

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

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R070XC107NM

Site Name: Limestone Hills

Precipitation or Climate Zone: 13 to 16 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs as hills, low mountains, and foot slopes of higher mountains. Slopes range from 15 to 75 percent and average 20 percent. Elevation ranges from 5,000 to 7,000 feet above sea level. This site is a complex of soils, rock, aspect and degree of slope. Aspect varies and is important. North and east slopes are cooler and have a better soil moisture relationship; therefore, they produce more forage.

Land Form:

1. Hill

2.

3.

Aspect:

1. North

2. East

3.

	Minimum	Maximum
Elevation (feet)	5,000	7,000
Slope (percent)	15	75
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:

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 plants to occupy an important component of this site. On the north and east slopes, this cool-season component may dominate the vegetative community. Strong winds that blow from February to June can dry the soil profile quickly during a critical time 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 Corners 7SE, 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 wetlands or streams.

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 typically shallow over limestone, although pockets of deep soil exist. Surface textures can vary from clay loams to sandy loams and are frequently stony, gravelly, or cobbly. Water intake is moderate to moderately rapid. The water-holding capacity is generally low due to the depth of the soil.

Parent Material Kind: Marine deposits

Parent Material Origin: Limestone unspecified

Surface Texture:

1. Clay loams
2. Fine sandy loam
3. Loam

Surface Texture Modifier:

1. Stony
2. Gravelly
3. Cobbly
4. Channery

Subsurface Texture Group: Clay loams

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

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

Subsurface Fragments <=3" (%Volume): 15 to 69

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

	Minimum	Maximum
Drainage Class:	Well	Well
Permeability Class:	Moderately slow	Moderate
Depth (inches):	6	20
Electrical Conductivity (mmhos/cm):	2.00	4.00
Sodium Absorption Ratio:	0.0	4.0
Soil Reaction (1:1 Water):	7.4	8.4
Soil Reaction (0.1M CaCl₂):	N/A	N/A
Available Water Capacity (inches):	3	6
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

The potential plant community of this site has a mixed grassland, shrub, half-shrub aspect with only occasional tree-type junipers or pinyon present. Mid- and short grasses dominate the site. Forbs are a minor component of this site. However, during years of abundant spring and fall moisture, a large variety of forbs occur throughout this site. Cool-season grasses and shrubs are more prevalent on the north and east slopes and at higher elevations. Warm-season grasses dominate the west and south slopes and lower elevations.

Canopy Cover:

Trees	3 – 8 %
Shrubs and Half shrubs	7 – 15 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	12 – 15
Bare ground	25 – 35
Surface cobble and stone	35 – 45
Litter (percent)	6 – 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	260	520	780
Forb	32	64	96
Tree/Shrub/Vine	80	160	240
Lichen			
Moss			
Microbiotic Crusts			
Totals	400	800	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	BOER4	Black Grama	80 - 120	80 – 120
2	BOCU SCSC	Sideoats Grama Little Bluestem	120 - 160	120 – 160
3	MUSE MURI3 ERIN	Curlyleaf Muhly Metcalfé Muhly Plains Lovegrass	120 - 240	120 – 240
4	HEHE5 HECO26 ACSC11	New Mexico Feathergrass Needleandthread Scribner Needlegrass	80 - 120	80 – 120
5	BOGR2 BOHI2 LYPH PLJA	Blue Grama Hairy Grama Wolftail Galleta	80 - 96	80 – 96
6	MUMO MUPA2	Mountain Muhly New Mexico Muhly	40 - 80	40 – 80
7	PASM KOMA PIFI	Western Wheatgrass Prairie Junegrass Pinyon Ricegrass	40 - 80	40 – 80
8	2GRAM	Other Grasses	40 - 80	40 - 80

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
9	PAIN2	Mariola	40 - 56	40 – 56
10	CAC017	Indian Paintbrush	8 - 24	8 – 24
11	PLPA2	Woolly Indianwheat	8 - 24	8 – 24
12	2FORBS	Other Forbs	8 - 24	8 - 24

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
13	QUERC	Oak spp.	40 - 56	40 – 56
14	MATR3	Algerita	24 - 40	24 – 40
15	MIACB RHTR	Catclaw Mimosa Skunkbush Sumac	40 - 56	40 – 56
16	JUNIP PIED	Juniper Pinyon	24 - 80	24 – 80
17	PUME	Cliffrose	24 - 40	24 – 40
18	2SD	Other Shrubs	24 - 40	24 - 40

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: cane bluestem, silver bluestem, big bluestem, Arizona cottontop, green sprangletop, bush muhly, sand dropseed, mesa dropseed, threeawn spp., curly mesquite, false mesquite, bullgrass, tridens spp., Halls panicum, ring muhly, mat muhly, and spike muhly.

Other shrubs include: yucca spp., agave spp., sacahuista, winterfat, broom snakeweed, hairy mountainmahogany, cliff fendlerbush, and fourwing saltbush.

Other forbs include: locoweed spp., lambert crazyweed, scarlet globemallow, marigold spp., and yarrow.

Plant Growth Curves

Growth Curve ID 4307NM

Growth Curve Name: HCPC

Growth Curve Description: Mixed grassland/shrubland with scattered trees.

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 produces a habitat which supports a resident animal community characterized by mule deer, gray fox, bobcat, desert cottontail, rock squirrel, white-throated woodrat, brush mouse, red-tailed hawk, prairie falcon, harlequin quail, red-shafted flicker, scrub jay, common raven, great horned owl, plain titmouse, common bushtit, rufous-sided towhee, chipping sparrow, red spotted toad, collared lizard, desert short-horned lizard, mountain patch-nose snake, 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
Deama	D
Pinyon	C
Rock Outcrop	D
Tortugas	D
Winona	D

Recreational Uses:

This site offers fair to good potential for hiking, horseback riding, camping, and nature observation. Hunting for small game and deer is good. Trapping for fur-bearing animals is good. Natural beauty is typical of the mountain foothills of the area in which it is found.

Wood Products:

This site has a limited potential for the harvesting of fencing material and fuelwood.

Other Products:

Grazing:

This site is suited for grazing of all kinds and classes of livestock during all seasons of the year. On areas of excessively steep slopes, accessibility may become limited and stocking rates should be adjusted accordingly. This site responds best to a system of grazing that rotates the season of use. Under continuous year-long grazing or continuous grazing during the growing season will cause this site to deteriorate. Deterioration of this site is characterized by a decrease in black grama, sideoats grama, little bluestem, New Mexico feathergrass, western wheatgrass, and prairie junegrass. As these species decline there is an increase in species such as galleta, blue and hairy grama, threeawns, broom snakeweed, algerita, oak spp., juniper and pinyon. Mechanical seeding and brush control are rarely justifiable on this site. Because of this, the use of goats or other browsing animals can be a good tool to maintain a healthy, balanced plant community. Predator control should be considered when using this site as a calving pasture 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	3.0 – 4.5
75 – 51	3.6 – 6.2
50 – 26	4.3 – 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
Black Grama	Bouteloua eriopoda	EP	D	D	D	D	P	P	P	P	P	D	D	D
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	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
Prairie Junegrass	Koeleria macrantha	EP	D	D	D	D	D	D	D	D	D	D	D	D
Pinyon Ricegrass	Pipochaetium fimbriatum	EP	P	P	P	P	P	P	P	P	P	P	P	P
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D

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
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
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
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
Pinyon Ricegrass	Piptochaetium fimbriatum	EP	P	P	P	P	P	D	D	D	D	D	D	P
New Mexico Feathergrass	Hesperostipa neomexicana	EP	U	U	P	P	P	D	D	D	U	U	U	U

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
Oak	Quercus	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
Juniper	Juniperus	F/S	P	P	U	U	U	U	U	U	U	U	U	P
New Mexico Feathergrass	Hesperostipa neomexicana	EP	U	U	D	D	D	U	U	U	D	D	D	U
Western Wheatgrass	Pascopyrum smithii	EP	U	U	P	P	P	U	U	U	U	U	U	U
Skunkbush Sumac	Rhus trilobata	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

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:

--

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:

Deama	Tortugas
Pinyon	

Other Soils included are:

Rock Outcrop	Winona
--------------	--------

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