desert pupfish, desert tortoise, Coachella Valley fringe-toed lizard, and Le Conte’s thrasher.

Land Use

About three-fifths of the area is federally owned. Intensive agriculture is practiced in the Imperial Valley, in the Coachella Valley, and on terraces along the Colorado River. All agricultural crops are grown under irrigation. Cotton, alfalfa hay, small grain, and row crops, such as lettuce, melons, onions, sweet corn, grain sorghum, squash, and sugar beets, are extensively grown in the Imperial Valley and on the terraces along the Colorado River. The Coachella Valley produces early table grapes, citrus fruit, winter vegetables, and dates, among other specialty crops. Irrigated, warm-season pasture grasses are being planted in the Imperial and Palo Verde Valleys, especially on fine textured soils affected by high salinity. Feedlots are a significant land use in the Imperial Valley. Winter pasture for sheep is provided by alfalfa and the residue of many other crops. Rangeland is primarily ephemeral. During favorable years, an adequate volume of forage to accommodate livestock grazing for a short period may be produced. Grazing strategies should be opportunistic and should be influenced by the environmental sensitivity of the area.

The major soil resource management concerns are irrigation-induced water erosion, wind erosion, the content of organic matter in the soils, the productivity and sustainability of the soils, irrigation water management, and maintenance of a favorable salinity status in the root zone. Wind abrasion is a critical problem on coarse textured soils during periods of crop establishment.

Conservation practices on cropland generally include crop rotations and minimum tillage. Also, crop residue management and windbreaks help to control wind abrasion. The amount of rainfall is too low to leach salts from the soils, so all leaching must be accomplished through the use of irrigation water.

MLRA 31 Land Use by Category

