Ecological site R035XB010NM
Cobbly Hills

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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 usually occurs adjacent to the Animas and San Juan Rivers and their major drainages. It occurs as moderately to steep hills and terraces. Exposures are variable. Slopes range from 25 to 55 percent. Elevations range from 5,500 to 7,200 feet above sea level.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Terrace
Elevation	1,680 – 2,200 m
Slope	30 – 60 %
Water table depth	110 – 180 cm
Aspect	Aspect is not a significant factor

Climatic features

This site has an arid, mild, dry climate with distinct seasonal temperature variations and large annual and diurnal temperature changes.

Mean annual precipitation varies from 7 to 10 inches. Deviations of 4 inches or more are quite common. Distribution is 65% during the native plant growth period, which is from April through September. May and June are the dry months. During July, August, and September, 3.5 inches of precipitation influence the presence and production of warm-season plants. Late-fall and winter moisture is conducive to the production of cool-season plants which usually begin growth in March and end with plant maturity and seed dissemination. This usually takes place in the early part of June when the moisture deficiency and warmer temperatures occur. The Gulf of Mexico is the principal source of moisture for summer precipitation, which is characterized by brief afternoon thunderstorms. Winter

moisture occurs as light rain or snow.

Temperatures vary from a monthly mean of 75 degrees F in July to 27 degrees F in January, and from an annual maximum of 106 degrees F to an annual minimum of -35 degrees F. The average last killing frost in the spring is May 8, and the average first killing frost in the fall is October 10. The frost-free season is approximately 160 days. Temperatures are conducive to native grass and forb growth from April through September. Maximum shrub growth occurs in the spring months.

The wind blows most frequently from an easterly direction; however, a majority of the stronger winds (10 to 25 miles per hour) are from a westerly quadrant. Spring is the windiest season. Average hourly wind velocities are near 6 miles per hour. Spring and summer winds increase transpiration rates of native plants and rapidly dry the surface soil. Small soil particles are often displaced by the wind near the soil surface and often results in structural damage to native plants, especially young seedlings.

Climate data were obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site 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)	250 mm

Influencing water features

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

Soil features

Surface textures are characterized by smooth gravels and cobbles, which almost entirely cover the surface. Textures range from gravelly and cobbly sandy loams to loams. Subsoils are sandy loams to loams. Soil depths vary from moderately deep to deep. Permeability is rapid to moderate, available water-holding capacity is low to moderate, and runoff is medium, depending on coarse fragments, cover, exposure, and slope.

Table 4. Representative soil features

Surface texture	(1) Gravelly sandy loam (2) Cobbly loam
Family particle size	(1) Sandy
Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Slow to rapid
Soil depth	150 – 180 cm
Surface fragment cover <=3"	20 – 40 %

Surface fragment cover >3"	20 – 40 %
Available water capacity (0-101.6cm)	7.62 – 22.86 cm
Electrical conductivity (0-101.6cm)	0 – 10 mmhos/cm
Soil reaction (1:1 water) (0-101.6cm)	7.9 – 10
Subsurface fragment volume <=3" (Depth not specified)	20 – 40 %
Subsurface fragment volume >3" (Depth not specified)	20 – 40 %

Ecological dynamics

The vegetation on this site is a grassland with only a few scattered trees and shrubs on the site, usually on the north and east exposures. This site is dissected by drainages which usually support many trees. Forbs are common on the site, but most noticeable when in bloom.

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				135-202	
	needle and thread	HECO26	*Hesperostipa comata*	135-202	–
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	135-202	–
2				67-101	
	James' galleta	PLJA	*Pleuraphis jamesii*	67-101	–
3				67-101	
	blue grama	BOGR2	*Bouteloua gracilis*	67-101	–
4				34-54	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	34-54	–
5				34-54	
	prairie Junegrass	KOMA	*Koeleria macrantha*	34-54	–
	muttongrass	POFE	*Poa fendleriana*	34-54	–
6				0-34	
	black grama	BOER4	*Bouteloua eriopoda*	0-34	–

7				20-34	
	sideoats grama	BOCU	*Bouteloua curtipendula*	20-34	–
8				20-34	
	Graminoid (grass or grass-like)	2GRAM	*Graminoid (grass or grass-like)*	20-34	–
	cheatgrass	BRTE	*Bromus tectorum*	20-34	–
Forb					
9				20-47	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	20-47	–
	scarlet Indian paintbrush	CACO17	*Castilleja coccinea*	20-47	–
	globemallow	SPHAE	*Sphaeralcea*	20-47	–
Shrub/Vine					
10				7-20	
	big sagebrush	ARTR2	*Artemisia tridentata*	7-20	–
	fourwing saltbush	ATCA2	*Atriplex canescens*	7-20	–
	rabbitbrush	CHRYS9	*Chrysothamnus*	7-20	–
Tree					
11				0-13	
	oneseed juniper	JUMO	*Juniperus monosperma*	0-13	–
	oneseed juniper	JUMO	*Juniperus monosperma*	0-13	–
	juniper	JUNIP	*Juniperus*	0-13	–
	twoneedle pinyon	PIED	*Pinus edulis*	0-13	–

Animal community

Habitat for Wildlife: No Data

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 Werlog----------C

Recreational uses

This site offers natural landscape aesthetics with wildflowers as an added beauty.

Wood products

This site has no significant potential for wood products.

Other products

Grazing: Approximately 90 percent of the vegetation produced is suitable for grazing or browsing by livestock and wildlife. Under pressure of uncontrolled grazing, the potential plant community deteriorates. There is a marked increase in amount of shrubs and forbs; shrubs dominate the site.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month Similarity Index----------Ac/AUM 100 - 76----------4.0 – 5.0 75 – 51----------5.0 – 7.5 50 – 26----------7.5 – 15.0 25 – 0----------15.0+

Type locality

Location 1: San Juan County, NM

Other references

Data collection for this site was done in conjunction with the progressive soil surveys within the San Juan River Valley, Mesas and Plateaus, Major Land Resource Area 35 of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: San Juan, McKinley.

Characteristic soils are:
Werlog

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:**

   _____

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):**

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

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

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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:**
