

Ecological site R042BB016NM

Draw, Desert Shrub

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General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs as desert drainage ways, draws or swales, which dissect plains, piedmonts, or low hills. These drainage ways may be narrow fingers or broad swales which appear almost flat but are in fact lower than surrounding terrain. The site receives and transports runoff water from both higher elevations within its own confines and from surrounding sites. Flooding may occur as may as two or three times a year in favorable years, but deep wetting is not the usual result of any one overflow occasion. Slopes average less than 3 percent and direction of slope varies without significance. Elevations range from about 3800 to 5000 feet above sea level.

Table 2. Representative physiographic features

Landforms	(1) Drainageway (2) Draw (3) Swale
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Occasional to frequent
Ponding frequency	None to occasional
Elevation	1,160 – 1,520 m
Slope	0 %

Water table depth	250 cm
Aspect	Aspect is not a significant factor

Climatic features

Annual average precipitation ranges from 7.35 to 11.90 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 60 degree F. Summer maximums can exceed 100 degrees F. and winter minimums can go below zero. The average frost-free season exceeds 200 days and extends from April 1 to November 1. Both the temperature regime and rainfall distribution favor warm-season perennial plants on this site. Spring moisture conditions are only occasionally adequate to cause significant growth during this period of year. High winds from the west and southwest are common from March to June, which further tends to create poor soil moisture conditions in the springtime.

Climate data was obtained from
<http://www.wrcc.dri.edu/summary/climsmnm.html>

Table 3 Representative climatic features

Frost-free period (average)	210 days
Freeze-free period (average)	230 days
Precipitation total (average)	310 mm

Influencing water features

This site is not influenced by wetland or streams.

Soil features

The soils are deep to very deep. Surface textures are silty clay loams, sandy clay loams, clays, and silt loams. Substratum textures are Silty clay, silt loam, clay, silty clay loam and occasionally a stratified lenses of very fine sandy loam.

The soils tend to seal on the surface when vegetative cover is reduced or removed, crack noticeably, and are greatly subject to gullyng, piping, and draining.

Minimum and maximum values listed below represent the characteristic soils for this site.

characteristic soils:

Verhalen
Armijo
Largo
Sotim
Marconi
Reyab
Tome

Table 4. Representative soil features

Surface texture	(1) Silty clay loam (2) Clay loam (3) Clay
Family particle size	(1) Clayey
Drainage class	Well drained to moderately well drained
Permeability class	Moderately slow to very slow
Soil depth	60 – 180 cm
Surface fragment cover <=3"	0 – 10 %
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	10.16 – 17.78 cm
Calcium carbonate equivalent (0-101.6cm)	0 – 20 %
Electrical conductivity (0-101.6cm)	0 – 10 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	7.4 – 8.4
Subsurface fragment volume <=3" (Depth not specified)	0 – 10 %

Subsurface fragment volume >3" (Depth not specified)	Not specified
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Ecological dynamics

Overview

Vegetation patterns in this site are governed largely by patterns in the flow of run-in water. This site may intergrade with the Clayey site depending on microtopographic effects on drainage and run-in water and areas within Clayey sites may behave like draws. Draw sites are often upslope from Bottomland sites. In SD-2, the Draw site appears in two distinct landscape positions, 1) in long, narrow (e.g. 100 m wide) swales that receive and transport run-in water from adjacent, hills (e.g. Gravelly or Limestone Hills sites) and 2) in broad (e.g. 1000 m) swales that are only slightly lower than the surrounding upland sites (e.g. Loamy or Sandy sites). The historic plant community type of the Draw site is dominated by tobosa (*Pleuraphis mutica*) and to a lesser extent by alkali sacaton (*Sporobolus airoides*) and vine mesquite (*Panicum obtusum*). Blue grama (*Bouteloua gracilis*) can be an important component of many draws and may have dominated many draws in the past. Initial stages of change due to grazing are characterized by loss of species diversity and dominance by tobosa. Transitions to burrograss (*Scleropogon brevifolius*) may occur in response to the redistribution of run-in water via loss of grass, and subsequent erosion and gullyng. This may also facilitate mesquite (*Prosopis glandulosa*) invasion. Subsequent overgrazing may reduce the tobosa cover, resulting in a mesquite woodland state. Degradation of burrograss grasslands due to severe disturbance may result in an annual-dominated state.

No studies exist that address the causes of transitions within this site. Overall, tobosa and burrograss grasslands characteristic of draw soils are more stable and recover faster than black grama grasslands in the face of drought, likely due to the presence of heavier soils and a run-on landscape position. Additionally, tobosa is often less palatable than grasses found in adjacent ecological sites, leading to reduced utilization of this ecological site. Overutilization of tobosa, however, may occur during spring when plants are reproducing (Phil Smith, BLM Las Cruces, personal communication)

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Warm Season			729-874	
	tobosagrass	PLMU3	<i>Pleuraphis mutica</i>	729-874	–
2	Warm Season			219-291	
	vine mesquite	PAOB	<i>Panicum obtusum</i>	219-291	–
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	219-291	–
3	Warm Season			73-146	
	cane bluestem	BOBA3	<i>Bothriochloa barbinodis</i>	73-146	–
	sideoats grama	BOCU	<i>Bouteloua curtipendula</i>	73-146	–
	Arizona cottontop	DICA8	<i>Digitaria californica</i>	73-146	–
4	Warm Season			15-73	
	threeawn	ARIST	<i>Aristida</i>	15-73	–
	feather fingergrass	CHVI4	<i>Chloris virgata</i>	15-73	–
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	15-73	–
	burrograss	SCBR2	<i>Scleropogon brevifolius</i>	15-73	–
	plains bristlegrass	SEVU2	<i>Setaria vulpiseta</i>	15-73	–
5	Warm Season			15-44	
	Graminoid (grass or grass-like)	2GRAM	<i>Graminoid (grass or grass-like)</i>	15-44	–
Shrub/Vine					

6	Shrub			44-117	
	whitethorn acacia	ACCO2	<i>Acacia constricta</i>	44-117	–
	desert willow	CHLI2	<i>Chilopsis linearis</i>	44-117	–
	snakewood	CONDA	<i>Condalia</i>	44-117	–
	catclaw mimosa	MIACB	<i>Mimosa aculeaticarpa</i> var. <i>biuncifera</i>	44-117	–
	littleleaf sumac	RHMI3	<i>Rhus microphylla</i>	44-117	–
7	Shrub			15-44	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	15-44	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	15-44	–
	crown of thorns	KOSP	<i>Koeberlinia spinosa</i>	15-44	–
	honey mesquite	PRGL2	<i>Prosopis glandulosa</i>	15-44	–
Forb					
8	Forb			15-44	
	dwarf desertpeony	ACNA2	<i>Acourtia nana</i>	15-44	–
	Texan phacelia	PHINT	<i>Phacelia integrifolia</i> var. <i>texana</i>	15-44	–
	woolly plantain	PLPA2	<i>Plantago patagonica</i>	15-44	–
	globemallow	SPHAE	<i>Sphaeralcea</i>	15-44	–
	vervain	VERBE	<i>Verbena</i>	15-44	–
9	Forb			44-117	
	Forb (herbaceous, not grass nor grass-like)	2FORB	<i>Forb (herbaceous, not grass nor grass-like)</i>	44-117	–

Table 6. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 7. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 8. Community 4.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 9. Community 5.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Animal community

Habitat provided by this site supports a resident animal community that is characterized by pronghorn antelope, black-tailed jackrabbit, coyote, sparrow hawk, scaled quail, meadowlark, coachwhip, western diamondback rattlesnake, and western spadefoot toad. Where present, desert willow, littleleaf sumac, mesquite, and species of condalia provide nesting for black-throated sparrow, mockingbird, and mourning dove. At higher elevations, where the site occurs closer to mountain foothills, mule deer occasionally find cover on this site.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups. Hydrologic Interpretations Soil Series Hydrologic Group Armendaris C Armijo D Largo B Sotim B Marconi C Reyab B Tome B Verhalen D

Recreational uses

This site offers limited recreational potential for hiking, horseback riding, nature observation and photography. It also provides hunting for quail, dove, antelope, and sometimes mule deer. Picnicking and camping are ill-advised due to the possibility of flooding. A variety of wildflowers are present when conditions are right, from spring through fall, and the lush vegetative growth resulting from summer flooding makes this site contrast sharply with other less productive sites.

Wood products

This site has little or no significant value for wood products, although driftwood is sometimes collected for use in making a variety of curiosities, decorations etc.

Other products

This site is suitable for grazing during all seasons of the year. It is best adapted for cattle, especially to cows with calves big enough to take a substantial amount of milk, when grasses are greenest following summer flooding or overflow.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month Similarity Index Ac/AUM 100 - 76 2.9 – 3.8 75 – 51 3.6 – 5.0 50 – 26 4.7 – 7.5 25 – 0 7.5 - +

Other references

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:

Mimbres silty clay loam (overflow)

Russler silt loam (overflow)

Verhalen silty clay loam (overflow)

Stellar clay loam (overflow)

Largo silt loam (overflow)

Other Soils included are:

Uban sandy clay loam (overflow)

Russler sandy clay loam (overflow)

Stellar sandy clay loam (overflow)

Tome silt loam (overflow)

Contributors

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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	

Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills:

2. Presence of water flow patterns:

3. Number and height of erosional pedestals or terracettes:

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):

5. Number of gullies and erosion associated with gullies:

6. Extent of wind scoured, blowouts and/or depositional areas:

7. Amount of litter movement (describe size and distance expected to travel):

8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):

12. Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):

Dominant:

Sub-dominant:

Other:

Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):

14. Average percent litter cover (%) and depth (in):

15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):

16. Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:

17. Perennial plant reproductive capability:
