

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

**ECOLOGICAL SITE DESCRIPTION**

**ECOLOGICAL SITE CHARACTERISTICS**

**Site Type:** Rangeland

**Site ID:** R070XC102NM

**Site Name:** Shallow Limestone

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

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

## **PHYSIOGRAPHIC FEATURES**

### **Narrative:**

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

### **Land Form:**

1. Hillside
2. Ridges
- 3.

### **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 is in early May and the first killing frost is in early October.

Both temperature and precipitation favor warm-season species. However, about 40 percent of the precipitation is favorable to cool-season species. This allows the cool-season plants to occupy an important component of this site. Vegetation responds well to light rains due to the very shallow soil profiles. Heavy rains produce excess runoff and can 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 plants. 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 Corners7SE, NM	From: 12/10/68 To: 11/30/00
292096	Corona11SSW, 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 wetlands or streams.

**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, very shallow to shallow over limestone. The surface textures are cobbly loam, cobbly silt loam, and cobbly silt clay. Bedrock is normally at depths of 6 to 14 inches, and outcroppings are common. Permeability is moderate to moderately slow, and available water-holding capacity is very low. Water and wind erosion hazard is moderate.

**Parent Material Kind:** Marine Deposits

**Parent Material Origin:** Limestone-unspecified

### **Surface Texture:**

1. Cobbly loam
2. Cobbly silt loam
3. Cobbly silt clay
4. Very channery fine sandy loam

### **Surface Texture Modifier:**

1. Cobble
2. Channery
- 3.

**Subsurface Texture Group:** Cobbly loam

**Surface Fragments <=3" (% Cover):** N/A

**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>	Moderate	Moderately slow
<b>Depth (inches):</b>	6	20
<b>Electrical Conductivity (mmhos/cm):</b>	0.00	4.00
<b>Sodium Absorption Ratio:</b>	0.00	4.00
<b>Soil Reaction (1:1 Water):</b>	7.4	8.4
<b>Soil Reaction (0.1M CaCl2):</b>	N/A	N/A
<b>Available Water Capacity (inches):</b>	0	3
<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 has the aspect of a juniper-pinyon Savannah, with a rather dense understory of short and mid-grasses. The understory is dominated by both cool and warm-season mid-grasses. Forb production fluctuates greatly from season to season and year to year. Surface rock is abundant. Tree and shrub components increase with elevation.

Canopy cover: trees and shrubs	15 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	20
Bare ground	20
Surface cobble and stone	25
Litter (percent)	20
Litter (average depth in cm.)	2

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

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	560	840	1120
Forb	56	84	112
Tree/Shrub/Vine	70	105	140
Lichen			
Moss			
Microbiotic Crusts			
<b>Total</b>	700	1050	1400

**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	MURI2 MUPA2 MUMO MUSE MURI3	Deergrass New Mexico Muhly Mountain Muhly Curlyleaf Muhly Metcalfé Muhly	210 - 315	210 - 315
2	ELEL5	Bottlebrush Squirreltail	32 - 53	32 - 53
3	HENE5 HECO26	New Mexico Feathergrass Needleandthread	105 - 210	105 - 210
4	SCSC	Little Bluestem	11 - 53	11 - 53
5	BOGR2 BOHI2	Blue Grama Hairy Grama	53 - 105	53 - 105
6	BOCU	Sideoats Grama	53 - 105	53 - 105
7	BOER4	Black Grama	53 - 105	53 - 105
8	LEDU SPCR	Green Sprangletop Sand Dropseed	105 - 158	105 - 158
9	2GRAM	Other Grasses	11 - 53	11 - 53

**Plant Type - Forb**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	VEPO4 SPCO LESQU	Verbena Scarlet Globemallow Bladderpod	32 - 53	32 - 53
11	DYPA	Fetid Marigold	21 - 53	21 - 53
12	2FORBS	Other Forbs	11 - 32	11 - 32

**Plant Type - Tree/Shrub/Vine**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
13	JUNIP PIED	Juniper spp. Pinyon	53 - 105	53 - 105
14	QUPA4	Wavyleaf Oak	21 - 53	21 - 53
15	CEMOP	Hairy Mountainmahogany	21 - 53	21 - 53
16	GUSA2 NOMI	Broom Snakeweed Sacahuista	21 - 53	21 - 53
17	ARBI3	Bigelow Sage	11 - 53	11 - 53
18	2SD	Other Shrubs	11 - 53	11 - 53

**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 which appear on this site would include: threeawn spp., wolftail, halls panicum, big bluestem, mountain brome, plains lovegrass, and carex spp.

Other woodys would include: yucca, winterfat, bigelow sagebrush, and fourwing saltbush.

Other forbs would include: American vetch, annual sunflower, locoweed, and indian paintbrush.

**Plant Growth Curves**

**Growth Curve ID** 4302NM

**Growth Curve Name:** HCPC

**Growth Curve Description:** Juniper-pinyon savannah with mixed short/mid warm/cool-season grasses.

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**

### **Habitat for Wildlife:**

This site provides habitat which supports a resident animal community that is characterized by mule deer, bobcat, couote, desert cottontail, woodrat, rock squirrel, pinyon mouse, red-tailed hawk, prairie falcon, plains titmouse, scrubjays, 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 hydrolic cover conditions and hydrologic soil sgroups.

#### **Hydrologic Interpretations**

<b>Soil Series</b>	<b>Hydrologic Group</b>
Deama	D
Flume	C
Tortugas	D
Winona	D

### **Recreational Uses:**

This site offers good esthetic appeal and natural beauty. This site is suitable for camping, hiking, horseback riding, nature obsevation, and photography. Hunting for mule deer and rabbits is good and trapping fur-bearing animals is good. Colorful spring wildflowers are most abundant in April and May.

### **Wood Products:**

Production of juniper, pinyon, and oak provide a limited supply of fuelwood and fence posts.

**Other Products:****Grazing:**

This site is suited for grazing during all seasons of the year by all classes and kinds of livestock. Predator control may be needed for sheep and goats and during calving season. Goats can be used to help control excessive increases in browse and woody plants that would accompany misuse by cattle or sheep. Mismanagement of cattle on this site will result in a decrease in palatable mid-grasses and forbs with a corresponding increases in woody plants. Under sheep, the short grasses and forbs would decrease. Continuous grazing during the growing season results in a decrease in the vigor and abundance of many grasses such as sideoats grama, black grama, New Mexico feathergrass, and deergrass. As this takes place, plants such as fluffgrass, broom snakeweed, sacahuista, juniper, and oak will increase, leaving the site less productive. The loss of production will also cause a decrease in ground cover which could result in serious wind and water erosion. Well planned systems of grazing which alternate the grazing period will result in a balanced plant community and higher-quality forage during all seasons of the year.

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

<b>Similarity Index</b>	<b>Ac/AUM</b>
100 - 76	3.0 – 3.7
75 – 51	3.4 – 4.6
50 – 26	4.4 – 7.0
25 – 0	7.0+

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
Deergrass	Muhlenbergia rigens	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
New Mexico Muhly	Muhlenbergia pauciflora	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
New Mexico Feathergrass	Hesperostips neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Sideoats Grama	Bouteloua curtipendul	EP	P	P	P	P	P	P	P	P	P	P	P	P
Verbena	Verbena polystachya	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
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Mountain Muhly	Muhlenbergia montana	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

**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
Verbena	Verbena polystachya	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
Scarlet Globemallow	Sphaeralcea coccinea	EP	U	U	P	P	P	D	D	D	D	D	U	U
Bladderpod	Lesquerella	EP	U	U	D	D	D	D	D	D	D	U	U	U
Deergrass	Muhlenbergia rigens	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
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
New Mexico Muhly	Muhlenbergia pauciflora	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
Mountain Muhly	Muhlenbergia montana	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
Black Grama	Bouteloua eriopoda	EP	P	P	P	D	D	D	D	D	D	D	P	P
Sideoats Grama	Bouteloua curtipendula	EP	D	D	D	D	P	P	P	P	P	D	D	D

**Animal Kind:** Livestock

**Animal Type:** Goats

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Oak	Quercus pauciloba	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
Hairy Mountainmahogany	Cercocarpus montanus	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Bladderpod	Lesquerella	EP	U	U	D	D	D	D	D	D	D	U	U	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
Wavyleaf Oak	<i>Quercus pauciloba</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
Hairy Mountainmahogany	<i>Cercocarpus montanus</i>	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Bladderpod	<i>Lesquerella</i>	EP	U	U	D	D	D	D	D	D	D	U	U	U
Deergrass	<i>Muhlenbergia rigens</i>	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
New Mexico Muhly	<i>Muhlenbergia pauciflora</i>	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
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	U	U	D	D	D	U	U	U	U	D	D	U

## **SUPPORTING INFORMATION**

### **Associated sites:**

<b>Site Name</b>	<b>Site ID</b>	<b>Site Narrative</b>

### **Similar sites:**

<b>Site Name</b>	<b>Site ID</b>	<b>Site Narrative</b>

### **State Correlation:**

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

### **Inventory Data References:**

<b>Data Source</b>	<b># of Records</b>	<b>Sample Period</b>	<b>State</b>	<b>County</b>

### **Type Locality:**

State: New Mexico

County: Chavez, De Baca, 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:**

--

### **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:**

Deama	Tortugas
Flume	

### **Other Soils included are:**

Winona	
--------	--

### **Site Description Approval:**

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

### **Site Description Revision:**

<b><u>Author</u></b>	<b><u>Date</u></b>	<b><u>Approval</u></b>	<b><u>Date</u></b>
Elizabeth Wright	06/12/01	George Chavez	12/17/02