Major Land Resource Area 051X
High Intermountain Valleys

Accessed: 10/12/2024

Description

This MLRA encompasses the San Luis Valley in south central Colorado and the Taos Plateau and Taos alluvial piedmonts of north central New Mexico. As part of the northern portion of the Rio Grande Rift, the MLRA consists of large, alluvium filled basins washed down from adjacent mountain ranges. The Rio Grande River flows through this MLRA, continuing its long function of carrying mountain sediment down to the basin. Cenozoic volcanism is an extensive characteristic of the MLRA where large basalt flows with volcanic hills and domes are abundant. Ancient Lake Alamosa is a large feature within the MLRA.

Geographic subunits

Land Resource Unit 1. Major River Corridors: This includes the channel, floodplain, and terraces associated with the Rio Grande and Conejos RIvers.

Land Resource Unit 2. Ancient Lake Alamosa: This consists of the lower portion of the piedmont slope plus the basin floor. Associated major land forms include the fan skirt, alluvial flat, and playa complex.

Land Resource Unit 3. Volcanic Field: This includes the Cenozoic basalt, rhyolite, and andesite flows.

Land Resource Unit 4. Sandsheet including the active sand dunes.

Land Resource Unit 5. Upper Piedmont Slopes not influences by Ancient Lake Alamosa or pluvial lakes.

Land Resource Unit 6. Piedmont slopes and valley fill from the Rio Grande and fans coming off the Sangre de Cristo Mountains in the southeast portion of the MLRA.

Ecological site keys

MLRA 51

I. San Luis Basin alluvial piedmont slopes and basin floor.

A. Piedmont Slope: This major feature of an intermontane basin that separates the bounding mountains from the basin floor.

1 The lower Piedmont slope consisting of the fan Piedmont and fan skirt.

i. Soils derived from igneous geology that are calcareous and exhibit a strong Bk horizon that influence plant communities to favor winterfat as an indicator species. ... R051XY276CO – Limy Bench

ii. Soils derived from mixed geology that may not be calcareous nor have a strong Bk horizon and does not promote winterfat as a key species. ... R051XY281CO – Mountain Outwash

iii. Soils are derived from alluvium but are not skeletal and range from sandy loam to loamy sand in texture. ... R051XY273CO – Sandy Bench

iv. The Chico Fan site occurs on soils which support calcium carbonates deeper in the soil profile than its Limy Bench counterpart and is expressed as a black greasewood shrub community on moderately alkaline loams. ... R051XE260CO – Chico Fan 8-12 PZ

2 The upper Piedmont Slope consisting of the mountain valley fans, alluvial fans, and ballenas.

i. The Valley Bench site occurs primarily on the upper Piedmont slope of the southeastern portion of the

San Luis Valley. The major component landform is the erosional fan remnant where alluvial fans have been dissected by minor drainages leaving relict surfaces on wide, rolling summit positions.

[Label] [Criteria]

ii. The Foothills Loam site occurs on the upper end of the Piedmont slope, on what is considered the mountain-valley fan. Component landforms include: erosional fan remnants, ballenas, and inset fans. It does not degrade into sagebrush dominance like the valley bench and is higher, a little cooler, and a little wetter.

iii. The New Mexico Loamy site occupies broad erosional fan remnants on the upper Piedmont slope. ... R051XA001NM – Loamy

B. Basin Floor or "Bolson"

1 Alluvial Flat: The alluvial flat extends from the toeslope of a fan skirt or fan piedmont to the playa of a bolson or the axial-stream floodplain of a semi-bolson. It is a nearly level, graded surface built of sediment carried by sheet floods or by broad, intricately-braided, ephemeral streams.

i. Areas of the alluvial flat where alkalinity is highest and soils tend toward finer texture. Shrubs, especially greasewood consist of a high percentage of the composition and "slick spots" are evident. ... R051XY264CO – Chico Land

ii. Site occurs on the alluvial flat component of the basin floor and is more productive due to soils that are less alkaline than the chico land. In reference condition, grasses dominate the composition with "slick spots" minor and discontinuous. ... R051XY263CO – Salt Flats

iii. Salt Meadows receive additional moisture due to both overland flow and sub-surface flow. The water table is usually within 2 feet of the surface during the early growing season and within 4 feet during the dormant season. They often form a band between a wet meadow and a salt flats site. ... R051XY267CO – Salt Meadow

iv. The wet meadow site occurs on nearly level to gently sloping flood plains. It commonly forms a narrow band next to a flowing stream. Grasses and grass-like plants make up most of the cover. The water table is high and the salt content is low. ... R051XY315CO – Wet Meadow 6-10 PZ

2 Playa: this includes overflow components such as playa floor, playa step, playa slope, and playa rim, as well as the outer playa dunes. This also includes all "playa like" landforms such as playa lakes, playettes, and ephemeral closed basin drainages.

i. Alkali overflow areas: These are the areas that are periodically flooded and include: playa floors, steps, slopes and rims as well as the playa-like ephemeral lakes, drainages, and playettes. ... R051XY314CO – Alkali Overflow

ii. Playa Dunes: A linear or curvilinear ridge of windblown, granular material (generally sand or parna) removed from the adjacent basin by wind erosion (deflation), and deposited on the leeward (prevailing downwind) margin of a playa, playa basin, or salina basin. ... R051XY312CO – Sand Hummocks

3 Sand Sheet: This is where large quantities of sand were blown out of the basin of the San Luis Valley and spread downwind across alluvial flats, onto piedmont slopes, and even over low mountains. Sand sheets can be several feet thick, continuous, and may have undulating surfaces.

i. The Valley Sand site occurs on the alkali flat of the basin floor. The soils are derived from course-textured alluvium which has been wind-worked over time. Often there is a deep water table which is accessible to deep-rooted shrubs. ... R051XY294CO – Valley Sand

ii. The site is the intergrade from the relatively flat sand plain to the active dune field of the Great Sand Dunes. Soils are deep and sandy. ... R051XY275CO – Deep Sands 7-9 PZ

iii. The Foothills Sand is sandwiched between the active dune field of the Great Sand Dunes and the Sangre de Cristo Mountains. There is a mix of both mountain alluvium and eolian surfaces blown in from the sand dunes. ... R051XY279CO – Foothill Sand 9-12 PZ

II. San Luis Basin Cenozoic Volcanics: this includes basalt flows, volcanic hills and domes.

A. Basalt flows which create hills and plateaus. The Basalt Hills site is usually very shallow to shallow over lithic bedrock. ... R051XY277CO – Basalt Hill 7-12 PZ

B. Existing on basalt plateau summits and alluvial slopes with deep soils over lithic bedrock. ... R051XY283CO – Foothills 12-16 PZ

C. This site occurs on bedrock controlled slope positions of rhyolitic and andesitic hills and hillocks. ... R051XY286CO – Rocky Foothills

D. The site occurs on basalt banded colluvial slopes of the Rio Grande River Canyon as it cuts through the Taos Plateau volcanic field. ... R051XA006NM – Breaks

III. Bounding Mountain Ranges: this includes eroded foothills of the Rocky Mountains.

A. The site occurs at the lower slopes of the mountain base, consisting of the lower colluvial apron, mountain valley fans, and terraces of drainages. Elevation ranges from 8200 feet to 9500 feet. ... R051XY233CO – Mountain Loam 10-18 PZ