

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R070XC110NM

Site Name: Malpais

Precipitation or Climate Zone: 13 to 16 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs as lava flows, usually across broad areas and over uniform slopes. Slopes are nearly level to moderately sloping but may range as high as 15 percent. The terrain may frequently be interrupted by basalt outcrops, rock, or boulders and may have low hills, breaks or knobs that break the uniformity of the slope. Aspect varies but is not significant. Elevations range from 5,000 to 7,000 feet above sea level.

Land Form:

1. Lava flow
- 2.
- 3.

Aspect:

1. N/A
- 2.
- 3.

Elevation (feet)	Minimum 5,000	Maximum 7,000
Slope (percent)	Nearly level	15
Water Table Depth (inches)	N/A	N/A
Flooding:	Minimum	Maximum
Frequency	N/A	N/A
Duration	N/A	N/A
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 the area is "semi-arid continental".

The average annual precipitation ranges from 13 to 16 inches. Variations of 5 inches, more or less, are not uncommon. Seventy-five percent of the precipitation falls from April to October. Most of the summer precipitation comes in the form of high intensity-short duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is about 50 degrees F with extremes of -29 degrees F in the winter and 103 degrees F in the summer.

The average frost-free season is 130 to 160 days. The last killing frost falling in early May and the first killing frost in early October.

Both temperature and precipitation favor warm-season perennial species. However, about 40 percent of the annual precipitation falls at a time favorable to cool-season plant growth. This allows the cool-season species to occupy an important component of the site. Strong winds blow across this area from the west and southwest from February to June and can dry the soil profile rapidly during a critical period 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):	<u>131</u>	<u>173</u>
Freeze-free period (days):	<u>155</u>	<u>187</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	.34	.92	15.6	42.1
February	.34	.81	19.9	52.9
March	.23	.98	24.4	59.7
April	.39	.96	31.4	68.9
May	.85	1.61	39.2	77.7
June	.89	1.62	46.9	87.1
July	1.77	2.75	53.1	88.5
August	2.46	3.22	51.9	85.7
September	1.54	2.26	44.3	80.4
October	1.00	1.51	32.8	70.5
November	.57	1.02	22.2	57.5
December	.34	1.16	15.9	49.3

Climate Stations:

Station ID	Location	Period
291918	Clines Corners7SE, NM	From: 12/10/68 To: 11/30/00
292096	Corona 11SSW, NM	From: 12/01/77 To: 09/30/92
293060	Estancia, NM	From: 01/01/14 To: 12/31/00
293649	Gran Quivira Natl. Monument, NM	From: 06/01/38 To: 12/31/00
295965	Mountainair, NM	From: 03/01/14 To: 12/31/00
299405	Vaughn, NM	From: 01/01/71 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:

The soils on this site are very shallow to moderately deep over basalt bedrock. Textures vary from stony fine sandy loams to stony clay loams. These soils may be calcareous on the surface or throughout the profile. Permeability is moderate to slow and water-holding capacity is low to moderately high, depending on the depth to basalt.

Parent Material Kind: Volcanic ash

Parent Material Origin: Basalt

Surface Texture:

1. Stony fine sandy loam
2. Stony clay loam
3.

Surface Texture Modifier:

1. Gravel
2. Stone
3.

Subsurface Texture Group: Stony loam

Surface Fragments <=3" (% Cover): 35 to 60

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

Subsurface Fragments <=3" (%Volume): 15 to 35

Subsurface Fragments <=3" (%Volume): 15 to 35

	Minimum	Maximum
Drainage Class:	Well	Well
Permeability Class:	Slow	Moderate
Depth (inches):	20	40
Electrical Conductivity (mmhos/cm):	0.00	2.00
Sodium Absorption Ratio:	N/A	N/A
Soil Reaction (1:1 Water):	7.9	9.0
Soil Reaction (0.1M CaCl₂):	N/A	N/A
Available Water Capacity (inches):	0	2
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 dominated by perennial grasses. Shrubs and half-shrubs dot the landscape. During years of abundant spring and fall moisture, a large variety of forbs are scattered throughout the landscape.

Canopy Cover:

Trees	1 – 3 %
Shrubs and half shrubs	2 – 7 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	18 – 20
Bare ground	10 – 20
Surface cobble and stone	10 – 50
Litter (percent)	8 – 10
Litter (average depth in cm.)	2

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	375	638	900
Forb	40	68	96
Tree/Shrub/Vine	65	111	156
Lichen			
Moss			
Microbiotic Crusts			
Totals	500	850	1,200

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	85 - 128	85 – 128
2	BOGR2 BOHI2 PLJA	Blue Grama Hairy Grama Galleta	85 - 170	85 – 170
3	BOER4	Black Grama	85 - 170	85 – 170
4	BOCU	Sideoats Grama	85 - 128	85 – 128
5	ELEL5	Bottlebrush Squirreltail	26 - 43	26 – 43
6	LYPH	Wolftail	26 - 43	26 – 43
7	HECO26 HENE5	Needleandthread New Mexico Feathergrass	43 - 60	43 – 60
8	SCSC	Little Bluestem	43 - 60	43 – 60
9	MUWR	Spike Muhly	26 - 43	26 – 43
10	MUMO	Mountain Muhly	43 - 60	43 – 60
11	FEAR2 BLTR	Arizona Fescue Pine Dropseed	43 - 60	43 – 60
12	ARIST	Threawn spp.	17 - 43	17 – 43
13	HIBE	Curly Mesquite	9 - 17	9 – 17
14	2GRAM	Other Grasses	17 - 43	17 – 43

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
15	ERIOG	Wildbuckwheat	9 - 43	9 – 43
16	CACO17	Indian Paintbrush	9 - 26	9 – 26
17	PLPA2	Wooly Indian-wheat	9 - 26	9 – 26
18	2FORBS	Other Forbs	9 - 17	9 - 17

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
19	CEMOP	Hairy Mountainmahogany	17 - 43	17 – 43
20	QUGA PUME	Gambel Oak Cliffrose	17 - 43	17 – 43
21	PIED JUNIP	Pinyon Juniper	43 - 85	43 – 85
22	GUSA2	Broom Snakeweed	9 - 26	9 – 26
23	2SD	Other Shrubs	9 - 26	9 - 26

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: big bluestem, cane bluestem, prairie junegrass, pinyon ricegrass, Indian ricegrass, and vine-mesquite.

Other shrubs include: algerita, sacahuista, winterfat, fourwing saltbush, apacheplume, rubber rabbitbrush, yucca and ephedra.

Other forbs include: happlopappus spp., bloodweed, annual wildbuckwheats, and locoweed spp.

Plant Growth Curves

Growth Curve ID 4310NM

Growth Curve Name: HCPC

Growth Curve Description: Mixed warm/cool-season grassland with scattered shrubs and half-shrubs with a minor forb component.

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

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for wildlife:

This site provides habitat which can support a resident animal community characterized by mule deer, rock squirrel, brush mouse, white-throated woodrat, gray fox, bobcat, scaled quail, ladderback woodpecker, scrub jay, common bushtit, rock wren, brown towhee, rufus-crowned sparrow, chipping sparrow, ash-throated flycatcher, short-horned lizard, collard lizard, eastern fence lizard, tree lizard, red-spotted toad and black tailed 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
Apache	D
Cabazon	D
Socorro	C

Recreational Uses:

This site offers limited potential for natural beauty as a foreground to hills and a contrast on the horizon.

Wood Products:

This site has very limited potential for production of fencing material and fuelwood. However, due to the shallow soil, care must be taken in harvesting this material.

Other Products:**Grazing:**

This site is suitable for grazing by all kinds and classes of livestock during all seasons of the year. However, this site is not suited to continuous year-long grazing or continuous grazing during the growing season. Under the above condition, the site will deteriorate. Deterioration is characterized by a decrease in total production and the composition of western wheatgrass, black grama, sideoats grama, New Mexico feathergrass, Arizona fescue, and pine dropseed. There will be a corresponding increase in bare ground and low-vigor sod-type blue grama. Species such as threeawns, broom snakeweed, Gambel oak, pinyon, and juniper will also increase. In a deteriorated condition, this site is severely erodible. The site responds best to a system of grazing that rotates the season of use. The use of goats can be a good management tool in maintaining a healthy balance of vegetation. Predator control should be considered when using this site during calving season or when running sheep or goats.

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

Similarity Index	Ac/AUM
100 - 76	2.5 – 4.0
75 – 51	3.5 – 5.5
50 – 26	5.0 – 9.0
25 – 0	9.0+

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
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Black Grama	Bouteloua eriopoda	EP	P	P	P	D	D	D	D	D	D	D	P	P
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Bottlebrush Squirreltail	Elymu elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	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
Spike Muhly	Muhlenbergia wrightii	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
Mountain Muhly	Muhlenbergia montana	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
Arizona Fescue	Festuca arizonica	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
Pine Dropseed	Blepharoneuron tricholepis	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 species	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
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
Pine Dropseed	Blepharoneuron tricholepis	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
Wild Buckwheat	Eriogonum 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
Juniper	Juniperus species	F/S	U	U	U	U	U	U	D	D	D	D	D	U
Gambel Oak	Quercus gambelii	L/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
Hairy Mountainmahogany	Cercocarpus montanus	L/S	P	P	P	P	P	P	P	P	P	P	P	P
New Mexico Feathergrass	Hesperostipa neomexicana	EP	U	U	D	D	D	U	U	U	D	D	D	U
Wildbuckwheat	Eriogonum species	EP	U	U	D	D	D	D	D	D	U	U	U	U
Western Wheatgrass	Pascopyrum smithii	EP	U	U	P	P	P	U	U	U	U	U	U	U

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, De Baca, Guadalupe, Lincoln, San Miguel, Santa Fe, Torrance

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 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: Chaves, De Baca, Guadalupe, Lincoln, Sna Miguel, Santa Fe, Torrance.

Characteristic Soils Are:

Apache	Cabazon
Socorro	

Other Soils included are:

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Site Description Approval:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	11/25/81	Donald H. Fulton	03/03/82

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	06/19/02	George Chavez	12/17/02