

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

**ECOLOGICAL SITE DESCRIPTION**

**ECOLOGICAL SITE CHARACTERISTICS**

**Site Type:** Rangeland

**Site ID:** R070XC116NM

**Site Name:** Shallow Sandstone

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

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

## PHYSIOGRAPHIC FEATURES

### **Narrative:**

This site occurs on upland plains, on top slopes of hills, and on tops of hills and ridges. Slopes range from 0 to 15 percent but are generally less than 9 percent. Direction of slope varies and is not significant. Elevations range from 4,600 to 7,000 feet above sea level.

### **Land Form:**

1. Hillside
2. Ridges
3. Plain

### **Aspect:**

1. N/A
- 2.
- 3.

	<b>Minimum</b>	<b>Maximum</b>
<b>Elevation (feet)</b>	4,600	7,000
<b>Slope (percent)</b>	0	15
<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 not uncommon. Seventy-five percent of the precipitation falls from April to October. Most of the summer precipitation comes in the form of high-intensity, short-duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is about 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 falling in early May and the first killing frost in early October.

Both temperature and moisture favor warm-season perennial plant communities. 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 and 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
296965	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 of this site are shallow to very shallow over sandstone. Surface textures are medium too coarse and may be stony or gravelly. Water intake rate is rapid to moderately slow. The water-holding capacity is generally low. These soils can be severely damaged by wind and/or water erosion.

**Parent Material Kind:** Colluvium

**Parent Material Origin:** Sandstone-unspecified

### **Surface Texture:**

1. Fine sandy loam
2. Sandy loam
3. Loam

### **Surface Texture Modifier:**

1. Stone
2. Gravel
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>	Very slow	Moderately rapid
<b>Depth (inches):</b>	6	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>	5.6	8.4
<b>Soil Reaction (0.1M CaCl2):</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 characterized by relatively moderate production and is dominated by short and mid-grasses, with a woody component that increases with elevation. Forb production fluctuates widely from year to year and from season and season. Surface rock is abundant.

Canopy Cover:

Trees	5 – 10 %
Shrubs and half shrubs	2 – 3 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	12 – 15
Bare ground	30 – 50
Surface cobble and stone	30 – 50
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	240	560	880
Forb	24	56	88
Tree/Shrub/Vine	30	70	110
Lichen			
Moss			
Microbiotic Crusts			
Total	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 BOCU	Little Bluestem Sideoats Grama	105 – 210	105 – 210
2	BOER4	Black Grama	70 – 105	70 – 105
3	BOGR2 BOHI2	Blue Grama Hairy Grama	70 – 140	70 – 140
4	PLJA	Galleta	21 – 35	21 – 35
5	HECO26 HENE5	Needleandthread New Mexico Feathergrass	49 – 70	49 – 70
6	ACHY ELEL5	Indian Ricegrass Bottlebrush Squirreltail	49 – 70	49 – 70
7	PASM	Western Wheatgrass	14 – 35	14 – 35
8	LYPH	Wolftail	14 – 35	14 – 35
9	SPCR SPCO4	Sand Dropseed Spike Dropseed	35 – 70	35 – 70
10	ERIN	Plains Lovegrass	35 – 70	35 – 70
11	2GRAM	Other Grasses	35 – 70	35 - 70

**Plant Type - Forb**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
12	GACO17	Indian Paintbrush	7 – 14	7 – 14
13	DYPA	Fetid Marigold	7 – 14	7 – 14
14	SPCO	Scarlet Globemallow	7 – 14	7 – 14
15	ABAN	Sand Verbena	7 – 14	7 – 14
16	2FORBS	Other forbs	7 – 14	7 - 14

**Plant Type – Tree/Shrub/Vine**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
17	PIED JUNIP	Pinyon Juniper	35 – 70	35 – 70
18	RHTR	Skunkbush Sumac	7 – 14	7 – 14
19	MATR3	Algerita	7 – 14	7 – 14
20	ARTR2	Bigelow Sagebrush	7 – 14	7 – 14
21	QUERC	Oak spp.	7 – 35	7 – 35
22	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: spike muhly, mountain muhly, metcalf muhly, curlyleaf muhly, ring muhly, mat muhly, sandhill muhly, threeawn, buffalograss, burrograss, alkali sacaton, pine dropseed, pinyon ricegrass, and prairie junegrass.

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

Other forbs include: penstemon spp., locoweed, redstem milkvetch, threadleaf groundsel, woolly Indianwheat, and tansymustard.

**Plant Growth Curves**

Growth Curve ID 4316NM

Growth Curve Name: HCPC

Growth Curve Description: Mixed short/mid-grass with woody component, forbs fluctuates yearly and rock is abundant.

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, plains titmouse, scrub jay, black tailed 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>
Bernal	D
Encierro	D
Rizozo	D
Travessilla	D

### **Recreational Uses:**

This site has moderate to high potential for semi-improved picnicking and camping sites that are designed with erosion hazard and other problems inherent to shallow soils in mind. It also offers potential for hiking, horseback riding, hunting, trapping, nature observation, and photography.

### **Wood Products:**

This site has a limited potential for wood products, which is limited to fuelwood and fence material.

**Other Products:**

**Grazing:**

This site is suitable for grazing by all kinds and classes of livestock during all seasons of the year. This site is not suited to heavy yearlong or continuous growing season grazing. This site responds best to a system of grazing which rotates the season of use. As this site deteriorates there will be a decrease in plants such as little bluestem, sideoats grama, black grama, needleandthread, New Mexico feathergrass, Indian ricegrass, western wheatgrass, skunkbush sumac, and Bigelow sagebrush. As this occurs, there will be a corresponding increase in plants like blue grama, sand dropseed, spike dropseed, threeawn, pinyon and juniper. If deterioration continues, woody species will dominate with an understory of very low-vigor, unproductive blue grama. Bare ground increases, which causes an increase in water runoff and soil erosion. Mechanical brush control is usually not feasible, due to the shallow soil. When this site is in the above condition, recovery using improved grazing management alone may be difficult achieve. Predator control on this site may be needed.

**Other Information:**

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

<b>Similarity Index</b>	<b>Ac/AUM</b>
100 - 76	3.5 – 5.3
75 – 51	4.7 – 7.6
50 – 26	6.4 – 11.0
25 – 0	11.0+

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
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
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

**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
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
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	D	D	D	D	D	D	P
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	U	U	U	U
Black Grama	Bouteloua eriopoda	EP	P	P	P	D	D	D	D	D	D	D	P	P
Scarlet Globemallow	Sphaeralcea coccinea	EP	U	U	P	P	P	D	D	D	D	D	D	U

**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	P	P	P	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 spp.</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

**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: Chavez, Guadalupe, Lincoln, 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:**

Bernal	Endierro
Rizozo	Travesilla

**Other Soils included are:**

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**Site Description Approval:**

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	02/02/82	Donald H. Fulton	03/03/82

**Site Description Revision:**

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	06/20/02	George Chavez	12/17/02