

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R039XB013NM

Site Name: Mountain Malpais

Precipitation or Climate Zone: 16 to 20 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on variable terrain that ranges from gently sloping to steep. Exposures are variable. Basalt outcroppings are common; also, stony or rocky soils are common. Slopes vary from 0 to 40 percent. Elevations go to over 9,000 feet but are typically between 7,000 to 8,500 feet above sea level.

Land Form:

1. Lava flow
2. Lava plain
- 3.

Aspect:

1. N/A
- 2.
- 3.

	Minimum	Maximum
Elevation (feet)	7,000	9,000
Slope (percent)	0	40
Water Table Depth (inches)	N/A	N/A
	Minimum	Maximum
Flooding:		
Frequency	N/A	N/A
Duration	N/A	N/A
	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 approximately 16 to 20 inches, depending upon where the site is found. Year to year fluctuations in precipitation is common. Half or more of the precipitation occurring during the late fall through early spring periods, often in the form of snow. The balance of the precipitation falls typically from mid June through September and is characterized by short-duration, high intensity thunderstorms.

The average frost-free season is about 103 days but is highly variable from location to location. The last killing frost in the spring occurs about June 1st, and the first killing frost in the fall normally occurs by October 1st. Lighter frosts may occur anytime in June and again in late August or early September. Average annual air temperature is about 50 degrees F. Monthly average air temperatures vary from 30 degrees F in January to just under 70 degrees F in August.

Both the air temperature and moisture regimes of this climate favor cool-season vegetation.

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):	81	112
Freeze-free period (days):	105	133
Mean annual precipitation (inches):	16	20

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

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.79	1.00	11.1	48.2
February	.74	.81	15.0	51.6
March	.70	.85	18.3	58.3
April	.45	.65	22.3	66.4
May	.50	.56	28.5	74.5
June	.60	.74	36.3	83.6
July	2.37	2.99	46.7	84.3
August	3.15	3.29	45.5	81.1
September	1.81	2.01	37.8	77.8
October	1.15	1.57	26.5	68.8
November	.48	.84	16.3	57.3
December	1.03	1.21	11.2	49.8

Climate Stations:

Station ID	Location	Period	
		From:	To:
290818	Beaverhead Ranger Station, NM	01/01/39	12/31/00
295273	Luna Ranger Station, NM	01/01/14	12/31/00
294375	Jewett Ranger Station, NM	01/01/33	09/30/67

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:**

Surface textures are characteristically stony, cobbly, gravelly, or clay loams. The soils are very shallow to shallow over basalt, with pockets of deeper soils that are stony or cobbly throughout. Soil-moisture relationships are good, and soil temperatures may be slightly higher than on associated soils due to darker color. Available water-holding capacity is very low to low while permeability is moderately slow to slow.

Parent Material Kind: Volcanic ash

Parent Material Origin: Basalt

Surface Texture:

1. Gravelly loam
2. Cobbly loam
3.

Surface Texture Modifier:

1. Gravel
2. Cobble
3. Stone

Subsurface Texture Group: Clayey

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

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:	<u>Well</u>	<u>Well</u>
Permeability Class:	<u>Very slow</u>	<u>Moderately slow</u>
Depth (inches):	<u>10</u>	<u>20</u>
Electrical Conductivity (mmhos/cm):	<u>N/A</u>	<u>N/A</u>
Sodium Absorption Ratio:	<u>N/A</u>	<u>N/A</u>
Soil Reaction (1:1 Water):	<u>6.6</u>	<u>7.3</u>
Soil Reaction (0.1M CaCl2):	<u>N/A</u>	<u>N/A</u>
Available Water Capacity (inches):	<u>0</u>	<u>6</u>
Calcium Carbonate Equivalent (percent):	<u>N/A</u>	<u>N/A</u>

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 is an open grassland site that is typically all but free of trees and large shrubs, although on steeper, north-facing slopes scattered juniper, oaks, and ponderosa pine may occur. Forbs include wildbuckwheat, trailing fleabane, and Indian paintbrush. Tree canopy normally does not exceed 10 percent, even on the north slopes, and average 5 percent or less.

Canopy Cover:

Trees, shrubs and half-shrubs	5 – 10 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	<u>25</u>
Bare ground	<u>28</u>
Surface gravel	<u>5</u>
Surface cobble and stone	<u>30</u>
Litter (percent)	<u>12</u>
Litter (average depth in cm.)	<u>2</u>

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	553	723	893
Forb	52	68	84
Tree/Shrub/Vine	52	68	84
Lichen			
Moss			
Microbiotic Crusts			
Total	650	850	1,050

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	MUPA2 MUMO	New Mexico Muhly Mountain Muhly	128 – 213	128 – 213
2	FEAR2	Arizona Fescue	128 – 213	128 – 213
3	POFE	Muttongrass	43 – 128	43 – 128
4	MUWR	Spike Muhly	26 – 68	26 – 68
5	KOMA	Prairie Junegrass	43 – 85	43 – 85
6	ELEL5	Bottlebrush Squirreltail	9 – 43	9 – 43
7	SCSC BOCU ANGE	Little Bluestem Sideoats Grama Big Bluestem	43 – 1128	43 – 128
8	LYPH NECO26 BOGR2	Wolftail Needleandthread Blue Grama	26 – 68	26 – 68
9	2GRAM	Other Grasses	26 – 68	26 - 68

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	2FP	Perennial Forbs	26 – 68	26 – 68
11	2FA	Annual Forbs	9 – 43	9 - 43

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
12	QUERC RHTR RICE FAPA KRLA2	Oak spp. Skunkbush Sumac Wax Current Apacheplume Winterfat	9 – 43	9 – 43
13	PIED PIPO JUNIP	Pinyon Pine Ponderosa Pine Juniper spp.	26 – 68	26 – 68
14	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 may include: pine dropseed, threeawn spp., muhlenbergia spp., western wheatgrass, and bromes.

Other shrubs may include: broom snakeweed and fringed sagewort.

Plant Growth Curves

Growth Curve ID 1303NM

Growth Curve Name: HCPC

Growth Curve Description: Open grassland with scattered shrubs and forbs.

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

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitats which supports a resident animal community that is characterized by deer, bobcat, eastern cottontail, cliff chipmunk, thirteen-lines ground squirrel, rock squirrel, Botta's pocket gopher, white-throated woodrat, mourning dove, horned lark, meadow lark, chipping sparrow, tiger salamander, Chihuahua whiptail and black-tailed rattlesnake.

Elk range into the site.

Where the site is associated with rock cliffs, boulders, and ledges, ringtail and canyon mouse occur and golden eagle, prairie falcon, great horned owl, common raven, white-throated swift and violet-green swallow hunt over the site.

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
Adman	D
Adobe	D

Recreational Uses:

This site offers recreation potential for picnicking, hiking, horseback riding, nature observation and photography. Camping opportunities can be good but terrain and stony or rocky surfaces may limit choices of sites. Hunting is somewhat limited although both deer and elk may use the site. Natural beauty is largely tied to the mountainous setting in which the site occurs.

Wood Products:

The site has very little potential for wood products. What few tree and large shrub species exist probably should not be harvested unless a substantial increase in their numbers takes place as the result of a decline in condition.

Other Products:

Grazing:

Approximately 85 percent of the annual vegetative production on this site come from plant species that produce forage for grazing animals, including domestic livestock. Achieving acceptable grazing distribution can sometimes be a problem due to steep topography and stony surfaces. Continuous grazing use in the same season, year after year, is not recommended as a decline in the better forage species may result. Continued heavy use will almost certainly result in such a decline and cool-season species such as Arizona fescue are usually the first to go. Blue grama has a tendency to increase under such circumstances, as will annual forbs and certain half-shrubs and shrubs. A system of deferred grazing that varies the season of use, year to year, is needed to maintain a healthy balance of vigorous plants on the site. Rest during late spring is particularly helpful to cool-season grasses while summer rest helps to promote warm-season species such as the muhlys and bluestems. In addition to domestic livestock, deer, elk, small mammals, and birds also use the site.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	2.5 – 3.2
75 – 51	3.0 – 4.0
50 – 26	3.7 – 5.5
25 – 0	5.5+

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
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
Muttongrass	Poa fendleriana	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
Prairie Junegrass	Koeleria macrantha	EP	D	D	D	D	D	D	D	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Big Bluestem	Andropogon gerardii	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
Winterfat	Krascheninnikovia lanata	L/S	D	D	P	P	P	P	P	P	D	D	D	D

Animal Kind: Livestock

Animal Type: Horses

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
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
Muttongrass	Poa fendleriana	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
Prairie Junegrass	Koeleria macrantha	EP	D	D	D	D	D	D	D	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Big Bluestem	Andropogon gerardii	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
Winterfat	Krascheninnikovia lanata	L/S	D	D	P	P	P	D	D	D	D	D	D	D

Animal Kind: Wildlife

Animal Type: Elk

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
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
Muttongrass	Poa fendleriana	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
Prairie Junegrass	Koeleria macrantha	EP	D	D	D	D	D	D	D	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Big Bluestem	Andropogon gerardii	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
Winterfat	Krascheninnikovia lanata	L/S	D	D	P	P	P	P	P	P	D	D	D	D

Animal Kind: Wildlife

Animal Type: Deer

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Perennial 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
Annual 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
Oak	Quercus spp.	L/S/F	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: Catron, Grant, Sierra, Socorro

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 Arizona and New Mexico Mountains 39 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys : Socorro, Catron, Sierra and Grant.

Characteristic Soils Are:

Adman	Adobe
-------	-------

Other Soils included are:

--

Site Description Approval:

Author	Date	Approval	Date
Don Sylvester	02/04/81	Don Sylvester	02/04/81

Site Description Revision:

Author	Date	Approval	Date
Elizabeth Wright	05/20/02	George Chavez	2/12/03