

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R042XA059NM

Site Name: Limestone Hills

Precipitation or Climate Zone: 8-10 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on rolling to steep desert hill, mountains, foot slopes, and high mesa side exposures. Exposures are variable: north and east slopes are more productive than south and west slopes. Slopes range from 15 to 65 percent. Elevations range from 4,400 to 6,000 feet above sea level.

Land Form:

1. Hillside

2. Scarp slope

3.

Aspect:

1. Not significant

2.

3.

	Minimum	Maximum
Elevation (feet)	4,400	6,000
Slope (percent)	15	65
Water Table Depth (inches)	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:

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):	140	165
Freeze-free period (days):	190	213
Mean annual precipitation (inches):	8.00	10.00

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:
N/A

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:
N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

The soils are shallow to very shallow over limestone bedrock. They generally contain a large amount of coarse fragments and are well drained. Surface textures range from sandy loams to clay loam. They are usually calcareous throughout the profile. Permeability is moderate to rapid, runoff is medium to rapid, and available water holding capacity, though greater on north and east slopes, is low.

Parent Material Kind: Marine deposits
 Parent Material Origin: Limestone unspecified

Surface Texture:

- | |
|----------------|
| 1. Stones |
| 2. Sandy loams |
| 3. Clay loams |

Surface Texture Modifier:

- | |
|--------|
| 1. STV |
| 2. |
| 3. |

Subsurface Texture Group: _____

Surface Fragments <=3" (% Cover): N/A
 Surface Fragments >3" (% Cover): N/A
 Subsurface Fragments <=3" (%Volume): 16 - 56
 Subsurface Fragments >=3" (%Volume): 24 - 40

	Minimum Well	Maximum Well
Drainage Class:	Moderately slow	Moderately slow
Permeability Class:	4	20
Depth (inches):	N/A	N/A
Electrical Conductivity (mmhos/cm):	N/A	N/A
Sodium Absorption Ratio:	7.4-8.4	7.4-8.4
Soil Reaction (1:1 Water):	N/A	N/A
Soil Reaction (0.1M CaCl2):	1	1
Available Water Capacity (inches):	N/A	N/A
Calcium Carbonate Equivalent (percent):	N/A	N/A

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:

This is generally a mixed grass-shrub complex on all exposures. Scattered juniper and pinyon are common on north and east slopes, giving a savannah aspect. Mid grasses are common to this site, such as curlyleaf muhly and New Mexico feathergrass which influence the visual aspect of this site.

Canopy Cover

Trees	15
Shrubs and half shrubs	15

Ground Cover (Average Percent of Surface Area).

Grasses & Forbs	26
Bare ground	24
Surface gravel	25
Surface cobble and stone	15
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	228	418	608
Forb	18	33	48
Tree/Shrub/Vine	54	99	144
Lichen			
Moss			
Microbiotic Crusts			
Totals	300	550	800

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	BOER4	Black grama	83-138	83-138
	MUPO2	Bush muhly		
2	BOCU	Sideoats grama	28-83	28-83
3	MUSE	Curlyleaf muhly	17-28	17-28
	ERIN	Plains lovegrass		
4	HENE5	New Mexico feathergrass	28-83	28-83
	HECO26	Needle&Thread		
5	BOGR2	Blue grama	55-66	55-66
	PLJA	Galleta		
	BOHI2	Hairy grama		
	TRMU	Slim tridens		
6	ACHY	Indian ricegrass	6-28	6-28
	2GRM	OTHER Grasses		

Plant Type - Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
7	KRLA2	Winterfat	17-39	17-39
	ATCA2	Fourwing Saltbush		
8	PAIN2	Mariola	6-28	6-28
	DALEA	Dalea spp.		
9	NOMI	Sacahuista	6-17	6-17
	RHTR	Skunkbush sumac		
	RHMI3	Littleleaf sumac		
	YUCCA	Yucca spp.		
10	JUMO	Oneseed Juniper	0-17	0-17
	PIED	Pinyon		
	2SHRUB	OTHER Shrubs/Trees		

Plant Type – Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
11	ERIOG	Wild Buckwheat	17-39	17-39
	LESQU	Bladderpod		
	THAC	Pricklyleaf dogweed		
	CRYPT	Cryptantha		
	CACO17	Indian paintbrush		
	MELE2	Plains blackfoot		
	HYRI	Stemmy hymenoxys (Pingue)		
	GILIA	Gilia spp.		
	2FORB	OTHER Forbs		

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: Alkali sacaton, Threeawn spp., Wolf tail, New Mexico muhly, Prairie junegrass

Other woody plants include: Apacheplume, shrub liveoak, broom snakeweed, rabbitbrush, cactus spp.

Other forbs include: Leatherweed croton, globemallow, plains wallflower, zinnia

Plant Growth Curves

Growth Curve ID NM - 2281

Growth Curve Name: HCPC

Growth Curve Description: SD-1 Limestone Hills 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		

Growth Curve ID NM - 2282

Growth Curve Name: HCPC

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

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

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

This ecological site provides habitats which support a resident animal community that is characterized by mule deer, coyote, desert cottontail, white throated woodrat, Texas antelope squirrel, brown towhee, scaled quail, side blotched lizard.

Winter residents include the scrubjays and the Oregon junco.

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
Lozier	D

Recreational Uses:

This site is well suited for hunting, hiking, horseback riding, and nature observation.

Wood Products:

Wood products, including fuelwood, fence posts, and landscape trees, are produced on areas within this site. These are not, however, produced in significant amounts.

Other Products:

Approximately 85 percent of the vegetative production on this site is suitable as forage for domestic livestock and wildlife. Grazing distribution may be a problem; more level areas within the site receive more grazing pressure than the steeper areas. Construction of livestock waterings, saltings, cross fencing, and trails may improve livestock distribution.

Inadequate management of the site leads to repetitive grazing of the most desirable plant species, and reduce the vigor and productivity of these plants. The result is a deterioration in the potential plant community indicated by a decrease in black grama, blue grama, and sideoats grama, Bush and New Mexico muhly, plains lovegrass, New Mexico feathergrass, fourwing saltbush, and winterfat. Plant species that increase include curlyleaf muhly, hairy grama, wolftail, tridens, galleta, mariola, sacahuista, and pinyon-juniper. A planned grazing system with periodic deferment is best to maintain the desirable balance between plant species and to maintain the natural productivity and plant vigor.

In addition to domestic livestock, deer, pronghorn, small mammals, and birds also use this site.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	4.3 – 5.7
75 – 51	5.5 - 8.6
50 – 26	8.4 – 17.1
25 – 0	17.1 +

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
Black grama	<i>Bouteloua gracilis</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
Sideoats grama	<i>Bouteloua curtipendula</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
Plains lovegrass	<i>Eragrostis intermedia</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
New Mexico feathergrass	<i>Herperostipa neomexicana</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
Fourwing saltbush	<i>Atriplex canescens</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Winterfat	<i>Krascheninnikovia lanata</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Some forbs		EP	P	P	P	P	P	P	P	P	P	P	P	P
Curlyleaf muhly	<i>Muhlenbergia setifolia</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Galleta	<i>Pleuraphis jamesii</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Tridens	<i>Tridens</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Wolftail	<i>Lycurus phleoides</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Threeawn spp.	<i>Aristida</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Dropseeds	<i>Sporo</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Yucca spp.	<i>Yucca</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Mariola	<i>Parthenium incanum</i>	EP	U	U	U	U	U	U	U	U	U	U	U	U
Dalea	<i>Dalea</i>	EP	U	U	U	U	U	U	U	U	U	U	U	U
Sacahuista	<i>Nolina microcarpa</i>	EP	U	U	U	U	U	U	U	U	U	U	U	U
Sumac	<i>Rhus</i>	EP	U	U	U	U	U	U	U	U	U	U	U	U
Oneseed juniper	<i>Juniperus monosperma</i>	EP	U	U	U	U	U	U	U	U	U	U	U	U
Pinyon	<i>Pinus edulis</i>	EP	U	U	U	U	U	U	U	U	U	U	U	U
Broom snakeweed	<i>Gutierrezia sarothrae</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:

General Legal Description:

State:	Latitude:	Longitude:
County:	Section:	Township: Range:

Narrative Location Description:

Is the type locality sensitive? Yes No

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, and Bernalillo.

Characteristic Soils Are:

Lozier very gravelly loam	
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Other Soils included are:

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Site Description Approval:

{PRIVATE}Author	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	07/12/1979	Don Sylvester	07/12/1979

Site Description Revision:

{PRIVATE}Author	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Santiago Misquez	04/12/02	George Chavez	03/04/03