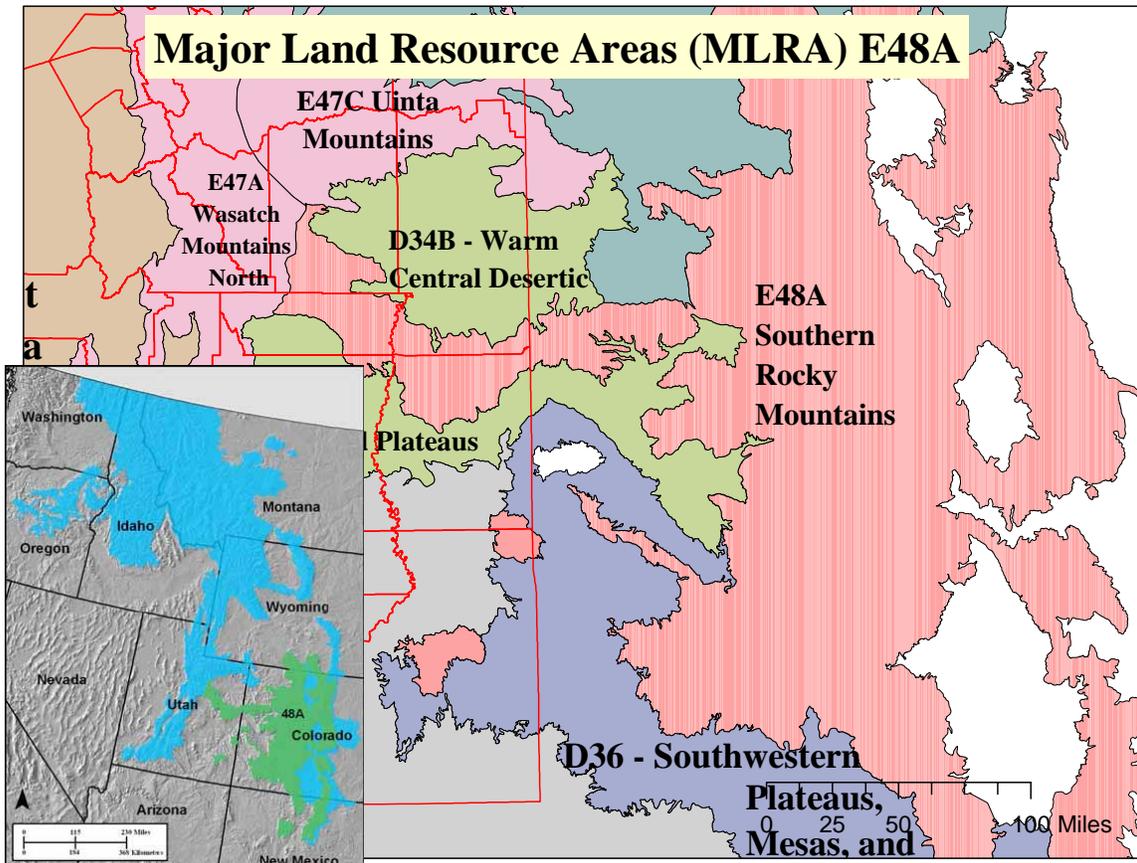


MLRA 48A - Southern Rocky Mountains

MLRA 48A - Southern Rocky Mountains (Utah portion)

Ecological Zone	Upland	Mountain	High Mountain	Subalpine	Alpine
Precipitation inches		16-22	20-30	>25	
Elevation	NONE	7,000 – 9,000	7,000-10,000		
Soil Moisture Regime		Typic Xeric	Udic		
Soil Temp Regime		Frigid	Cryic		
Freeze free Days		60-100	40-60		
Notes		Oak and browse 900 -1,400 lbs/ac	Aspen, Thurber's fescue 2,400 – 2,500 lbs/ac	Subalpine fir, Engelmann spruce	Above Timberline

All values in this table are approximate and should be used as guidelines. Different combinations of temperature, precipitation and soil type can place an ecological site into different zones.



48A—Southern Rocky Mountains

This area (shown in fig. 48A-1) is in Colorado (76 percent), New Mexico (11 percent), Utah (8 percent), and Wyoming (5 percent). It makes up about 45,920 square miles (119,000 square kilometers). The towns of Steamboat Springs, Glenwood Springs, Aspen, Leadville, and Gunnison, Colorado, are in this MLRA. Interstate 70 crosses the northern half of the area. This MLRA has numerous national forests, including the Medicine Bow

National Forest in Wyoming; the Routt, Roosevelt, San Isabel, Gunnison, Uncompahgre, Rio Grande, San Juan, and Santa Fe National Forests in Colorado; and the Carson National Forest in New Mexico. Rocky Mountain National Park also is in this MLRA. The Pole Mountain Military Reservation is in the Medicine Bow National Forest. The Taos Indian Reservation is in the part of this area in New Mexico. The Black Canyon of the Gunnison National Monument and the Curecanti National Recreation Area are directly west of Gunnison, Colorado, in this area.

Physiography

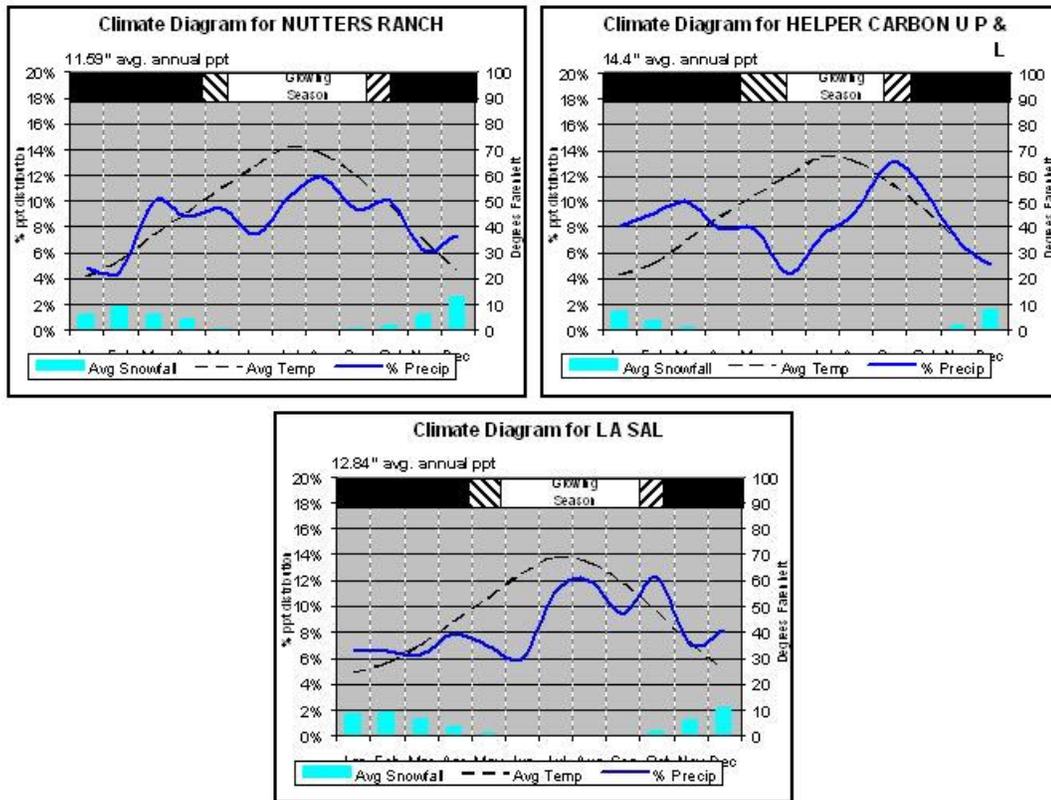
Most of this area is in the Southern Rocky Mountains Province of the Rocky Mountain System. The western extension of the MLRA into Utah is in the Uinta Basin Section of the Colorado Plateaus Province of the Intermontane Plateaus. Small parts of the southwest corner and some isolated areas farther west are in the Canyon Lands Section of the same province and division. The Southern Rocky Mountains consist primarily of two belts of strongly sloping to precipitous mountain ranges trending north to south. Several basins, or parks, are between the belts. The ranges include the Sangre de Cristo Mountains, the Laramie Mountains, and the Front Range in the east and the San Juan Mountains and the Sawatch and Park Ranges in the west. The ranges are dissected by many narrow stream valleys having steep gradients. In some areas the upper mountain slopes and broad crests are covered by snowfields and glaciers. High plateaus and steep-walled canyons are fairly common, especially in the west. Elevation typically ranges from 7,550 to 14,100 feet (2,300 to 4,300 meters) in this area. The part of this MLRA in central Colorado includes the highest point in the Rockies, Mount Elbert, which reaches an elevation of 14,433 feet (4,400 meters). More than 50 peaks in the part of the MLRA in Colorado are at an elevation of more than 14,000 feet (4,270 meters). The extent of the major Hydrologic Unit Areas that make up this MLRA is as follows: Colorado Headwaters (1401), 17 percent; Gunnison (1402), 13 percent; White-Yampa (1405), 11 percent; South Platte (1019), 10 percent; Upper Arkansas (1102), 9 percent; Rio Grande Headwaters (1301), 9 percent; Rio Grande-Elephant Butte (1302), 7 percent; North Platte (1018), 6 percent; Lower Green (1406), 5 percent; San Juan (1408), 5 percent; Upper Colorado-Dolores (1403), 5 percent; and Upper Canadian (1108), 3 percent. The headwaters of many of the major rivers on the High Plains and the Colorado Plateau are in this area. The Continental (or Great) Divide also is in this area. The North and South Platte, Arkansas, and Rio Grande rivers drain toward the Atlantic Ocean, and the Green, Yampa, and Colorado Rivers drain toward the Pacific Ocean. The Rio Grande is a National Wild and Scenic River in northern New Mexico, which is in the southern part of this MLRA.

Geology

The mountains in this area were formed mainly by crustal uplifts during the late Cretaceous and early Tertiary periods. The Rockies on the east side of this area are called the "Front Range," which is a fault block that has been tilted up on edge and uplifted. It was tilted up on the east edge, so there is a steep front on the east and the west side is more gently sloping. The rocks exposed in the mountains are mostly Mesozoic and Paleozoic sediments, but some are Precambrian rocks. Younger igneous rocks, primarily basalt and andesitic lava flows, tuffs, breccias, and conglomerates, are throughout this area. The Rockies were reshaped by glaciation during the pleistocene. Alluvial fans at the base of the mountains are recharge zones for local basin and valley fill aquifers. They also are significant sources of sand and gravel for construction.

Climate

The average annual precipitation is 15 to 30 inches (380 to 760 millimeters) in the foothills and most of the valleys, 7 to 15 inches (180 to 380 millimeters) in some of the lower valleys on the lee side of the mountain ranges, and 30 to 63 inches (760 to 1,600 millimeters) in the mountains. Rainfall occurs as high-intensity, convective thunderstorms during the growing season, but most of the precipitation falls in winter as snow. The average annual temperature is 26 to 54 degrees F (-3 to 12 degrees C). The frost-free period averages 135 days and ranges from 45 to 230 days, decreasing in length with elevation and from south to north.



Water

Following are the estimated withdrawals of freshwater by use in this MLRA:

Public supply—surface water, 8.5%; ground water, 0.0%

Livestock—surface water, 2.7%; ground water, 0.4%

Irrigation—surface water, 77.7%; ground water, 5.6%

Other—surface water, 2.9%; ground water, 2.1%

The total withdrawals average 845 million gallons per day (3,200 million liters per day). About 8 percent is from ground water sources, and 92 percent is from surface water sources. Water from the streams and lakes is abundant and generally of excellent quality. Mining activities result in contamination in some areas. The lower valleys depend on streamflow from this area for irrigation water. Most of the streamflow is from snowmelt, which typically occurs from March to June, so reservoirs or a source of ground water is needed to supply water for irrigation late in the growing season. This area has only two extensive aquifers. One is the unconsolidated to consolidated silt, sand, and gravel of the High Plains and equivalent aquifers in the southern part of Carbon County, Wyoming. The other is the Leadville Limestone aquifer in Colorado. The water from the High Plains aquifer is of good quality, and high-yielding wells are common in areas of this aquifer. The water is used for irrigation, livestock, domestic supply, oil and gas exploration, and mining. It is hard or moderately hard and has a median concentration of about 300 parts per million (milligrams per liter) total dissolved solids. The Leadville Limestone has salty water at depth, but the level of total dissolved solids is generally less than 500 parts per million (milligrams per liter). Because of ample supplies of surface water and the lower quality of this ground water, the Leadville Limestone aquifer has not been extensively developed in this area. Limited quantities of ground water occur in the basin and valley fill sediments in most of the streams and rivers at the lower elevations in this area. These aquifers are directly connected with the streams, so water quality is similar to that in the surface runoff. The water is generally of good quality and is suitable for all uses.

Soils

The dominant soil orders in this area are Alfisols, Entisols, Mollisols, and Inceptisols. The soils in the area generally are moderately deep, stony or very stony, and medium textured and have an ustic or udic soil moisture regime, a cryic soil temperature regime, and mixed mineralogy. Cryoboralfs (Peeler and Frisco series) are on

timbered mountain slopes. Shallow Cryorthents (Crespin and Mine series) are on very steep grass and shrub-covered breaks. Deep and moderately deep Cryoborolls (Woodhall and Carbol series) are on the lower fans and valleys. Cryochrepts and Cryaquepts (Bottle and Vasquez series) and areas of rock outcrop are above timberline.

Biological Resources

This area supports forests on the upper slopes, alpine tundra above timberline, and shrub-grass vegetation at the lower elevations. Grasses, sagebrush, and other shrubs grow on the lower slopes and in valleys. Lodgepole pine, aspen, Douglasfir, and ponderosa pine are the major trees of the lower forest. Engelmann spruce, subalpine fir, white fir, and limber pine intermingled with stands of aspen are typical on the mountain slopes. Willow, alder, and birch trees grow along streams. The timberline zone is characterized by stunted and wind-twisted limber pine, bristlecone pine, Engelmann spruce, and subalpine fir. The treeless alpine tundra supports alpine grasses, herbaceous plants, and shrubs. Some of the major wildlife species in this area are black bear, elk, mule deer, snowshoe hare, jackrabbit, cottontail, turkey, blue grouse, ptarmigan, and mourning dove. The species of fish in the area include rainbow trout, brown trout, brook trout, lake trout, and kokanee salmon.

Land Use

Following are the various kinds of land use in this MLRA:

Cropland—private, 1%
Grassland—private, 16%; Federal, 22%
Forest—private, 11%; Federal, 41%
Urban development—private, 1%
Water—Federal, 1%
Other—private, 2%; Federal, 5%

Nearly 70 percent of this area is Federally owned. The rest consists of farms, ranches, or other private holdings. The upper mountain slopes, below timberline, are forested. Grassland occurs above timberline. Most of the grassland and much of the open woodland are grazed. Recreation, mining, and wildlife habitat are important land uses throughout this area. Small valleys are used for irrigated hay and pasture, which provide forage for livestock. The major soil resource concerns are water erosion, a short growing season, steep slopes, and shallow and rocky soils. Conservation practices on hayland and pasture generally include proper management of crop residue, nutrients, pesticides, and irrigation water. Forage harvest management is important on rangeland and pasture.