

UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site Name: Loamy

Site ID: R042XB014NM

Major Land Resource Area: 042 - Southern Desertic Basins, Plains, and Mountains

Physiographic Features

This site occurs on level to gently sloping piedmont slopes. Slopes range from 1 to 15 percent, averaging less than 10 percent. Elevations range from about 3800 to 5000 feet.

Land Form: (1) Fan piedmont
(2) Alluvial fan
(3) Alluvial flat

	<u>Minimum</u>	<u>Maximum</u>
<u>Elevation (feet):</u>	3800	5000
<u>Slope (percent):</u>	1	15
<u>Water Table Depth (inches):</u>	N/A	N/A
<u>Flooding:</u>		
Frequency:	Very rare	Occasional
Duration:	Very brief	Brief
<u>Ponding:</u>		
Depth (inches):	N/A	N/A
Frequency:	None	Rare
Duration:	None	Very brief
<u>Runoff Class:</u>	Medium	Very high
<u>Aspect:</u>		

Climatic Features

Annual average precipitation ranges from 8 to 10.5 inches. Wide fluctuations from year to year are common, ranging from a low of about 2 inches to a high of over 20 inches. At least one-half of the annual precipitation comes in the form of rainfall during July, August, and September. Precipitation in the form of snow or sleet averages less than 4 inches annually. The average annual air temperature is about 61 degrees F. Summer maximums usually exceed 100 degrees F., and winter minimums can go below zero. The average frost-free season exceeds 200 days and extends from April to November 1.

	<u>Minimum</u>	<u>Maximum</u>
<u>Frost-free period (days):</u>	179	212
<u>Freeze-free period (days):</u>	200	233
<u>Mean annual precipitation (inches):</u>	8.0	10.5

Monthly precipitation (inches) and temperature (°F):

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Precip. Min.	0.37	0.36	0.23	0.18	0.29	0.57	1.42	1.92	1.53	1.01	0.48	0.57
Precip. Max.	0.54	0.39	0.27	0.36	0.45	0.64	1.9	2.2	1.66	1.07	0.58	0.78
Temp. Min.	20.8	25.5	31.2	38.0	46.4	54.3	61.1	59.1	51.5	39.8	28.8	22.3
Temp. Max.	58.1	63.8	71.0	79.3	87.4	96.4	95.5	92.7	87.5	78.7	67.2	58.5

- Climate Stations:
- (1) NM3855, Hatch. Period of record 1961 - 1990
 - (2) NM8387, Socorro. Period of record 1961 - 1990

Influencing Water Features

This site is not influenced by wetland or streams.

<u>Wetland Description:</u> (Cowardin System)	<u>System</u>	<u>Subsystem</u>	<u>Class</u>
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Representative Soil Features

The soils are moderately deep to deep and well drained. Typically the surface layer is medium-textured. Underlying layers are moderately fine to medium-textured varying from clay loam, sandy clay loam, silt loam to silty clay loam. The soils have moderate to moderately slow permeability and high water-holding capacity. Slopes average less than 10 percent.

Predominant Parent Materials:

Kind: Alluvium

Origin: Mixed-igneous-metamorphic & sedimentary

Surface Texture:

- (1) Sandy clay loam
- (2) Loam
- (3) Silty clay loam

Subsurface Texture Group: Loamy

Surface Fragments <=3" (% Volume): 0

Surface Fragments > 3" (% Volume): 0

Subsurface Fragments <=3" (% Volume): 0

Subsurface Fragments > 3" (% Volume): 0

Drainage Class:

Well drained To Somewhat excessively drained

Permeability Class:

Slow To Very slow

	<u>Minimum</u>	<u>Maximum</u>
<u>Depth (inches):</u>	24	72
<u>Electrical Conductivity (mmhos/cm):</u>	0	8
<u>Sodium Absorption Ratio:</u>	0	1
<u>Calcium Carbonate Equivalent (percent):</u>	N/A	N/A
<u>Soil Reaction (1:1 Water):</u>	6.6	8.4
<u>Soil Reaction (0.01M CaCl₂):</u>	N/A	N/A
<u>Available Water Capacity (inches):</u>	4.0	8.0

Plant Communities

Ecological Dynamics of the Site

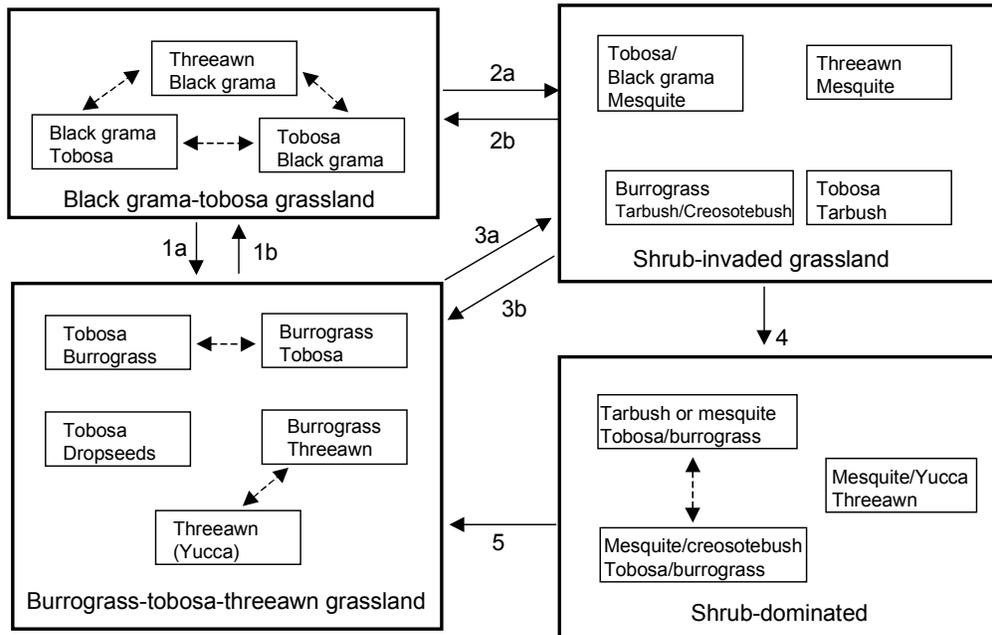
Overview

Floristically, this ecological site is can be viewed as a “tension zone” (Curtis 1959) between sandy upland sites and clayey lowland sites, reflecting the intermediate character of the soil texture. At tension zones, species diversity is often high and slight differences in environmental conditions can produce large changes in community structure. This may partly explain why there are such substantial differences in plant composition among soil series within this site. It is often at the center of an ecological gradient where classification systems are least satisfying, and this ecological site is no exception. On the other hand, research conducted on variation in plant assemblages on loamy soils can provide important information on the niches of many plants in SD-2.

This site intergrades with Sandy, Clayey, and Gravelly or Gravelly loam sites and does not often form sharp boundaries with them. The presumed historic plant community type of this site is dominated by black grama (*Bouteloua eriopoda*) and tobosa (*Pleuraphis mutica*) is a secondary dominant, followed by alkali sacaton (*Sporobolus airoides*). No areas harboring this community have been located, and only one area on the Jornada Experimental Range harbors substantial amounts of black grama. These areas tend to be on sandier soils, so the relative dominance of black grama and tobosa in the historic setting may depend on variations in surface or subsurface soil texture. Transitions within this ecological site appear to be governed by selective herbivory, erosion and soil truncation, although no systematic studies within this site exist. A loss of black grama, with subsequent dominance by burrograss (*Scleropogon brevifolius*), tobosa, or threeawns (*Aristida* spp.) may occur in response to grazing. Both tarbush (*Flourensia cernua*) and honey mesquite (*Prosopis glandulosa*) readily invade this site, perhaps facilitated by bare areas where grass competition and/or fire is diminished. Creosotebush (*Larrea tridentata*) may also invade. Subsequent loss of remaining grass cover, erosion, and soil truncation eventually produces a shrubland state (often dominated by tarbush or creosotebush) with little grass cover.

No quantitative information exists concerning the causes of transitions between grassland types and to shrub-invaded grasslands or pure shrublands in this ecological site.

State-Transition model: MLRA 42, SD-2, Nonsaline lowland site group: Loamy



- 1a-Overgrazing, soil fertility loss, erosion and sand loss; 1b-Soil stabilization or modification
- 2a-Shrub invasion due to overgrazing and/or lack of fire; 2b-Shrub removal, restore cover
- 3a-Shrub invasion; 3b-Shrub removal with grass recovery
- 4. Persistent reduction in grasses, competition by shrubs, erosion and soil truncation
- 5. Shrub removal with soil addition?

MLRA 42; SD-2; Loamy

Burrograss-tobosa-threeawn state



- Tobosa, some burrograss and black grama, in patches, few mesquite in background
- Cover of grasses high to moderate
- At left, grazed black grama patch surrounded by tobosa
- At right, tobosa dominates but varies in cover with microtopography.
- Berino sandy loam, Dona Ana Co.

Shrub-invaded, tobosa-mesquite



- Tobosa, some burrograss, mesquite
- Cover of grasses moderate
- Evidence of wind erosion
- Algerita sandy loam, Dona Ana Co.

Shrub-invaded state, threeawn-mesquite



- Threeawn dominant, some burrograss and fluffgrass. Mesquite and tarbush present
- Cover of grasses low
- Evidence of wind erosion and pedestalling, large bare patches.
- Algerita sandy loam, eroded phase, Jornada Exp. Range, Dona Ana Co.

Shrub-invaded state, burrograss-creosotebush



- Burrograss dominant, some tobosa. Creosotebush at moderate density
- Cover of grasses low
- Evidence of wind erosion and pedestalling, large bare patches.
- Dona Ana fine sandy loam, Jornada Exp. Range, Dona Ana Co.

Shrub-dominated state, creosotebush-tarbush



- Creosotebush dominant, some bush muhly among shrubs. Borders gravelly site.
- Cover of grasses very low
- Evidence of wind erosion and pedestalling, nearly continuous bare ground.
- Dona Ana fine sandy loam, Jornada Exp. Range, Dona Ana Co.

State Containing Historic Climax Plant Community

Black grama-tobosa grasslands: This state is now rare throughout SD-2. On Berino fine sandy loam soils west of Las Cruces (the Corralitos Ranch), a tobosa-black grama community occurs in which tobosa is the overwhelming dominant and black grama is restricted to small patches. In other settings (e.g. the Jornada Experimental Range), black grama appears to have colonized where sand has blown onto silt loam soils. Dominance by black grama, however, has not been observed on soils classified to this site. Other than tobosa and black grama, alkali sacaton is a relatively consistent feature of this site. Threeawns or dropseeds (*Sporobolus* spp.) may achieve dominance or subdominance depending upon variation in soil texture and natural disturbances. On more gravelly soils, bush muhly (*Muhlenbergia porteri*) cover may be significant. In any case, the historic community was probably extremely diverse due to the intermediate nature of this site along the gradient of soil texture. Grazing-induced retrogression would be expected to reduce this diversity and to severely reduce the dominance of black grama. Subordinate species of lower palatability and higher tolerance to disturbance, including tobosa and threeawns, would be expected to attain dominance. As long as sufficient black grama cover persisted and climatic conditions favored black grama reproduction, then recovery would be possible.

Diagnosis: Ranging from near co-dominance between black grama and other grasses to the representation of black grama in isolated patches. Mesquite, tarbush, and creosotebush are absent. Signs of erosion, including gullies, rills, and litter movement are infrequent.

Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	25
Bare ground	50
Surface gravel	10
Surface cobble and stone	0
Litter (percent)	15
Litter (average depth in cm.)	2

Plant Community Annual Production (by plant type):			
Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	246	400	554
Forb	24	39	54
Tree/Shrub/Vine	30	49	67
Lichen			
Moss			
Microbiotic Crusts			
Totals	300	488	675

Historic Climax Plant Community Plant Species Composition: Plant species are grouped by annual production not by functional groups.

<u>Group</u>	<u>Grass/Grasslike Common Name</u>	<u>Scientific Name</u>	<u>Annual Production in Pounds Per Acre</u>	
			<u>Low</u>	<u>High</u>
1	black grama	<i>Bouteloua eriopoda</i>	98	146
2	bush muhly	<i>Muhlenbergia porteri</i>	24	49
3	blue grama	<i>Bouteloua gracilis</i>	0	24
4	threeawn burrograss	<i>Aristida</i> <i>Scleropogon brevifolius</i>	15	39
5	fluffgrass ring muhly	<i>Dasyochloa pulchella</i> <i>Muhlenbergia torreyi</i>	5	24
6	sand dropseed mesa dropseed	<i>Sporobolus cryptandrus</i> <i>Sporobolus flexuosus</i>	24	49
7	tobosagrass	<i>Pleuraphis mutica</i>	49	73
8	alkali sacaton	<i>Sporobolus airoides</i>	24	49
9	cane bluestem Arizona cottontop plains bristlegrass	<i>Bothriochloa barbinodis</i> <i>Digitaria californica</i> <i>Setaria vulpiseta</i>	5	24
10	Grass, annual		5	15
<u>Group</u>	<u>Shrub/Vine Common Name</u>	<u>Scientific Name</u>	<u>Annual Production in Pounds Per Acre</u>	
			<u>Low</u>	<u>High</u>
11	fourwing saltbush Longleaf ephedra soaptree yucca	<i>Atriplex canescens</i> <i>Ephedra trifurca</i> <i>Yucca elata</i>	5	49
12	broom snakeweed pricklypear	<i>Gutierrezia sarothrae</i> <i>Opuntia</i>	5	15

<u>Group</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Annual Production in Pounds Per Acre</u>	
			<u>Low</u>	<u>High</u>
13	Forb desert holly desert marigold croton annual buckwheat filaree globemallow	<i>Acourtia nana</i> <i>Baileya multiradiata</i> <i>Croton</i> <i>Eriogonum annuum</i> <i>Erodium cicutarium</i> <i>Sphaeralcea</i>	5	24
14	rayless goldenrod scorpion weed woolly plantain	<i>Isocoma pluriflora</i> <i>Phacelia integrifolia</i> <i>Plantago patagonica</i>	5	15
15	milkvetch Russian thistle threadleaf groundsel	<i>Astragalus</i> <i>Salsola kali</i> <i>Senecio flaccidus</i>	5	15
16	Forb, annual Forb, perennial		5	24

Plant Growth Curve:

Growth Curve Number: NM2505

Growth Curve Name: HCPC

Growth Curve Description: SD-2 Loamy HCPC Warm Season Plant Community.

<u>Percent Production by Month</u>											
<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	5	10	10	25	30	15	5	0	0

Transition to burrograss-tobosa-threeawn grassland (1a): Grazing and/or drought may limit the growth of black grama (see also transition 1, Sandy model). Disturbance to individual black grama plants due to trampling or other physical disturbance may be especially important.

Key indicators of approach to transition: Loss of grass species diversity, reduction in black grama cover and increased decadence of black grama plants, decreases in overall grass cover coincident with increases in the relative cover of burrograss, tobosa and/or threeawns, increases in bare patch size. If climate is not favorable for black grama reestablishment, the transition may be inevitable.

Transition to shrub-invaded state (2a): Mesquite invasion may be due to introduction by cattle or humans (see Sandy model), although tarbush and creosotebush are wind-dispersed. Surface-soil disturbance, reduced grass cover, and the presence of large bare patches may facilitate the germination of seeds of all shrubs. This mechanism assumes that shrub invasion is coincident with grazing-induced loss of grass (black grama) cover, as is the case on the Jornada Experimental Range. The reduction of periodic fire in conditions where black-grama/tobosa grasslands have sufficient grass production (e.g. >600 lbs/acre; Wright et al. 1976) may also have facilitated shrub invasion. These factors may be independent of management (Herbel and Gibbens 1996) if climate has played a large role.

Key indicators of approach to transition: Same as for 1a if mesquite is limited by competition with grasses, in addition to the presence of maturing shrubs. If fire is important, then a persistent reduction in production and litter cover coincident with reduced fire frequencies may portend shrub invasion.

Additional States:

Burrograss-tobosa-threeawn grassland: There are many communities within this state due to the sensitivity of species to slight variations in soil conditions, or perhaps due simply to chance colonization. The state is characterized by the reduced ground cover of grasses overall and low cover of black grama in particular. On eroded sandy ridges (e.g. Algerita, sandy loam, eroded phase), threeawns, yucca (*Yucca elata*), and fluffgrass (*Dasyochloa pulchella*) may dominate. In some cases, alkali sacaton may dominate; it is unclear why (but perhaps related to salinity). Local variation in grass densities may occur depending on microtopography or soils. On siltier and/or more calcareous soils, burrograss may be dominant (perhaps without disturbance). On heavier soils with higher run-in water such as Algerita sandy clay loam, tobosa may dominate. In some cases, annual grass and forb species may be especially abundant. On slight (< 1°) slopes, erosional-depositional vegetation banding (Mauchamp et al. 1990) may be apparent, with bare strips being a prominent feature (e.g. Algerita sandy loam; Gile and Grossman 1997). This pattern may be initiated by disturbance to vegetation and is maintained through positive feedbacks. The extent of the bare area may not increase over time, although the bare areas may shift upslope.

Diagnosis: Black grama low to absent. Other perennial grasses including tobosa, burrograss, and threeawns ranges are dominant. Cover of perennial grasses and litter is discontinuous, bare areas are interconnected. Signs of erosion may be present.

Transition to shrub-invaded state (3a): See transition 2a above. Communities dominated by burrograss are unlikely to have sufficient fuel to carry fire. Thus, the presence of shrub propagules at a site may be all that is required for this transition.

Transition to black grama-tobosa grassland (1b): If climate is responsible for black grama decline, then this transition may be impossible to manipulate. May require soil amendments to increase fertility for black grama (i.e. restoration of mycorrhizal associates). Very little is known about the constraints to the presence and dominance of individual grass species.

Shrub-invaded grassland: This state usually features a substantial amount of shrub cover, although in some cases, a savanna-like aspect with abundant grass (e.g. tobosa/mesquite community) can persist for long periods. Different shrubs have a tendency to invade depending on variations in soil texture—mesquite invades more often on more coarse variants (e.g. sandy loams over sandy clay loam or clay loam B horizons; tobosa or threeawn/mesquite communities) with low carbonate and tarbush and creosotebush are dominant shrubs where surface layers are finer (sandy clay loams, fine sandy loams) and soils with higher carbonate (such as the carbonate-rich Reagan soils). Tarbush may do especially well on silt-loam soils, although this has not been quantified. Creosotebush frequency increases as gravel content increases (e.g. > 5%; David Trujillo, NRCS, personal communication). Mesquite exhibits a more inverted-conical

growth form on loamy soils relative to sandier soils, perhaps due to the lack of sand accumulation around shrub bases. Grass cover is often (but not always) substantially lower than in the grassland state and is patchy. It is possible that accelerating practices (shrub control) are needed to maintain a shrub-invaded state. While in the shrub-invaded state, tobosa and bush muhly have been reestablished as dominants in response to herbicide application on creosotebush and tarbush on Dona Ana sandy loam soils in the Jornada Experimental Range (Herbel et al. 1983).

Diagnosis: Shrubs, including mesquite, tarbush, and/or creosotebush are present. The cover of perennial grasses, including tobosa, burrograss, and threeawns, ranges from interconnected to patchy but large (> 2 m) bare patches are usually common. Black grama may be present but is rare (so far as we have observed).

Transition to shrub-dominated state (4): Continued grazing or drought may lead to the loss of remaining grasses, sheet erosion or gulying, and soil truncation and soil drying. This prevents further establishment by grasses or shrubs in most areas. Soil surface physical crusting may also be important. Some shrubs (e.g. creosotebush) may expand via clonal growth. Furthermore, competition by shrubs for water at grass rooting depths (see Gibbens and Lenz 2001) may lower grass survival and reproduction. Shrub encroachment alone may produce these changes without grazing such that this transition occurs if shrub removal is not applied (see Sandy model).

Key indicators of approach to transition: Increases in shrub cover and/or density, loss of grass cover, biotic soil crusts, increased bare ground and bare ground patch sizes, evidence of increasing erosion including litter movement, rills, gullies, and pedestalling of grasses and shrubs. Presence of physical soil crusts.

Transition to shrub-dominated state (2b). Shrub removal with increases in grass cover and fuel loads for fire may be required to reestablish the competitive dominance of grass or to facilitate periodic disturbances to shrubs. It is more likely, however, that the conditions promoting shrub invasion will remain in place such that fire and shrub control must be continually applied, perhaps at frequencies and under conditions not conducive to grass recovery. In any case, the utility of fire to maintain grassland cover in SD-2 is unknown and is currently being investigated (Drewa and Havstad 2001).

Shrub-dominated grassland: This state is characterized by soil surface degradation and truncation (Gile and Grossman 1997) and little grass cover. Shrubs may be very dense. In some cases, only small patches of tobosa, burrograss and/or threeawns may exist, and fluffgrass may be an important component of cover. Buffington and Herbel (1965) have documented a great deal of turnover in the composition of dominant shrubs within the Dona Ana-Reagan map unit of the Jornada Experimental Range. Generally, the trend has been a shift from tarbush to a mix of creosotebush and mesquite. They speculate that this is due to the relatively greater motility of tarbush seeds compared to mesquite or creosotebush. Grass cover may vary depending upon the species of invading shrubs. Grass cover is reputed to be higher where tarbush has invaded in comparison to other shrubs, but this may simply represent the sequence of shrub invasion paralleling the effects of erosional soil degradation and grass loss, rather than any direct effect.

In tarbush shrublands that currently receive little grazing pressure, microbiotic crusts may be very common. This may represent the first steps towards long-term recovery.

Diagnosis: Density of shrubs, including mesquite, tarbush, and/or creosotebush ranges is high. The cover of perennial grasses including tobosa, burrograss, fluffgrass, and threeawns is low and restricted to small patches or scattered plants. Bare ground is dominant and interconnected or continuous. Soil truncation is apparent and pedestalling and other signs of erosion are ubiquitous. Either biotic or physical crusts, usually both, are common.

Transition to burrograss-tobosa-threeawn grassland state (5). Shrub removal in combination with soil amendments, or pitting and seeding, may catalyze progress towards recovery of a grass component. If grass establishment fails, and increased production of shrubs and annuals may be observed. Such approaches have not met with success on loamy soils in SD-2, perhaps due to rainfall limitations after seeding. Where erosion has exposed saline or carbonate-rich soils, chemical treatments (or flushing) to reduce these compounds would also be required.

Data and information sources and theoretical background: Some information is available from a number of Jornada Experimental Range long-term monitoring plots (known as the permanent quadrats) that occur on the Dona-Ana-Reagan map unit (Dona Ana County soil survey). These provide data on the dominants occurring in 1m² plots from 1915/16 or 1926/27 to 2001. Unfortunately, there are clear discrepancies in the boundaries and composition of the soil map unit in the Dona Ana County soil survey and the vegetation maps documented in 1998 by Robert P. Gibbens (unpublished). The Desert Project soil survey overlaps part of the area mapped by Gibbens and this association is relied upon heavily in this presentation. The extension of the Desert Project mapping effort to the north will be invaluable. Information on dynamics is provided by Buffington and Herbel (1965). Other observations by Jim Powell, NRCS retired, and Brandon Bestelmeyer, USDA-ARS Jornada Experimental Range are reported.

As described in detail in the Clayey site *Overview: Data and information sources and theoretical background*, the *soil truncation hypothesis* holds that erosion exposes a hardened argillic B horizon, or calcium carbonate-rich horizon, that resists infiltration and may inhibit establishment. Hypotheses regarding the limitations placed upon black grama and the invasion of mesquite are discussed in the Sandy overview section.

Ecological Site Interpretations

Animal Community:

This site provides habitat which support a resident animal community that is characterized by pronghorn antelope, coyote, black-tailed jackrabbit, spotted ground squirrel, bannertail kangaroo rat, desert pocket mouse, marsh hawk, horned lark, meadow lark, scaled quail, western box turtle, New Mexico whiptail lizard and western spadefoot toad.

Where large yucca, cholla and mesquite are present, this site is a breeding area for mockingbird, Scott's oriole and mourning dove.

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
Berino	B
Reakor	B
Dona Ana	B
Bucklebar	B

Recreational Uses:

Suitability for camping and picnicking is fair, and hunting is fair for pronghorn antelope, quail, dove, and small game. Photography and bird watching can be fair to good, especially during migration seasons. Most small animals of the site are nocturnal and secretive, seen only at night, early morning or evening. Scenic beauty is greatest during spring and occasional summer months when flowering of forbs, shrubs, and cacti occurs.

Wood Products:

This site has no significant value for wood products.

Other Products:

This site, at its potential, is suitable for grazing in all seasons of the year, although most of the green forage is produced in the summer months. The site is best adapted for cattle, sheep, and horses. Retrogression caused by inadequate grazing management is characterized by an increase in such plants as burrograss, threeawns, tobosa, fluffgrass, and broom snakeweed. The site is definitely subject to invasion by mesquite, and once this has occurred, it does not recover rapidly through grazing management alone.

Supporting Information

Associated Sites:

<u>Site Name</u>	<u>Site ID</u>	<u>Site Narrative</u>
Sandy	<u>R042XB012NM</u>	
Clayey	<u>R042XB023NM</u>	
Gravelly	<u>R042XB010NM</u>	
Gravelly loam	<u>R042XB035NM</u>	

Similar Sites:

<u>Site Name</u>	<u>Site ID</u>	<u>Site Narrative</u>
Sandy	<u>R042XB012NM</u>	
Clayey	<u>R042XB023NM</u>	
Gravelly	<u>R042XB010NM</u>	
Gravelly loam	<u>R042XB035NM</u>	

State Correlation:

This site has been correlated with the following states: Texas

Inventory Data References:

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
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Type Locality:

Relationship to Other Established Classifications:

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. Sierra County Dona Ana County Grant County Hidalgo County Luna County Otero County

Characteristic Soils Are:

Berino sandy clay loam, very fine sandy loam	Bucklebar loam, very fine sandy loam
Reakor silt loam	Mohave loam, very fine sandy loam, silty clay loam, silty loam
Dona Ana sandy clay loam, very fine sandy loam	
<u>Other Soils included are:</u>	
Hoban silty clay loam	Turney sandy clay loam
Russler silt loam	Continental sandy clay loam
Stellar sandy clay loam	Mohave sandy clay loam

Site Description Approval:

Author

Don Sylvester

Date

07/12/1979

Approval

Don Sylvester

Date

07/12/1979

Site Description Revision:

Author

Dr. Brandon Bestelmeyer

George Chavez

Date

05/22/02

05/22/02

Approval

George Chavez

Date

05/23/02