UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R077XA007NM

Site Name: Swale

Precipitation or Climate Zone: 15 to 16 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs as lower lying drainageways, playa lakes, or other depressional areas where moisture accumulates as a result of runoff from the surrounding higher sites. This site receives significant amounts of runoff from the adjacent sites that increases the effective moisture with an increase in the plant production.

Slopes generally range from 0 to 3 percent but may range up to 5 percent. Elevation ranges from 4,300 feet to 7,500 feet above sea level.

Land Form:

1. Drainageway
2. Playa
3.

Aspect:

1. N/A
2.
3.

	Minimum	Maximum
Elevation (feet)	4,300	7,500
Slope (percent)	0	5
Water Table Depth (inches)	N/A	N/A

Flooding:	**Minimum**	**Maximum**
Frequency	Rare	Occasional
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 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, winter average 20 inches of snow, although 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. The high daily temperature reading 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 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 mush 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 mile 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:

These soils are deep, moderately and well drained. Surface textures are fine sandy loam, loam, silty clay loam, clay loam or clay. The subsurface textures are loam, clay loam, silty clay loam or clay. Permeability is moderately slow to slow. The available water-holding capacity is high. Rooting depth is from 30 to 60 inches or more. The soil and water plant relationship is favorable for plant growth.

Parent Material Kind: Alluvium
Parent Material Origin: Mixed

Surface Texture:

1. Fine sandy loam
2. Loam
3. Silty clay loam
4. Clay loam
5. Clay

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: Loamy, Clayey
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:	Moderately	Well
Permeability Class:	Slow	Moderately slow
Depth (inches):	30	>72
Electrical Conductivity (mmhos/cm):	0.00	8.00
Sodium Absorption Ratio:	N/A	N/A
Soil Reaction (1:1 Water):	6.6	9.0
Soil Reaction (0.1M CaCl2):	N/A	N/A
Available Water Capacity (inches):	9	12
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 mixed mid grass plant community with an occasional shrub. Warm-season mid grasses and short grasses dominate the site; however, cool-season grasses and forbs are an important component and can make up to 30 to 35 percent of the plant community. Woody species are a minor component of the plant community. This site occurs in the narrow elongated drainages that transport surface runoff from the adjacent upland sites to the bottomland. Because this site receives additonal water, the plant community produces a greater amount than the adjoining sites.

Canopy Cover:	
Trees	0
Shrubs and half shrubs	1 %
Ground Cover (Aveage Percent of Surface Area).	
Grasses & Forbs	35 – 40
Bare ground	20 – 25
Surface gravel	0
Surface cobble and stone	0
Litter (percent)	30 – 35
Litter (average depth in cm.)	5

Plant Community Annual Production (by plant type):

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	1,245	2,075	2,905
Forb	120	200	280
Tree/Shrub/Vine	45	75	105
Lichen			
Moss			
Microbiotic Crusts			
Total	1,500	2,500	3,500

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	PASM	Western Wheatgrass	500 – 625	500 – 625
2	BOGR2	Blue Grama	500 – 625	500 – 625
3	PAOB	Vine-mesquite	500 – 625	500 – 625
4	BOCU	Sideoats Grama	125 – 250	125 – 250
5	PLJA	Galleta	125 – 250	125 – 250
6	SPAI	Alkali Sacaton	75 – 125	75 – 125
7	BUDA	Buffalograss	75 – 125	75 – 125
8	SCSC	Little Bluestem	75 – 125	75 – 125
9	PAVI2	Switchgrass	75 – 125	75 – 125
10	2GRAM	Other Grasses	75 – 125	75 – 125

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
11	RACO3 DALEA HEAN3	Prairie Coneflower Prairie Clover spp. Annual Sunflower	25 – 125	25 – 125
12	2FA	Annual Forbs	75 – 125	75 – 125
13	2FP	Perennial Forbs	75 – 125	75 – 125

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
14	ARFR4 KRLA2 ATCA2	Fringed Sagewort Winterfat Fourwing Saltbush	0 – 125	0 – 125
15	2SD	Other Shrubs	0 – 125	0 – 125

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: bottlebrush squirreltail, mat muhly, creeping muhly, threeawn spp., inland saltgrass, sand dropseed, and ring muhly.
Other shrubs include: skunkbush sumac, broom snakeweed, and groundsel.
Other forbs include: western ragweed, New Mexico thistle, astragalus spp., buckwheat spp., scrufpea, feted marigold, and globemallow spp.

Plant Growth Curves

Growth Curve ID **4901NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **Mixed mid/short, warm/cool-season grassland with a major forb component and a minor shrub/woody component.**

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:

Habitat for Wildlife:

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**
La Brier	D
Bippus	C
Manzano	B
Vermejo	D

Recreational Uses:

This site provides limited recreational potential due to the lack of live water and shade. This site provides poor camping, hiking, and picnicking. Hunting for antelope and rabbits is good and hunting for upland game birds is fair to good. The natural beauty of this site is enhanced by the variety of plants that bloom from early spring to early fall.

Wood Products:

This site has no significant potential for wood products.

Other Products:

Grazing:

This site can be grazed any season of the year by all classes and kinds of livestock. Approximately 95 percent of the annual yield are from species that furnish forage for livestock. The variety of species produced by this site provides a well-balanced feed and good nutrition for grazing animals during most seasons of the year. Continuous yearlong grazing or grazing continually during the period from April through October will result in a plant community of low forage value such as galleta and broom snakeweed. Sufficient ground cover and herbage production needs to be maintained or the site will gully and the production of the site will be greatly reduced. A system of deferred grazing, which varies the season of grazing and rest during successive years, is needed to maintain or improve the plant community. Fall and winter rest will benefit western wheatgrass and bottlebrush squirreltail. Summer rest will benefit vine-mesquite, blue grama, and sideoats grama.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	1.3 – 3.5
75 – 51	2.6 – 5.0
50 – 26	3.3 – 10.0
25 – 0	10.0+

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	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Vine-mesquite	Panicum obtusum	EP	D	D	D	D	D	D	D	D	D	D	D	D
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	P	D	D	D	D	D
Fourwing Saltbush	Atriplex canescens	L/S	P	P	P	P	P	D	D	D	D	D	D	P
Annual Sunflower	Helianthus annuum	EP	U	U	U	U	U	D	D	D	U	U	U	U
Winterfat	Krascheninnikovia lanata	L/S	D	D	P	P	P	P	P	P	D	D	D	D
Switchgrass	Panicum virgatum	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
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Vine-mesquite	Panicum obtusum	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
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
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
Prairie Clover	Dalea spp.	EP	P	P	P	P	P	P	P	P	P	P	P	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
Vine-mesquite	Panicum obtusum	EP	D	D	D	D	D	D	D	D	D	D	D	D
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	P	D	D	D	D	D
Switchgrass	Panicum virgatum	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
Annual Sunflower	Helianthus annuum	EP	U	U	U	U	U	D	D	D	U	U	U	U
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
Prairie Clover	Dalea spp.	EP	P	P	P	P	P	P	P	P	P	P	P	P

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:	
Bippus	La Brier
Manzano	Vermejo
Other Soils included are:	

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	05/21/02	George Chavez	12/18/02