

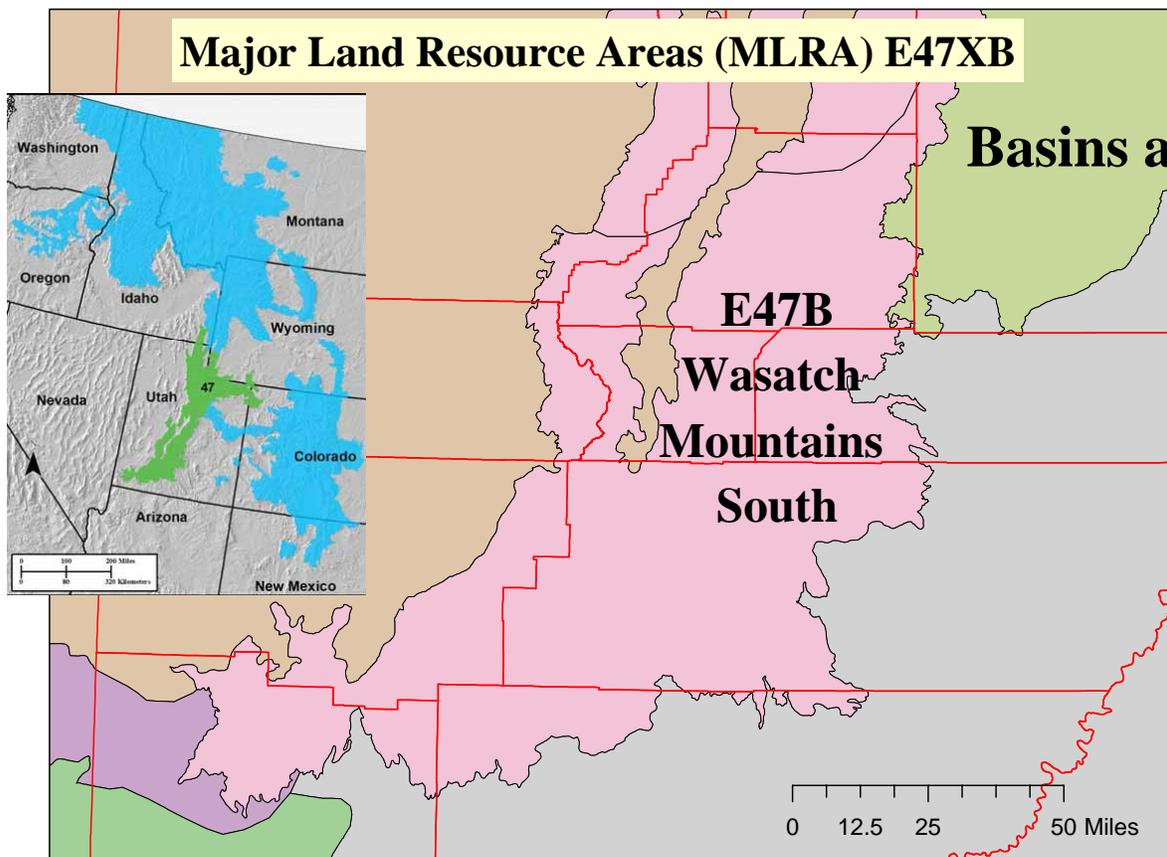
MLRA 47XB - Wasatch Mountains South

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Ecological Zone	Semidesert*	Upland*	Mountain	High Mountain	Subalpine	Alpine
Precipitation (inches)	9-14	12-16	16-22	22-40	>25 in	>25 in
Elevation	5,000- 7,000	6,800 -8,500	Not Written	Not Written	Not Written	Not Written
Soil Moisture Regime	Ustic Aridic	Ustic	Ustic	Ustic	Ustic	Ustic
Soil Temp Regime	Frigid	Frigid	Frigid	Cryic	Cryic	Cryic
Freeze free Days	70-100	70-100				
Notes	Dominated by the many sagebrushes Black sagebrush	Start to get Pinyon and Juniper stands	Oak and Maple	Aspen, Ponderosa Pine	Subalpine Fir, Engelmann Spruce	Above Timberline

*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.



47XB—Wasatch Mountains South

Loa, Panguitch, and New Harmony, Utah are in this MLRA. Interstate 70 crosses this area. Most of Zion and Bryce Canyon National Parks and Cedar Breaks National Monument are in this area. This MLRA includes numerous wilderness study areas. It has numerous national forests, including the Ashley, Dixie, Fishlake, and Manti-LaSal National Forests. Most of the Paiute Indian Reservation is in the area.

Physiography

This area is in the High Plateaus of Utah Section of the Colorado Plateaus Province of the Intermontane Plateaus.

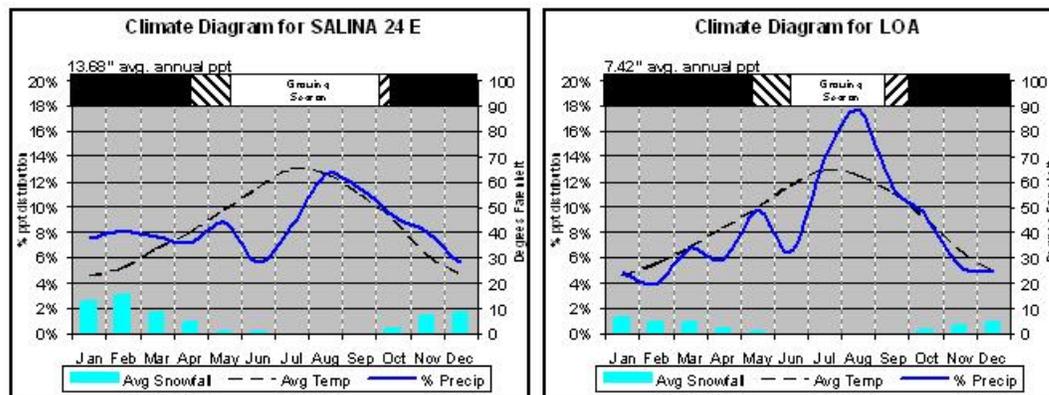
Parts of the western edge of this MLRA are in the Great Basin Section of the Basin and Range Province of the Intermontane Plateaus. The MLRA includes the Wasatch Mountains, which trend north and south. The steeply sloping, precipitous Wasatch Mountains have narrow crests and deep valleys. Active faulting and erosion are a dominant force in controlling the geomorphology of the area. Some of mountain areas that are above 7,500 feet (2,285 meters) and all of the areas above 10,000 feet (3,050 meters) have been subject to alpine or mountain glaciation. There are arêtes, horns, cirques, all types of moraines, and outwash features. There are rolling mountains and thrust-faulted plateaus that are broad, gently sloping surfaces with steep side slopes that have deep canyons cut into them. The Wasatch Mountains have an elevation of 4,900 to about 13,500 feet (1,495 to 4,115 meters). The extent of the major Hydrologic Unit Areas that make up E47 as a whole (including E47XA, E47XB, and E47XC) are as follows: Escalante Desert-Sevier Lake (1603), 25 percent; Great Salt Lake (1602), 18 percent; Lower Green (1406), 18 percent; Bear (1601), 13 percent; Great Divide- Upper Green (1404), 11 percent; Upper Colorado-Dirty Devil (1407), 9 percent; Lower Colorado-Lake Mead (1501), 4 percent; and White-Yampa (1405), 2 percent. The headwaters of the Virgin River are in this area.

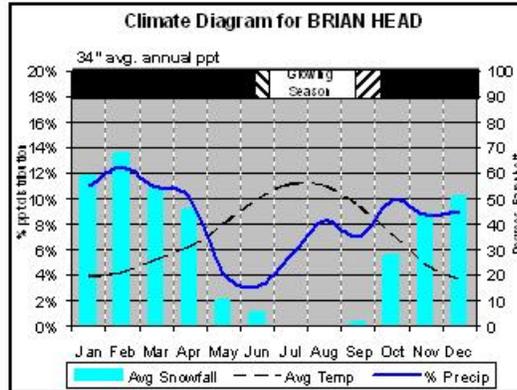
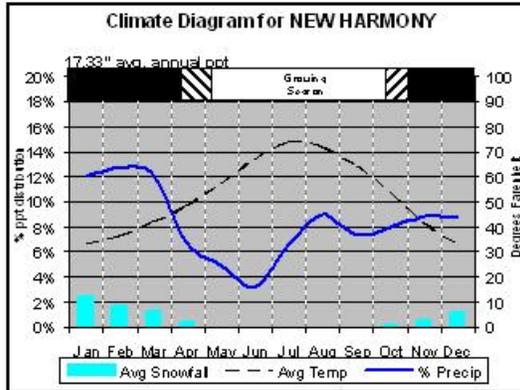
Geology

The mountains in this area are primarily fault blocks that have been tilted up. Alluvial fans at the base of the mountains are recharge zones for the basin fill aquifer and are significant sources of sand and gravel for construction. Rocks exposed in the mountains are mostly Mesozoic and Paleozoic sediments. Younger igneous rocks (ash and lava) are throughout the area. Lava-capped mesas are common. These southern Wasatch Mountains consist of Tertiary volcanic rocks occurring as extrusive lava and intrusive crystalline rocks. Eroded volcanic cones are in the southwestern part of the MLRA.

Climate

The average annual precipitation in most of this area is 15 to 30 inches (380 to 760 millimeters). In some valleys between mountain ranges it is 6 to 10 inches (150 to 255 millimeters). It is 10 to 15 inches (255 to 380 millimeters) in some of the MLRA. It can be as much as 73 inches (1,855 millimeters) at the highest elevations. There is a frequent incidence of high-intensity summer thunderstorms; hence, a significant amount of the precipitation occurs during summer. The higher elevations receive significant amounts of snowfall each year. The average annual temperature is 30 to 58 degrees F (-1 to 15 degrees C). The frost-free period averages 140 days and ranges from 60 to 220 days, generally decreasing in length with elevation.





Water

Following are the estimated withdrawals of freshwater by use in E47 as a whole (including E47XA, E47XB, and E47XC):

Public supply—surface water, 0.1%; ground water, 0.1%
 Livestock—surface water, 4.1%; ground water, 1.0%
 Irrigation—surface water, 69.7%; ground water, 17.4%
 Other—surface water, 3.7%; ground water, 4.0%

The total withdrawals average 380 million gallons per day (1,440 million liters per day). About 22 percent is from ground water sources, and 78 percent is from surface water sources. Streams, lakes, and ground water supply enough water for the grazing and forestry enterprises in most of the area. Reservoirs in the mountains of this area store water for downstream use. The mountain water is of excellent quality. Perennial streams from the Wasatch Mountains in this area provide irrigation and municipal and industrial water for most of the population in Utah. The Sevier River provides irrigation water away from the population centers. Almost 99 percent of the flow within the Sevier River basin is used for irrigation and some public supply. Salinity in irrigation return flows is a problem in the rivers in the area. Ground water in this area is primarily in the unconsolidated deposits of sand and gravel filling the major river valleys in the interior of the area and similar deposits filling the basins on the western edge of the area. Water from these aquifers is very hard but typically contains less than 1,000 parts per million (milligrams per liter) total dissolved solids. Low levels of salts occur in the ground water closest to the recharge areas along the base of the mountains, while briny water occurs in the deeper parts of these deposits.

Soils

The dominant soil orders in this MLRA are Aridisols, Entisols, Inceptisols, and Mollisols. The soils in the area dominantly have a frigid soil temperature regime on plateaus and the lower mountain slopes and a cryic soil temperature regime at the higher elevations. They have a mesic soil temperature regime at the lowest elevations, on south-facing slopes, and in some of the valleys. The soil moisture regime is xeric to ustic in the eastern and southern parts. Mineralogy is typically mixed. The soils are very shallow to very deep, generally well drained, and loamy or loamy-skeletal. Haplocalcids formed in mixed residuum and alluvium on mesas, fan aprons, terraces, and plateaus (Langspring and Teagulf series) and in mixed alluvium and colluvium on fans, terraces, and toeslopes (Bruman series). Calcigypsis (Rogrube series) formed in mixed loess and residuum on plateaus. Torriorthents formed in residuum, in some areas mixed with colluvium, on hills, mesas, cuetas, plateaus, and pediments (Atchee, Blazon, Delphill, Haterton, Huguston, and Moyerson series) and in alluvium on alluvial fans and valley floors (Sagers, Alldown, and Tebbs series). Dystrocrypts (Mirror Lake series) formed in till on moraines. Calciustepts (Rentsac series) formed in colluvium over residuum on mountains, hills, and plains. Haploxerolls (Agassiz series) and Argicryolls (Dranyon series) formed in residuum on mountains. Palexerolls (Borvant series) and Argixerolls (Ant Flat, Henefer, and Yeates Hollow series) formed in alluvium or colluvium on fan terraces, piedmonts, and hills. Palecryolls (Lucky Star series) formed in till, residuum, or colluvium on mountains and moraines.

Biological Resources

This area supports conifer, aspen, grass, mountain shrub, and sagebrush-grass vegetation. The composition of the vegetation varies with elevation. The zone above an elevation of about 13,000 feet (3,965 meters) supports alpine meadow. Coniferous forests of Engelmann spruce, white fir, subalpine fir, and Rocky Mountain Douglas-fir dominate the mid to high elevations. The most common understory plants in these forests are Oregongrape, myrtle pachystima, and heartleaf arnica. This part of the Wasatch Mountains includes significant amounts of ponderosa pine. Forests of quaking aspen commonly have an understory that includes blue wildrye, mountain brome, Fendler meadowrue, and aspen peavine. Bluebunch wheatgrass, bearded wheatgrass, blue wildrye, mountain brome, and numerous forbs grow in the understory in areas of Gambel oak, curl-leaf and birchleaf mountain mahogany, snowberry, and serviceberry. Big sagebrush and bluebunch wheatgrass are the dominant species in the sagebrush steppe plant communities that are common at the lowest elevations. The abundance of warm-season herbaceous species increases significantly in the southern part of the MLRA. Some of the major wildlife species in this area are moose, elk, mule deer, coyote, red fox, bobcat, beaver, porcupine, snowshoe hare, jackrabbit, sage grouse, chukar, sharp-tailed grouse, gray partridge, turkey, ruffed grouse, and blue grouse. The species of fish in the area include rainbow trout, brown trout, brook trout, cutthroat trout, catfish, and sucker.

Land Use

Following are the various kinds of land use in E47 as a whole (including E47XA, E47XB, and E47XC):

Cropland—private, 2%
Grassland—private, 25%; Federal, 35%
Forest—private, 7%; Federal, 25%
Urban development—private, 1%
Water—private, 1%; Federal, 1%
Other—private, 1%; Federal, 2%

Less than one-third of this area is in farms and ranches. The rest of the area generally is Federally owned. Grassland and woodland are grazed in summer. Some dense forests are on moist sites. Recreation and mining are important land uses. A few valleys are irrigated. Forage for livestock is the main crop. The major soil resource concerns are wind erosion, water erosion, maintenance of the productivity of the soils, and maintenance of the quality of surface water. Maintaining a vegetative cover, maintaining the content of organic matter, and

preventing excessive compaction are important. Mass movement of the soils also is a concern. Proper grazing use is a concern on grazing lands. In timbered areas, the primary concerns during timber harvesting are controlling erosion along roads and skid trails and minimizing the compaction caused by harvesting equipment. Conservation practices on rangeland generally include brush management, rangeland seeding, prescribed grazing, prescribed burning, fencing, and development of watering facilities. Conservation practices on dry-farmed cropland include terraces, sediment-control basins, summer fallow tillage, crop residue management, and pest management. Conservation practices on irrigated cropland and hayland include irrigation system improvement, irrigation water management, conservation tillage, crop rotation, crop residue management, forage harvest management, and nutrient management. Conservation practices on irrigated pasture include irrigation system improvement, irrigation water management, pasture planting, development of watering facilities, fencing, prescribed grazing, and nutrient management.

