UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R077BY011NM

Site Name: High Lime

Precipitation or Climate Zone: 15 to 16 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs intermittently on nearly level to sloping uplands. This site commonly occurs on the leeward side of playa lakes and may in effect be a large low dune formed by deposition of wind blown material from the lake floor. Slopes range from 0 to 9 percent. Elevation is from 4,800 to 5,800 feet above sea level. The exposure is generally to the south and west but may vary and is not significant.

Land Form:

1. Alluvial flat
2. Dune
3.

Aspect:

1. South and west
2.
3.

	Minimum	Maximum
Elevation (feet)	4,800	5,800
Slope (percent)	0	9
Water Table Depth (inches)	N/A	N/A

Flooding:	**Minimum**	**Maximum**
Frequency	Occasional	Frequent
Duration	Very Brief	Brief

Ponding:	**Minimum**	**Maximum**
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 thunderstorms, 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 mid-summer. Winter shade temperatures usually rise to the mid 40's, and an average of only 15 days fail 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 miles 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 (^{0}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:

				Period		
Station ID	290377	Location	Amistad 3 ESE, NM	From: 04/01/25	To:	12/31/01
Station ID	291887	Location	Clayton WSO Airport, NM	From: 2/1/1896	To:	12/31/01
Station ID	293878	Location	Hayden, NM	From: 01/01/14	To:	09/30/65
Station ID	295937	Location	Mosquero, NM	From: 12/01/15	To:	12/31/01
Station ID	297638	Location	Roy, NM	From: 01/01/14	To:	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: Alluvium
Parent Material Origin: Mixed

Surface Texture:

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

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: Loamy clay
Surface Fragments <=3" (% Cover): N/A
Surface Fragments >3" (% Cover): N/A

Subsurface Fragments <=3" (%Volume): 0 to 21
Subsurface Fragments >=3" (%Volume): 0 to 2

	Minimum	Maximum
Drainage Class:	Well	Excessively
Permeability Class:	Moderately slow	Rapid
Depth (inches):	60	>72
Electrical Conductivity (mmhos/cm):	0.00	8.00
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):	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 grasses. Cool-season grasses and warm-season short grasses make up an important portion of the plant community. Woody species and forbs occupy only a minor portion of the community. The calcium content of the soils has a direct effect on the kinds as well as the amount of vegetation produced.

Canopy Cover:	
Trees	0
Shrubs and half shrubs	0 – 5 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	25 – 30
Bare ground	35 – 40
Surface gravel	0
Surface cobble and stone	0
Litter (percent)	20 – 25
Litter (average depth in cm.)	3

Plant Community Annual Production (by plant type):

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	704	1,012	1,320
Forb	32	46	60
Tree/Shrub/Vine	32	46	60
Lichen			
Moss			
Microbiotic Crusts			
Total	800	1,150	1,500

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	BOGR2	Blue Grama	173 – 230	173 – 230
2	BOCU	Sideoats Grama	173 – 230	173 – 230
3	SPCR	Sand Dropseed	115 – 173	115 – 173
4	SCSC	Little Bluestem	58 – 115	58 – 115
5	SPAI	Alkali Sacaton	58 – 115	58 – 115
6	PASM	Western Wheatgrass	58 – 115	58 – 115
7	PLJA	Galleta	58 – 115	58 – 115
8	BOHI2	Hairy Grama	35 – 58	35 – 58
9	ELEL5	Bottlebrush Squirreltail	35 – 58	35 – 58
10	HENE5	New Mexico Feathergrass	35 – 58	35 – 58
11	2GRAM	Other Grasses	0 – 58	0 - 58

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
12	SOEL	Silverleaf Nightshade	0 – 58	0 – 58
13	2FA	Annual Forbs	0 – 58	0 – 58
14	2FP	Perennial Forbs	0 – 58	0 – 58

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
15	KRLA2 ATCA2 2SD	Winterfat Fourwing Saltbush 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 grasses that could appear on this site include: Indian ricegrass, ring muhly, mat muhly, threeawn spp., silver bluestem, cane bluestem, inland saltgrass and vine-mesquite.
Other shrubs include: small soapweed yucca, fringed sagewort, and Bigelow sagewort.
Other forbs include: dotted gayfeather, heathaster, and globemallow spp.

Plant Growth Curves

Growth Curve ID **4905NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **Warm-season midgrass grassland with a major component of cool-season grasses and warm-season short grasses also a minor component 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:

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
Bankark	A
Karde	B
Kim	B
Spurlock	B
Valent	A

Recreational Uses:

This site provides very limited recreation potential due to the windblown material, lack of live water and shade. It provides poor hiking, camping and picnicking.

Wood Products:

This site has not significant potential wood production.

Other Products:

Grazing:

This site can be grazed any season of the year by all classes of livestock. Approximately 90 percent of the total annual production is from species that furnish forage for grazing animals. There is a large variety of grasses that furnish good nutrition for livestock during most seasons of the year. Protein supplement is normally needed only during the late winter months. Continuous grazing yearlong or grazing continually during the period from April to October will cause the plant community to deteriorate. Species such as sideoats grama, blue grama, western wheatgrass and winterfat will decrease and are replaced by alkali sacaton, inland saltgrass, broom snakeweed and annual forbs. The decline in the plant community is usually accompanied by loss of plant cover causing a severe soil-blowing problem. Generally, this site is among the first to be overgrazed due to the proximity of the site to the intermittent playas where many pit tanks are constructed making water available longer. A system of deferred grazing is needed to maintain or improve a healthy well-balanced plant community. Deferment during different seasons of the year benefits different plants. Winter deferment benefits winterfat and fourwing saltbush. Spring (April – June) rest benefits forbs and cool-season grasses such as western wheatgrass, New Mexico feathergrass and bottlebrush squirreltail. Summer (July – September) rest benefits warm-season plants such as sideoats grama, blue grama, and little bluestem. Summer rest allows the cool-season species to complete their growth cycle. Fall rest allows warm-season plants to complete their growth cycle.

Other Information:	
Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month	
Similarity Index	**Ac/AUM**
100 - 76	2.4 – 4.0
75 – 51	3.3 – 4.9
50 – 26	4.2 – 6.5
25 – 0	6.5+

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	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	D	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Winterfat	Krascheninnikovia lanata	L/S	D	D	P	P	P	P	P	P	D	D	D	D
Fourwing Saltbush	Atriplex canescens	L/S	P	P	P	P	P	D	D	D	D	D	D	P

Animal Kind: Livestock
Animal Type: Horses

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
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	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
Sideoats Grama	Bouteloua curtipendula	EP	D	D	D	D	D	D	D	D	D	D	D	D
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
Winterfat	Krascheninnikovia lanata	L/S	P	P	P	P	P	P	P	P	P	P	P	P

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	Krascheninnikovia lanata	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: **Colfax, Harding, Mora, San Miguel, 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:	
Karde	
Other Soils included are:	
Bankard	Kim
Spurlock	Valent

Site Description Approval:

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

Site Description Revision:

Author	Date	Approval	Date
Elizabeth Wright	06/05/02	George Chavez	12/18/02