Ecological site R039XB051NM
Mountain Meadow

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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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on lower lying positions and can be expected to receive runoff from adjacent sites. A high water table characterizes the site at least seasonally. It may occur as mountain valleys or swales, or as parks or park-like areas having a water table within the rooting zone of the dominant vegetation. Slopes vary from flat to gently sloping, rarely exceeding 3 percent. Aspect varies but is not significant. Elevation ranges from 6,500 to 12,000 feet above sea level.

Table 2. Representative physiographic features

Landforms	(1) Mountain valley (2) Swale
Elevation	1,980 – 3,660 m
Slope	0 %
Water table depth	30 – 180 cm

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, the temperatures are warm enough at the lower elevations to allow warm-season species to occupy an important part of this plant community. Because of the water table in this site, production, density, and types of plants differ greatly from adjoining sites.

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)	150 days
Freeze-free period (average)	180 days
Precipitation total (average)	760 mm

Influencing water features

This site may be influenced by water from a wetland or stream.

Soil features

The soils of this site are quite variable, ranging from shallow to deep. Texture varies from loamy to clayey. The overriding characteristic of the soils on this site is the high water table. These soils are non-saline and have a high organic matter content. Permeability is moderately slow to slow. The available water-holding capacity is medium high to high.

Table 4. Representative soil features

Surface texture	(1) Cobbly loam (2) Stony clay
Family particle size	(1) Clayey
Drainage class	Poorly drained to well drained
Permeability class	Slow to moderately slow
Soil depth	30 – 180 cm
Surface fragment cover >3"	20 – 40 %
Available water capacity (0-101.6cm)	15.24 – 30.48 cm
Subsurface fragment volume >3" (Depth not specified)	20 – 40 %

Ecological dynamics

To be developed.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1				463-616	
2				155-308	
	prairie Junegrass	KOMA	*Koeleria macrantha*	155-308	–
3				308-771	
	red fescue	FERU2	*Festuca rubra*	308-771	–
4				308-771	
	mountain brome	BRMA4	*Bromus marginatus*	308-771	–
5				308-771	
	needlegrass	ACHNA	*Achnatherum*	308-771	–
6				93-155	
	bluejoint	CACA4	*Calamagrostis canadensis*	93-155	–
7				93-155	
	meadow barley	HOBR2	*Hordeum brachyantherum*	93-155	–
8				308-463	
	redtop	AGGI2	*Agrostis gigantea*	308-463	–
9				0-155	
	pullup muhly	MUFI2	*Muhlenbergia filiformis*	0-155	–
10				308-463	
	slender wheatgrass	ELTR7	*Elymus trachycaulus*	308-463	–
	western wheatgrass	PASM	*Pascopyrum smithii*	308-463	–
11				155-463	
	sedge	CAREX	*Carex*	155-463	–
12				155-463	
	rush	JUNCU	*Juncus*	155-463	–
13				93-308	
	Graminoid (grass or grass-like)	2GRAM	*Graminoid (grass or grass-like)*	93-308	–
Forb					
14				0-155	
	aster	ASTER	*Aster*	0-155	–
15				0-308	
	clover	TRIFO	*Trifolium*	0-308	–
16				0-93	
	pussytoes	ANTEN	*Antennaria*	0-93	–
17				0-155	
	water hemlock	CICUT	*Cicuta*	0-155	–
	water hemlock	CICUT	*Cicuta*	0-155	–
18				0-93	

	iris	IRIS	*Iris*	0-93	–
19				0-155	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	0-155	–
Shrub/Vine					
20				0-155	
	silver sagebrush	ARCAC5	*Artemisia cana ssp. cana*	0-155	–
21				0-155	
22				0-155	
	rose	ROSA5	*Rosa*	0-155	–
23				0-155	
	Shrub, deciduous	2SD	*Shrub, deciduous*	0-155	–

Animal community

Habitat for Wildlife: This site provides habitats which support a resident animal community that is characterized by elk, deer, mountain lion, black bear, gray fox, porcupine, chipmunk, red squirrel, shrew, vole, eagle, goshawk, great horned owl, turkey, harlequin quail, Stellar's jay, white-crowned sparrow, junco, hummingbird, Sacramento Mountain salamander, short-horned lizard, garter snake, and black-tailed rattlesnake. Bald eagle hunts over this site and the Sacramento Mountain salamander is a resident. A deciduous riparian forest occurs on the floodplains of Eagle, Little, and Bonito Creeks and is often associated with wet soils. In addition to the wildlife noted above, this habitat supports many species of nesting birds and serves as an important migration route for others. Where open water surface occurs, such as streams, ponds, and marshes, waterfowl, shore and marsh birds, and other species associated with wetland habitats are found.

Hydrological functions

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

Recreational uses

Recreation potential for camping or picnicking is limited by the density of vegetation produced when the site is in its top ecological condition and by occasional wet areas. The potential for hiking, nature observation, and photography is excellent. Where streams or ponds are associated with the site, trout fishing may be available. Hunting for deer, elk, and turkey is good and may be excellent where the site is closely associated with mixed conifer forest. Natural beauty of the forest is enhanced by the contrast provided by these open meadows. Where the site is associated with deciduous riparian forest, many species of birds nest or rest during migration. The potential for birdwatching is excellent.

Wood products

There is no potential for wood products on this site.

Other products

Grazing: This site is suitable for use by all kinds and classes of livestock from early spring to late fall. The length of the grazing season varies with elevation and snow patterns. Cattle and sheep can best utilize the site because of the coarse foliage produced as tufted hairgrass matures. This site does not do well under continuous season-long use. This site should be fenced and managed separately if possible. Grazing should be delayed in the spring so that the grasses can make adequate growth to restore root reserves. For this reason, this site responds well to a system of grazing that rotates the season of use. Grazing of this site when the soil is excessively wet will cause soil compaction, possible composition changes, and lower production. As this site regresses, the more palatable species, such as tufted hairgrass, prairie junegrass, mountain muhly, timothy, and western wheatgrass will decrease and there will be a corresponding increase in bare ground, Kentucky bluegrass, marsh muhly, sagebrush, and other woody plants.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month Similarity Index----------Ac/AUM 100 - 76----------0.75 – 1.5 75 – 51----------1.0 – 2.0 50 – 26----------1.5 – 3.5 25 – 0----------3.5+

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.

Contributors

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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:**

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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):**

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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:**
