

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

**ECOLOGICAL SITE DESCRIPTION**

**ECOLOGICAL SITE CHARACTERISTICS**

**Site Type:** Rangeland

**Site ID:** R070XC117NM

**Site Name:** Sandstone Hills

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

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

## **PHYSIOGRAPHIC FEATURES**

### **Narrative:**

The topography of this area varies from moderately steep to steep and occurs with sandstone rock outcrop, or badlands. Slopes generally exceed 15 percent and may on occasion range as high as 70 percent. Direction of slope varies and generally shows that the north and east slopes are cooler and moister and therefore produce more forage. Elevations range from 4,600 to 7,000 feet above sea level.

### **Land Form:**

1. Hillside
2. Scarp slope
- 3.

### **Aspect:**

1. North and East
- 2.
- 3.

	<b>Minimum</b>	<b>Maximum</b>
<b>Elevation (feet)</b>	4,600	7,000
<b>Slope (percent)</b>	15	70
<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.

Distinct seasonal changes and large annual and diurnal temperature changes characterize temperatures. 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 precipitation favor warm-season perennial species. However, approximately 40 percent of the annual precipitation fall at a time favorable to cool-season plant growth. This allows the cool-season species to occupy an important component of this site. On the north and east slopes, this cool-season component may dominate the vegetative community. Strong winds that blow from February to June can dry the soil profile quickly during a critical time for cool-season plant 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 generally shallow to very shallow over sandstone. Surface textures are typically sandy loams and silt loams. Pockets of deeper soil occur in association with this site, as well as occasional for frequent outcroppings of sandstone bedrock that may affect livestock movements. Water intake rates are moderate to moderately rapid, and water-holding capacity is low.

**Parent Material Kind:** Colluvium

**Parent Material Origin:** Sandstone-unspecified

**Surface Texture:**

1. Sandy loams
2. Silt loams
3.

**Surface Texture Modifier:**

1. N/A
2.
3.

**Subsurface Texture Group:** Loamy

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

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

**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 rapid
<b>Depth (inches):</b>	0	20
<b>Electrical Conductivity (mmhos/cm):</b>	N/A	N/A
<b>Sodium Absorption Ratio:</b>	N/A	N/A
<b>Soil Reaction (1:1 Water):</b>	6.6	8.4
<b>Soil Reaction (0.1M CaCl<sub>2</sub>):</b>	N/A	N/A
<b>Available Water Capacity (inches):</b>	1	1
<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

A mixed grassland, shrubs, half-shrubs aspect with scattered tree-type juniper and pinyon characterize this site. Mid- and short grasses dominate the site. However, during years of abundant spring and fall moisture, a large variety of forbs occur throughout this site. Cool-season species are more prevalent on the north and east slopes and at higher elevations.

Canopy Cover:

Trees	5 – 10 %
Shrubs and half shrubs	7 – 15 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	12 – 15
Bare ground	25 – 35
Surface cobble and stone	35 – 50
Litter (percent)	5 – 8
Litter (average depth in cm.)	2

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

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	260	455	650
Forb	32	56	80
Tree/Shrub/Vine	80	140	200
Lichen			
Moss			
Microbiotic Crusts			
<b>Total</b>	400	700	1,00

**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	140 – 175	140 – 175
2	BOER	Black Grama	70 – 105	70 – 105
3	BOGR2	Blue Grama	35 – 105	35 – 105
4	HENE5 HECO26	New Mexico Feathergrass Needleandthread	35 – 105	35 – 105
5	FEAR2 PIFI	Arizona Fescue Pinyon Ricegrass	14 – 35	14 – 35
6	MUMO MUPA2	Mountain Muhly New Mexico Muhly	35 – 105	35- 105
7	LYPH ERIN	Wolftail Plains Lovegrass	35 – 56	35 – 56
8	ARIST	Threeawn	14 – 35	14 – 35
9	ELEL5	Bottlebrush Squirreltail	14 – 35	14 – 35
10	2GRAM	Other Grasses	21 – 35	21 - 35

**Plant Type - Forb**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
11	CACO17	Indian Paintbrush	4 – 21	4 – 21
12	PLPA2	Woolly Indianwheat	4 – 21	4 – 21
13	HEMUM	Showy Goldeneye	4 – 21	4 – 21
14	2FORBS	Other Forbs	4 – 21	4 - 21

**Plant Type – Tree/Shrub/Vine**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
15	PIED JUNIP	Pinyon Juniper	35 – 105	35 – 105
16	RHTR RHMI3	Skunkbush Sumac Littleleaf Sumac	35 – 56	35 – 56
17	CEMOP MATR3	Mountainmahogany Algerita	21 – 35	21 – 35
18	QUERC	Oak	21 – 35	21 – 35
19	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: hairy grama, galleta, Metcalf muhly, curlyleaf muhly, spike muhly, ring muhly, mat muhly, prairie junegrass, western wheatgrass, sand dropseed, curly mesquite, tridens spp., big bluestem and Arizona cottontop.

Other shrubs include: ephedra spp., winterfat, yucca spp., fourwing saltbush, sacahuista, cacti spp., agave spp., broom snakeweed, and cliff fendlerbush.

Other forbs include: locoweed, lamberts crazyweed, globemallow, marigold, yarrow, mariola, penstemon spp., and threadleaf groundsel.

**Plant Growth Curves**

Growth Curve ID 4317NM

Growth Curve Name: HCPC

Growth Curve Description: Mixed short/mid-grassland w/ shrubs, half-shrubs, trees and scattered forbs.

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 a habitat which supports a resident animal community characterized by mule deer, gray fox, bobcat, desert cottontail, rock squirrel, white-throated woodrat, brush mouse, red-tailed hawk, harlequin quail, red shafted flicker, scrubjay, common raven, plain titmouse, common bushtit, rufous-sided towhee, chipping sparrow, red spotted toad, collared lizard, desert short-horned lizard, great horned owl, mountain patchnosed snake, and black-tailed rattlesnake.

### **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>
Rizozo	D
Travessilla	D

### **Recreational Uses:**

This site offers good potential for picnicking and camping for which erosion hazards have been designed. Potential is also good for hiking, horseback riding, backpacking, hunting, trapping, nature observation, and photography. Natural beauty is typical of the mountain foothills of the area in which this site is found.

### **Wood Products:**

This site has a limited potential for the production and harvesting of firewood and fencing material.

**Other Products:**

**Grazing:**

This site is suited for grazing by all kinds and classes of livestock during all season of the year. On areas of excessively steep slopes, accessibility may become limited, and stocking rates should be adjusted accordingly. This site responds best to a system of grazing that rotates the season of use. Under continuous yearlong grazing or continuous grazing during the growing season, this site will deteriorate. Deterioration of this site is characterized by a decrease in little bluestem, sideoats grama, black grama, New Mexico feathergrass, Arizona fescue, and pinyon ricegrass. A corresponding increase in blue grama, threeawn, pinyon, juniper, and oak will occur. Under severe deterioration, erosion hazard becomes quite high, and the site may become severely limited for livestock use. Mechanical brush control is rarely justified on this site. Because of this, the use of goats may be a good tool for helping to maintain a healthy, balanced plant community. Predator control may be needed on this site.

**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 – 4.8
75 – 51	3.7 – 6.5
50 – 26	4.5 – 10.0
25 – 0	10.0+

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
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Arizona Fescue	Festuca arizonica	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
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
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
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U

**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	U	U	P	P	P	D	D	D	U	U	U	UN
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
Arizona Fescue	Festuca arizonica	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	D	D	D	D	D	D	P
Mountainmahogany	Cercocarpus montanus	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
Skunkbush Sumac	Rhus trilobata	L/S	P	P	P	D	D	D	D	D	D	P	P	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
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	U	U	D	D	D	U	U	U	D	D	D	U
Needleandthread	<i>Hesperostipa comata</i>	EP	U	U	D	D	D	U	U	U	D	D	D	U
Pinyon Ricegrass	<i>Piptochaetium fimbriatum</i>	EP	U	U	P	P	P	U	U	U	D	D	D	U
Skunkbush Sumac	<i>Rhus trilobata</i>	L/S	P	P	P	D	D	D	D	D	D	P	P	P
Mountainmahogany	<i>Cercocarpus montanus</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
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:**

<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:**

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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:**

Rizozo	Travessilla
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### **Other Soils included are:**

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### **Site Description Approval:**

#### **Author**

Don Sylvester

#### **Date**

02/02/82

#### **Approval**

Donald H. Fulton

#### **Date**

03/03/82

### **Site Description Revision:**

#### **Author**

Elizabeth Wright

#### **Date**

06/20/02

#### **Approval**

George Chavez

#### **Date**

12/17/02