

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R077BY031NM

Site Name: Shallow

Precipitation or Climate Zone: 15 to 19 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on the convex position of low ridges between deeper soils and swales. The site is on nearly level to gently undulating landscapes of the uplands. Slopes range from 0 to 9 percent but usually less than 5 percent. Direction of slope varies and composition of plant community may vary. Elevation ranges from 4,300 to 5,300 feet above sea level.

Land Form:

1. Ridge

2.

3.

Aspect:

1. North-facing

2. South-facing

3.

	Minimum	Maximum
Elevation (feet)	4,300	5,300
Slope (percent)	0	9
Water Table Depth (inches)	N/A	N/A
	Minimum	Maximum
Flooding:		
Frequency	N/A	N/A
Duration	N/A	N/A
	Minimum	Maximum
Ponding:		
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

The climate of this area can be classified as “semi-arid continental”.

Annual average precipitation ranges from 15 to 19 inches. Seventy percent of the moisture usually falls during the six-month period May through October. Most of this summer precipitation falls in the form of brief and heavy afternoon and evening thunderstorms. Hail may accompany the more severe summer storms. Spring precipitation (March, April, May) accounts for approximately 25 percent of the annual precipitation. Most of this comes as light rain showers. Winter moisture may occur as either rain or snow and usually averages less than ½ inch per month.

Temperatures are characterized by distinct seasonal change and large annual and diurnal temperature ranges. Summers are moderately warm; maximum temperatures average above 90 degrees F in July and August. Temperatures usually fall rapidly after sundown and range in the low 60’s on most summer nights. Winters are mild, sunny and dry. Daytime shade temperatures in mid-winter usually rise to the 50’s. However, freezing temperatures normally occur at night from mid-November to mid-March.

The frost-free season ranges from 181 to 199 days. Dates of the last freeze vary from April 10th to April 23rd and the first freeze varies from October 18th to October 26th.

Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent windstorms with velocities in excess of 45 miles per hour, which cause excessive erosion on soils not protected by a good ground cover of vegetation. Humidity is low and evaporation is high.

Both temperature and rainfall distribution favor production of warm-season, perennial plants in this area. However, sufficient late winter and early spring moisture allows cool-season species to occupy an important component within most plant communities.

Climate data was obtained from the WCCR web site. Using 50% probabilities for freeze-free and frost-free seasons at 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	Maximum
Frost-free period (days):	<u>175</u>	<u>183</u>
Freeze-free period (days):	<u>191</u>	<u>202</u>
Mean annual precipitation (inches):	<u>15</u>	<u>19</u>

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

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.43	.50	21.8	52.8
February	.43	.66	25.0	57.7
March	.68	.80	30.0	64.7
April	.90	1.05	38.1	73.4
May	2.01	2.35	47.3	81.8
June	2.13	2.67	56.1	90.9
July	2.80	3.25	60.6	93.4
August	2.80	3.05	59.4	91.2
September	1.66	2.17	52.4	85.1
October	1.29	1.37	41.5	75.0
November	.59	.72	30.3	62.5
December	.49	.65	22.1	53.5

Climate Stations:

		Period					
Station ID	<u>291332</u>	Location	<u>Cameron, NM</u>	From:	<u>01/01/48</u>	To:	<u>05/31/98</u>
Station ID	<u>295516</u>	Location	<u>McCarty Ranch, NM</u>	From:	<u>11/01/83</u>	To:	<u>12/31/01</u>
Station ID	<u>297226</u>	Location	<u>Ragland 3SSW, NM</u>	From:	<u>02/01/35</u>	To:	<u>12/31/01</u>
Station ID	<u>297867</u>	Location	<u>San Jon, NM</u>	From:	<u>01/01/14</u>	To:	<u>12/31/01</u>

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:

These are well-drained, very shallow soils over petrocalcic layers and hard, platy caliche layers. The surface textures are gravelly loam, fine sandy loam and gravelly fine sandy loam. The textures of the subsurface layers are fine sandy loam, loam, gravelly loam and gravelly fine sandy loam. The caliche and petrocalcic layers are normally at depths less than 10 inches. Permeability is moderate above the petrocalcic and caliche layers. The available water-holding capacity is moderate to high. The effective rooting depth is 10 inches or less. The plant-soil-air-water relationship is good. The very shallow petrocalcic and caliche layers hold water up available to shallow rooted, rhizomatous and stoloniferous short and mid-grass for short periods of time, followed by rapid drying of the soil. If unprotected, plant cover and organic residues become wind blown and easily eroded.

Parent Material Kind: Alluvium

Parent Material Origin: Mixed

Surface Texture:

1. Fine sandy loam

2. Loam

3. Gravelly loam

4. Gravelly fine sandy loam

Surface Texture Modifier:

1. Gravel

2.

3.

Subsurface Texture Group: Loamy

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

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

Subsurface Fragments ≤ 3 " (%Volume): 35 to 60

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

	Minimum	Maximum
	Well	Well
Drainage Class:	Very slow	Moderate
Permeability Class:	<10	40
Depth (inches):	0.00	2.00
Electrical Conductivity (mmhos/cm):	N/A	N/A
Sodium Absorption Ratio:	6.6	8.4
Soil Reaction (1:1 Water):	N/A	N/A
Soil Reaction (0.1M CaCl₂):	6	12
Available Water Capacity (inches):	N/A	N/A
Calcium Carbonate Equivalent (percent):		

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 a grassland dominated by warm-season short and mid-grasses with an occasional half-shrub or shrub. Forbs and woody species generally make up less than 20 percent of the plant community. Cool-season grasses and forbs make up a minor component of the community and are mainly on the north-facing slopes. Black grama is on the south-facing slopes.

Canopy Cover:

Trees	0
Shrubs and half shrubs	5 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	25
Bare ground	35
Surface gravel	10
Surface cobble and stone	0
Litter (percent)	25
Litter (average depth in cm.)	3

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	425	723	1,190
Forb	50	85	140
Tree/Shrub/Vine	25	43	70
Lichen			
Moss			
Microbiotic Crusts			
Total	500	850	1,400

Plant Community Composition and Group Annual Production: Plant species are grouped by annual production **not** by functional groups.

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	BOGR2 BOHI2	Blue Grama Hairy Grama	128 – 145	128 – 145
2	BOCU	Sideoats Grama	128 – 145	128 – 145
3	SCSC	Little Bluestem	128 – 145	128 – 145
4	BOER4	Black Grama	68 – 85	68 – 85
5	HENE5 HECO26	New Mexico Feathergrass Needleandthread	68 – 85	68 – 85
6	SPCR	Sand Dropseed	26 – 43	26 – 43
7	MUTO2 ARIST	Ring Muhly Threeawn spp.	26 – 43	26 – 43
8	ERPI5 TRMU	Hairy Tridens Slim Tridens	26 – 43	26 – 43
9	BOSA LYPH	Silver Bluestem Wolftail	26 – 43	26 – 43
10	2GRAM	Other Grasses	26 – 43	26 – 43

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
11	CRPOP VEPO4 SPHAE	Leather Croton Verbena Globemallow spp.	26 – 43	26 – 43
12	TEACE? ERAN4	Stemless Pingue Annual Buckwheat	26 – 43	26 – 43
13	ERIOG OXYRT 2FP 2FA	Wild Buckwheat spp. Locoweed spp. Other Perennial Forbs Other Annual Forbs	26 – 43	26 – 43

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
14	DAFO ARBI3 MIACB	Feather Dalea Bigelow Sagebrush Catclaw Mimosa	26 – 43	26 – 43
15	GUSA2 SENEC ARFR4 YUGL 2SD	Broom Snakeweed Groundsel spp. Fringed Sagewort Small Soapweed Other Shrubs	26 – 43	26 – 43

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

Plant Growth Curves

Growth Curve ID 5206NM

Growth Curve Name: HCPC

Growth Curve Description: Warm-season short and mid-grass grassland with minor components of shrubs and forbs.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	5	10	10	25	30	12	5	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitats that support a resident animal community of antelope, fox, badger, ground squirrel, snakes and quail. As data is available, species indigenous to the site will be added to this section.

Hydrology Functions:

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

Hydrologic Interpretations

Soil Series	Hydrologic Group
Arvana	C
Potter	C, D
Sharvana	C

Recreational Uses:

Recreation potential is limited. Suitability for camping, picnicking and hiking is fair, limited mainly by lack of live water and the lack of shade. Hunting is good for antelope, quail, dove and small game. The terrain typical of the “wide open spaces” of the area enhances aesthetic appeal. The natural beauty of this site is enhanced by the large variety of flowering plants that bloom from early spring to late fall with the availability of precipitation.

Wood Products:

This site produced no wood products.

Other Products:

Grazing:

All classes and kinds of livestock can graze this site during any season of the year. Approximately 90 percent of the total yield are from species that furnish forage for grazing animals. These species are a large variety of grasses and forbs, which provide good forage and nutrition for grazing animals during most of the year. Supplemental protein is needed during the winter months. Due to the potential of this site to produce forbs, it may favor some grazing by sheep and antelope. Continuous yearlong grazing by cattle or continual grazing during the period from April through October will cause the site to deteriorate and become less productive. Species such as little bluestem, sideoats grama, black grama and New Mexico feathergrass will decrease in composition of the plant community. Sideoats grama generally continues to grow but lacks vigor and height. Species most likely to increase from small amounts or trace amounts are blue grama, hairy grama, threeawn spp., tridens spp., silver bluestem and ring muhly. Blue grama declines in vigor and becomes more turflike. As the ecological condition deteriorates further, the site frequently has dense stands of broom snakeweed and lesser amounts of the stemless pingue, fringed sagewort and yucca. A system of deferred grazing, which varies the season of rest and grazing during successive years, is needed to maintain or to improve a healthy well-balanced plant community. Deferment during different seasons of the year benefits different species. Rest during the winter benefits winterfat. Also, cattle show a definite preference to black grama during the late winter and it can be over utilized. Winter rest will reduce the grazing pressure on black grama. Spring rest (April-June) will benefit cool-season grasses such as New Mexico feathergrass and early forbs. Summer rest will benefit warm-season species such as little bluestem, sideoats grama, black grama and blue grama. Fall rest will allow the warm-season plants to complete their growth cycle and mature.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	2.4 – 4.1
75 – 51	3.1 – 6.5
50 – 26	4.0 – 9.0
25 – 0	9.0+

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
Sideoats Grama	<i>Bouteloua curtipendula</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	D	D	P	P	P	D	D	D	D	D	D	D
Little Bluestem	<i>Schizachyrium scoparium</i>	EP	D	D	D	P	P	P	P	D	D	D	D	D
Black Grama	<i>Bouteloua eriopoda</i>	EP	P	P	P	D	D	D	D	D	D	D	P	P
Needleandthread	<i>Hesperostipa comata</i>	EP	D	D	P	P	P	D	D	D	D	D	D	D

Animal Kind: Livestock

Animal Type: Horse

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Blue Grama	<i>Bouteloua gracilis</i>	EP	D	D	D	D	P	P	P	P	P	D	D	D
Sideoats Grama	<i>Bouteloua curtipendula</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	D	D	P	P	P	D	D	D	D	D	D	D
Black Grama	<i>Bouteloua eriopoda</i>	EP	P	P	P	D	D	D	D	D	D	D	P	P
Needleandthread	<i>Hesperostipa comata</i>	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
Annual Forbs	Various	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
Perennial Forbs	Various	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	D	D	D	P	P	P	P	D	D	D	D	D
Globemallow	Sphaeralcea spp.	EP	U	U	D	D	D	D	D	D	U	U	U	U

Animal Kind: Wildlife

Animal Type: Antelope

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Croton	Croton spp.	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
Locoweed	Oxytropis spp.	L	U	U	D	D	D	D	D	D	U	U	U	U
Annual Forbs	Various	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
Perennial Forbs	Various	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

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: Curry, Harding, Quay

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 Southern High Plains 77 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Curry, Harding & Quay.

Characteristic Soils Are:

Arvana	Potter
Sharvana	

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	07/26/78	Don Sylvester	07/26/78

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	09/11/02	George Chavez	09/12/02