UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R077BY009NM

Site Name: Gravelly

Precipitation or Climate Zone: 15 to 16 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site is located on the convex terraces along the tops of ridges and on slopes between low ridges. Slopes are convex and range from 1 to 25 percent. Elevation ranges from 4,800 to 7,200 feet above sea level. The exposure varies and is significant only on the moderately steep north facing slopes.

Land Form:

1. Terrace
2. Ridge
3.

Aspect:

1. North
2.
3.

	Minimum	Maximum
Elevation (feet)	4,800	7,200
Slope (percent)	1	25
Water Table Depth (inches)	N/A	N/A

Flooding:	**Minimum**	**Maximum**
Frequency	N/A	N/A
Duration	N/A	N/A

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 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 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 temperature 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 the site are deep and excessively drained. The surface layer is sand or loamy sand about 4 to 7 inches thick. The underlying layer of sand extends to a depth of 60 inches or more. The soils have rapid permeability. The available water-holding capacity is low. The plant-soil-water-air relationship is fair to good. Because of the surface texture and rapid drying of the surface, is unprotected by plant cover and organic residue, it becomes wind blown and hummocks or dunes are formed around shrubs.

Parent Material Kind: Alluvium
Parent Material Origin: Mixed

Surface Texture:

1. Gravelly loam
2. Loamy sand
3. Sand

Surface Texture Modifier:

1. Gravel
2.
3.

Subsurface Texture Group: Sandy
Surface Fragments <=3" (% Cover): 15 to 35
Surface Fragments >3" (% Cover): N/A

Subsurface Fragments <=3" (%Volume): 72 to 106
Subsurface Fragments >=3" (%Volume): 11 to 17

	Minimum	Maximum
Drainage Class:	Well	Excessively
Permeability Class:	Moderately slow	Moderately rapid
Depth (inches):	60	>72
Electrical Conductivity (mmhos/cm):	0.00	2.00
Sodium Absorption Ratio:	N/A	N/A
Soil Reaction (1:1 Water):	7.4	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 short and mid grasses dotted with half-shrubs. Woody species, forbs and cool-season grasses make up an important component of the plant community and are evenly distributed.

Canopy Cover:	
Trees	0
Shrubs and half shrubs	5 – 10 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	15 – 25
Bare ground	15 – 20
Surface gravel	0 – 5
Surface cobble and stone	15 – 20
Litter (percent)	10 – 15
Litter (average depth in cm.)	5

Plant Community Annual Production (by plant type):

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	183	383	584
Forb	33	68	104
Tree/Shrub/Vine	33	68	104
Lichen			
Moss			
Microbiotic Crusts			
Total	250	525	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	BOHI BOGR2 SCSC BOCU	Hairy Grama Blue Grama Little Bluestem Sideoats Grama	79 – 105	79 – 105
2	LYPH	Wolftail	16 – 26	16 – 26
3	HENE5 HECO26	New Mexico Feathergrass Needleandthread	53 – 79	53 – 79
4	ARIST	Threeawn spp.	16 – 26	16 – 26
5	2GRAM	Other Grasses	16 – 26	16 – 26

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
6	RACO3	Prairie Coneflower	16 – 26	16 – 26
	ERIOG	Buckwheat spp.		
	2FP	Perennial Forbs		
	2FA	Annual Forbs		

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
7	YUCCA	Yucca spp.	16 – 26	16 – 26
8	QUGA	Gambel Oak	16 – 26	16 – 26
9	ARBI3	Bigelow Sagebrush	16 – 26	16 – 26
	ARFR4	Fringed Sagewort		
	2SD	Other Shrubs		

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: silver bluestem, big bluestem, bottlebrush squirreltail, spike muhly, ring muhly, sand dropseed and sedges.
Other shrubs include: skunkbush sumac, winterfat, and broom snakeweed.
Other forbs include: globemallow spp., stickleaf, and locoweed spp.

Plant Growth Curves

Growth Curve ID **4903NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **Mixed short/mid warm-season grassland with scattered shrubs and an important component of woody species, 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**
Guy	B
Campus	B
Valent	?
Bankard	?
Tinaja	B

Recreational Uses:

This site provides limited recreation potential due to the lack of live water and shade. It is poor for screening. Hiking, camping, and picnicking are fair. Hunting is fair to good for antelope, rabbits and upland game birds. This site has fair aesthetic appeal and natural beauty due to the large variety of forbs that bloom from spring to fall.

Wood Products:

This site has no potential for wood products.

Other Products:

Grazing:

This site can be grazed any season of the year by all kinds of livestock, generally without regard to age. A portion of the total stocking rate favors sheep and antelope due to the site's potential to produce forbs. The large variety of plants provides good nutrition during most seasons of the year. Supplemental protein is needed only during late winter. Emergency feed is required during heavy snow cover; however, this site is among the first that the snow will melt off. This site is among the first to "green-up" in the spring and will usually respond to light amounts of rainfall. Continuous year long grazing or grazing continually by cattle during the period from April through October will cause the site to deteriorate and become less productive. Species such as sideoats grama, little bluestem, New Mexico feathergrass, needleandthread and winterfat will decrease and blue grama, threeawn spp., wolftail, tridens, broom snakeweed and forbs will increase. A system of deferred grazing, which varies the season of grazing and rest in each pasture during successive years, is needed to maintain or improve the plant community. Different seasons of rest and grazing benefit different plants. Spring rest (April – June) will allow cool-season forbs and grasses such as New Mexico feathergrass and needleandthread to grow and reproduce. Summer rest will benefit warm-season grasses such as sideoats grama, little bluestem and blue grama. Fall rest allows plants to complete their growth cycle. Winter rest will benefit the woody species such as winterfat and sagebrush. Grazing is beneficial after the seed set and aids in trampling in the seed.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	2.9 – 4.0
75 – 51	3.4 – 6.8
50 – 26	4.3 – 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
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	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
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
Prairie Coneflower	Ratibida columnifera	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: Wildlife
Animal Type: Antelope

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Prairie Coneflower	Ratibida columnifera	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
Buckwheat	Eriogonum spp.	EP	U	U	D	D	D	D	D	D	U	U	U	U
Globemallow	Sphaeralcea 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: **Colfax, Harding, 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:	
Campus	Guy
Tinaja	
Other Soils included are:	
Bankard	

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	05/22/02	George Chavez	12/18/02