

Ecological site R039XB056NM

Loamy

Accessed: 05/19/2024

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on level to strongly sloping piedmont slopes or plains. Slopes average 8 to 10 percent and range as high as 15 percent. Aspect varies but is usually not significant. Elevation ranges from 6,500 to 8,000 feet above sea level.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Plain
Elevation	1,981–2,438 m
Slope	8–15%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 16 to 30 inches. Precipitation increases with elevation. Variations of 5 inches, more or less, are common. Nearly two-thirds of the precipitation falls in the form of high intensity, short-duration thunderstorms from March to October. Winter precipitation is mainly in the form of snowfalls of 6 to 10 inches.

Mild summers and moderately cold winters characterize the temperature regime. Large seasonal and diurnal temperature changes occur. The average annual temperature is about 45 degrees F with extremes of -26 degrees F in winter to 100 degrees F in summer.

The average frost-free season is 80 to 145 days. The last killing frost is in early May to early June, and the first killing frost is in early September to early October.

Temperature and precipitation favor cool-season, perennial plant growth. However, this site supports an important component of warm-season vegetation.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F, respectively.

Table 3. Representative climatic features

Frost-free period (average)	147 days
Freeze-free period (average)	175 days
Precipitation total (average)	762 mm

Influencing water features

This site is not influenced by water from a wetland or stream.

Soil features

The soils of this site are deep and well drained. Surface textures vary from fine sandy loam to clay loam. Underlying layers have textures that range from loam to clay. Some gravel or cobble may appear on the surface or throughout the profile. Permeability is moderate to slow, and the available water-holding capacity is medium to high.

Table 4. Representative soil features

Surface texture	(1) Gravelly loam (2) Cobbly clay loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Slow to moderate
Soil depth	152–183 cm
Surface fragment cover ≤3"	15–35%
Surface fragment cover >3"	15–35%
Available water capacity (0-101.6cm)	15.24–30.48 cm
Subsurface fragment volume ≤3" (Depth not specified)	15–35%
Subsurface fragment volume >3" (Depth not specified)	15–35%

Ecological dynamics

State and transition model

Ecosystem states

1. Historic Climax Plant Community

State 1 submodel, plant communities

1.1. Historic Climax Plant Community

State 1 Historic Climax Plant Community

Community 1.1 Historic Climax Plant Community

This site has a savannah aspect. Pinyon pine and alligator juniper are the dominant trees. The understory is made up of cool-season, perennial mid-grasses and forbs. Forb production varies greatly from year to year. Other grasses that could appear on this site include: Pringles needlegrass, Letterman needlegrass, sleepygrass, pinyon ricegrass, littleseed ricegrass, New Mexico muhly, longtongue bluegrass, intermediate wheatgrass, threeawn spp., and wolftail. Other woody species that could appear on this site include: ponderosa pine, currant, fringed sagewort, rubber rabbitbrush, broom snakeweed, green sagewort, pingue, and winterfat. Other forbs that could appear on this site include: wildbuckwheat, trailing fleabane, aster, and Rocky Mountain zinnia.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	715	1310	1905
Forb	67	123	179
Total	782	1433	2084

Table 6. Ground cover

Tree foliar cover	5-10%
Shrub/vine/liana foliar cover	3-5%
Grass/grasslike foliar cover	0%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	10-20%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%

Water	0%
Bare ground	15-40%

Figure 5. Plant community growth curve (percent production by month).
 NM1604, R039XB056NM Loamy HCPC. R039XB056NM Loamy HCPC Cool-
 season perennial mid-grass with components of trees, shrubs and forbs. .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	5	10	25	30	15	7	0	0

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				155–308	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	155–308	–
	big squirreltail	ELMU3	<i>Elymus multisetus</i>	155–308	–
2				77–155	
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	77–155	–
3				155–231	
	blue grama	BOGR2	<i>Bouteloua gracilis</i>	155–231	–
4				46–77	
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	46–77	–
5				231–308	
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	231–308	–
6				77–231	
	mountain muhly	MUMO	<i>Muhlenbergia montana</i>	77–231	–
	spike muhly	MUWR	<i>Muhlenbergia wrightii</i>	77–231	–
7				46–77	
	Arizona fescue	FEAR2	<i>Festuca arizonica</i>	46–77	–
8				46–77	
	pine dropseed	BLTR	<i>Blepharoneuron tricholepis</i>	46–77	–
9				46–77	
	sideoats grama	BOCU	<i>Bouteloua curtipendula</i>	46–77	–
10				77–155	
	Graminoid (grass or grass-like)	2GRAM	Graminoid (grass or grass-like)	77–155	–
Forb					
11				77–155	
	Forb (herbaceous, not grass nor grass-like)	2FORB	Forb (herbaceous, not grass nor grass-like)	77–155	–
	scarlet Indian paintbrush	CACO17	<i>Castilleja coccinea</i>	77–155	–
	beardtongue	PENST	<i>Penstemon</i>	77–155	–
Tree					
12				16–77	
	alligator juniper	JUDE2	<i>Juniperus deppeana</i>	16–77	–

	juniper	JUNIP	<i>Juniperus</i>	16–77	–
	twoneedle pinyon	PIED	<i>Pinus edulis</i>	16–77	–
Shrub/Vine					
13				46–77	
	oak	QUERC	<i>Quercus</i>	46–77	–
14				46–77	
	Carruth's sagewort	ARCA14	<i>Artemisia carruthii</i>	46–77	–
15				46–77	
	algerita	MATR3	<i>Mahonia trifoliolata</i>	46–77	–
	sumac	RHUS	<i>Rhus</i>	46–77	–
16				46–77	
	Shrub, deciduous	2SD	<i>Shrub, deciduous</i>	46–77	–

Animal community

Habitat for Wildlife:

This site provides habitats which support a resident animal community that is characterized by elk, deer, coyote, desert cottontail, red squirrel, white-throated woodrat, pinyon mouse, red-tailed hawk, harlequin quail, band-tailed pigeon, scrub jay, meadowlark, chestnut-collared longspur, horned lark, short-horned lizard, tree lizard, garter snake, and black-tailed rattlesnake.

Bald eagle hunts over this site and the Sacramento Mountain salamander may be resident under logs and rocks.

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

Paco-----C

Recreational uses

This site is well suited to hiking, horseback riding, camping, picnicking, nature observation, and photography. Hunting opportunities include deer, elk, and turkey. The mountainous setting in which the site occurs enhances its natural beauty.

Wood products

The potential for wood production is limited to a small amount of fuelwood and fence post material from the few scattered pinyon and juniper.

Other products

Grazing:

This site is suitable for use by all kinds and classes of livestock during late spring to early fall. The length of the grazing season varies with elevation and snow patterns. Because the growing season and grazing season are nearly identical, this site is not suited to continuous grazing. Continuous grazing will cause the more desirable species, such as squirreltail, prairie junegrass, western wheatgrass, and pine dropseed to decrease. This will cause an increase in Carruth sagewort, Kentucky bluegrass, and broom snakeweed. A system of grazing that rotates the season of use is best suited to improving or maintaining a healthy plant community.

Other information

Other Information: Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index-----Ac/AUM

100 - 76-----2.7 – 3.5

75 – 51-----3.2 – 5.0

50 – 26-----4.5 – 9.0

25 – 0-----9.0+

Type locality

Location 1: Lincoln County, NM
Location 2: Otero County, NM
Location 3: Torrance County, NM

Other references

Data collection for this site was done in conjunction with the progressive soil surveys within the Arizona and New Mexico Mountains, Major Land Resource Area 39, of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Eddy, Otero, Lincoln, and South Chavez Soil Surveys.

Characteristic Soils Are:

Paco

Contributors

Don Sylvester

Elizabeth Wright

John Tunberg

Michael Carpinelli

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	
Approved by	
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):**

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

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

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

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

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:

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

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

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

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:**

17. **Perennial plant reproductive capability:**
