Ecological site DX035X03F127
Savanna

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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.

Ecological site concept

This site occurs on moderately deep and deep soils with sandy surface textures. Slopes average 7 percent.

Table 1. Dominant plant species

Tree	(1) *Juniperus* (2) *Pinus edulis*
Shrub	(1) *Krascheninnikovia lanata* (2) *Artemisia tridentata*
Herbaceous	(1) *Bouteloua gracilis* (2) *Pascopyrum smithii*

Legacy ID

R035XG127NM

Physiographic features

This site normally occurs on gently to moderately sloping topography. Typically, areas of steeper slopes connect from above, and the savannah site becomes a gradation down to more level upland plains. Slopes average about 7 percent but range occasionally to just above 10 percent. Elevations range from approximately 6,000 to 7,200 feet above sea level.

Table 2. Representative physiographic features

Landforms	(1) Plain (2) Plateau
Flooding frequency	None
Ponding frequency	None
Elevation	1,830 − 2,200 m

Slope	10 %
Aspect	Aspect is not a significant factor

Climatic features

Average annual precipitation varies from about 13 inches to just over 16 inches. Fluctuations ranging from about 8 inches to 28 inches are common. The overall climate is characterized by cold, dry winters in which winter moisture is less than summer moisture. As much as half or more of the annual precipitation can be expected to come during the period of July through September. Thus, fall conditions are often more favorable for good growth of cool-season perennial grasses, shrubs, and forbs than they are for those of spring.

The average frost-free season is about 120 days and extends from approximately mid May too early or mid September. Average annual air temperatures are 50 degrees F or lower and summer maximums rarely exceed 100 degrees F. Winter minimums typically approach or go below zero. Monthly mean temperatures exceed 70 degrees F for the period of July and August.

Rainfall patterns generally favor warm-season vegetation, while the temperature regime tends to favor cool-season vegetation. This creates a somewhat complex community of plants on a given ecological site, which is quite susceptible to disturbance and is at or near its productive potential only when both the natural warm/cool-season dominants are present.

Associated mountainous areas may tend to affect precipitation positively on this site.

Climate data was 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)	170 days
Precipitation total (average)	410 mm

Influencing water features

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

Soil features

The soils in this site are moderately deep to deep and well drained. Typically, the surface layer is sandy loam, fine sandy loam, or loamy fine sand over somewhat finer textured subsoils. Occasionally, the surface may be loam. Permeability is moderate to rapid, and the water-holding capacity is moderate.

Table 4. Representative soil features

Surface texture	(1) Gravelly sandy loam (2) Cobbly fine sandy loam (3) Loamy fine sand
Family particle size	(1) Loamy

Drainage class	Well drained
Permeability class	Moderate to rapid
Soil depth	100 – 180 cm
Surface fragment cover <=3"	10 – 20 %
Surface fragment cover >3"	0 – 10 %
Available water capacity (0-101.6cm)	15.24 – 22.86 cm
Calcium carbonate equivalent (0-101.6cm)	10 – 30 %
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	0 – 10
Soil reaction (1:1 water) (0-101.6cm)	6.1 – 10
Subsurface fragment volume <=3" (Depth not specified)	10 – 20 %
Subsurface fragment volume >3" (Depth not specified)	0 – 10 %

Ecological dynamics

This site is characterized by scattered large tree-type pinyon and/or juniper with open grass stands in between. Understory grasses are dominated by blue grama, western wheatgrass, Indian ricegrass, and sand dropseed. Pinyon ricegrass and pine dropseed may also be found, usually beneath the trees and at the higher elevation ranges of the site. Winterfat and some forbs may occur in significant amounts. Broom snakeweed is most common in certain good rainfall years and when the understory plant community deteriorates from its potential. Reproduction of pinyon pine and juniper is normally very slow and, historically, may have been controlled by natural fire. Tree canopy of the natural potential plant community averages approximately 25 percent. In exceptional cases, a few more or less even-aged ponderosa pines may occur on this site naturally. Reproduction of this species is ordinarily even less evident than that of pinyon or

juniper, and no more than 1 or 2 percent of the understory is likely to be made up of pine seedlings, even in the absence of livestock grazing.

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				101-135	
	blue grama	BOGR2	*Bouteloua gracilis*	99-132	–
2				67-101	
	western wheatgrass	PASM	*Pascopyrum smithii*	66-99	–
3				34-67	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	33-66	–
4				34-67	
	sand dropseed	SPCR	*Sporobolus cryptandrus*	33-66	–
5				11-213	
	pinyon ricegrass	PIFI	*Piptochaetium fimbriatum*	10-20	–
	muttongrass	POFE	*Poa fendleriana*	10-20	–
6				34-67	
	pine dropseed	BLTR	*Blepharoneuron tricholepis*	33-66	–
	squirreltail	ELEL5	*Elymus elymoides*	33-66	–
	needle and thread	HECO26	*Hesperostipa comata*	33-66	–
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	33-66	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	33-66	–
	green needlegrass	NAVI4	*Nassella viridula*	33-66	–
7				22-34	
	threeawn	ARIST	*Aristida*	20-33	–
	ring muhly	MUTO2	*Muhlenbergia torreyi*	20-33	–
8				11-22	
	sand muhly	MUAR2	*Muhlenbergia arenicola*	10-20	–
9				22-34	
	common wolfstail	LYPH	*Lycurus phleoides*	20-33	–
	spike muhly	MUWR	*Muhlenbergia wrightii*	20-33	–
10				22-34	
	James' galleta	PLJA	*Pleuraphis jamesii*	20-33	–
Forb					
11				22-56	
	Forb, perennial	2FP	*Forb, perennial*	20-53	–
12				11-34	
	Forb, annual	2FA	*Forb, annual*	10-33	–
Shrub/Vine					
13				11-22	
	winterfat	KRLA2	*Krascheninnikovia lanata*	10-20	–
14				11-22	
	Bigelow sage	ARBI3	*Artemisia bigelovii*	10-20	–

15				11-22	
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	10-20	–
16				22-34	
	sand sagebrush	ARFI2	*Artemisia filifolia*	20-33	–
	rubber rabbitbrush	ERNAN5	*Ericameria nauseosa ssp. nauseosa var. nauseosa*	20-33	–
	spineless horsebrush	TECA2	*Tetradymia canescens*	20-33	–
18				22-34	
	fourwing saltbush	ATCA2	*Atriplex canescens*	20-33	–
Tree					
17				67-135	
	twoneedle pinyon	PIED	*Pinus edulis*	66-132	–
	juniper	JUNIP	*Juniperus*	66-132	–
	twoneedle pinyon	PIED	*Pinus edulis*	66-132	–

Animal community

Habitat for Wildlife: This site provides habitat that supports a resident animal community characterized by kit fox, badger, desert cottontail, spotted ground squirrel, Ord's kangaroo rat, white- throated woodrat, Botta's pocket gopher, plains pocket mouse, northern grasshopper mouse, ferruginous hawk, mourning dove, meadowlark, plains spadefoot toad, eastern fence lizard, plateau whiptail, shorthorned lizard, and prairie rattlesnake. Pronghorn antelope use the site peripherally but seldom reside on it. Common raven and prairie falcon hunt over the site, and Swainson's hawk nest here. Woodland wildlife species such as mule deer, gray fox, rock squirrel, harlequin quail, pinyon jay, scrub jay, chipping sparrow, and Cassin's kingbird also use the site, and in instances where pinyon and juniper have increased substantially, may become site characteristic. Elk may also use the site.

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 Abrazo----------D Amenson----------D Apache----------D Ascalon----------? Celacy----------C Celavar----------C Datil----------B Diatee----------B Dioxice----------B Flugle----------B Guy----------B Hiarc----------C Joachem----------D Loarc----------B Nogal----------C Parquat----------B Ralphston----------B Tafoya----------C Todest----------B Vibo----------?

Recreational uses

This site offers fair to good potential for hiking, horseback riding, nature observation, photography, camping and picnicking. Hunting for mule deer or mourning dove can be fair, while pronghorn antelope hunting is poor.

Wood products

At its potential, the site has a limited, hard to sustain productive capacity for firewood and fence posts. Under deteriorated ecological condition, pinyon and juniper trees may increase dramatically, thus increasing wood production. Harvesting in either case should be selective, and it is considered unlikely that clear cutting should ever be recommended.

Other products

Grazing: This site is suited to grazing by most kinds and classes of livestock in all seasons of the year, but is poorly suited to continuous yearlong grazing if potential natural understory vegetation is to be maintained. Under such use, cool-season grasses such as western wheatgrass and Indian ricegrass characteristically decline or even disappear. If use is heavy and prolonged, the more palatable warm-season grasses will also decline, pinyon and juniper will increase, and the site becomes characterized by low-vigor, sod-like blue grama, ring muhly, threeawn spp., and overall reduced herbaceous plant density. Understory production may eventually be reduced to onethird or less of the sites original potential. Pinyon and juniper may increase to the point that the site eventually takes on the appearance of a woodland. Where intensive-grazing management is used, livestock selectivity against the more palatable and productive plants may be reduced, deferment instituted, and natural ecological conditions more nearly maintained at higher levels.

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----------4.7 – 7.5 50 – 26----------7.0 – 12.5 25 – 0----------12.5+

Type locality

Location 1: Catron County, NM
Location 2: Socorro County, NM

Other references

Data collection for this site was done in conjunction with the progressive soil surveys within the New Mexico and Arizona Plateaus and Mesas 36 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Rio Arriba, Sandoval, McKinley, Cibola, Catron, Socorro.

Characteristic Soils Are:
Ascalon, Vibo

Other Soils included are:
Abrazo, Amenson, Apache, Celacy, Celavar Datil, Diatee, Dioxice, Flugle, Guy, Hiarc
Joachem, Loarc, Nogal, Parquat, Ralphston Tafoya, Todest

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Approval

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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	06/10/2026
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:

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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:**
