

**UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE**

**ECOLOGICAL SITE DESCRIPTION**

**ECOLOGICAL SITE CHARACTERISTICS**

**Site Type:** Rangeland

**Site ID:** R070XC121NM

**Site Name:** Shallow Limy Savannah

**Precipitation or Climate Zone:** 13 to 16 inches

**Phase:** \_\_\_\_\_

## **PHYSIOGRAPHIC FEATURES**

### **Narrative:**

This site is nearly level to moderately sloping side slopes of foothills and tops of hills and mesas. Typically, the Savannah site grades down from the steep slopes of physiographic breaks. Slopes range from 3 to 25 percent but usually are less than 10 percent. Direction of slopes varies and is only significant on the steeper north-facing slopes. Elevations ranges from 6,000 to 7,500 feet above sea level. This site has potential to produce both forage for grazing and limited wood products.

### **Land Form:**

1. Hillside

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2. Mesa

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3. Ridge

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### **Aspect:**

1. North-facing steeper slopes

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- 2.

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- 3.

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	<b>Minimum</b>	<b>Maximum</b>
<b>Elevation (feet)</b>	6,000	7,500
<b>Slope (percent)</b>	3	25
<b>Water Table Depth (inches)</b>	N/A	N/A
	<b>Minimum</b>	<b>Maximum</b>
<b>Flooding:</b>		
<b>Frequency</b>	N/A	N/A
<b>Duration</b>	N/A	N/A
	<b>Minimum</b>	<b>Maximum</b>
<b>Ponding:</b>		
<b>Depth (inches)</b>	N/A	N/A
<b>Frequency</b>	N/A	N/A
<b>Duration</b>	N/A	N/A

### **Runoff Class:**

Negligible to medium.

## CLIMATIC FEATURES

### **Narrative:**

The climate of the area is “semi-arid continental.”

The average annual precipitation ranges from 13 to 16 inches. Variations of 5 inches, more or less, are common. Seventy-five percent of the precipitation falls during the frost-free season. Most of the summer moisture falls in the form of high-intensity, short-duration thunderstorms. Winter precipitation is mostly in the form of snowfalls of less than 6 inches.

Temperatures are characterized by moderately warm summers and fairly cool, dry winters. The average annual temperature is 50 degrees F with extremes of –29 degrees F in the winter and 103 degrees F in the summer.

The average frost-free season is 130 to 160 days. The last killing frost falls in early May and the first killing frost in early October.

Both temperature and rainfall distribution favor warm-season, perennial plant communities in this area. However, about 40 percent of the precipitation falls at a time favorable to cool-season plant growth. This allows the cool-season species to occupy a very important component in this plant community. Vegetation responds well to light rains, due to the shallow soil depth. Heavy rains produce excess runoff and cause flash floods. Strong winds from the west and southwest blow across the area from February to June, causing the soil to dry out during a critical growth period for cool-season species. The wind also causes the soil to blow, which can cause plant damage and reduce growth.

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.

	<b>Minimum</b>	<b>Maximum</b>
<b>Frost-free period (days):</b>	<u>131</u>	<u>173</u>
<b>Freeze-free period (days):</b>	<u>155</u>	<u>187</u>
<b>Mean annual precipitation (inches):</b>	<u>13</u>	<u>16</u>

**Monthly moisture (inches) and temperature (°F) distribution:**

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.34	.92	15.6	42.1
February	.34	.81	19.9	52.9
March	.23	.98	24.4	59.7
April	.39	.96	31.4	68.9
May	.85	1.61	39.2	77.7
June	.89	1.62	46.9	87.1
July	1.77	2.75	53.1	88.5
August	2.46	3.22	51.9	85.7
September	1.54	2.26	44.3	80.4
October	1.00	1.51	32.8	70.5
November	.57	1.02	22.2	57.5
December	.34	1.16	15.9	49.3

**Climate Stations:**

Station ID	Location	Period
291918	Clines Corners 7SE, NM	From: 12/10/68 To: 11/30/00
292096	Corona 11SSW, NM	From: 12/01/77 To: 09/30/92
293060	Estancia, NM	From: 01/01/14 To: 12/31/00
293649	Gran Quivira Natl. Monument, NM	From: 06/01/38 To: 12/31/00
295965	Mountainair, NM	From: 03/01/14 To: 12/31/00
299405	Vaughn, NM	From: 01/01/71 To: 12/31/00

**INFLUENCING WATER FEATURES**

**Narrative:**

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

**Wetland description:**

System	Subsystem	Class
N/A		

**If Riverine Wetland System enter Rosgen Stream Type:**

N/A

**REPRESENTATIVE SOIL FEATURES**

**Narrative:**

The soils on this site are well drained, shallow to very shallow over limestone. The surface textures are usually limy loams, channery loam or stony loams. The subsurface is limy or channery loams. The parent material or root restricting layer is at depths of 20 inches or less, and is limestone or indurate caliche. Permeability is moderate. Runoff is moderate. Available water-holding capacity is low. Air-water-plant relationship is fair.

**Parent Material Kind:** Alluvium

**Parent Material Origin:** Mixed

**Surface Texture:**

1. Limy loam
2. Channery loam
3. Stony loam

**Surface Texture Modifier:**

1. Stone
2. Channery
3.

**Subsurface Texture Group:** Loamy

**Surface Fragments <=3" (% Cover):** 15 to 35

**Surface Fragments >3" (% Cover):** 15 to 35

**Subsurface Fragments <=3" (%Volume):** 15 to 35

**Subsurface Fragments >=3" (%Volume):** 15 to 35

	<b>Minimum</b>	<b>Maximum</b>
<b>Drainage Class:</b>	Well	Well
<b>Permeability Class:</b>	Slow	Moderately slow
<b>Depth (inches):</b>	10	20
<b>Electrical Conductivity (mmhos/cm):</b>	0.00	2.00
<b>Sodium Absorption Ratio:</b>	N/A	N/A
<b>Soil Reaction (1:1 Water):</b>	7.4	8.4
<b>Soil Reaction (0.1M CaCl<sub>2</sub>):</b>	N/A	N/A
<b>Available Water Capacity (inches):</b>	1	2
<b>Calcium Carbonate Equivalent (percent):</b>	N/A	N/A

## **PLANT COMMUNITIES**

### **Ecological Dynamics of the Site:**

### **Plant Communities and Transitional Pathways (diagram)**

**Plant Community Name:** Historic Climax Plant Community

**Plant Community Sequence Number:** 1 **Narrative Label:** HCPC

**Plant Community Narrative:** Historic Climax Plant Community

This site is an open stand of pinyon pine and/or juniper with a grass understory. The understory grasses are characterized by both warm and cool-season mid-grasses with scattered shrub throughout the site. Half-shrubs and forbs are a minor part of the plant community. The open stand of pinyon and juniper at one time may have been maintained by natural fire. The overstory tree canopy cover ranges from 10 to 25 percent.

Canopy Cover:

Trees	10 – 25 %
Shrubs and half shrubs	2 – 5 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	15 – 20
Bare ground	20 – 30
Surface cobble and stone	30 – 40
Litter (percent)	6 – 10
Litter (average depth in cm.)	2

**Plant Community Annual Production (by plant type):** \_\_\_\_\_

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	234	546	858
Forb	24	56	88
Tree/Shrub/Vine	39	91	143
Lichen			
Moss			
Microbiotic Crusts			
<b>Total</b>	300	700	1,100

**Plant Community Composition and Group Annual Production:**

**Plant Type - Grass/Grasslike**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	SCSC	Little Bluestem	105 – 140	105 – 140
2	BOCU	Sideoats Grama	105 – 140	105 – 140
3	BOER4	Black Grama	35 – 70	35 – 70
4	BOGR2 BOHI2	Blue Grama Hairy Grama	105 – 140	105 – 140
5	PLJA	Galleta	21 – 35	21 – 35
6	HECO26 HENE5	Needleandthread New Mexico Feathergrass	35 – 70	35 – 70
7	ANGE	Big Bluestem	21 – 35	21 – 35
8	ELEL5	Bottlebrush Squirreltail	21 – 35	21 – 35
9	PASM	Western Wheatgrass	21 – 35	21 – 35
10	LYPH	Wolftail	21 – 35	21 – 35
11	SPCR	Sand Dropseed	21 – 35	21 – 35
12	PIFI NAVI4	Pinyon Ricegrass Green Needlegrass	14 – 35	14 – 35
13	2GRAM	Other Grasses	21 – 35	21 - 35

**Plant Type - Forb**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
14	ERIOG	Wildbuckwheat	21 – 35	21 – 35
15	SPCO	Scarlet Globemallow	21 – 35	21 – 35
16	ASTRA	Astragalus spp.	21 – 35	21 – 35
17	2FORBS	Other Forbs	21 – 35	21 - 35

**Plant Type – Tree/Shrub/Vine**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
18	PIED JUNIP	Pinyon Pine Juniper	70 – 140	70 – 140
19	RHTR	Skunkbush Sumac	21 – 35	21 – 35
20	MATR3	Algerita	21 – 35	21 – 35
21	ARFR4	Fringed Sagewort	21 – 35	21 – 35
22	ERNAN5	Rubber Rabbitbrush	21 – 35	21 – 35
23	ARBI3	Bigelow Sagebrush	21 – 35	21 – 35
24	QUERC	Oak spp.	21 – 35	21 – 35
25	KRLA2	Winterfat	21 – 35	21 – 35
26	2SD	Other Shrubs	21 – 35	21 - 35

**Plant Type - Lichen**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

**Plant Type - Moss**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

**Plant Type - Microbiotic Crusts**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Other grasses that could appear on this site include: plains lovegrass, spike muhly, mountain muhly, silver bluestem, metcalf muhly, ring muhly, mat muhly, threeawns spp., alkali sacaton, pine dropseed, prairie junegrass, dryland sedges, and Indian ricegrass.

Other shrubs include: rubber rabbitbrush, fourwing saltbush, sand sagebrush, threadleaf groundsel, broom snakeweed, yucca spp., sacahuista, and ponderosa pine.

Other forbs include: penstemon spp., locoweed, redstem milkvetch, Indian paintbrush, fetid marigold, sand verbena, wooly Indianwheat, and tansymustard.

**Plant Growth Curves**

Growth Curve ID 4321NM

Growth Curve Name: HCPC

Growth Curve Description: Open stand of pinyon pine and/or juniper w/a warm/cool-season mid-grass understory w/ scattered shrubs.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	5	7	10	15	25	25	8	5	0	0

## **ECOLOGICAL SITE INTERPRETATIONS**

### **Animal Community:**

Habitat for Wildlife:

This site provides habitat which supports a resident animal community that is characterized by mule deer, bobcat, coyote, blacktailed jackrabbit, desert cottontail, Stephen's woodrat, rock squirrel, pinyon mouse, prairie falcon, red tailed hawk, plain titmouse, scrub jay, blacktailed rattlesnake, and red spotted toad. The woody vegetation provides nesting opportunities for many bird species.

### **Hydrology Functions:**

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

#### **Hydrologic Interpretations**

<b>Soil Series</b>	<b>Hydrologic Group</b>
Laport	D
Laporte	D
Pino	D
Pinyon	D

### **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:**

This site has a limited potential for wood products, which is limited to fuelwood and fencing material. However, if the site has deteriorated, as much as six to ten cords of wood may be harvested. Harvesting in either case should be selective and should be done by hand cutting. Tree spacing of D+15 should be recommended.

**Other Products:**

**Grazing:**

This site can be grazed any season of the year by all classes and kinds of livestock. Because of the rock outcrop, younger classes of livestock utilize this site best. Browsing animals may be favored because of the site's potential to produce shrubs and forbs. Continuous grazing during the growing season will cause the more desirable forage plants, such as sideoats grama, little bluestem, New Mexico feathergrass, big bluestem, and pinyon ricegrass to decrease. Species most likely to increase are blue grama, oneseed juniper, ring muhly, oak spp., and cholla spp. As the ecological condition deteriorates, it is accompanied by a sharp increase in juniper, which may give the appearance of dominating the site. Small patches of oak spp. will also increase. As the potential plant community deteriorates, the tree canopy increases and the understory grass production decreases. Fires started naturally keep the wood species decimated, leaving grass between. The increased numbers of juniper and pinyon per acre may be attributed in part to control of fire, to reduced competition from grasses as a result of overgrazing, and in part to increased scattering of seeds by grazing animals. Brush management is needed once the tree canopy reaches 25 percent plus, in order to sustain the understory production of grasses. Mechanical control is not feasible due to the shallow soils. A system of deferred grazing, which varies the time of grazing and rest in a pasture during successive years, is needed to maintain or to improve the plant community. A late winter rest is beneficial to shrubby species such as winterfat and mountainmahogany. Rest during April, May and June is beneficial to New Mexico feathergrass, western wheatgrass, needleandthread, and pinyon ricegrass. Rest during the summer is beneficial to all warm-season grasses and forbs.

**Other Information:**

**Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month**

<b>Similarity Index</b>	<b>Ac/AUM</b>
100 - 76	3.2 – 4.4
75 – 51	4.3 – 6.5
50 – 26	6.4 – 16.0
25 – 0	16.0+

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

**Plant Preference by Animal Kind:**

**Animal Kind:** Livestock

**Animal Type:** Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Black Grama	Bouteloua eriopoda	EP	P	P	P	D	D	D	D	D	D	D	P	P
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Big Bluestem	Andropogon gerardii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Pinyon Ricegrass	Piptochaetium fimbriatum	EP	P	P	P	P	P	P	P	P	P	P	P	P
Green Needlegrass	Nassella viridula	EP	D	D	D	D	D	D	D	D	D	D	D	D
Winterfat	Krascheninnikovia lanata	L/S	D	D	P	P	P	P	P	P	D	D	D	D

**Animal Kind:** Livestock

**Animal Type:** Sheep

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Green Needlegrass	Nassella viridula	EP	D	D	D	D	D	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	U	U	U	P	P	P	D	D	D	D	U	U
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
Black Grama	Bouteloua eriopoda	EP	P	P	P	P	P	P	P	P	P	P	P	P
Scarlet Globemallow	Sphaeralcea coccinea	EP	U	U	P	P	P	D	D	D	D	D	D	U
Winterfat	Krascheninnikovia lanata	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Pinyon Ricegrass	Piptochaetium fimbriatum	EP	P	P	P	P	P	D	D	D	D	D	D	P

**Animal Kind:** Wildlife

**Animal Type:** Deer

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Western Wheatgrass	<i>Pascopyrum smithii</i>	EP	U	U	D	D	D	U	U	U	U	U	U	U
Needleandthread	<i>Hesperostipa comata</i>	EP	U	U	D	D	D	U	U	U	D	D	D	U
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	U	U	D	D	D	U	U	U	D	D	D	U
Bigelow Sagebrush	<i>Artemisia bigelovii</i>	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	EP	U	U	P	P	P	D	D	D	D	D	D	U
Skunkbush Sumac	<i>Rhus trilobata</i>	L/S	P	P	P	D	D	D	D	D	D	P	P	P
Oak	<i>Quercus</i> spp.	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Pinyon Ricegrass	<i>Piptochaetium fimbriatum</i>	EP	U	U	P	P	P	U	U	U	D	D	D	U
Green Needlegrass	<i>Nassella viridula</i>	EP	U	U	D	D	D	U	U	U	U	U	U	U

**SUPPORTING INFORMATION**

**Associated sites:**

Site Name	Site ID	Site Narrative

**Similar sites:**

Site Name	Site ID	Site Narrative

**State Correlation:**

This site has been correlated with the following sites: \_\_\_\_\_

**Inventory Data References:**

Data Source	# of Records	Sample Period	State	County

**Type Locality:**

State: New Mexico

County: Guadalupe, San Miguel, Santa Fe, Torrance

Latitude: \_\_\_\_\_

Longitude: \_\_\_\_\_

Township: \_\_\_\_\_

Range: \_\_\_\_\_

Section: \_\_\_\_\_

Is the type locality sensitive?    Yes             No

General Legal Description: \_\_\_\_\_

**Relationship to Other Established Classifications:**

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**Other References:**

Data collection for this site was done in conjunction with the progressive soil surveys within the Pecos-Canadian Plains and Valleys 70 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Chaves, De Baca, Guadalupe, Lincoln, Sna Miguel, Santa Fe, Torrance.

**Characteristic Soils Are:**

Laport	Laporte
Dean(as mapped in San Miguel County)	Pino
Pinyon(as mapped in Torrance County)	

**Other Soils included are:**

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**Site Description Approval:**

<b><u>Author</u></b> Don Sylvester	<b><u>Date</u></b> 02/02/82	<b><u>Approval</u></b> Donald H. Fulton	<b><u>Date</u></b> 03/03/82
<b><u>Author</u></b> Elizabeth Wright	<b><u>Date</u></b> 07/05/02	<b><u>Approval</u></b> George Chavez	<b><u>Date</u></b> 12/17/02