

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R077BY010NM

Site Name: Deep Sand

Precipitation or Climate Zone: 15 to 16 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs as a band or chain of low, subdued dunes and hummocky sands of the upland plains. These dunes may occur scattered throughout the rolling landscape. The site may occur as narrow delineations along intermittent stream terraces. Slopes are complex and range from 0 to 9 percent. Elevation ranges from 4,300 to 5,300 feet above sea level. The exposure varies and is not significant.

Land Form:

1. Sand sheet
2. Dune
- 3.

Aspect:

1. N/A
- 2.
- 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”.

Precipitation averages from about 15 to 16 inches annually, with approximately 75 percent of this yearly moisture falling during the period of May through October. Most summer rainfall is associated with usually brief afternoon and evening thundershowers, which occasionally produce heavy rain over a small area, and sometimes bring a little hail. Winters are generally dry, with only one or two days a month when as much as one-tenth inch of moisture falls. However, winters average 20 inches of snow, though most snowfalls are light with an occasional storm producing up to six inches. Following these storms, snow may lie on the ground for several days; and occasionally moderate to strong winds accompanying these storms result in blizzard conditions and heavy drifting. Although the precipitation patterns favor the production of warm-season plants, sufficient moisture is received in the late winter and the spring to support cool-season plants. Approximately 25 percent of the annual precipitation is received during April and May. May is generally the wettest month followed by July and then August.

Temperatures show the seasonal changes and large annual and diurnal ranges, characteristic of such a climate. Summers are generally mild; high daily temperature readings exceed 90 degrees F about one-third of the time, and readings of 100 degrees F occur about once a year. Rapid cooling after sundown results in minimum temperatures below 60 degrees F on most nights, even in midsummer. Winter shade temperatures usually rise to the mid-40's, and an average of only 15 days fails to see temperatures rise above the freezing mark. Winter nighttime temperatures fall below the freezing mark most of the time from early November through March; below zero readings occur on an average of only three times a year.

The freeze-free season ranges from 168 days to 171 days between April 28th to October 16th. Both temperatures and annual precipitation favor warm-season plants. About 40 percent of the annual precipitation is received during the season where temperatures will benefit cool-season plants, and only 10 percent falls during the dormant season.

While open to winter invasions of arctic air over the Great Plains, this area is far enough south and west to miss many of these outbreaks. Mountains to the north and west intercept much of the precipitation from the Pacific northwest storms coming through this area during the winter. An average hourly wind velocity for the year is 15 mile per hour. Somewhat higher winds prevail during the spring months, but velocities exceeding 24 miles per hour are experienced only 10 percent of the usual year. Stronger winds blow chiefly from a westerly or southwesterly direction during the spring. Relative humidity is moderately low.

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):	158	191
Freeze-free period (days):	177	220
Mean annual precipitation (inches):	15	16

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

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.28	.38	18.5	50.1
February	.32	.40	21.9	58.7
March	.64	.69	26.3	61.6
April	.89	1.35	34.2	70.9
May	2.08	2.56	43.6	79.3
June	1.82	2.07	52.5	88.4
July	2.60	2.93	57.5	91.7
August	1.68	2.97	56.1	89.5
September	1.55	1.90	49.3	82.8
October	1.10	1.32	38.0	79.2
November	.41	.60	26.8	59.9
December	.38	.50	20.1	51.3

Climate Stations:

Station ID	Location	From:	To:
290377	Amistad 3 ESE, NM	04/01/25	12/31/01
291887	Clayton WSO Airport, NM	2/1/1896	12/31/01
293878	Hayden, NM	01/01/14	09/30/65
295937	Mosquero, NM	12/01/15	12/31/01
297638	Roy, NM	01/01/14	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, well drained and are calcareous on the surface and throughout their profile. The surface layer is loam, sandy loam or fine sandy loam 6 to 8 inches thick. The subsurface is clay loam or loam. The permeability is moderate to moderately rapid. The available water-holding capacity is moderate. Effective rooting depth is 60 inches with some limitations for depth below 20 inches due to dense lime. The calcium content of these soils has a direct effect on the kinds and amounts of vegetation produced.

Parent Material Kind: Eolian Sands

Parent Material Origin: Sandstone - unspecified

Surface Texture:

1. Loam
2. Sandy loam
3. Fine sandy loam

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: Clayey, Loamy

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

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

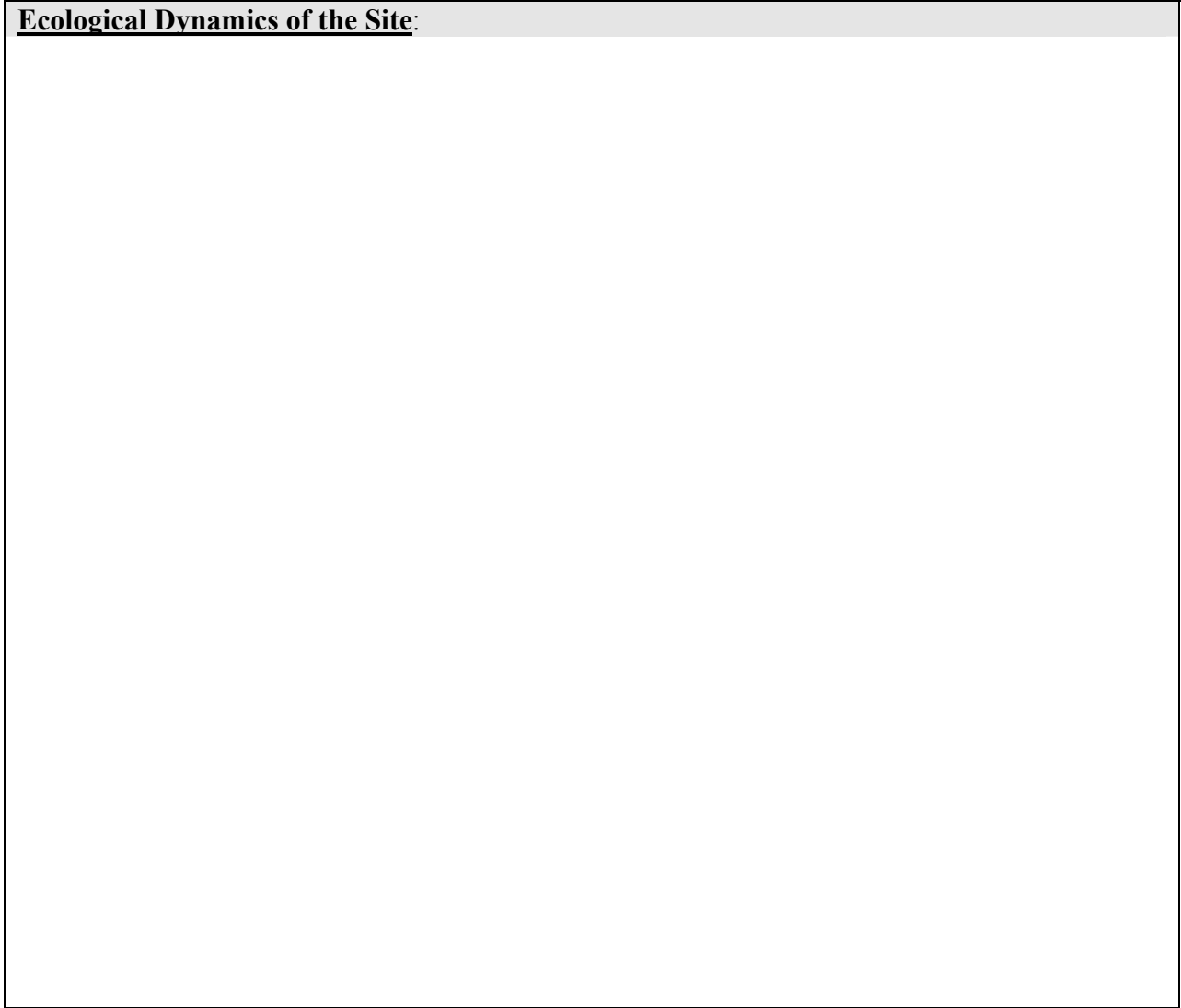
Subsurface Fragments <=3" (%Volume): N/A

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

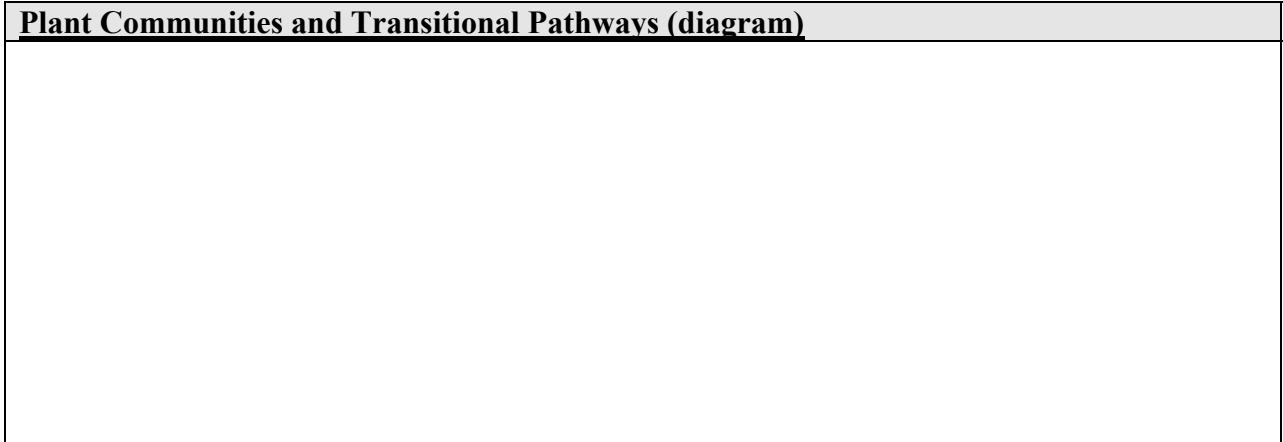
	Minimum	Maximum
Drainage Class:	Well	Well
Permeability Class:	Moderate	Moderately rapid
Depth (inches):	60	>72
Electrical Conductivity (mmhos/cm):	N/A	N/A
Sodium Absorption Ratio:	N/A	N/A
Soil Reaction (1:1 Water):	N/A	N/A
Soil Reaction (0.1M CaCl2):	N/A	N/A
Available Water Capacity (inches):	6	9
Calcium 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 grassland dominated by warm-season mid and tall grasses with scattered woody species. Cool-season grasses and forbs make up an important component of the plant community.

Canopy Cover:

Trees	0
Shrubs and half shrubs	5 – 10 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	25 – 30
Bare ground	30 – 35
Surface gravel	0
Surface cobble and stone	0
Litter (percent)	20 – 25
Litter (average depth in cm.)	4

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	1,014	1,482	1,950
Forb	104	152	200
Tree/Shrub/Vine	104	152	200
Lichen			
Moss			
Microbiotic Crusts			
Total	1,300	1,900	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	190 – 285	190 – 285
2	SCSC	Little Bluestem	190 – 285	190 – 285
3	SPCR SPCO4	Sand Dropseed Spike Dropseed	190 – 285	190 – 285
4	HENE5 HECO26	New Mexico Feathergrass Needleandthread	95 – 190	95 – 190
5	ACHY	Indian Ricegrass	57 – 95	57 – 95
6	BOHI2	Hairy Grama	95 – 190	95 – 190
7	PAVI2 CAGI3 SONU2	Switchgrass Giant Sandreed Indiangrass	57 – 95	57 – 95
8	ARIST	Threawn spp.	57 – 95	57 – 95
9	2GRAM	Other Grasses	57 – 95	57 – 95

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	HELIA3 ERIOG	Sunflower Buckwheat	57 – 95	57 – 95
11	2FORB	Other Forbs	57 – 95	57 – 95

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
12	ARFI2	Sand Sagebrush	152 – 190	152 – 190
13	2SD	Other Shrubs	57 – 95	57 – 95

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: fall witchgrass, Hall’s panicum, hooded windmillgrass, sideoats grama, and red lovegrass.

Other shrubs include: yucca spp., broom snakeweed, and skunkbush sumac.

Other forbs include: globemallow spp., scurfpea, scarlet gaura, and dalea spp.

Plant Growth Curves

Growth Curve ID 4904NM

Growth Curve Name: HCPC

Growth Curve Description: Mixed mid/tall warm-season grassland with scattered shrubs and a major component of forbs and cool-season grasses.

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:

No Data

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
Bankard	A
Karde	?
Kim	?
Spurlock	?
Valent	A

Recreational Uses:

Recreation potential of this site is limited due to the lack of access roads for two-wheel drive vehicles, lack of live water and lack of shade. Picnicking, hiking, and camping are limited because of the loose sands. The terrain typical of the “wide open spaces” of the area enhances the aesthetic appeal. Hunting for rabbits, upland game birds and antelope is fair. The natural beauty is enhanced by the variety of flowering plants that bloom from spring to fall and the varying color hues of the vegetation as it matures.

Wood Products:

This site has no potential for wood production.

Other Products:

Grazing:

This site can be grazed any season of the year by all classes of livestock, generally without regard to age. However, cattle most efficiently utilize it. The variety of grasses, forbs and half-shrubs furnishes good nutrition to grazing animals during most seasons of the year.

Approximately 90 percent of the annual production furnish forage for grazing animals.

Continuous grazing or grazing continually during the period from April through October by cattle will result in a plant community dominated by low forage value species such as sand dropseed, sand sagebrush, yucca and threeawn spp. Sand sagebrush and yucca may increase to the extent that they are the dominant vegetation. 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 (April – June) encourages forb production and will benefit New Mexico feathergrass and needleandthread. Summer rest (July – September) benefits warm-season grasses such as sand bluestem, sideoats grama, and little bluestem to grow and reproduce. Fall rest allows plants to complete their growth cycle. New Mexico feathergrass and needleandthread is utilized readily by cattle in the spring and fall and least utilized in the summer when the awns interfere with utilization and may injure cattle. Although utilization in June is detrimental to stands of needleandthread and New Mexico feathergrass, a quick, moderate cropping when the heads are in the boot stage of development, can remove the heads and prevent subsequent interference and injury to cattle by the awns. For this purpose, the timing and degree of use must be determined on limited areas, preferably when soil moisture is adequate for regrowth, and should be followed by a period of deferment.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	2.0 – 3.0
75 – 51	2.6 – 4.5
50 – 26	3.4 – 8.8
25 – 0	8.8+

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
Little Bluestem	<i>Schizachyrium scoparium</i>	EP	D	D	D	P	P	P	P	D	D	D	D	D
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	D	D	P	P	P	D	D	D	D	D	D	D
Needleandthread	<i>Hesperostipa comata</i>	EP	D	D	P	P	P	D	D	D	D	D	D	D
Sand Bluestem	<i>Andropogon hallii</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
Switchgrass	<i>Panicum virgatum</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
Indian Ricegrass	<i>Achnatherum hymenoides</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Sunflower	<i>Helianthus spp.</i>	EP	U	U	U	U	U	D	D	D	U	U	U	U

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
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	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
Sideoats Grama	Bouteloua curtipendula	EP	D	D	D	D	D	D	D	D	D	D	D	D
Sunflower	Helianthus spp.	EP	U	U	U	U	U	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
Sunflower	Helianthus spp.	EP	U	U	U	U	U	D	D	D	U	U	U	U
Buckwheat	Eriogonum spp.	EP	U	U	D	D	D	D	D	D	U	U	U	U

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: Union

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: Union, Harding Colfax.

Characteristic Soils Are:

Bankard	Karde
Valent	

Other Soils included are:

Spurlock	Kim
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Site Description Approval:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	05/23/84	Donald H. Fulton	06/13/84

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	05/22/01	George Chavez	12/18/02