

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R070XB057NM

Site Name: Swale

Precipitation or Climate Zone: 13 to 16 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site is on ungullied concave nearly level to gently sloping swales and drainages. This site receives significant amount of runoff from the adjoining sites. Slopes range from 0 to 5 percent.

This site is at elevations between 3,800 to 4,800 feet above sea level. Aspect varies and is not significant. This site is a minor component of upland landscapes or management units.

Land Form:

1. Swale
2. Drainageway
- 3.

Aspect:

1. N/A
- 2.
- 3.

	Minimum	Maximum
Elevation (feet)	3,800	4,800
Slope (percent)	0	5
Water Table Depth (inches)	N/A	N/A
	Minimum	Maximum
Flooding:		
Frequency	Rare	Rare
Duration	Brief	Brief
	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:

These soils are moderately deep to deep and moderately well drained to well drained. Surface layers are fine sandy loam, silty clay loam, clay loam, or clay. The subsoil horizons are loam, clay loam, silty clay loam or clay. Permeability is moderately slow to slow. Available water-holding capacity is high. Rooting depth is 40 to 60 inches or more. The air-water-plant relationship is favorable for plant growth.

Parent Material Kind: Alluvium

Parent Material Origin: Mixed

Surface Texture:

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

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: 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	Well
Permeability Class:	Impermeable	Slow
Depth (inches):	40	>72
Electrical Conductivity (mmhos/cm):	0.00	8.00
Sodium Absorption Ratio:	N/A	N/A
Soil Reaction (1:1 Water):	6.6	9.6
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 grassland with an occasional shrub or half-shrub. Warm-season mid-grasses dominate the site with a variety of short grasses and forbs. Cool-season grasses and forbs make up a minor component. This site occurs in the narrow elongated drainages that transport surface runoff from adjoining upland sites to the bottomlands. Because the site receives additional water, the plant community is more productive than the adjoining upland sites.

Canopy Cover:

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

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	1,020	1,700	2,380
Forb	120	200	280
Tree/Shrub/Vine	60	100	140
Lichen			
Moss			
Microbiotic Crusts			
Total	1,200	2,000	2,800

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	PAOB	Vine-mesquite	580 – 620	580 – 620
2	BOGR2	Blue Grama	480 – 520	480 – 520
3	BOCU	Sideoats Grama	200 – 240	200 – 240
4	SPAI	Alkali Sacaton	140 – 180	140 – 180
5	PLJA PLMU3	Galleta Tobosa	100 – 140	100 – 140
6	PASM	Western Wheatgrass	100 – 140	100 – 140
7	ELEL5	Bottlebrush Squirreltail	60 – 100	60 – 100
8	BUDA BOBA3 DICA8	Buffalograss Cane Bluestem Arizona Cottontop	40 – 80	40 – 80
9	ARIST MURI MURE	Threawn spp. Mat Muhly Creeping Muhly	0 – 40	0 – 40

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	HEAN3 RACO3 SPHAE CHENO	Annual Sunflower Prairie Coneflower Globemallow spp. Goosefoot	20 – 80	20 – 80
11	SOEL AMPS 2FP 2FA	Silverleaf Nightshade Western Ragweed Other Perennial Forbs Other Annual Forbs	60 – 80	60 – 80

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
12	KRLA2 YUCCA	Winterfat Yucca spp.	40 – 80	40 – 80
13	ARBI3 GUSA2 SENEC	Bigelow Sagebrush Broom Snakeweed Groundsel spp.	20 – 40	20 – 40

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 4007NM

Growth Curve Name: HCPC

Growth Curve Description: Warm-season mid-grass grassland with minor components 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:

Habitat for Wildlife:

This site provides habitats, which support a resident animal community that is characterized by plains pocket gopher, meadow vole, meadowlark, woodhouse toad, great plains skunk and chorus frog.

Swallows will seasonally feed over 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
Alama	B
Minor Components	D
Montoya	D
Ranstein	B
Tucumcari	B

Recreational Uses:

This site has limited recreation potential. It provides poor to fair camping, hiking and picnicking. Hunting for antelope is good to excellent. Hunting for upland game birds and rabbits is good. The aesthetic appeal of the site is enhanced by the variety of flowering species that bloom from early spring to fall.

Wood Products:

This site produces no 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 or tobosa 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. Mesquite will easily invade where there is an available seed source. 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 winterfat. Spring 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	1.8 – 3.7
75 – 51	2.7 – 5.0
50 – 26	3.6 – 11.0
25 – 0	11.0+

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	<i>Bouteloua curtipendula</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Bottlebrush Squirreltail	<i>Elymus elymoides</i>	EP	U	U	D	D	D	U	U	U	D	D	D	U
Vine-mesquite	<i>Panicum obtusum</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Arizona Cottontop	<i>Digitaria californica</i>	EP	U	U	U	U	U	U	P	P	D	U	U	U
Western Wheatgrass	<i>Pascopyrum smithii</i>	EP	D	D	P	P	P	D	D	D	D	D	D	D
Winterfat	<i>Krascheninnikovia lanata</i>	L/S	D	D	P	P	P	P	P	P	D	D	D	D
Annual Sunflower	<i>Helianthus annuum</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
Blue Grama	<i>Bouteloua gracilis</i>	EP	D	D	D	D	P	P	P	P	D	D	D	D
Sideoats Grama	<i>Bouteloua curtipendula</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Bottlebrush Squirreltail	<i>Elymus elymoides</i>	EP	U	U	D	D	D	U	U	U	D	D	D	U
Vine-mesquite	<i>Panicum obtusum</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Western Wheatgrass	<i>Pascopyrum smithii</i>	EP	D	D	P	P	P	D	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
Bottlebrush Squirreltail	<i>Elymus elymoides</i>	EP	U	U	D	D	D	U	U	U	U	U	U	U
Vine-mesquite	<i>Panicum obtusum</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Western Wheatgrass	<i>Pascopyrum smithii</i>	EP	U	U	D	D	D	D	D	D	D	D	D	U
Winterfat	<i>Krascheninnikovia lanata</i>	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Globemallow	<i>Sphaeralcea</i> spp.	EP	U	U	D	D	D	D	D	D	U	U	U	U
Annual Sunflower	<i>Helianthus annuum</i>	EP	U	U	U	U	U	D	D	D	U	U	U	U
Goosefoot	<i>Chenopodium</i> spp.	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 Coneflower	<i>Ratibida columnifera</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

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
Bottlebrush Squirreltail	<i>Elymus elymoides</i>	EP	U	U	D	D	D	U	U	U	U	U	U	U
Western Wheatgrass	<i>Pascopyrum smithii</i>	EP	U	U	D	D	D	U	U	U	U	U	U	U
Winterfat	<i>Krascheninnikovia lanata</i>	L/S	D	D	D	D	D	D	D	D	D	D	D	D
Bigelow Sagebrush	<i>Artemisia bigelovii</i>	L/S	D	D	D	D	D	D	D	D	D	D	D	D
Globemallow	<i>Sphaeralcea</i> spp.	EP	U	U	D	D	D	D	D	D	U	U	U	U
Astragalus	<i>Astragalus</i> spp.	EP	U	U	D	D	D	D	D	D	U	U	U	U
Annual Sunflower	<i>Helianthus annuum</i>	EP	U	U	U	U	U	D	D	D	U	U	U	U
Goosefoot	<i>Chenopodium</i> spp.	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 Coneflower	<i>Ratibida columnifera</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

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, Guadalupe, Roosevelt, Quay, San Miguel

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:

Alama, Minor Components, Montoya Ranstein, Tucumcari

Other Soils included are:

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

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	11/20/02	George Chavez	2/11/03