

**UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
ECOLOGICAL SITE DESCRIPTION**

**ECOLOGICAL SITE CHARACTERISTICS**

**Site Type:** Rangeland

**Site ID:** R042XD002NM

**Site Name:** Loamy Bottom

**Precipitation or Climate Zone:** 12-14 Inches

**Phase:** \_\_\_\_\_

## **PHYSIOGRAPHIC FEATURES**

### **Narrative:**

This site occurs on broad valley floors receiving occasional overflow, or basins at the lowest position in relation to adjacent landscapes. Slopes range from 0 to 1 percent. Elevations range from 4700 to 6000 feet above sea level.

### **Land Form:**

1. Inset fan

2.

3.

### **Aspect:**

1. No influence on this site.

2.

3.

	Minimum	Maximum
Elevation (feet)	4700	6000
Slope (percent)	0	1
Water Table Depth (inches)	>60	>60
	Minimum	Maximum
Flooding:		
Frequency	Rare	Occasional
Duration	Very brief	Brief
	Minimum	Maximum
Ponding:		
Depth (inches)	8	16
Frequency	Occasional	Frequent
Duration	Brief	Long

### **Runoff Class:**

Low

## CLIMATIC FEATURES

### **Narrative:**

Average precipitation for this site is approximately 12 to 14 inches. Variations of 5 inches are not uncommon. Approximately 75 percent of this occurs from May through October with most of the rainfall occurring from July to September. Most of the summer precipitation comes in the form of high intensity short duration thunderstorms. Although little precipitation does occur during the winter month, rain and snow of low intensity usually characterize the precipitation that does occur. Temperatures are mild. Freezing temperatures are common at night from December through April, however, temperatures during the day are frequently above 50 degrees F. Occasionally in December to February brief periods of 0 degree F. Temperatures may be expected. During June to August some days may exceed 100 degrees F.

The mean annual precipitation figures are derived from rain gauge data collected by the BLM (1971 to 1990), and NOAA weather maps utilizing prism model estimation techniques. There are no permanent weather stations within the boundaries of the Land Resource Unit.

	<b>Minimum</b>	<b>Maximum</b>
<b>Frost-free period (days):</b>	140	180
<b>Freeze-free period (days):</b>	145	185
<b>Mean annual precipitation (inches):</b>	12	14

### **Monthly moisture (inches) and temperature (<sup>0</sup>F) distribution:**

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

### **Climate Stations:**

Station ID _____	Location _____	From: _____	To: _____	Period
Station ID _____	Location _____	From: _____	To: _____	Period
Station ID _____	Location _____	From: _____	To: _____	Period
Station ID _____	Location _____	From: _____	To: _____	Period

## **INFLUENCING WATER FEATURES**

### **Narrative:**

This site is not influenced by water from wetland or stream.

### **Wetland description:**

<b>System</b>	<b>Subsystem</b>	<b>Class</b>
<b>N/A</b>		

### **If Riverine Wetland System enter Rosgen Stream Type:**

**N/A**

## REPRESENTATIVE SOIL FEATURES

**Narrative:**

The soils on this site are deep to very deep. The surface layer is loam or silt loam. The underlying layers are silt loams. The soils are well drained and have a moderately slow permeability. Available water holding capacity to a depth of 40 inches is moderate. The site usually receives some extra water from higher, surrounding terrain. If unprotected by vegetative cover the soils become susceptible to water erosion.

Parent Material Kind:     Alluvium    

Parent Material Origin:     Limestone    

Surface Texture:

1. Loam
2. Silt Loam
3.

Surface Texture Modifier:

1.
2.
3.

Subsurface Texture Group:     Loamy    

Surface Fragments <=3" (% Cover):     0    

Surface Fragments >3" (% Cover):     0    

Subsurface Fragments <=3" (%Volume):     0    

Subsurface Fragments <=3" (%Volume):     0    

	Minimum	Maximum
Drainage Class:	Well drained	Well drained
Permeability Class:	Moderately slow	Moderately slow
Depth (inches):	60	80
Electrical Conductivity (mmhos/cm):	0	2
Sodium Absorption Ratio:		
Soil Reaction (1:1 Water):	7.9	8.4
Soil Reaction (0.1M CaCl2):		
Available Water Capacity (inches):	6.0	6.8
Calcium Carbonate Equivalent (percent):	0	15

# PLANT COMMUNITIES

## Ecological Dynamics of the Site:

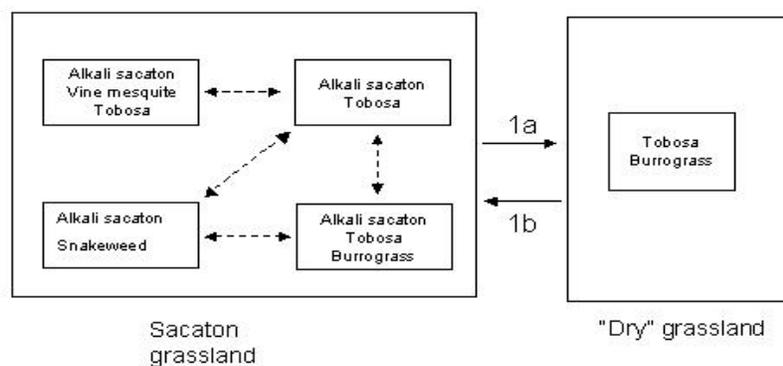
### Overview

The aspect of this site's historic plant community is open grassland. This site is associated with the loamy ecological site. It occurs in the lowest position in relation to adjacent landscapes and receives extra run-on water making this a highly productive site. Alkali sacaton is the dominant grass species; other typical upland grass species may be limited by high soil moisture. Vine mesquite and tobosa are important associated species and are evenly distributed throughout the site. Forb production is variable and woody species do not normally occur in the climax community, nor do they invade. Continuous grazing, drought, or a combination can result in a decrease or loss of vine mesquite, and an increase in tobosa. Further retrogression is evidenced by an increase in burrograss and invasion of broom snakeweed.

The overflow water this site receives makes it resistant to state change, however, changes in hydrology can effect rapid transition. Roads or erosional features such as gullies can alter the hydrology and 'dry' the site causing the transition to the dry grassland state. In response to decreased available water, alkali sacaton decreases and is eventually replaced by more drought tolerant grasses. Tobosa and burrograss become the dominant grass species characterizing the dry grassland state.

## Plant Communities and Transitional Pathways (diagram)

State-Transition model, MLRA 42, SD-4, Loamy Bottom



**1a.** Diversion of overland flow, soil surface sealing, reduced infiltration.

**1b.** Remove impedance to overland flow, prescribed grazing.

## MLRA 42; SD-4; Loamy Bottom

Sacaton Grassland



- Alkali sacaton community
- Grass cover very high
- Reyab loam, ponded, Fort Bliss Soil Survey, Otero Co.

Sacaton Grassland



- Alkali sacaton / Snakeweed community
- Grass cover low-very low
- Large connected bare patches evident
- Sacaton hummocks, evidence of erosion
- Reyab loam, ponded, Fort Bliss Soil Survey, Otero Co.

Dry-Grassland State



- Tobosa-burgrass
- Grass cover moderate
- Several large bare patches
- Hydrology altered, road diverted overland flow
- Reyab loam, ponded, Fort Bliss Soil Survey, Otero Co.

**State Containing Historic Climax Plant Community**

**Sacaton Grassland**

Alkali sacaton is the dominant grass of this site both in aspect and composition. Other grass species include vine mesquite, tobosa, blue grama, burrograss, ear muhly and sand muhly. Forbs are only a minor part of the potential plant community and shrubs are absent. The extra water received as overland flow provide the conditions necessary for alkali sacaton to dominate, and its ability to produce from seeds and tillering, and abundant seed production and viability keep it competitive. Other species on this site such as vine mesquite are more palatable and selectively grazed first. As vine mesquite declines tobosa increases. As the site continues to degrade, burrograss increases and eventually broom snakeweed can invade. The invasion of snakeweed may be due in part to the amount of winter moisture received.<sup>1</sup> Large bare patches, hummocks or clumps of alkali sacaton, and heavy concentrations of broom snakeweed are characteristic of the alkali sacaton / broom snakeweed community. As long as the hydrology of the site is not compromised and sufficient cover of alkali sacaton remains, recovery is possible.

Diagnosis: Alkali sacaton is the dominant grass species. No evidence of gullies, roads or other factors altering hydrology of site. Cover of perennial grasses and litter highly variable due to the resilience of the state. The grass and litter cover are potentially very high with few large bare gaps. The alkali sacaton - snakeweed community cover values can be low to very low with large connected bare areas common.

**Ground Cover and Structure: presently being revised.** \_\_\_\_\_

Plant Community Annual Production (by plant type): \_\_\_\_\_

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	1500	2850	3850
Forb	100	150	150
Tree/Shrub/Vine			
Lichen			
Moss			
Microbiotic Crusts			

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	SPAI	Alkali Sacaton	1500-2100	1500-2100
2	PAOB	Vine mesquite	240-300	240-300
3	PLMU3	Tobosa	200-240	240-300
3	MUAR2	Sand muhly	100-120	
3	BOGR2	Blue grama	75-100	
4	MUAR	Ear muhly	50-75	100-150
4	SCBR2	Burrograss	50-75	

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
5	2FA	Annual forbs	50-75	50-75
6	2FP	Perennial forbs	50-75	50-75
6	SPHAE	Globemallow	50-75	

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

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 5802

Growth Curve Name: HCPC Sacaton Grassland State

Growth Curve Description: SD-4 Warm Season Sacaton Grassland - Average rainfall year

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	3	8	7	18	28	25	6	2	0

## **Additional States:**

**Dry Grassland State** Tobosa and burrograss are the dominant grass species. This change in state is primarily due to a change in hydrology where effective run-on moisture is reduced. Without the addition of overland flow the site begins to dry and alkali sacaton decreases. The alkali sacaton will clump up forming tussocks and eventually die from the center outward. Drought and grazing pressure can accelerate this decrease in alkali sacaton. As the site begins to dry the number of bare patches increase and they begin to connect, forming large bare areas. The soils in these areas form physical crust when erosion causes particles to dislodge clogging the pores of the soil surface<sup>2</sup>. These clogged pores reduce infiltration of water and nutrients necessary for plant growth. Tobosa and burrograss are better adapted to reduced soil moisture and eventually become the dominant grasses.

**Diagnosis:** Tobosa is dominant or co-dominant with burrograss. Alkali sacaton is absent or very limited. Large interconnected bare patches are present. Production levels are reduced from the Sacaton Grassland State.

### **Transition to Dry Grassland (1a)**

The construction of roads or the formation of gullies can effectively reduce the amount of moisture a site receives by intercepting and rerouting surface and ground water. Heavy grazing may accelerate formation of gullies by reducing vegetative cover and creating stock trails.

#### **Key indicators of approach to transition:**

- Reduction in alkali sacaton cover and increase in size and frequency of bare patches.
- Increase in tobosa and or burrograss cover.
- The formation of roads, gullies or other features (on or off site) that disrupts natural overland flow on site.
- Decrease in frequency and duration of water ponding.

### **Transition back to Sacaton Grassland (1b)**

Restoration of hydrologic processes is necessary for transition back to sacaton grassland. Prescribed grazing will help to ensure recovery and prevent grazing induced retrogression.

## ECOLOGICAL SITE INTERPRETATIONS

### Animal Community:

This ecological site provides habitat that supports a resident animal community characterized by coyote, black-tailed jackrabbit, silky pocket mouse, spotted ground squirrel, Merriam's kangaroo rat, California myotis, American kestrel, red-tailed hawk, northern harrier, meadow lark, horned lark, northern mockingbird, box turtle, couch's spadefoot toad, northern earless lizard, striped whiptail, and prairie rattlesnake.

### Hydrology Functions:

This site normally receives approximately 12-14 inches annual precipitation. Most summer rainfall occurs as brief sometimes-heavy thunderstorms. Soils are deep to very deep and rated as being in hydrologic group B. Slopes range from 0- 1 percent. Permeability is moderately slow. Runoff is low, and the hazard of water erosion is slight. This site occasionally floods and will occasionally to frequently pond water. Available water capacity to a depth of 40 inches is moderate. As basal cover and litter are reduced and the size of gaps between vegetation increases, the surface soils become exposed to accelerated erosion.

### Recreational Uses:

This site offers limited potential for hiking, horseback riding, nature observation and photography, game bird and predator hunting.

### Wood Products:

This site has no significant value for wood products

### Other Products:

Grazing: The plant community on this site is suitable to grazing at all seasons of the year, however the vast majority of the forage is most palatable to livestock is most effectively used during the summer months.

Initial starting stocking rates will be determined with the landowner or decision-maker. They will be based on past use histories and type and condition of the vegetation. Calculations used to determine and initial starting stocking rate will also be based on forage preference ratings.



## SUPPORTING INFORMATION

### Associated sites:

Site Name	Site ID
Loamy	042XD001NM

Narrative: This site is located topographically in a higher position and transports extra run on water to the Loamy Bottom site.

### Similar sites:

Site Name	Site ID	Site Narrative

### Inventory Data References (narrative):

Supporting information includes limited clipping data, soil survey investigations, aerial photographs, and personal observations.

### Inventory Data References:

Data Source	# of Records	Sample Period	State	County
NM-Range-26	5	1998-2000	New Mexico	Otero

### State Correlation:

This site has been correlated with the following sites: \_\_\_\_\_

### Type Locality:

State: NM

County: Otero

Latitude: \_\_\_\_\_

Longitude: \_\_\_\_\_

Township: 22 S.

Range: 13 E.

Section: 18

Is the type locality sensitive?      Yes       No

General Legal Description: Otero County New Mexico, 250 feet east and 200 feet north of the southwest corner of section 18, T.22S., R. 13E., El Paso Draw Quadrangle.

Relationship to Other Established Classifications:

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Fort Bliss and Otero County.

Characteristic taxonomic units are:

Fort Bliss SSA:

48-Reyab loam, 0 to 1 percent slopes (ponded)

Other soils included are:

Other References:

1. Moir, W.H. and J. A. Ludwig. 1991. Plant succession and changing land features in desert grasslands. P. 15-18. In P.F. Ffolliott and W.T. Swank (eds.) People and the temperate region: a summary of research from the United States Man and the Biosphere Program 1991. U.S. Dept. State, Publ No. 9839, Nat. Tech. Info. Serv., U.S. Dept. Commerce, Springfield, Illinois. 63 p.

2. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheet. Rangeland Soil Quality—Physical and Biological Soil Crusts. Rangeland Sheet 7, [Online]. Available:

<http://www.statlab.iastate.edu/survey/SQL/range.html>

Site Description Approval:

<u>{PRIVATE}Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
David Trujillo & Dr. Brandon Bestelmeyer	9/10/00	George Chavez	2/20/03

Site Description Revision:

<u>{PRIVATE}Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
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