USDA Natural Resources Conservation Service

Ecological site R048AY003NM
Mountain Valley

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General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

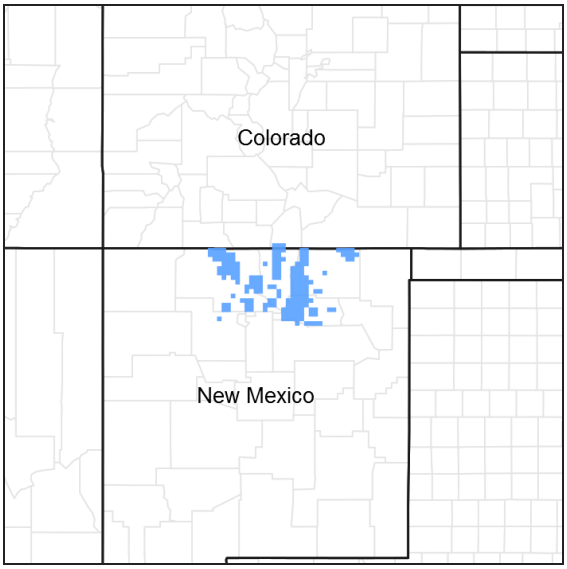


Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

MLRA notes

Major Land Resource Area (MLRA): 048A–Southern Rocky Mountains

This area 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 Jemez Springs, Los Alamos, Red River and Eagle Nest, New Mexico, are in this MLRA. This MLRA has numerous national forests, the Carson National Forest and part of the Santa Fe National Forest in New Mexico. The Jemez, Picuris, Santa Clara, and Taos Indian Reservations are in this MLRA. Most of this area is in the Southern Rocky Mountains Province of the Rocky Mountain System. 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, Jemez Mountains, and Tusas Mountains. Elevation typically ranges from 6,500 to 13,167 feet (1,980 to 1,039 meters) in this area. The Rio Grande is a National Wild and Scenic River in northern New Mexico, which is in the southern part of this MLRA.

The mountains in this area were formed mainly by crustal uplifts during the late Cretaceous and early Tertiary periods. The rocks exposed in the mountains are mostly Precambrian igneous and metamorphic rocks, which in many places are flanked by steeply dipping Mesozoic sedimentary rocks. Younger igneous rocks, primarily basalt and andesitic lava flows, tuffs, breccias, and conglomerates, are throughout this area. Representative formations in this area are the Silver Plume and Pikes Peak granites, San Juan Volcanics, and Mancos Shale. Many of the

highest mountain ranges 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 important sources of sand and gravel.

The dominant soil orders in this MLRA are Mollisols, Alfisols, Inceptisols, and Entisols. The soils in the area dominantly have a frigid or cryic soil temperature regime and an ustic or udic soil moisture regime. Mineralogy is typically mixed, smectitic, or paramicaceous. In areas with granite, gneiss, and schist bedrock, Glossocryalfs (Seitz, Granile, and Leadville series) and Haplocryolls (Rogert series) formed in colluvium on mountain slopes. Dystrocryepts (Leighcan and Mummy series) formed on mountain slopes and summits at the higher elevations. In areas of andesite and rhyolite bedrock, Dystrocryepts (Endlich and Whitecross series) formed in colluvium on mountain slopes. In areas of sedimentary bedrock, Haplustolls (Towave series) formed on mountain slopes at low elevations and with low precipitation. Haplocryolls (Lamphier and Razorba series), Argicryolls (Cochetopa series), and Haplocryalfs (Needleton series) formed in colluvium on mountain slopes at high elevations

LRU notes

This site is part of the RM-1 sub-resource area. This site is found on the east side of Sangre de Cristo mountains.

Classification relationships

This ecological site is correlated to soil components at the Major Land Resource Area (MLRA) level which is further described in USDA AgHandbook 296.

Ecological site concept

This site is located in mountain valleys in the ponderosa pine zone. It has gentle to moderate slopes and receives occasional light overflow from the main stream course or adjacent side slopes. The alluvial slopes immediately adjacent to the main stream are also included in this site. Slopes are 0-5%. Along valley bottoms where drainage is poor, it may blend with the Mountain Meadow ecological site. This site differs from the Mountain Meadow ecological site in the lack of high water table. Elevation ranges from 7,000 to 9,000 feet above sea level.

Soils on this site are well drained and deep to very deep. The surface layer is loam, sandy loam or fine sandy loam with subsoil of loam, clay loam, or sandy clay loam. These soils have moderate to moderately high permeability. Runoff is medium. Available water-holding capacity is high. Effective rooting depth is 20 inches to more than 60 inches. Severe gullying can carry off most of the water, and a loss of topsoil greatly reduces water intake. Gullies that carry off extra water will drastically alter the moisture-plant relationship in many areas.

Characteristic Soils Are:
Bryan, Hesperus and Kinesava

Associated sites

R048AY001NM	**Subalpine Grassland** This site takes in mountain parks and other open grasslands generally within the spruce-fir zone. In some places it is interspersed with aspen groves. This site is located near timberline extending down to the ponderosa pine zone. Topography is mostly rolling to moderate slopes, but some areas are steep. Slopes are between 2 to 20 percent, but can range up to 40 percent. Elevation ranges from 9,000 feet to near timberline, which is approximately 11,400 feet above sea level. The soils are well drained, deep to very deep. The surface texture is loam, cobbly loam or gravelly loam. There may be large numbers of rock fragments throughout the profile as this soil has multiple soil family particle sizes correlated to it. The soils have moderate to moderately slow permeability. Runoff is moderate. Available water-holding capacity is low to medium. The effective rooting depth is 20 inches or more. On the soil Hillery which is correlated to this site, it occurs on lava flows, mesas and plains. Hillery is also above 40 inches of precipitation which is higher than the concept of this site. Surface soil textures are silt loam, and stony loam.

R048AY002NM	**Mountain Grassland** This site is found on the north and northeast-facing slopes at lower elevations and can be found on all exposures at the higher elevations. The site is located on open benchlands, outwash fans or exposed ridges between parks and valleys and higher mountain slopes. High mountain rims and mountain valleys are included in this site. The Mountain Grassland often occurs on benches or depressed areas within the steeper surrounding slopes of the ponderosa pine. The slopes ranges from 0 to 15 percent. Elevation ranges from 7,000 to 9,000 feet above sea level. These soils are well drained, deep to very deep. The surface layer is loam, silt loam or sandy loam. Gravel or stones are often present on the soil surface and throughout the profile but is not skeletal. These soils have a moderate permeability. Available water-holding capacity is moderate to high. Effective rooting depth is 40 inches to more than 60 inches.
R048AY004NM	**Mountain Loam** This site is on steep to moderately steep slopes on benches within the steeper slopes of the surrounding ponderosa pine tree zone. The slope is to the southwest; south and southeast, making the site directly exposed to the dry south and southwest winds and more intensive heat from the sun. Slopes vary from 5 to 70 percent. Elevation ranges from 6,900 to 9,000 feet above sea level. The soils on this site are moderately deep to deep and well drained. The surface texture is stony/cobbly silt loam or cobbly loam. The subsurface is stony loam or cobbly loam. They have a moderate permeability. The available water-holding capacity is low. Effective rooting depth is from 20 to 40 inches. There is cobble or stone throughout the profile and on the surface. Air-water-plant relationship is fair.
R048AY005NM	**Mountain Malpais** This site is characterized by flat to moderately steep topography. It is frequently found as mesa, mountains slopes and ridges where the basalt caps are present. The site’s terrain may be interrupted by extrusions of the basalt, leaving a rough or choppy appearance to the topography. The basaltic stone cover typically exists over a portion of the site where igneous extrusions occur. Boulders on the surface are common. The dominant slope range is from 3 to 30 percent, but it some site range up to 55 percent. The exposure varies but has little significance on plant production. Elevation ranges from 6,800 to 9,000 feet above sea level. These soils are well drained, very shallow to shallow, and formed in debris from basalt and other volcanic rock or metamorphic rock. The surface texture is cobbly, very cobbly silt loam; stony, very stony, very cobbly loam; stony, very stony silt loam; and cobbly sandy loam. The texture of the subsoil layers ranges from very stony silt loam, very cobbly loam to extremely stony clay. The effective rooting depth is 6 to 20 inches.
R048AY006NM	**Mountain Meadow** The site occurs as lower lying drainageways, flood plains, swales or other depressional areas where extra moisture accumulates as a result of runoff from surrounding higher sites. A high water table is characteristic of this site particularly in the spring and a portion of the area may have open water during this season. Springs or seeps bring the water table to the subsoil or even to the surface, in which instance the site may colloquially be called a “cienaga”. Slopes vary from flat to gently sloping, not to exceed 5 percent. The exposure varies and is not significant. Elevation ranges from 7,000 to 9,500 feet above sea level. These soils consist of deep to very deep soils and poorly to very poorly drained. The surface texture ranges from a very fine sandy loam to a mucky silty clay and clay surface layers. They have an active water table, which varies from the surface to 3 feet below the surface. They are normally non-saline and have high organic content. These soils have moderate to moderately slow permeability. Available water-holding capacity is moderate. The effective rooting depth is 20 inches to more than 60 inches.

Similar sites

R048AY002NM	**Mountain Grassland** This site is found on the north and northeast-facing slopes at lower elevations and can be found on all exposures at the higher elevations. The site is located on open benchlands, outwash fans or exposed ridges between parks and valleys and higher mountain slopes. High mountain rims and mountain valleys are included in this site. The Mountain Grassland often occurs on benches or depressed areas within the steeper surrounding slopes of the ponderosa pine. The slopes ranges from 0 to 15 percent. Elevation ranges from 7,000 to 9,000 feet above sea level. These soils are well drained, deep to very deep. The surface layer is loam, silt loam or sandy loam. Gravel or stones are often present on the soil surface and throughout the profile but is not skeletal. These soils have a moderate permeability. Available water-holding capacity is moderate to high. Effective rooting depth is 40 inches to more than 60 inches.

R048AY014NM	**Mountain Valley Dry** This site occurs on broad valleys, overflow areas adjacent to intermittent streams and depressional areas subject to run-in of moisture from adjacent sites. However, this site is often highly dissected, and run-in is non-effective. Slopes range from 1 to 8 percent. Elevation ranges from 7,200 to 8,000 feet above sea level. The soils are deep to very deep and well drained. Surface textures is usually clay loam. Subsoils is usually clay. This ecological site used to have the ID number of R048BY007NM in RM-2 subresource area in 1982.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia frigida* (2) *Quercus*
Herbaceous	(1) *Muhlenbergia montana* (2) *Festuca arizonica*

Physiographic features

This site is located in mountain valleys in the ponderosa pine zone. It has gentle to moderate slopes and receives occasional light overflow from the main stream course or adjacent side slopes. The alluvial slopes immediately adjacent to the main stream are also included in this site. These sites are extended up the drainageway side slopes or gradients and rarely exceed 5 percent. Along valley bottoms where drainage is poor, it may blend with the Mountain Meadow ecological site. This site differs from the Mountain Meadow ecological site in the lack of high water table. Plant production tends to gradually decrease as the slopes become steeper due to less benefit from runoff water, but there are no clear breaks in the effect of slope. Slopes range from nearly level to 3 percent but may range up to 5 percent. Due to the low gradient of this site, exposure differences are not as pronounced as in most mountain sites. Elevation ranges from 7,000 to 9,000 feet above sea level.

Table 2. Representative physiographic features

Landforms	(1) Mountain valley (2) Alluvial fan
Runoff class	Low
Flooding frequency	None
Ponding frequency	None
Elevation	7,000–9,000 ft
Slope	0–5%

Climatic features

Annual precipitation varies from 15 to 25 inches on this site and of this amount approximately 30 percent occurs in the form of winter snows. Variations in both winter and summer precipitation may be quite extreme ranging from rather open, dry winters to winters during which several feet of snow are accumulated. Summer thunderstorm activity, which is greatest during July and August, is also very sporadic.

Air temperatures vary from a monthly mean of 19 degrees F in January to 68 degrees F in July. Mean monthly temperatures also vary elevationally. Winter low temperatures fall below the freezing mark much of the time from mid September through the first of June. Dates of the last killing frost vary elevationally. At lower elevations the last killing frost occurs around May 6th and at higher elevations June 22nd. Dates of the first killing frost vary from September 9th at higher elevations and October 11th at the lower elevations.

The freeze-free season ranges elevationally from 141 days at the lower elevations to 79 days at the higher elevations. About 50 percent of the precipitation falls in the form of rainfall during the freeze-free season. The precipitation pattern is beneficial to both cool-season and warm-season plants. The growing season lasts from 3 to 5 months extending from early May through October. Some cool-season plants begin their growth with snow recession and also enjoy a brief growing period in the fall.

Mountain winds have an effect on growing conditions within this site in their effect on increasing moisture losses and litter in the surface soil horizon. Availability of the moisture for plant growth is more of a limiting factor on this site than it is on site of higher elevations. Forage production is dependent upon both winter and summer moisture; and therefore, yields of forage fluctuate directly with the amount of precipitation. Evaporation rates vary with elevations within the site. Rates are generally lower at higher elevations and increase at lower elevations, particularly on southern and western exposures.

Table 3. Representative climatic features

Frost-free period (characteristic range)	36-65 days
Freeze-free period (characteristic range)	86-98 days
Precipitation total (characteristic range)	17-25 in
Frost-free period (actual range)	33-77 days
Freeze-free period (actual range)	86-104 days
Precipitation total (actual range)	17-25 in
Frost-free period (average)	52 days
Freeze-free period (average)	93 days
Precipitation total (average)	22 in

Climate stations used

- (1) EAGLE NEST [USC00292700], Eagle Nest, NM
- (2) ANGEL FIRE 1S [USC00290407], Cimarron, NM
- (3) GASCON [USC00293488], Mora, NM

Influencing water features

This site does not have a water table but can receive extra moisture from run-in due to its landscape position.

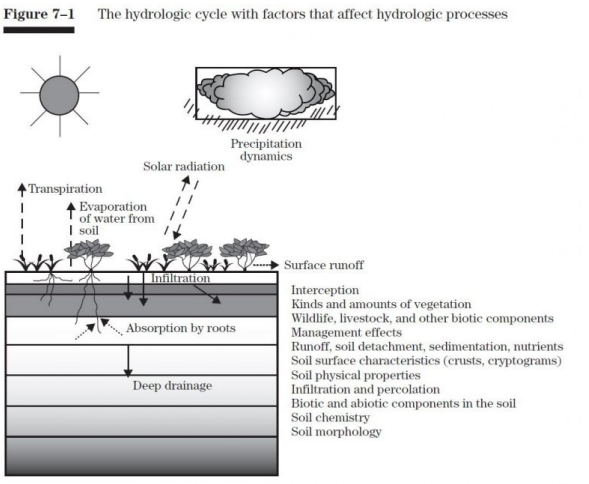


Figure 8.

Soil features

Soils on this site are well drained and deep to very deep. The surface layer is loam, sandy loam or fine sandy loam with subsoil of loam, clay loam, or sandy clay loam. These soils have moderate to moderately high permeability. Runoff is medium. Available water-holding capacity is high. Effective rooting depth is 20 inches to more than 60 inches. Severe gullying can carry off most of the water, and a loss of topsoil greatly reduces water intake. Gullies that carry off extra water will drastically alter the moisture-plant relationship in many areas.

Characteristic Soils Are:
Bryan, Hesperus and Kinesava

Table 4. Representative soil features

Parent material	(1) Alluvium–sandstone and shale (2) Alluvium–igneous, metamorphic and sedimentary rock
Surface texture	(1) Loam (2) Sandy loam (3) Fine sandy loam
Family particle size	(1) Fine (2) Fine-loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderately rapid
Soil depth	60–100 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0%
Available water capacity (Depth not specified)	5.5–7.5 in
Calcium carbonate equivalent (Depth not specified)	0–5%
Electrical conductivity (Depth not specified)	0–2 mmhos/cm
Sodium adsorption ratio (Depth not specified)	0–1
Soil reaction (1:1 water) (Depth not specified)	6.1–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–5%
Subsurface fragment volume >3" (Depth not specified)	0–5%

Ecological dynamics

Continuous grazing during this period of time will result in a deterioration of the potential plant community. Desirable forage plants such as mountain muhly, Arizona fescue, mountain brome, pine dropseed and tufted hairgrass will decrease as the plant community deteriorates. Species most likely to invade this site or increase from trace amounts are Kentucky bluegrass, sleepygrass, pingue, rabbitbrush, cinquefoils, snakeweed and introduced annuals. Some of these usually move in as ecological conditions deteriorate accompanied by a sharp increase in the percentage of blue grama in many cases. Also likely to increase significantly are sagebrush, oak, white sagebrush,, vetches and herbaceous cinquefoils. Western wheatgrass may hold its own initially but eventually break up into weak remnants. Most of the bunchgrass species listed will disappear as deterioration advances. In this condition, shrubby cinquefoils are often dominant or there are patches of sleepygrass and various annual and perennial forbs. A system of deferred grazing, which varies the time of grazing and rest in each pasture during consecutive years, is needed to maintain or to improve upon a healthy well-balanced plant community.

Below is a State and Transition Model diagram to illustrate the “phases” (common plant communities), and “states” (aggregations of those plant communities) that can occur on the site. Differences between phases and states depend primarily upon observations of a range of disturbance histories in areas where this ESD is represented. These situations include tree harvest, grazing gradients to water sources, fence-line contrasts, patches with differing dates of fire, herbicide treatment, tillage, and kinds and times of timber harvest, etc. Reference State 1 illustrates the common plant communities that probably existed just prior to European settlement.

The major successional pathways within states, (“community pathways”) are indicated by arrows between phases.

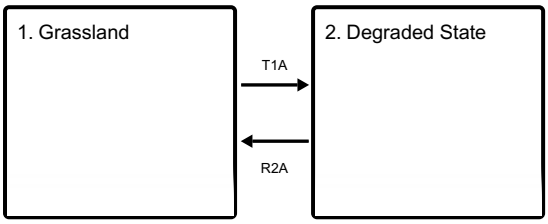
“Transitions” are indicated by arrows between states. The drivers of these changes are indicated in codes decipherable by referring to the legend at the bottom of the page and by reading the detailed narratives that follow the diagram.

The plant communities shown in this State and Transition Model may not represent every possibility but are probably the most prevalent and recurring plant communities. As more monitoring data are collected, some phases or states may be revised, removed, and/or new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities.” According to the USDA NRCS National Range & Pasture Handbook (USDA-NRCS 2003), Desired Plant Communities (DPC’s) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including descriptions of a plant community is to capture the current knowledge at the time of this revision.

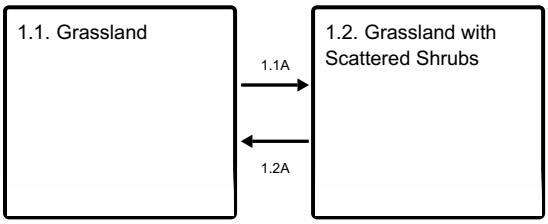
The state and transition model was added to fill the provisional ecological site (PES) instruction. It is a very general model.

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 1
Grassland

This ecological state represents the natural range of variability on the site. The plant communities within the reference state were shaped and maintained by disturbances such as grazing, browsing, drought, rest, and fire. The removal or alteration of these processes can cause a shift to an alternative ecological state. A system of deferred grazing, which varies the time of grazing and rest in each pasture during consecutive years, is needed to maintain or to improve upon a healthy well-balanced plant community.

Community 1.1
Grassland

This site is dominated by grasses and is characterized by both warm and cool-season bunchgrasses. The dominant aspect is grassland although scattered ponderosa pine may occur in small amounts. Scattered clumps of oak, snowberry and other shrubs may occur on the side slopes of the site. Forbs and shrubs do not make up more than 15 percent of the annual yield. Tree species usually associated with this site and seen widely scattered are ponderosa pine. The overstory canopy is less than 2 percent. Other species that may be found include Thurber fescue, oatgrass, threeawn, bottlebrush squirreltail, mountain mahogany, big sagebrush, sideoats grama, ponderosa pine, muttongrass, spike muhly, lupine, penstemon, aster, and rabbitbrush.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	1190	1530	2125
Forb	140	180	250
Shrub/Vine	70	90	125
Total	**1400**	**1800**	**2500**

Table 6. Ground cover

Tree foliar cover	0-2%
Shrub/vine/liana foliar cover	1-10%
Grass/grasslike foliar cover	40-50%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	25-35%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	15-25%

Figure 10. Plant community growth curve (percent production by month). NM3103, R048AY003NM Mountain Valley HCPC. R048AY003NM Mountain Valley HCPC Bunch grass grassland with minor components of forbs and shrubs. .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

Community 1.2
Grassland with Scattered Shrubs

Continuous grazing during this period of time will result in a deterioration of the potential plant community. Desirable forage plants such as mountain muhly, Arizona fescue, mountain brome, pine dropseed and tufted hairgrass will decrease as the plant community deteriorates. Species most likely to invade this site or increase from trace amounts are Kentucky bluegrass, sleepygrass, pingue, rabbitbrush, cinquefoils, snakeweed and introduced annuals. Some of these usually move in as ecological conditions deteriorate accompanied by a sharp increase in the percentage of blue grama in many cases.

Pathway 1.1A
Community 1.1 to 1.2

Lack of fire, improper grazing of herbaceous species, and/or drought.

Pathway 1.2A
Community 1.2 to 1.1

Proper grazing, browsing of shrubs, fire and/or wet climatic cycles.

State 2

Degraded State

This state represents a shift from the reference state. The site has crossed a threshold that will require significant inputs to return to reference conditions, if possible. This has altered the hydrology and energy flow of the plant community. Also likely to increase significantly are sagebrush, oak, white sagebrush,, vetches and herbaceous cinquefoils. Western wheatgrass may hold its own initially but eventually break up into weak remnants. Most of the bunchgrass species listed will disappear as deterioration advances. In this condition, shrubby cinquefoils are often dominant or there are patches of sleepygrass and various annual and perennial forbs.

Transition T1A
State 1 to 2

Removal of periodic fire may result in an increase in woody canopy across the site. Improper grazing practices can limit the amount of fine fuel and further reduce the effectiveness of fire on suppressing woody species. Long term drought can also have an impact on the shifting structure and composition of the plant community.

Restoration pathway R2A
State 2 to 1

Re-introduction of fire, wetter climatic cycles and or proper grazing can reduce the amount of woody canopy and favor herbaceous species. In some instances, site-specific alternative brush management practices may be needed to facilitate this restoration.

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				360–450	
	mountain muhly	MUMO	*Muhlenbergia montana*	360–450	–
2				216–270	
	Arizona fescue	FEAR2	*Festuca arizonica*	216–270	–
3				216–270	
	mountain brome	BRMA4	*Bromus marginatus*	216–270	–
4				216–270	
	pine dropseed	BLTR	*Blepharoneuron tricholepis*	216–270	–
5				126–180	
	western wheatgrass	PASM	*Pascopyrum smithii*	126–180	–
6				54–90	
	blue grama	BOGR2	*Bouteloua gracilis*	54–90	–
7				54–90	
	little bluestem	SCSC	*Schizachyrium scoparium*	54–90	–
8				54–90	
	tufted hairgrass	DECE	*Deschampsia cespitosa*	54–90	–
9				54–90	
	needle and thread	HECO26	*Hesperostipa comata*	54–90	–
10				54–90	
	sedge	CAREX	*Carex*	54–90	–
11				54–90	
	big bluestem	ANGE	*Andropogon gerardii*	54–90	–

	Indiangrass	SONU2	*Sorghastrum nutans*	54–90	–
12				54–90	
	prairie Junegrass	KOMA	*Koeleria macrantha*	54–90	–
	bluegrass	POA	*Poa*	54–90	–
13				54–90	
	Grass, native	2GN	*Grass, native*	0–10	–
	spike muhly	MUWR	*Muhlenbergia wrightii*	0–10	–
	squirreltail	ELEL5	*Elymus elymoides*	0–10	–
	threeawn	ARIST	*Aristida*	0–10	–
	sideoats grama	BOCU	*Bouteloua curtipendula*	0–10	–
	Thurber's fescue	FETH	*Festuca thurberi*	0–10	–
Forb					
14				54–90	
	iris	IRIS	*Iris*	54–90	–
	pea	LATHY	*Lathyrus*	54–90	–
	clover	TRIFO	*Trifolium*	54–90	–
	vetch	VICIA	*Vicia*	54–90	–
15				54–90	
	common yarrow	ACMI2	*Achillea millefolium*	54–90	–
	prairie coneflower	RATIB	*Ratibida*	54–90	–
	violet	VIOLA	*Viola*	54–90	–
16				54–90	
	Forb, native	2FN	*Forb, native*	54–90	–
	lupine	LUPIN	*Lupinus*	0–10	–
	beardtongue	PENST	*Penstemon*	0–10	–
	aster	ASTER	*Aster*	0–10	–
Shrub/Vine					
17				54–90	
	Shrub, deciduous	2SD	*Shrub, deciduous*	54–90	–
	serviceberry	AMELA	*Amelanchier*	54–90	–
	prairie sagewort	ARFR4	*Artemisia frigida*	54–90	–
	white sagebrush	ARLU	*Artemisia ludoviciana*	54–90	–
	oak	QUERC	*Quercus*	54–90	–
	snowberry	SYMPH	*Symphoricarpos*	54–90	–
	alderleaf mountain mahogany	CEMO2	*Cercocarpus montanus*	0–10	–
	big sagebrush	ARTR2	*Artemisia tridentata*	0–10	–
	rabbitbrush	CHRYS9	*Chrysothamnus*	0–10	–

Animal community

Grazing:
Approximately 90 percent of the annual yield are from species that furnish forage for grazing animals. The site can be grazed seasonally from June 1st to October 1st. The site can be used by all classes of livestock during this grazing season. Since the growing season and the period of use on this site practically coincide, the key forage plants are placed at a considerable disadvantage. While subject to use, they must produce seed and store reserved carbohydrates and must accomplish this in a relatively short period of time.

Habitat for Wildlife:
This ecological site provides habitats, which support a resident animal community that is characterized by elk, Colorado chipmunk, golden mantled ground squirrel, Gunnison prairie dog and western bluebird. Breeding violet-green swallows and turkey uses these sites. Mule deer use the sites seasonally.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations
Soil Series----------Hydrologic Group
Brycan----------B

Recreational uses

This site offers recreation potential for picnicking, hiking, camping, horseback riding, nature observation and photography. Hunting for mule deer and elk is poor to fair. The aesthetic appeal is enhanced by the break in the physiographic features from the steep wooded areas to the open flat grassland.

Wood products

This site produces no commercial wood products. Tree species of ponderosa pine and occasional juniper are found which may supply firewood or an occasional Christmas tree from small seedlings.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index----------Ac/AUM
100 - 76----------1.2 – 2.8
75 – 51----------1.8 – 3.5
50 – 26----------2.5 – 5.3
25 – 0----------5.3

Inventory data references

Data collection for this site was done in conjunction with the progressive soil surveys within the State of New Mexico. This site is found in the following soil surveys: Colfax, Taos, Mora, and San Miguel.

These site descriptions were developed as part of a Provisional ESD project using historic soil survey manuscripts, available range site descriptions.

Other references

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

Contributors

Don Sylvester
Elizabeth Wright

Approval

Kirt Walstad, 3/05/2024

Acknowledgments

Site Development and Testing Plan:

Future work, as described in a Project Plan, to validate the information in this Provisional Ecological Site Description is needed. This will include field activities to collect low, medium and high intensity sampling, soil correlations, and analysis of that data. Annual field reviews should be done by soil scientists and vegetation specialists. A final field review, peer review, quality control, and quality assurance reviews of the ESD will be needed to produce the final document. Annual reviews of the Project Plan are to be conducted by the Ecological Site Technical Team.

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	05/10/2025
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

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17. **Perennial plant reproductive capability:**