UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R070XD155NM

Site Name: Draw

Precipitation or Climate Zone: 13 to 18 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs in a thin line bordering the large drainageways that dissect the limestone hills. This site receives and transports water from both the remote higher elevations and adjacent sites. Slopes range from 1 to 4 percent. Direction of slope is generally east to southeast but is not significant. Elevations range from 4,000 to 7,000 feet above sea level.

Land Form:

1. Draw
2. Drainageway
3.

Aspect:

1. N/A
2.
3.

	Minimum	Maximum
Elevation (feet)	4,000	7,000
Slope (percent)	1	4
Water Table Depth (inches)	N/A	N/A

Flooding:	**Minimum**	**Maximum**
Frequency	Unknown	Unknown
Duration	Unknown	Unknown

Ponding:	**Minimum**	**Maximum**
Depth (inches)	Unknown	Unknown
Frequency	Unknown	Unknown
Duration	Unknown	Unknown

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

The climate of the area is "semi-arid continental."

Annual average precipitation ranges from 13 to 18 inches. Variations of 5 inches, more or less, are not uncommon. Approximately 70 percent of this occurs from May through October. Most of the summer rains come in the form of high-intensity, short-duration thunderstorms. Winter moisture is usually negligible.

Distinct seasonal changes and large annual and diurnal temperature changes characterize temperatures. The average annual temperature ranges from 55 degrees F to 60 degrees F. With extremes of 20 degrees F below in the winter. To 110 degrees F in the summer are not uncommon.

The average frost-free season is 180 to 200 days, the last killing frost being in early April and the first killing frost in mid October.

Both temperature and precipitation favor warm-season perennial plant community. However, because of the position of this site, there is enough moisture in the late winter and early spring to allow for cool-season species to make up an important component of this site. Runoff plus cold air drainage from higher elevations make this site favorable for cool-season plant growth.

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):	160	191
Freeze-free period (days):	180	221
Mean annual precipitation (inches):	13	18

Monthly moisture (inches) and temperature (^{0}F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.47	.56	21.4	56.6
February	.50	.54	23.8	62.1
March	.49	.57	28.5	68.5
April	.54	.60	35.0	76.7
May	1.13	1.44	43.2	83.5
June	1.78	1.84	51.6	92.2
July	1.87	2.98	55.7	92.1
August	2.29	3.26	54.2	90.3
September	2.67	2.80	48.2	84.3
October	1.24	1.40	37.6	76.7
November	.53	.55	27.5	65.5
December	.60	.68	21.6	57.8

Climate Stations:

				Period		
Station ID	292865	Location	Elk 2E	From: 6/1/1895	To:	12/31/00
Station ID	294112	Location	Hope	From: 03/01/19	To:	12/31/00

INFLUENCING WATER FEATURES

Narrative:

This site is influenced by runoff water and is dominated by riparian type vegetation.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

The soils on this site are deep and well drained. Surface textures are loams, silty loams, and clay loams. Permeability is moderate and water-holding capacity is high. The soil profile is often interrupted with cobble or stones.

Parent Material Kind: Alluvium
Parent Material Origin: Mixed

Surface Texture:

1. Loam
2. Silty loam
3. Clay loam

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: 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:	Slow	Moderate
Depth (inches):	60	>72
Electrical Conductivity (mmhos/cm):	Unknown	Unknown
Sodium Absorption Ratio:	Unknown	Unknown
Soil Reaction (1:1 Water):	Unknown	Unknown
Soil Reaction (0.1M CaCl2):	Unknown	Unknown
Available Water Capacity (inches):	9	12
Calcium Carbonate Equivalent (percent):	Unknown	Unknown

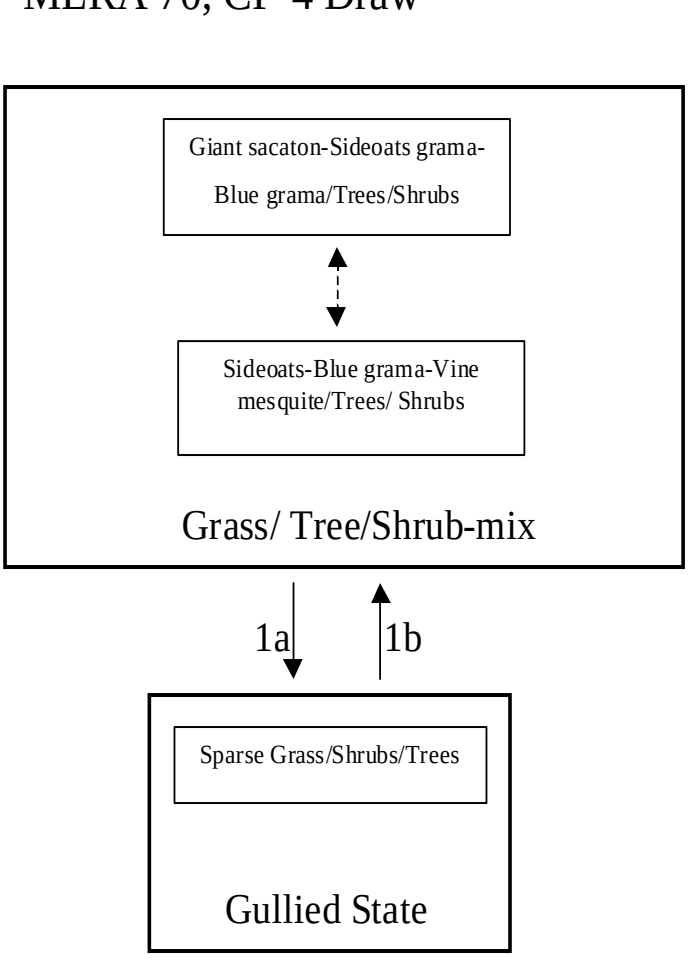
PLANT COMMUNITIES

Ecological Dynamics of the Site:

Overview

The Draw site is associated with Limestone Hills. Draw sites typically occur as elongated narrow areas along valley drainages dissecting Limestone Hills. The aspect of this site is dominated by riparian type vegetation, with an understory of mid and tall perennial grasses. Because of the constant flooding of this site, there is a potential for many annual species to occur. The cold air drainage this site receives helps to maintain a cool season grass component. Pinyon, juniper and ponderosa pine also occur at higher elevations. The production and composition may vary greatly with elevation. Loss of grass cover makes this site susceptible to erosion, and may facilitate the transition to the Gullied State.

Plant Communities and Transitional Pathways (diagram)



1a. Loss of grass cover, erosion, flood events
1b. Erosion control, Prescribed grazing

State and Transition Model photos will be posted as they become available.

Plant Community Name: Historic Climax Plant Community (lower elevations)

Plant Community Sequence Number: 1 **Narrative Label**: HCPC

Plant Community Narrative: State Containing Historic Climax Plant Community

Grass/Shrub-Mix: The historic plant community of the Draw site is a mix of grasses, trees, and shrubs with forbs as the minor component. Giant sacaton is the dominant grass species in the historic plant community, with blue grama, and sideoats grama occurring as sub-dominants. Other grasses that occur in significant numbers include western wheatgrass, vine mesquite, Indiangrass, bluestem species, plains bristlegrass and bottlebrush squirreltail. Giant sacaton has the capability to produce large amounts of aboveground biomass, which provides important forage for livestock and helps to slow runoff, increase infiltration, and protect the site from erosion. Grazing in the spring, deferring grazing in the fall, or during dry summers, can help maximize giant sacaton forage production.[1] This site produces a wide variety of trees and shrubs. New Mexico walnut, desert willow and Apacheplume are the dominant trees/shrubs. Vegetation communities are largely determined by patterns of periodic overflows. A community dominated by sideoats grama, with blue grama and vine mesquite as sub-dominants, and reduced amounts of giant sacaton, may result from natural fluctuations in the amount of run-in water. Continuous heavy grazing initially causes a decline in the cool season grasses, more desirable warm season grasses, and the desirable shrubs. Continued loss of grass cover makes this site susceptible to erosion and can facilitate the transition to the Gullied State.

Diagnosis: Grass and litter cover is high, with minimal amount of bare ground. Giant sacaton is present. Trees and shrubs, especially New Mexico walnut, desert willow , and Apacheplume are aspect dominants.

Canopy Cover:	
Trees	10 %
Shrubs and half shrubs	10 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	40
Bare ground	10
Surface cobble and stone	20
Litter (percent)	30
Litter (average depth in cm.)	7

Plant Community Annual Production (by plant type): Lower elevations

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	550	825	1,100
Forb	80	120	160
Tree/Shrub/Vine	400	600	800
Lichen			
Moss			
Microbiotic Crusts			
Total	1,000	1,500	2,000

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	SPWR2	Giant Sacaton	150 – 450	150 – 450
2	BOCU	Sideoats Grama	150 – 300	150 – 300
3	PAOB	Vine-mesquite	75 – 150	75 – 150
4	SONU2	Indiangrass	75 – 150	75 – 150
5	PASM	Western Wheatgrass	75 – 150	75 – 150
6	ELEL5	Bottlebrush Squirreltail	30 – 75	30 – 75
7	BOSA BOBA3 SCSC	Silver Bluestem Cane Bluestem Little Bluestem	75 – 225	75 – 225
8	SEVU2	Plains Bristlegrass	75 – 150	75 – 150
9	BOGR2	Blue Grama	150 – 375	150 – 375
10	2GRAM	Other Grasses	75 – 150	75 - 150

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
11	SPHAE	Globemallow spp.	15 – 60	15 – 60
12	ARCA11	Sagewort spp.	15 – 45	15 – 45
13	HEAN3	Annual Sunflower	15 – 45	15 – 45
14	2FORB	Other Forbs	30 – 75	30 - 75

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
15	JUMA	New Mexico Walnut	75 – 225	75 – 225
16	CHLI2	Desert Willow	75 – 150	75 – 150
17	ATCA2	Fourwing Saltbush	30 – 60	30 – 60
18	CEPA8	Desert Hackberry	15 – 45	15 – 45
19	FAPA	Apacheplume	75 – 150	75 – 150
20	ACGR	Catclaw Acacia	30 – 75	30 – 75
21	RHTR RHMI3	Skunkbush Sumac Littleleaf Sumac	15 – 45	15 – 45
22	GUSA2	Broom Snakeweed	15 – 30	15 – 30
23	BASA2	Broom Baccaharis	15 – 60	15 – 60
24	2SD	Other Shrubs	75 – 150	75 – 150

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 which would appear on this site include: hairy grama, bullgrass, deergrass, carex spp., dropseed spp., threeawn spp., big bluestem, switchgrass, Canadian wildrye, wolftail, green sprangletop, plains lovegrass, Hall's panicum, New Mexico feathergrass, littleawn needlegrass, and tridens spp.
Other shrubs include: bricklebush, winterfat, oak spp., yerba-de-pasmo, mock orange, mariola, canyon grape, yucca spp., willow spp., poison ivy, ephedra spp., virginsbower, hairy mountainmahogany, algerita, and manzanita.
Other forbs include: desert holly, wildbuckwheat, blanker flower, verbena, cudweed, mullin, prickleaf, dogweed, wooly loco, cutleaf haplopappus, threadleaf groundsel, wooly Indianwheat, prickle poppy, whorled milkweed, and Indian paintbrush.
Scattered trees include: juniper, pinyon and ponderosa pine.

Plant Growth Curves

Growth Curve ID **4605NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **Riparian vegetation with mixed mid and tall perennial grasses with a large forb component and scattered trees at higher elevations.**

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	5	10	10	25	30	12	5	0	0

Plant Community Name: Historic Climax Plant Community (higher elevations)

Plant Community Sequence Number: **2**

Plant Community Narrative: Same as above **Narrative Label**: HCPC

Ground Cover and Structure: presently being revised.

Plant Community Annual Production (by plant type): higher elevations

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	825	1,238	1,650
Forb	120	180	240
Shrub/Vine	600	900	1,200
Tree			
Lichen			
Moss			
Microbiotic Crusts			
Total	1,500	2,250	3,000

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	SPWR2	Giant Sacaton	225 – 675	225 – 675
2	BOCU	Sideoats Grama	225 – 450	225 – 450
3	PAOB	Vine-mesquite	113 – 225	113 – 225
4	SONU2	Indiangrass	113 – 225	113 – 225
5	PASM	Western Wheatgrass	113 – 225	113 – 225
6	ELEL5	Bottlebrush Squirreltail	45 – 113	45 – 113
7	BOSA BOBS3 SCSC	Silver Bluestem Cane Bluestem Little Bluestem	113 – 338	113 – 338
8	SEVU2	Plains Bristlegrass	113 – 225	113 – 225
9	BOGR2	Blue Grama	225 – 563	225 – 563
10	2GRAM	Other Grasses	113 – 225	113 - 225

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
11	SPHAE	Globemallow spp.	23 – 90	23 – 90
12	ARTEM	Sagewort spp.	23 – 68	23 – 68
13	HEAN3	Annual Sunflower	23 – 68	23 – 38
14	2FORB	Other Forbs	45 – 113	45 - 113

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
15	JUMA	New Mexico Walnut	113 – 338	113 – 338
16	CHLI2	Desert Willow	113 – 225	113 – 225
17	ATCA2	Fourwing Saltbush	45 – 90	45 – 90
18	CEPA8	Desert Hackberry	23 – 68	23 – 68
19	FAPA	Apacheplume	113 – 225	113 – 225
20	ACGR	Catclaw Acacia	45 – 113	45 – 113
21	RHTR RHMI3	Skunkbush Sumac Littleleaf Sumac	23 – 68	23 – 68
22	GUSA2	Broom Snakeweed	23 – 45	23 – 45
23	BASA2	Broom Baccaharis	23 – 90	23 – 90
24	2SD	Other Shrubs	113 – 225	113 – 225

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 **4605NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **Riparian vegetation with mixed mid and tall perennial grasses with a large forb component and scattered trees at higher elevations.**

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	5	10	10	25	30	12	5	0	0

Additional States:

Gullied State: Loss of grass cover, accelerated erosion, and gully formation characterize this state. Blue grama and sideoats grama are typically the dominant grass species. Giant sacaton may or may not be present. If present it usually exists as small-scattered patches.

Diagnosis: Grass cover is typically patchy with large bare areas present. Erosion is evident by the presence of water flow patterns, litter dams, rills, and gullies.

Transition to Gullied State (1a) Transitions to the gullied state may occur in response to loss of grass cover, flood events, and subsequent erosion. As grass cover decreases, organic matter and surface soil stability decrease. [2,3] Erosion occurs due to increased water flow volume, decreased soil surface stability, and reduced infiltration.

Key indicators of approach to transition:

- Reduction in grass cover and increase in size and frequency of bare patches.
- Decreased vigor and cover of giant sacaton
- Presence of litter dams, water flow patterns, rills and gullies.

Transition back to Grass/Shrub -Mix (1b) Erosion control structures or shaping and filling gullies may help regain natural flow patterns and allow natural revegetation to take place. Prescribed grazing will help ensure proper forage utilization and reduce grass loss due to overgrazing.

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

This site provides habitat which supports a resident animal community characterized by mule deer, desert cottontail, spotted ground squirrel, gray fox, coyote, bobcat, Swainson's hawk, mockingbird, loggerhead shrike, mourning dove, scaled quail, and western diamondback rattlesnake.

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
Pecos	D

Recreational Uses:

This site has good potential for hiking, backpacking, horseback riding, camping, and picnicking. However, care must be taken to avoid being caught in flash floods. These floods can occur even though it does not rain on the site. Hunting for quail, deer, and varmints is good. Deer hunting is fair. Trapping for fur-bearing animals is good.

Wood Products:

This site produces a limited amount of wood for fencing material and fuelwood. New Mexico walnut is used for gunstocks.

Other Products:

Grazing:

This site is suitable for grazing by all kinds and classes of livestock during all seasons of the year. Because of the cool-season species and abundance of high quality shrubs, this site is especially useful in the winter and early spring. This site provides an important protein source during this period. Consequently, this site is much more important than its area indicates. This site will respond well to a planned grazing system, which rotates the season of use. If this site is continually mismanaged, there will be a decline in the cool-season species, more desirable warm-season grasses and the desirable shrubs. In a deteriorated condition, this site is extremely susceptible to water erosion primarily from the flooding. When grazing sheep or goats and during calving season, predator control should be provided.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	1.8 – 2.5
75 – 51	2.0 – 4.0
50 – 26	3.8 – 5.0
25 – 0	5.0+

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
Indiangrass	Sorghastrum nutans	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	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
Cane Bluestem	Bothriochloa barbinodis	EP	U	U	U	U	U	U	P	P	D	U	U	U
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Plains Bristlegrass	Setaria vulpiseta	EP	D	D	D	D	P	P	P	P	P	D	D	D
Fourwing Saltbush	Atriplex canescens	EP	P	P	P	P	P	D	D	D	D	D	D	P

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
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
Vine-mesquite	Panicum obtusum	EP	D	D	D	D	D	D	D	D	D	D	D	D
Plains Bristlegrass	Setaria vulpiseta	EP	D	D	D	D	P	P	P	P	P	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	U	U	U	U
Indiangrass	Sorghastrum nutans	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
Wildbuckwheat	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

Animal Kind: Livestock

Animal Type: Goats

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	U	U	P	P	P	U	U	U	U	U	U	U
Plains Bristlegrass	Setaria vulpiseta	EP	D	D	D	D	P	P	P	P	P	D	D	D
Indiangrass	Sorghastrum nutans	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
Fourwing Saltbush	Atriplex canescens	EP	P	P	D	D	D	D	D	D	D	D	D	P
Apacheplume	Fallugia paradoxa	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: Chavez, Eddy, Lincoln, Otero

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: Otero, Eddy, Chaves, Lincoln

References

1. Cox, J.R., R.L.Gillen, and G.B. Ruyle. 1989. Big sacaton riparian grassland management: Seasonal grazing effects on plant and animal production. Applied Agricultural Research. 4(2): 127-134

2. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheet. Rangeland Soil Quality—Aggregate Stability. Rangeland Sheet 3, [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

3. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheet. Rangeland Soil Quality—Organic Matter. Rangeland Sheet 6, [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

Characteristic Soils Are:	
Pecos	
Other Soils included are:	

Site Description Approval:

Author	**Date**	**Approval**	**Date**
Don Sylvester	02/02/82	Donald H. Fulton	03/03/82

Site Description Revision:

Author	**Date**	**Approval**	**Date**
Elizabeth Wright	07/10/02	George Chavez	10/29/03
Trujillo	10/29/03		