

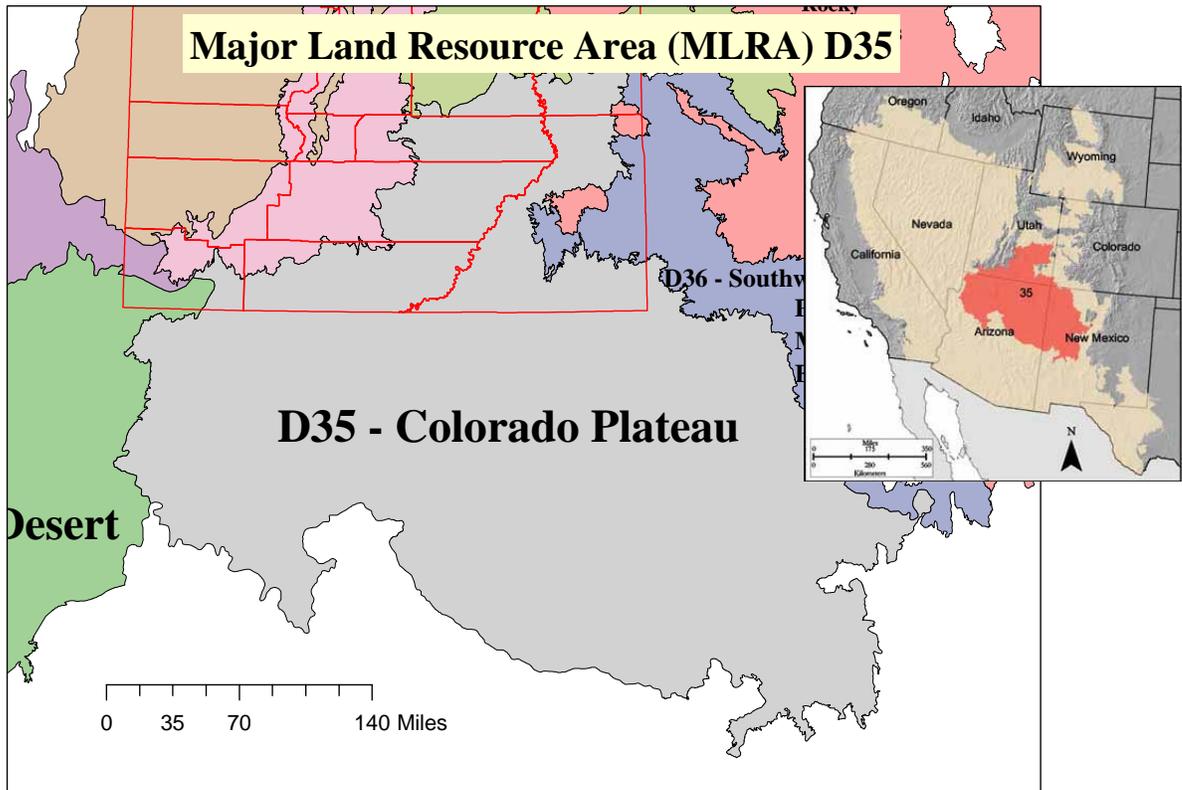
MLRA 35 - Colorado and Green River Plateaus

MLRA 35 - Colorado and Green River Plateaus (Utah portion)

Ecological Zone	Desert	Semidesert*	Upland*	Mountain
Precipitation	5 -9 inches	9 -13 inches	13-16 inches	
Elevation	3,000 -5,000	4,500 -6,500	5,800 - 7,000	NONE
Soil Moisture Regime	Typic Ardic	Ustic Aridic	Aridic Ustic	
Soil Temp Regime	Mesic/Thermic	Mesic	Mesic	
Freeze free Days	120-220	120-160	100-130	
Notes	Shadscale and blackbrush 300 – 500 lbs/ac	Percent of Juniper production is usually greater than the Pinyon production 400 – 700 lbs/ac	Percent of Pinyon production is usually greater than the Juniper production 100 – 500 lbs/ac 800 – 1,000 lbs/ac	

*the aspect (north or south) can greatly influence site characteristics.

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.



35—Colorado Plateau

This area is in Arizona (56 percent), Utah (22 percent), New Mexico (21 percent), and Colorado (1 percent). It makes up about 71,735 square miles (185,885 square kilometers). The cities of Kingman and Winslow, Arizona, Gallup and Grants, New Mexico, and Kanab and Moab, Utah, are in this area. Interstate 40 connects some of these cities, and Interstate 17 terminates in Flagstaff, Arizona, just outside this MLRA. The Grand Canyon and Petrified Forest National Parks and the Canyon de Chelly and Wupatki National Monuments are in the part of this MLRA in Arizona. The Zion, Capitol Reef, Canyonlands, and Arches National Parks and the Grand Staircase-Escalante, and Hovenweep National Monuments are in the part in Utah. The Aztec Ruins, El Morro, El Malpais, and Chaco Canyon National Monuments and the Chaco Culture National Historic Park are in the part in New Mexico. The Dixie, Manti-La Sal, Kaibab, Prescott, Coconino, Sitgreaves, Apache, and Cibola National Forests are in this MLRA. "Four Corners," the only place in America where four State boundaries meet at one point, is in this area. The Navajo and Hopi Nations make up a significant portion of this MLRA in eastern Arizona, western New Mexico, and southern Utah. Other Native American Nations in Arizona include the Zuni, Havasupai, Hualapai, and Kaibab. The Ramah Nation and a small part of the Acoma Nation are in the part of this MLRA in New Mexico. Almost all of the part of this MLRA in Colorado is in the Ute Mountain Nation.

Physiography

This area is in the Colorado Plateaus Province of the Intermontane Plateaus. Different parts of this MLRA are in five of the six sections within the Colorado Plateaus Province. Most of the eastern and central parts of the MLRA are in the Navajo Section. The second largest part, to the west of the Navajo Section, is in the Grand Canyon Section. The northernmost part is in the Canyon Lands Section, and the northwest corner is in the High Plateaus of Utah Section. The southeast corner is in the Datil Section. In general, the surface consists of gently

sloping to strongly sloping plains. Volcanic plugs that rise abruptly above the plains, steep scarps, or deeply incised canyons interrupt the surface of the plains. In most areas elevation is 4,250 to 4,950 feet (1,295 to 1,510 meters). Mt. Trumbull, on the north rim of the Grand Canyon, however, reaches a height of 8,028 feet (2,448 meters), and the Navajo Mountain, on the Utah-Arizona State line, reaches a height of 10,388 feet (3,167 meters).

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Little Colorado (1502), 34 percent; San Juan (1408), 21 percent; Lower Colorado-Lake Mead (1501), 19 percent; Upper Colorado-Dirty Devil (1407), 14 percent; Rio Grande-Elephant Butte (1302), 4 percent; Salt (1506), 3 percent; Upper Colorado-Dolores (1403), 3 percent; and Lower Green (1406), 2 percent. The Colorado River and its tributary in Arizona, the Little Colorado River, are in this MLRA. The Glen Canyon Dam, on the Colorado River (Lake Powell), also is in this area. The Mancos and McElmo Rivers in Colorado are tributaries to the San Juan River in New Mexico. Parts of the Virgin, Sevier, Escalante, Otter, Dirty Devil, Green, and Pariah Rivers are in the part of this MLRA in Utah. Rio Puerco is in the part in New Mexico.

Geology

This area is part of the Colorado Plateau, an area that has been structurally uplifted. Rivers flowing across the area cut down into the bedrock as it was being uplifted, resulting in spectacular geologic scenery. Areas of shale, sandstone, limestone, dolomite, and volcanic rock outcrop are extensive. Rocks representing almost the entire geologic timespan are exposed from the bottom of the Grand Canyon up to the present-day surface. Quaternary and Tertiary lava flows occur on the surface in the southwest part of this area. Older flows cap plateaus and mesas, and isolated volcanic cones and eroded volcanic necks occur throughout the area.

Water

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

Public supply—surface water, 0.4%; ground water, 2.7%

Livestock—surface water, 5.7%; ground water, 2.0%

Irrigation—surface water, 34.9%; ground water, 12.9%

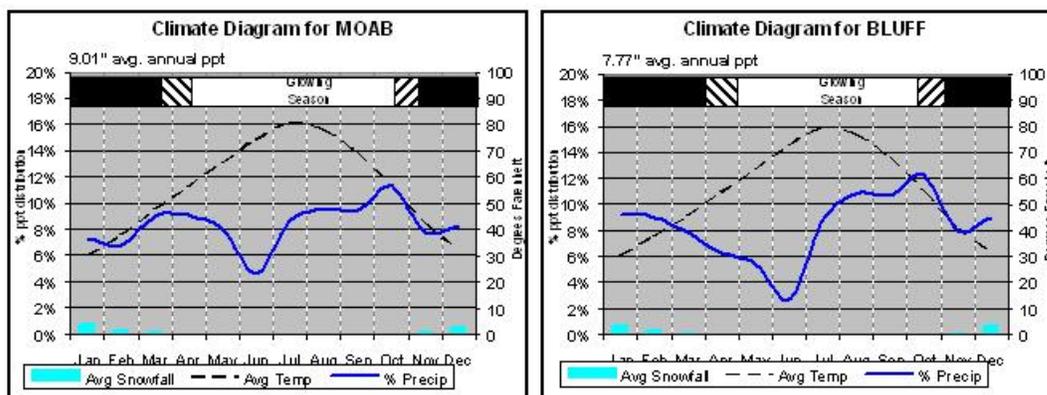
Other—surface water, 24.3%; ground water, 17.2%

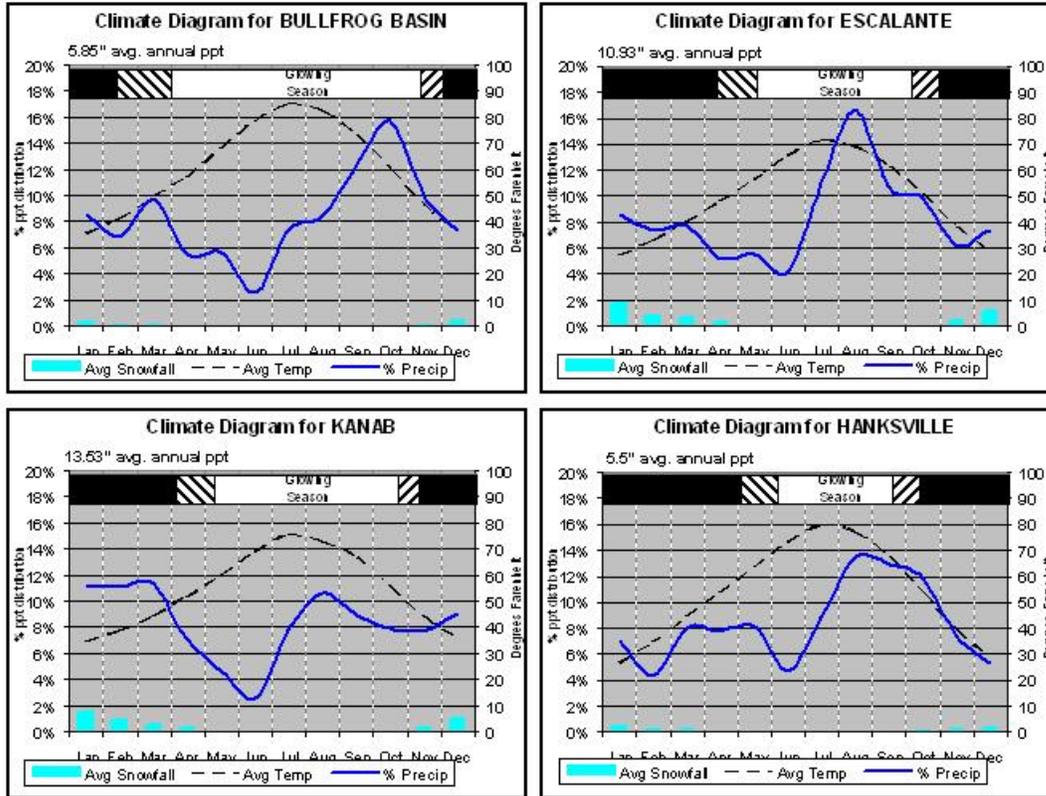
The total withdrawals average 560 million gallons per day (2,120 million liters per day). About 35 percent is from groundwater sources, and 65 percent is from surface water sources. Water is scarce throughout the area. Many streams and rivers are ephemeral. The Little Colorado River drains the largest segment of the area, but its flow is intermittent. Water is stored in small reservoirs for irrigation purposes, but supplies are often inadequate. Some irrigation water is obtained from erratic streamflow. The surface water is suitable for almost all uses. A high sediment load is the primary water-quality problem. The San Juan River basin in the part of this area in northwest

New Mexico has the highest streamflow volume in the State. It is one area that relies almost entirely on surface water. The Navajo Reservoir and a few smaller reservoirs store water for use by residents in this area. The river water is of exceptional quality. It is suitable for a cold-water fishery. High salt and sediment loads from ephemeral tributaries on the south side of the basin degrade the river water. Ground water is the primary source of drinking water in many areas. In places some irrigation water is obtained from deep wells. Ground water occurs in the Coconino, Navajo, and Dakota Sandstone aquifers. It is soft to hard water and generally contains less than 300 parts per million (milligrams per liter) total dissolved solids in Arizona. Median levels of total dissolved solids are closer to 1,000 parts per million (milligrams per liter) in Utah and New Mexico. Lower levels of total dissolved solids and fresher water occur near the recharge zones for these consolidated sediments. Very salty water occurs at depth and away from the recharge zones. Highly mineralized water leaks into these aquifers from older and younger marine sediments above and below the sandstone aquifers. Some irrigation water is pumped from the valley fill in the San Juan River basin. It has a higher salt content than the river water but otherwise is very similar in quality. Use of the valley fill water is limited because seepage of salty water from the adjacent rocks containing soluble salts increases the sodium sulfate content.

Climate

The average annual precipitation is 6 to 18 inches (150 to 455 millimeters) in almost all of this area, but it is less than 5 inches (125 millimeters) in a few basins on the west edge of the area. The highest average annual precipitation, 30 inches (760 millimeters), occurs in a few isolated mountains in southern Utah and near the Arizona-New Mexico State line. About half of the precipitation falls from July through September. April, May, and June are the driest months. Most of the rainfall occurs as high-intensity, convective thunderstorms late in summer. Light snow falls in winter, but it does not remain on the ground very long. The average annual temperature is 36 to 66 degrees F (2 to 19 degrees C), decreasing to the north and at the higher elevations. The frost-free period averages 215 days and ranges from 105 to 320 days, decreasing in length to the north and at the higher elevations.





Soils

The dominant soil orders in this MLRA are Alfisols, Aridisols, Entisols, and Mollisols. The soils in the area dominantly have a mesic soil temperature regime; an aridic soil moisture regime or an ustic moisture regime that borders on aridic; and carbonatic, mixed, or smectitic mineralogy. They generally are very shallow to very deep, well drained or somewhat excessively drained, and loamy or clayey. Haplustalfs (Lykorly series) and Haplargids (Penistaja series) formed in mixed eolian deposits and alluvium on mesas, cuestas, hills, bajadas, and fan terraces. Calcargids (Millett series) formed in alluvium on fan terraces, piedmonts, and plains. Haplocalcids formed in mixed residuum and colluvium on benches, hills, and ridges (Mellenthin series) and in eolian deposits over alluvium (Winona series). Haplocambids formed in mixed eolian deposits and alluvium on mesas, cuestas, hills, and fan terraces (Begay series) and in alluvium on plateaus and mesas (Epikom series). Ustorthents formed in mixed residuum and colluvium on mesas and mountains (Menefee series) and in mixed eolian deposits and alluvium on ridges, hills, and mesas (Vessilla series). Torriorthents formed in mixed alluvium and residuum (Moenkopie series) and in mixed residuum and colluvium (Rizno series) on mesas, hills, benches, cuestas, and plateaus. Torripsamments (Sheppard series) formed in eolian deposits on benches, dunes, and terraces. Argiustolls (Luzena series) formed in residuum and colluvium on mesas, hills, and mountains.

Biological Resources

This area supports desert shrub and woodland vegetation. At high elevations, pinyon-juniper woodland and sagebrush have an understory of galleta, blue grama, black grama, and western wheatgrass. Galleta grass, alkali sacaton, Indian ricegrass, bottlebrush squirreltail, and needlegrasses intermixed with fourwing saltbush and winterfat are at the lower elevations. Greasewood and shadscale are part of the plant community on salty soils. Blackbrush may be dominant at the lower elevations. Some of the major wildlife species in this area are elk, mule deer, antelope, mountain lion, coyote, fox, bobcat, badger, skunk, rabbit, prairie dog, bats, eagles, hawks, owls, crow, woodpecker, bluebird, and swallow.

Land Use

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

Cropland—private, 1%
Grassland—private, 48%; Federal, 27%
Forest—private, 8%; Federal, 6%
Urban development—private, 1%
Water—private, 1%
Other—private, 7%; Federal, 1%

About one-third of this area is Federally owned. About three-fourths is rangeland. The rangeland is grazed by sheep and cattle. About 1 percent of the area, along the valleys of the major streams, is irrigated cropland. Alfalfa, small grains for hay, and corn for silage are the chief crops. Less than one-tenth of the area in scattered small tracts on Indian reservations is dry-farmed. Corn is the chief crop in the dry-farmed areas. More than one-tenth of the area is juniper and pinyon-juniper woodland. Firewood and pinyon nuts are products of this woodland, which also is grazed by cattle and sheep. If the areas are overgrazed, juniper invades the grassland. Severe gullying, overgrazing, and the lack of a dependable water supply are land use problems. Because of the mild climate and nearby recreational opportunities, the irrigated cropland near towns, such as Moab and Kanab, is being converted to housing developments. The major soil resource concerns are maintenance of the content of organic matter in the soils, soil productivity, wind erosion, water erosion, salinity, and sodicity. These factors and the low rainfall result in soils that have little or no resilience after disturbance and a very low tolerance for soil loss by erosion. Conservation practices on rangeland generally include brush management, rangeland seeding, prescribed grazing, prescribed burning, fencing, development of watering facilities, and erosion control. Conservation practices on cropland and hayland are crop rotation, crop residue management, minimum tillage, nutrient and pest management, land leveling, ditch lining, irrigation water management, soil salinity management, and pasture and hayland management.

