

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R042XA056NM

Site Name: Malpais

Precipitation or Climate Zone: 8-10 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site is located on relatively level to undulating mesas, benches, and valley lava flows. Escarpments are usually associated with the benches and mesas. Slopes are from 5 to 15 percent. Elevations are from 4,500 to 6,000 feet above sea level.

Land Form:

1. Lava flow

2.

3.

Aspect:

1. Not significant

2.

3.

Elevation (feet)	Minimum 4500	Maximum 6000
Slope (percent)	5	15
Water Table Depth (inches)	N/A	
Flooding:	Minimum	Maximum
Frequency	N/A	
Duration	N/A	
Ponding:	Minimum	Maximum
Depth (inches)	N/A	
Frequency	N/A	
Duration	N/A	

Runoff Class:

N/A

CLIMATIC FEATURES

Narrative:

This site has an arid climate with distinct seasonal temperature variations and large annual and diurnal temperature changes characteristic of a continental climate.

Precipitation averages 8 to 10 inches annually. Deviations of 4 inches or more from the average are quite common. Fifty percent of the moisture is received from July to November, which is the dominant growing season of native plants. Summer moisture is characterized by high intensity, short duration rainstorms. Winter precipitation averages less than one-half inch per month, usually in the form of rain. There are occasional snowstorms of short duration.

Temperatures vary from a mean monthly average of 77F in July to 34F in January, with the maximum being 104F and the minimum 10F below zero. The average last killing frost in the spring is April 15 and the average first killing frost in the fall is October 28. Frost-free season is an average of 185 days. Temperatures are conducive for native grass and forbs growth from March through November.

Spring winds of 15 to 40 miles per hour are common from February to June. These winds increase transpiration rates of native plants and rapidly dry the surface soil. Small soil particles are often displaced by the wind near the soil surface. This results in structural damage to native plants, especially young seedlings.

	Minimum	Maximum
Frost-free period (days):	<u>140</u>	<u>165</u>
Freeze-free period (days):	<u>190</u>	<u>213</u>
Mean annual precipitation (inches):	<u>8.00</u>	<u>10.00</u>

Monthly moisture (inches) and temperature (⁰F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	0.31	0.44	34.1	36.2
February	0.31	0.46	39.3	42.0
March	0.25	0.54	46.3	48.8
April	0.33	0.52	53.3	56.5
May	0.34	0.50	62.5	64.5
June	0.46	0.70	70.6	74.3
July	1.18	2.35	75.3	78.5
August	1.64	2.47	73.0	75.9
September	1.00	1.56	66.5	68.6
October	0.89	1.25	55.5	57.4
November	0.36	0.54	43.7	45.4
December	0.44	0.57	35.1	37.2

Climate Stations:					
Station ID	NM0915	Location	Bernardo	From:	Period 1962 To 1990
	_____		_____		: _____
Station ID	NM0983	Location	Bingham	From:	Period 1961 To 1990
	_____		_____		: _____
Station ID	NM0234	Location	Albuquerque	From:	Period 1961 To 1990
	_____		_____		: _____
Station ID	NM5150	Location	Los Lunas	From:	Period 1961 To 1990
	_____		_____		: _____
					Period

INFLUENCING WATER FEATURES

Narrative:
This site is not influenced by water from 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 are shallow, stony, cobbly, and gravelly well drained soils over basalt. Textures are stony sandy loam and very gravelly sandy loam. Permeability is moderate (0.63 to 2.0 inches per hour) over the basalt. Moisture holding capacity is low (0.05 to 0.09 inches per inch). Reaction is moderately alkaline (7.9 to 8.4).

Parent Material Kind: Volcanic Ash

Parent Material Origin: Basalt

Surface Texture:

1. Stony sandy loam
2. Very gravelly sandy loam
3.

Surface Texture Modifier:

1. STSL
2. VGSL
3.

Subsurface Texture Group: N/A

Surface Fragments $\leq 3''$ (% Cover): N/A

Surface Fragments $> 3''$ (% Cover): N/A

Subsurface Fragments $\leq 3''$ (%Volume): 44 – 59%

Subsurface Fragments $\geq 3''$ (%Volume): 16 – 32%

	Minimum	Maximum
	Well	Well
Drainage Class:	Moderately slow	Moderately slow
Permeability Class:	10	40
Depth (inches):	0	4.00
Electrical Conductivity (mmhos/cm):	1.00	5.00
Sodium Absorption Ratio:	7.4	8.4
Soil Reaction (1:1 Water):	N/A	
Soil Reaction (0.1M CaCl ₂):	1.00	3.00
Available Water Capacity (inches):	N/A	
Calcium Carbonate Equivalent (percent):		

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Future development.

Plant Communities and Transitional Pathways (diagram)

Future development.

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 Narrative Label: HCPC

Plant Community Narrative:

The aspect and biomass of vegetation on this site is dominantly grassland characterized by short and mid grasses. Perennial shrubs, half shrubs, and forbs are a minor component of the plant community. Annual forbs are present in relatively large amounts during spring and summer and in years of above average plant growing conditions. When the plant community deteriorates, there is a marked increase in amounts of half shrubs and cacti.

The potential plant community produces approximately 1,000 pounds per acre air dry during years of favorable growing conditions and about 400 pounds during unfavorable years. The total average annual production is approximately 700 pounds.

Ground Cover (Average Percent of Surface Area).

Grasses & Forbs – plant density	20
Trees and shrubs - canopy	2
Bare ground	40
Surface gravel	5
Surface cobble and stone	10
Litter (percent)	10
Litter (average depth in cm.)	1

Plant Community Annual Production (by plant type):

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	320	560	800
Forb	60	105	150
Tree/Shrub/Vine	20	35	50
Lichen			
Moss			
Microbiotic Crusts			
Totals	400	700	1000

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	70-105	70-105
2	BOGR2	Blue grama	35-70	35-70
3	MUPO2	Bush muhly	70-105	70-105
4	ACHY	Indian ricegrass	35-70	35-70
5	BOCU	Sideoats grama	70-105	70-105
6	MUPA2	New Mexico muhly	14-35	14-35
7	BOSA	Silver bluestem	21-35	21-35
8	PLMU3	Tobosa	140-175	140-175
9	ERPI	Hairy tridens	21-35	21-35
10	ELEL5	Bottlebrush squirreltail	35-70	35-70
11	SPCR	Sand dropseed	35-70	35-70
	SPFL2	Mesa dropseed		
	SPCO4	Spike dropseed		
12	ARPUP6	Purple threeawn	14-35	14-35
13	BOER4	Black grama	70-105	70-105
	2GRM	Other Grasses	35-70	35-70

Plant Type - Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
14	KRLA2	Winterfat	7-21	7-21
15	GUSA2	Broom snakeweed	14-35	14-35
16	OPPO	Plains pricklypear	7-21	7-21
	OPIM	Cholla cactus		
	OPLE	Christmas tree cacti		
17	YUEL	Soaptree yucca	7-21	7-21
18	LYPA	Pale wolfberry	7-21	7-21
19	ATCA2	Fourwing saltbush	7-21	7-21
	2SHRUB	Other Shrubs	7-21	7-21

Plant Type – Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
20	AMPS	Western ragweed	7-21	7-21
21	DESO2	Tansymustard	7-21	7-21
22	KOSC	Kochia	7-21	7-21
23	ERIOG	Buckwheat spp.	14-35	14-35
24	HEAN3	Sunflowers	7-21	7-21
25	SAKA	Tumbleweed	14-28	14-28
26	ERIGE2	Fleabane	7-21	7-21
	2FORB	Other Forbs	7 21	7 -21

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 would include: Feather fingergrass, Annual brome, Sixweeks fescue, Sixweeks grama

Other woody plants include: Yerba-de-pasmo

Other forbs include: Globemallow, Larkspur, Locoweed, Curlycup gumweed, Desert zinnia, Groundsel, Pricklypoppy

Plant Growth Curves

Growth Curve ID NM - 2251

Growth Curve Name: HCPC

Growth Curve Description: SD-1 Malpais HCPC Warm Season Plant Community

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

Plant Growth Curves

Growth Curve ID NM - 2252

Growth Curve Name: HCPC

Growth Curve Description: SD-1 Malpais HCPC Cool Season Plant Community

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
		15	20	20	2	5	10	15	13		

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for wildlife: This ecological site provides habitats which support a resident animal community that is characterized by coyote, black tailed jackrabbit, desert cottontail, Texas antelope squirrel, rock pocket mouse, scaled quail, brown towhee, prairie rattlesnake, Sonora gopher snake, sideblotched lizard, and collared lizard.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations

Soil Series	Hydrologic Group
Contact Local NRCS Field Office	N/A

Recreational Uses:

This site has limited potential for recreational use.

Wood Products:

This site has no potential for wood products in its potential plant community.

Other Products:

Grazing: This site is well suited for year long grazing use by cattle, sheep, horses, deer, antelope, and burros.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Year

Similarity Index	Ac/AUY
76 - 100	53 - 80
51 - 75	64 - 106
26 - 50	71 - 128
0 - 25	91 - 160

Plant Preference by Animal Kind:

	Code	Species Preference	Code
Stems	S	None Selected	N/S
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruit/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

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
Blue grama	<i>Bouteloua gracilis</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Alkali sacaton	<i>Sporobolus airoides</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Black grama	<i>Bouteloua eriopoda</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Bush muhly	<i>Muhlenbergia porteri</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Indian ricegrass	<i>Achnatherum hymenoides</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Sideoats grama	<i>Bouteloua curtipendula</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Bottlebrush squirrel	<i>Elymus elymoides</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
New Mexico muhly	<i>Muhlenbergia pauciflora</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Tobosa	<i>Pleuraphis mutica</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Silver bluestem	<i>Bothriochloa saccharoides</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Hairy tridens	<i>Erioneuron pilosum</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Winterfat	<i>Krascheninnikovia lanata</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Fourwing saltbush	<i>Atriplex canescens</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Sand dropseed	<i>Sporobolus cryptandrus</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Tumbleweed	<i>Salsola kali</i>	EP	U	U	U	U	U	U	U	U	U	U	U	U
Kochia	<i>Kochia scoparia</i>	EP	U	U	U	U	U	U	U	U	U	U	U	U
Soaptree Yucca	<i>Yucca elata</i>	EP	U	U	U	U	U	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

Inventory Data References (narrative):

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Inventory Data References:

Data Source	# of Records	Sample Period	State	County

State Correlation:

This site has been correlated with the following sites: _____

Type Locality:

State: _____

County: _____

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 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. Valencia, Socorro and Bernalillo.

Characteristic Soils Are:	
Akela cobbly sandy loam	
Other Soils included are:	

Site Description Approval:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	07/12/1979	Don Sylvester	07/12/1979
			9

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Santiago Misquez	04/12/02	George Chavez	02/14/03