

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R070XB061NM

Site Name: Sandhills

Precipitation or Climate Zone: 13 to 16 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on coarse-textured eolian and alluvial sediments on the upland plains. The landscape is typically a complex of vegetated sand ridges and sand swales. The ridges tend to arrange themselves in a chain extending parallel in the direction of the prevailing winds. The sand ridges generally extend to a tip then collapse causing this side to be concave on the leeward side and generally convex on the windward side. Slopes range from gently sloping to hilly. Slopes are complex and range from 1 to 25 percent. Exposure varies and is generally not significant. Elevation ranges from 3,500 to 4,200 feet above sea level.

Land Form:

1. Dune
2. Swale
- 3.

Aspect:

1. N/A
- 2.
- 3.

	Minimum	Maximum
Elevation (feet)	3,500	4,200
Slope (percent)	1	25
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 deep and excessively drained. The surface textures are fine sand or loamy fine sand and extend to a depth of 60 inches or more. The soils have rapid permeability. Available water capacity is low. The plant-soil-air-water relationship is fair. Because of the coarse textures and rapid drying of the surface, the soil if unprotected by plant cover and organic residue, becomes wind blown and converts rapidly to unstable dunes.

Parent Material Kind: Eolian sands

Parent Material Origin: Sandstone-unspecified

Surface Texture:

1. Fine sand
2. Loamy fine sand
3.

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: Sandy

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

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

Subsurface Fragments <=3" (%Volume): N/A

Subsurface Fragments >=3" (%Volume): N/A

	Minimum	Maximum
Drainage Class:	Well	Excessively
Permeability Class:	Rapid	Rapid
Depth (inches):	60	>72
Electrical Conductivity (mmhos/cm):	N/A	N/A
Sodium Absorption Ratio:	N/A	N/A
Soil Reaction (1:1 Water):	6.6	8.4
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 grassland dominated by warm-season tall and mid-grasses. Short grasses, shrubs, half-shrubs, perennial and annual forbs make up the remainder of the plant community. Forbs generally fluctuate greatly from year to year, being the most abundant in years of early spring precipitation. Forbs and woody species are evenly distributed.

Canopy Cover:

Trees	0
Shrubs and half shrubs	10 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	25
Bare ground	35
Surface gravel	0
Surface cobble and stone	0
Litter (percent)	30
Litter (average depth in cm.)	3

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	825	1,350	1,875
Forb	110	180	250
Tree/Shrub/Vine	165	270	375
Lichen			
Moss			
Microbiotic Crusts			
Total	1,100	1,800	2,500

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	ANHA	Sand Bluestem	288 – 360	288 – 360
2	SPCR SPFL2 SPCO4	Sand Dropseed Mesa Dropseed Spike Dropseed	180 – 216	180 – 216
3	SCSC	Little Bluestem	144 – 180	144 – 180
4	CAGI3	Giant Sandreed	90 – 126	90 – 126
5	SONU2	Indiangrass	72 – 108	72 – 108
6	PASE5 ERAGR	Sand Paspalum Lovegrass spp,	54 – 90	54 – 90
7	SEVU2	Plains Bristlegrass	54 – 90	54 – 90
8	BOHI2	Hairy Grama	54 – 90	54 – 90
9	ARIST	Threawn spp.	36 – 72	36 – 72
10	CELO3	Field Sandbur	0 – 36	0 – 36
11	DICOA PAHA	Fall Witchgrass Halls Panicum	36 – 72	36 – 72
12	2GA	Other Annual Grasses	0 – 36	0 – 36

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
13	HEAN3	Annual Sunflower	36 – 72	36 – 72
14	ERAN4	Annual Buckwheat	36 – 72	36 – 72
15	BRASS2	Annual Mustard	36 – 72	36 – 72
16	GAURA	Gaura spp.	18 – 36	18 – 36
17	HYRI	Rubberweed	18 – 36	18 – 36
18	MEMU3 SPHAE AMTR	Stickleaf Globemallow spp. Perennial Ragweed	18 – 36	18 - 36
19	2FA	Other Annual Forbs	36 – 72	36 – 72
20	2FP	Other Perennial Forbs	36 – 72	36 – 72

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
21	QUHA3	Shinnery Oak	0 – 180	0 – 180
22	ARFI2	Sand Sagebrush	90 – 126	90 – 126
23	ERICA	Rabbitbrush spp.	18 – 54	18 – 54
24	YUGL	Small Soapweed Yucca	0 – 36	0 – 36
25	GUSA2 SENEC OPPO	Broom Snakeweed Groundsel Plains Pricklypear Cactus	0 – 54	0 – 54

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 4011NM

Growth Curve Name: HCPC

Growth Curve Description: Grassland with warm-season tall and mid-grasses and minor components of shrubs and forbs.

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 habitat, which supports a resident animal community that is characterized by pronghorn antelope, badger, desert cottontail, spotted grounds squirrel, plains pocket mouse, Ord's kangaroo rat, prairie falcon, lesser prairie chicken, burrowing owl, bullsnake, ornate box turtle and round-tailed horned lizard. The upland plover breeds in these sites.

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
Berwolf	A
Blowout Area	A
Dunes	A
Roswell	A
Tivoli	A

Recreational Uses:

Recreation potential is limited due to the lack of access roads for two-wheel drive vehicles, loose sands, lack of live water and the lack of shade. The terrain typical of the "wide open spaces" of the area enhances aesthetic appeal. Hunting for prairie chicken is good to excellent. Hunting for antelope is fair to good. Photography of prairie chickens during their "booming" season is excellent to good. The natural beauty is enhanced by the large variety of flowering forbs that bloom from early spring to late fall and the varying color hues of the bluestem species.

Wood Products:

This site produces no wood products.

Other Products:

Grazing:

This site can be grazed any season of the year except during the spring when shinnery oak is in the late bud and early leaf stage. During this period (normally six weeks) domestic livestock should be removed from pastures with this site because shinnery oak is toxic. Care must be taken in years of high production of acorns. The acorns are also poisonous and are relished by livestock. Immediately following this stage, shinnery oak provides forage for livestock for about six weeks before the leaf becomes tough and brittle. Cattle, goats and sheep due to the variety of grasses, forbs and shrubs can graze this site. However, cattle most efficiently utilize it. Continuous, yearlong grazing by cattle results in a plant community of low forage value plants such as threawn spp., field sandbur, shinnery oak, small soapweed, sand sagebrush and forbs. This condition is usually accompanied by reduced ground cover causing wind erosion. A system of deferred grazing, which varies the season of grazing and rest, is needed to maintain or improve a healthy well-balanced plant community. Rest in different seasons benefits different plants. Winter rest will benefit all woody species. Spring rest will encourage forb production and benefit New Mexico feathergrass. Summer rest (July-September) allows species such as sand bluestem and little bluestem to grow and reproduce. Fall rest allows all warm-season species to complete their growth cycle and mature. Shinnery oak can be best utilized if cattle are concentrated into a small pasture immediately following the toxic state until leaves become tough and brittle.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	2.3 – 5.5
75 – 51	3.5 – 6.7
50 – 26	5.3 – 12.0
25 – 0	12.0+

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
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	D	P	P	P	P	P	D	D	D
Sand Bluestem	<i>Andropogon hallii</i>	EP	D	D	D	D	P	P	P	P	P	D	D	D
Hairy Grama	<i>Bouteloua hirsuta</i>	EP	D	D	D	D	P	P	P	P	P	D	D	D
Plains Bristlegrass	<i>Setaria vulpiseta</i>	EP	D	D	D	D	P	P	P	P	P	D	D	D
Fall Witchgrass	<i>Digitaria cognata cognata</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
Sand Paspalum	<i>Paspalum setaceum</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
Indiangrass	<i>Sorghastrum nutans</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
Rabbitbrush	<i>Ericameria 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
Annual Sunflower	<i>Helianthus annuum</i>	EP	U	U	U	U	U	D	D	D	U	U	U	U
Giant Sandreed	<i>Calamovilfa gigantea</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
Halls Panicum	<i>Panicum hallii</i>	EP	D	D	D	D	P	P	P	P	P	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
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	D	D	P	P	P	D	D	D	D	D	D	D
Hairy Grama	<i>Bouteloua hirsuta</i>	EP	D	D	D	D	P	P	P	P	P	D	D	D
Halls Panicum	<i>Panicum hallii</i>	EP	D	D	D	D	P	P	P	P	P	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 Sunflower	<i>Helianthus annuum</i>	EP	U	U	U	U	U	D	D	D	U	U	U	U
Hairy Grama	<i>Bouteloua hirsuta</i>	EP	D	D	D	D	P	P	P	P	P	D	D	D
Halls Panicum	<i>Panicum hallii</i>	EP	D	D	D	D	P	P	P	P	P	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
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	U	U	D	D	D	U	U	D	D	D	U	U
Hairy Grama	<i>Bouteloua hirsuta</i>	EP	D	D	D	D	P	P	P	P	P	D	D	D
Halls Panicum	<i>Panicum hallii</i>	EP	D	D	D	D	P	P	P	P	P	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: Chaves, De Baca, Roosevelt

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:

Berwolf	Blowout Area
Dunes	Roswell
Tivoli	

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
<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	12/02/02	George Chavez	2/11/03