

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R070XB071NM

Site Name: Red Shale

Precipitation or Climate Zone: 13 to 16 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site consists of sloping areas of alluvial and colluvial soils along the foot of mesas in the plains area. They occur at elevations ranging from approximately 3,500 to 4,800 feet above sea level. Slopes are usually 2 to 10 percent, but may range to 15 percent. The steepness of the slope causes a variation in the production of this site. Slopes less than 5 percent produce 40 to 50 percent more total herbage than sites with slopes greater than 5 percent.

Land Form:

1. Plain
2. Erosion remnant

Aspect:

1. N/A
- 2.
- 3.

	Minimum	Maximum
Elevation (feet)	3,500	4,800
Slope (percent)	2	15
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 13 to 16 inches. About seventy eight percent of the moisture usually falls during the six-month period of 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. In the winter, there is normally only one day a month when as much as one-tenth inch of moisture falls, usually in the form of snow. Snow seldom lies on the ground for more than a few days.

Temperatures are characterized by a distinct seasonal change and large annual and diurnal temperature ranges. Summers are moderately warm. Maximum temperature average above 90 degrees F from July to August and an average summer includes about 80 days with high readings exceeding 90 degrees F and 10 days with readings above 100 degrees F. Temperatures usually fall rapidly after sundown and low of 60 degrees F on most summer nights. Winters are mild, sunny and dry. Daytime shade temperatures in midwinter usually rise to the 50's. However, freezing temperatures normally occur at night from mid-November to mid-March.

The freeze-free season ranges from 190 to 197 days. Dates of the last freeze are April 11th to April 17th and the first freeze varies from October 20th to October 25th.

Both temperature and rainfall distribution favor warm-season, perennial plant communities in the area. However, sufficient late winter and early spring moisture allows a cool-season species to occupy a minor component within the plant community

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.

	Minimum	Maximum
Frost-free period (days):	<u>164</u>	<u>196</u>
Freeze-free period (days):	<u>190</u>	<u>218</u>
Mean annual precipitation (inches):	<u>13</u>	<u>16</u>

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

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	0.23	0.46	21.6	57.3
February	0.30	0.44	24.0	59.2
March	0.46	0.65	29.1	68.0
April	0.36	0.92	36.3	78.3
May	0.42	1.68	45.7	82.6
June	1.20	1.86	52.2	91.2
July	2.03	2.73	59.1	92.9
August	2.09	2.75	58.1	91.0
September	1.65	1.92	51.1	84.8
October	1.23	1.93	40.1	74.7
November	0.46	0.88	28.9	63.0
December	0.37	0.62	22.1	54.6

Climate Stations:

Station ID	Location	From:	To:	Period
290205	Alamogordo Dam, NM	1972	2000	
293292	Fort Sumner, NM	01/01/14	2000	
297254	Ramon 8SW, NM	03/04/57	122/31/01	
298596	Sumner Lake, NM	01/01/21	12/31/01	
299851	Yeso, NM	01/01/48	12/31/01	

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 formed from outwash deposits originating from the red bed material. They usually contain shale, gravel and rock fragments on the surface and throughout the profile. The soils are shallow to moderately deep. The surface layers are clay loam or clay. Shale is at depths of less than 15 inches. Surface runoff is high. The infiltration rate is slow. These soils disperse easily when denuded of vegetation, which decrease the already slow infiltration rate. Effective rooting depth is less than 20 inches.

Parent Material Kind: Marine Deposits

Parent Material Origin: Shale-unspecified

Surface Texture:

1. Loam
2. Clay loam
3. Silty clay loam
4. Clay

Surface Texture Modifier:

1. Gravel
2. Rock
3.

Subsurface Texture Group: Loamy

Surface Fragments $\leq 3''$ (% Cover): 15 to 35

Surface Fragments $> 3''$ (% Cover): 15 to 35

Subsurface Fragments $\leq 3''$ (%Volume): 15 to 35

Subsurface Fragments $\geq 3''$ (%Volume): 15 to 35

	Minimum	Maximum
Drainage Class:	Well	Well
Permeability Class:	Impermeable	Slow
Depth (inches):	12	> 72
Electrical Conductivity (mmhos/cm):	0.00	8.00
Sodium Absorption Ratio:	0.00	4.00
Soil Reaction (1:1 Water):	7.4	9.0
Soil Reaction (0.1M CaCl₂):	N/A	N/A
Available Water Capacity (inches):	3	6
Calcium Carbonate Equivalent (percent):	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 a warm-season grassland dotted with an occasional shrub. Short and mid-grasses are evenly distributed. Shrubs and half-shrubs are sparsely scattered. Perennial and annual forbs make a minor component of the plant community.

Canopy Cover:	Greater than 5 % slope
Trees	0
Shrubs and half shrubs	3 – 5 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	<u>20 – 25</u>
Bare ground	<u>30 –35</u>
Surface gravel	<u>5</u>
Surface cobble and stone	<u>0</u>
Litter (percent)	<u>15 – 20</u>
Litter (average depth in cm.)	<u>3</u>

Plant Community Annual Production (by plant type): Greater than 5% slope

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	400	600	800
Forb	50	75	100
Tree/Shrub/Vine	50	75	100
Lichen			
Moss			
Microbiotic Crusts			
Total	500	750	1000

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	BOGR2	Blue Grama	150 – 188	150 – 188
2	SPAI	Alkali Sacaton	150 – 188	150 – 188
3	PLMU3 PLJA	Tobosa Galleta	113 – 150	113 – 150
4	BUDA	Buffalograss	23 – 38	23 – 38
5	MURI MURE	Mat Muhly Creeping Muhly	23 – 38	23 – 38
6	PAOB	Vine-mesquite	23 – 38	23 – 38
7	2GRAM	Other Grasses	23 – 38	23 – 38

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
8	SOEL SPHAE VEPO4 HYOD CINE	Silverleaf Nightshade Globemallow Verbena Bitterweed New Mexico Thistle	23 – 38	23 – 38
9	2FORB	Other Forbs	23 – 38	23 – 38

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	ATCA2	Fourwing Saltbush	23 – 38	23 – 38
11	OPSP2 GUSA2 OPPO 2SD	Cholla Cactus Broom Snakeweed Plains Pricklypear Cactus Other Shrubs	23 – 38	23 – 38

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

Canopy Cover:

Less than 5% slope

Trees	0
Shrubs and half shrubs	3 – 5 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	30 – 35
Bare ground	20 – 25
Surface gravel	5
Surface cobble and stone	0
Litter (percent)	20 – 25
Litter (average depth in cm.)	3

Plant Community Annual Production (by plant type): Less than 5% slope

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	640	920	1,440
Forb	80	115	180
Tree/Shrub/Vine	80	115	180
Lichen			
Moss			
Microbiotic Crusts			
Total	800	1,150	1,800

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	BOGR2	Blue Grama	230 – 288	230 – 288
2	SPAI	Alkali Sacaton	230 – 288	230 – 288
3	PLMU3 PLJA	Tobosa Galleta	173 – 230	173 – 230
4	BUDA	Buffalograss	35 – 58	35 – 58
5	MURI MURE	Mat Muhly Creeping Muhly	35 – 58	35 – 58
6	PAOB	Vine-mesquite	35 – 58	35 – 58
7	2GRAM	Other Grasses	35 – 58	35 – 58

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
8	SOEL SPHAE VEPO4 HYOD CINE	Silverleaf Nightshade Globemallow Verbena Bitterweed New Mexico Thistle	35 – 58	35 – 58
9	2FORB	Other Forbs	35 – 58	35 – 58

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	ATCA2	Fourwing Saltbush	35 – 58	35 – 58
11	OPSP2 GUSA2 OPPO 2SD	Cholla Cactus Broom Snakeweed Plains Pricklypear Cactus Other Shrubs	35 – 58	35 – 58

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 species that could appear on this site include: sideoats grama, black grama, ring muhly, burrograss, western wheatgrass, cane bluestem, little bluestem and winterfat.

Plant Growth Curves

Growth Curve ID: 4020NM
 Growth Curve Name: HPCP
 Growth Curve Description: Warm-season grassland dotted with an occasional shrub and a minor forb component.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	5	5	10	25	30	15	7	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitats, which support a resident animal community that is characterized by pronghorn antelope, black-tailed jackrabbit, thirteen lined ground squirrel, banner-tailed kangaroo rat, meadowlark, woodhouse toad and coachwhip.

Swallows nest in cavities located in the nearby vertical walls of deep, active gullies. Killdeer will nest in areas bare of vegetation.

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
Hassell	C
Ranier	D
Regnier	D
Vernon	D

Recreational Uses:

This site has limited recreation potential. Suitability for camping, hiking and picnicking is fair. Hunting for antelope, rabbits and upland game birds is fair. The site has fair aesthetic appeal due to the “wide open spaces” typical of the area.

Wood Products:

This site produces no wood products.

Other Products:

Grazing:

This site can be grazed any season of the year by all livestock, generally without regard to class of animal. It is better suited to cattle due to the coarseness of the forage produced by alkali sacaton. To better utilize alkali sacaton, grazing should be intensified before plant matures. Yearling steers utilize alkali sacaton early in the summer when it is green and tender.

Continuous yearling grazing or continual grazing during the period from April through October by cattle will result in a plant community dominated by tobosa or galleta, ring muhly, burrograss, broom snakeweed, plains pricklypear cactus and cholla cactus. Cholla cactus generally increases faster if the site is grazed by sheep. Continuous heavy grazing pressure will result in a loss of vegetative cover causing large areas of denuded soil resulting in accelerated erosion and the productivity of the site is greatly reduced. A system of deferred grazing, which varies the season of grazing and rest in pastures during successive years will result in a healthy well-balanced plant community. Winter rest will benefit species such as fourwing saltbush and winterfat. Winter rest will reduce the heavy utilization of black grama. Spring rest will allow western wheatgrass and cool-season forbs to grow and reproduce, also allows alkali sacaton sufficient time to green-up. Summer rest will benefit blue grama, alkali sacaton, sideoats grama and vine-mesquite. Ninety-five percent of the annual yield is from species that furnish forage for grazing animals.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	>5% 3.8 – 4.4 ; <5% 3.0 – 4.0
75 – 51	>5% 4.3 – 5.1 ; <5% 3.8 – 5.0
50 – 26	>5% 5.0 – 10.0 ; <5% 4.8 – 7.0
25 – 0	>5% 10.0+ ; <5% 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
Sideoats Grama	<i>Bouteloua curtipendula</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Black Grama	<i>Bouteloua eriopoda</i>	EP	P	P	P	D	D	D	D	D	D	D	P	P
Vine-mesquite	<i>Panicum obtusum</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Western Wheatgrass	<i>Pascopyrum smithii</i>	EP	D	D	D	P	P	P	D	D	D	D	D	D
Winterfat	<i>Krascheninnikovia lanata</i>	L/S	D	D	D	P	P	P	P	P	P	D	D	D
Fourwing Saltbush	<i>Atriplex canescens</i>	L/S	P	P	P	P	D	D	D	D	D	D	P	P

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
Black Grama	<i>Bouteloua eriopoda</i>	EP	P	P	P	D	D	D	D	D	D	D	P	P
Vine-mesquite	<i>Panicum obtusum</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Burrograss	<i>Scleropogon brevifolius</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

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
Vine-mesquite	<i>Panicum obtusum</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D

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
Winterfat	<i>Krascheninnikovia lanata</i>	L/S	D	D	D	D	D	D	D	D	D	D	D	D

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: De Baca, Guadalupe, Harding, Quay, San Miguel

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 : San Miguel, Quay, Guadalupe, De Baca and Chaves.

Characteristic Soils Are:

Hassell	Ranier
Regnier	Vernon

Other Soils included are:

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	12/11/02	George Chavez	2/12/03