

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R036XC104NM

Site Name: Loamy

Precipitation or Climate Zone: 12 to 16 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on level to occasionally strongly sloping piedmont slopes or plains. Slopes range from 0 to 15 percent but average less than 10 percent. Elevations vary from just under 5,000 to about 6,800 feet above sea level.

Land Form:

1. Fan piedmont
2. Plain
- 3.

Aspect:

1. N/A
- 2.
- 3.

	Minimum	Maximum
Elevation (feet)	5,000	6,800
Slope (percent)	0	15
Water Table Depth (inches)	N/A	N/A
	Minimum	Maximum
Flooding:		
Frequency	Rare	Occasional
Duration	Very brief	Very 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:

Average annual precipitation varies from about 12 inches to just over 16 inches. Substantial fluctuations from year to year are common, ranging from a low of about 6 inches to a high of over 30 inches. Approximately one-half of the annual precipitation comes in the form of rainfall during the months of July, August, and September, although wintertime precipitation in the form of snow, sleet, or rain is sometimes significant. Spring and late fall months are normally dry.

The average frost-free period ranges from about 165 to 190 days and extend from approximately the third or fourth week in April to mid October. Average annual air temperatures are about 56 degrees F. Summer maximums can exceed 100 degrees F and winter minimums on occasion go below zero. Monthly mean temperatures generally exceed 70 degrees F for the period of June through August.

Growing conditions favor warm-season perennial vegetation, although late winter and late summer precipitation is adequate to foster a significant cool-season component in the potential plant community. Occasional wet springs also create good conditions for annual forb production, but frequent winds from the west and southwest are common during this time of year and tend to deplete the soil moisture at a critical time for the growth of these plants.

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>125</u>	<u>187</u>
Freeze-free period (days):	<u>146</u>	<u>211</u>
Mean annual precipitation (inches):	<u>12</u>	<u>16</u>

Monthly moisture (inches) and temperature (°F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.37	1.22	16.2	55.6
February	.35	.94	18.6	60.1
March	.26	.95	22.1	66.1
April	.26	.42	27.0	74.2
May	.12	.58	34.0	82.6
June	.53	.98	42.8	92.0
July	2.29	3.32	52.5	92.6
August	2.50	3.22	51.4	89.9
September	1.62	2.85	43.5	85.7
October	1.17	1.81	32.0	76.2
November	.41	1.58	22.0	64.4
December	.61	1.85	15.9	55.9

Climate Stations:

Station ID	Location	Period
299806	Chloride Ranger Stn., NM	From: 05/14/49 To: 12/31/00
291910	Cliff 11SE, NM	From: 01/01/37 To: 12/31/00
294009	Hillsboro, NM	From: 10/01/24 To: 12/31/00
297386	Hood Ranger Stn., NM	From: 04/01/54 To: 12/31/00
298324	Silver City, NM	From: 01/01/61 To: 12/31/00

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:

Typical soils are moderately deep to deep and well drained. The surface layer may be loams, fine sandy loams (less than 5 inches thick), and very fine sandy loams, while underlying layers may be heavy sandy loams, sandy clay loams, clay loams, silt loams, silty clay loams, or clay with thick surfaces. The soils have moderate to slow permeability and high water-holding capacities.

Parent Material Kind: Alluvium

Parent Material Origin: Mixed

Surface Texture:

1. Loams
2. Fine sandy loams (less than 5 inches thick)
3. Very fine sandy loam
4. Sandy clay loam
5. Gravelly loam
6. Gravelly fine sandy loam

Surface Texture Modifier:

1. Gravel
2. Cobble
- 3.

Subsurface Texture Group: Loamy

Surface Fragments <=3" (% Cover): 15 to 35

Surface Fragments >3" (% Cover): 15 to 35

Subsurface Fragments <=3" (%Volume): 0 to 41

Subsurface Fragments >=3" (%Volume): 0 to 35

	Minimum	Maximum
Drainage Class:	Well	Well
Permeability Class:	Very slow	Moderately rapid
Depth (inches):	>72	>72
Electrical Conductivity (mmhos/cm):	0.00	4.00
Sodium Absorption Ratio:	N/A	N/A
Soil Reaction (1:1 Water):	6.1	9.0
Soil Reaction (0.1M CaCl₂):	N/A	N/A
Available Water Capacity (inches):	3	7
Calcium Carbonate Equivalent (percent):	N/A	N/A

PLANT COMMUNITIES

Ecological Dynamics of the Site:

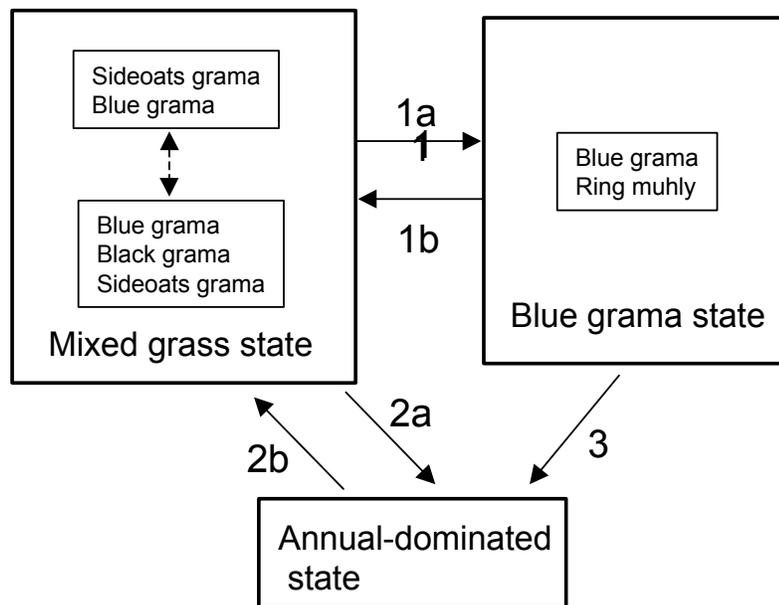
Overview

The loamy site often lies between areas of breaks or hills sites. The historic plant community type is dominated by sideoats grama (*Bouteloua curtipendula*) and blue grama (*Bouteloua gracilis*). Cool-season grasses fluctuate with spring/early summer rainfall. Heavy grazing may result in the loss of sideoats grama, perhaps accompanied by soil degradation and reduced infiltration. Blue grama and ring muhly (*Muhlenbergia torreyi*) dominate these communities. Under these conditions, runoff may increase and gullies may form that divert water from surrounding plant communities. In these circumstances, continued grazing pressure may lead to perennial grass extinction and dominance by annuals. Annual cover may be so dense that it inhibits the subsequent colonization of the site by grasses.

No systematic studies of communities, states or transitions have been performed in the loamy site.

Plant Communities and Transitional Pathways (diagram)

State-Transition model: MLRA 36, WP-3, Fine soils group, Loamy



- 1a. Overgrazing, erosion, loss of soil fertility, extinction of sideoats grama
- 1b. Recovery of soil fertility, seeding
- 2a. Overgrazing, drought, gullying, erosion
- 2b. Gully repair, seeding
3. Gullying, heavy use of blue grama, continued erosion

Plant Communities Photo Display & Descriptive Diagnosis

MLRA 36; WP-3; Loamy

Mixed grass state



- Sideoats grama, blue grama
- Healing gully, ungrazed 9 years
- Very high grass and litter cover
- Manzano loam, Grant Co.

Blue grama state



- Blue grama, ring muhly
- Bare ground high
- Manzano loam, Grant Co.

Annual-dominated state



- No perennials visible
- Adjacent to gully
- Manzano loam, Grant Co.

Recovering loamy sites



- Left, gully plug of large gullied draw
- Right, smaller gully repaired by Civilian Conservation Corps (1930s?), note grass recovery above rocks.
- Manzano loams, Grant Co.

Plant Community Name: Historic Climax Plant Community

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

Plant Community Narrative: Historic Climax Plant Community

State Containing the Historic Climax Plant Community

Mixed grass: The historic community type is a lush grassland dominated by sideoats grama and blue grama and harboring a high diversity of grass species. Cane bluestem (*Bothriochloa barbinodis*) and vine mesquite (*Panicum obtusum*) may occur in patches experiencing especially high soil moisture. Yucca (*Yucca elata*) and ephedra (*Ephedra* spp.) may be common. Cool-season grasses, including bottlebrush squirreltail (*Elymus elymoides*) and New Mexico feathergrass (*Stipa neomexicana*) may increase in cover with sufficient winter-spring rainfall. Overall, ground cover of grasses is very high. Drought may reduce the cover of sideoats grama, cane bluestem, and vine mesquite and favor the colonization and spread of black grama (*Bouteloua eriopoda*). With heavy grazing, sideoats grama and black grama decline rapidly leaving blue grama and other species, especially ring muhly, as dominants.

Diagnosis: Sideoats grama is dominant in most patches and perennial grass and litter cover is continuous. Species richness of perennial grasses across an acre-sized area is often high (8 or more). Evidence of erosion is rare.

Canopy Cover:

Trees	0
Shrubs and half shrubs	4 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	25
Bare ground	49
Surface gravel	5
Surface cobble and stone	1
Litter (percent)	20
Litter (average depth in cm.)	2

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	361	606	850
Forb	34	57	80
Tree/Shrub/Vine	34	57	80
Lichen			
Moss			
Microbiotic Crusts			
Total	425	713	1,000

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	BOGR2	Blue Grama	178 – 214	178 – 214
2	BOER4	Black Grama	36 – 71	36 – 71
3	BOCU	Sideoats Grama	71 – 107	71 – 107
4	SEVU2 PAHA	Plains Bristlegrass Hall's Panicum	7 – 21	7 – 21
5	DICA8 BOBA3 PAOB	Arizona Cottontop Cane Bluestem Vine-mesquite	36 – 71	36 – 71
6	ELEL5	Bottlebrush Squirreltail	36 – 107	36 – 107
7	MUPO2	Bush Muhly	7 – 36	7 – 36
8	PLMU3 PLJA	Tobosa Galleta	21 – 57	21 – 57
9	ARIST DAPU7 MUAR2 MUTO2 SPCR	Threeawn spp. Fluffgrass Sand Muhly Ring Muhly Sand Dropseed	36 – 71	36 – 71
10	2GRAM	Other Grasses	7 – 21	7 - 21

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
11	BAMU ERWR PSCO2 SPHAE SEFLF FILAREE	Desert Baileya Wright Buckwheat Paperflower Globemallow spp. Threadleaf Groundsel Filaree	7 – 36	7 – 36
12	2FORBS	Other Forbs	21 – 57	21 -57

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
13	YUEL	Soaptree Yucca	7 – 36	7 – 36
14	EPTR KRLA2 TICAC LYPA	Longleaf Ephedra Winterfat Condalia spp. Pale Wolfberry	7 – 36	7 – 36
15	OPUNT GUSA2	Cacti spp. Broom Snakeweed	7 – 21	7 - 21

Plant Type - Lichen

Group	Scientific	Species Annual	Group Annual
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Number	Plant Symbol	Common Name	Production	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 0604NM

Growth Curve Name: HCPC

Growth Curve Description: Mixed short/mid-grassland.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	5	7	10	15	25	25	8	5	0	0

Additional States:

Transition to blue grama state (1a): Continuous heavy grazing in combination with drought may locally extirpate sideoats grama and black grama and result in soil degradation and reduced infiltration due to erosion.

Key indicators of approach to transition: Heavy utilization of sideoats grama, increases in bare ground, decreases in litter cover and grass cover.

Blue grama: Grass cover is highly reduced compared with the mixed grassland state. The dominant plants are blue grama and ring muhly, and threeawns (*Aristida* spp.) and snakeweed (*Gutierrezia* spp.) may be common. Sideoats grama, cane bluestem, and vine mesquite are usually absent or rare. This is due, in part, to reduced infiltration of water and/or to diversion of run-on water by gullies. Water infiltration may be reduced in bare patches by the loss of organic matter to erosion and reduced soil aggregate stability. Species richness of perennial grasses is low. Bare ground is high and erosion between plants is evident. In some cases, junipers (*Juniperus monosperma*) and shrubs may colonize within this state.

Diagnosis: Blue grama is dominant, bare ground is interconnected, water flow patterns and rills may be evident. Gullies may exist in the area.

Transition to annual-dominated state (3): Continued erosion and deepening of gullies alongside heavy use and mortality of remaining perennial grasses may result in dominance by annuals.

Transition to mixed grass state (1b): Recovery would require the repair of gullies and return of run-on water if gullies are present. Seeding of sideoats grama during periods of average to above average rainfall alongside deferred grazing might be used to catalyze recovery of the sideoats-blue grama community.

Annual-dominated: Perennial grasses are rare or absent, and a seasonal cover of annuals is the dominant vegetation. Infiltration rates may be very low. Annual cover may be dense enough to preclude establishment of perennial grasses during favorable periods due to shading and competition for soil resources. Deep gullies are often associated with this state.

Diagnosis: Perennial grasses are rare, annual cover or bare ground cover is continuous. Gullies are usually present.

Transition to mixed grass state (2b): As above, recovery would require the repair of gullies and return of run-on water. Seeding of perennial species during periods of average to above average rainfall alongside deferred grazing might be used to catalyze the eventual recovery of the sideoats-blue grama community. It may be necessary to disrupt annual cover to accomplish this.

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitat which can support a resident animal community characterized by pronghorn antelope, black-tailed prairie dog, Botta's pocket gopher, bannertail kangaroo rat, kit fox, badger, burrowing owl, scaled quail, meadowlark, plains and western spadefoot toad, little striped whiptail, and prairie rattlesnake.

Where large soaptree yucca and woody shrubs are present, Scott's oriole, mockingbird, and mourning dove nest.

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
Alicia	B
Clovis	B
Dagflat	B
Denver	D
Glenberg	B
Judd	C
La Fonda	B
Lonti	C
Majada Variant	B
Manzano	B
Millett	B
Paymaster	B
Penistaja	B
Sampson	B
San Mateo	B
San Loren	B
Tesajo	B

Recreational Uses:

This site offers recreation potential for horseback riding, nature observation, photography, and hunting for pronghorn antelope, scaled quail, and mourning dove.

During certain seasons when soil moisture is favorable, the site displays a colorful array of wildflowers.

Wood Products:

This site has no significant value for wood products.

Other Products:

Grazing:

This site is suitable for grazing in all seasons of the year, although most of the forage is produced in the summer months. It is adapted for cattle, sheep, goat, and horses, generally without regard to class of livestock. As retrogression occurs, such plants as threeawns, fluffgrass, tobosa, and broom snakeweed more and more characterize the plant community. It is also subject to invasion by mesquite or juniper and eventually becomes characterized by large amounts of bare ground. It does not recover rapidly at this stage through improved grazing management alone.

Other Information:**Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month**

Similarity Index	Ac/AUM
100 - 76	3.2 – 4.5
75 – 51	4.3 – 6.6
50 – 26	6.4 – 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	
Black Grama	<i>Bouteloua eriopoda</i>	EP	P	P	P	D	D	D	D	D	D	D	D	P	P
Blue Grama	<i>Bouteloua gracilis</i>	EP	D	D	D	D	P	P	P	P	P	P	D	D	D
Sideoats Grama	<i>Bouteloua curtipendula</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P	P
Cane Bluestem	<i>Bothriochloa barbinodis</i>	EP	U	U	U	U	U	U	P	P	D	U	U	U	
Bottlebrush Squirreltail	<i>Elymus elymoides</i>	EP	U	U	D	D	D	U	U	D	D	D	D	U	
Bush Muhly	<i>Muhlenbergia porteri</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P	P
Vine-mesquite	<i>Panicum obtusum</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	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
Wright Buckwheat	<i>Eriogonum wrightii</i>	EP	U	U	D	D	D	D	D	D	U	U	U	U
Filaree(redstem storkbill)	<i>Erodium cicutarium</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
Globemallow spp.	<i>Sphaeralcea</i> spp.	EP	U	U	P	P	P	D	D	D	D	D	D	U
Winterfat	<i>Krascheninnikovia lanata</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Other forbs	Various	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
New Mexico Feathergrass	<i>Hesperostipa neomexicana</i>	EP	U	U	D	D	D	U	U	U	D	D	D	U

Animal Kind: Wildlife

Animal Type: Quail and Dove

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Globemallow spp.	<i>Sphaeralcea</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
Plains Bristlegrass	<i>Setaria vulpiseta</i>	F/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Sideoats Grama	<i>Bouteloua curtipendula</i>	F/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Vine-mesquite	<i>Panicum obtusum</i>	F/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hall's Panicum	<i>Panicum hallii</i>	F/S	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: Grant, Catron, Hidalgo, Sierra, Socorro

Latitude: _____

Longitude: _____

Township: _____

Range: _____

Section: _____

Is the type locality sensitive? Yes No

General Legal Description: _____

Relationship to Other Established Classifications:

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Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the New Mexico and Arizona Plateaus and Mesas 36 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Socorro, Sierra, Grant, Catron.

Characteristic Soils Are:	
Dagflat	Lonti
Manzano	
Other Soils included are:	
Alicia, Cerritos, Clovis, Denver, Glenberg	Harvey, Judd, La Fonda, Majada Variant, Millett
Paymaster, San Loren, San Mateo, Tesajo	

Information sources and theoretical background: Communities, states, and transitions are based upon information in the ecological site description and observations by Gene Adkins, Gary Garrison, David Trujillo, NRCS, and Brandon Bestelmeyer, USDA-ARS Jornada Experimental Range.

Site Description Approval:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	04/25/80	Durwood E. Ball	04/29/80

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Dr. Brandon Bestelmeyer	03/26/03	George Chavez	03/26/03