

Ecological site R042BB033NM

Salty Bottomland, Desert Shrub

Accessed: 05/01/2024

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.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occupies drainageways and floodplains and is commonly subject to overflow, both from within the drainageway and from surrounding upland sites. Flooding often results in water standing for several hours, or even a day, and the opportunity for relatively deep wetting is the principal feature of such flooding. Slopes are relatively uniform and usually do not exceed 2 percent. Elevations range from 3,700 to 5,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Drainageway (2) Flood plain
Flooding duration	Very brief (4 to 48 hours) to long (7 to 30 days)
Flooding frequency	Rare to frequent
Ponding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Ponding frequency	Rare to occasional
Elevation	1,128–1,524 m
Slope	0–2%
Ponding depth	3–15 cm
Water table depth	107–183 cm

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 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 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 the 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.

Table 3. Representative climatic features

Frost-free period (average)	205 days
Freeze-free period (average)	227 days
Precipitation total (average)	305 mm

Influencing water features

This site is not influenced by water from wetlands or streams.

Soil features

The soils are moderately deep to deep, usually with clay, clay loam or silty clay loam surfaces. They are saline and/or alkali affected and are commonly flooded. Water intake rates are moderate to very slow, and water-holding capacity is medium to high.

Table 4. Representative soil features

Surface texture	(1) Clay (2) Clay loam (3) Silty clay loam
Family particle size	(1) Clayey
Drainage class	Poorly drained to moderately well drained
Permeability class	Slow
Soil depth	61–183 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	2.54–20.32 cm
Electrical conductivity (0-101.6cm)	0–32 mmhos/cm
Soil reaction (1:1 water) (0-101.6cm)	7.9–9
Subsurface fragment volume <=3" (Depth not specified)	6%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

The aspect of this site is that of a grassland having noticeable shrubs evenly distributed. This site is characterized by salt-tolerant grasses and shrubs such as alkali sacaton, giant sacaton, and fourwing saltbush. Additional species representative of the site at its potential may include vine-mesquite, tobosa, burrograss, and inland saltgrass. Other atriplex species, seepweed, and iodinebush may also be present in significant amounts.

State and transition model

Ecosystem states

1. Historic Climax Plant Community

State 1 submodel, plant communities

1.1. Historic Climax Plant Community

**State 1
Historic Climax Plant Community**

**Community 1.1
Historic Climax Plant Community**

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Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1345	2018	2690
Shrub/Vine	202	303	404
Forb	135	202	269
Total	1682	2523	3363

Table 6. Soil surface cover

Tree basal cover	0%
Shrub/vine/liana basal cover	0%
Grass/grasslike basal cover	45%
Forb basal cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	30%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	24%

**Figure 5. Plant community growth curve (percent production by month).
NM2533, R042XB033NM-Salty Bottomland-Warm Season Plant-HCPC. SD-2**

Warm Season Plant Community .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	10	10	25	30	15	5	0	0

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Warm Season			883–1009	
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	883–1009	–
2	Warm Season			127–252	
	big sacaton	SPWR2	<i>Sporobolus wrightii</i>	127–252	–
3	Warm Season			127–252	
	tobosagrass	PLMU3	<i>Pleuraphis mutica</i>	127–252	–
4	Warm Season			127–252	
	vine mesquite	PAOB	<i>Panicum obtusum</i>	127–252	–
5	Warm Season			127–252	
	saltgrass	DISP	<i>Distichlis spicata</i>	127–252	–
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	127–252	–
	burrograss	SCBR2	<i>Scleropogon brevifolius</i>	127–252	–
6	Warm Season			127–252	
	Graminoid (grass or grass-like)	2GRAM	<i>Graminoid (grass or grass-like)</i>	127–252	–
Shrub/Vine					
7	Shrub			76–202	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	76–202	–
	saltbush	ATRIP	<i>Atriplex</i>	76–202	–
	tobosagrass	PLMU3	<i>Pleuraphis mutica</i>	6–54	–
8	Shrub			76–127	
	iodinebush	ALOC2	<i>Allenrolfea occidentalis</i>	76–127	–
	Graminoid (grass or grass-like)	2GRAM	<i>Graminoid (grass or grass-like)</i>	6–16	–
9	Shrub			0–76	
	winterfat	KRLA2	<i>Krascheninnikovia lanata</i>	0–76	–
10	Shrub			26–127	
	marsh elder	IVA	<i>Iva</i>	26–127	–
	desert seepweed	SUSU	<i>Suaeda suffrutescens</i>	26–127	–
11	Shrub			0–26	
	Shrub (>.5m)	2SHRUB	<i>Shrub (>.5m)</i>	0–26	–
Forb					
12				76–121	
	dwarf desertpeony	ACNA2	<i>Acourtia nana</i>	76–202	–
	Russian thistle	SAKA	<i>Salsola kali</i>	76–202	–
	threadleaf ragwort	SEFLF	<i>Senecio flaccidus var. flaccidus</i>	76–202	–

	desert seepweed	SUSU	<i>Suaeda suffrutescens</i>	76–121	–
	whitethorn acacia	ACCO2	<i>Acacia constricta</i>	6–16	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	6–16	–
	creosote bush	LATR2	<i>Larrea tridentata</i>	6–16	–
	catclaw mimosa	MIACB	<i>Mimosa aculeaticarpa var. biuncifera</i>	6–16	–
13	Annual Forb			0–76	
	Forb, annual	2FA	<i>Forb, annual</i>	0–76	–
	pricklypear	OPUNT	<i>Opuntia</i>	6–16	–
14	Perennial Forb			26–127	
	Forb, perennial	2FP	<i>Forb, perennial</i>	26–127	–
	featherplume	DAFO	<i>Dalea formosa</i>	6–16	–

Animal community

This site provides habitat which support a resident animal community that is characterized by pronghorn antelope, coyote, black-tailed jackrabbit, desert pocket gopher, sparrow hawk, scaled quail, Gambel's quail, loggerhead shrike, horned lark, meadowlark, lesser earless lizard, little striped whiptail lizard, Western spadefoot toad, and prairie rattlesnake.

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

Pecos-----D

Mimbres-----C

Verhalen-----D

Arno-----D

Belen-----C

Mead-----D

Cottonwood-----C

Reeves-----C

Balmorhea-----C

Recreational uses

Suitability for camping and picnicking is fair to poor limited mostly by weather extremes and potential flooding. Hunting is fair for pronghorn antelope, quail, dove, small game, and waterfowl where seasonal open water occurs. 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.

Wood products

This site has no significant value for wood products.

Other products

This site is suitable to grazing in all seasons of the year, although the vast majority of the forage palatable to livestock is produced in the summer months and is most effectively used at that time. The site is adapted for grazing by cattle and horses, generally without regard to class of animal. Cows with calves will probably do better than calves or yearlings when forage is greenest. The site is also suitable for grazing by sheep and goats.

Retrogression may be caused by gullying and draining as well as by grazing abuse. In either event, such plants as alkali sacaton, giant sacaton, and vine-mesquite are replaced by such plants as tobosa, burrograss, inland saltgrass, and seepweed. Mesquite may take over the site, while bare ground and annuals more nearly characterize its gullied and drained condition.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index-----Ac/AUM

100 - 76-----2.3 – 3.0

75 – 51-----2.8 – 3.7

50 – 26-----3.5 – 6.8

25 – 0-----6.8 - +

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, alkali

Mimbres silty clay loam, strongly alkali

Glendale silty clay loam, alkali

Glendale silty clay loam, strongly alkali

Verhalen silty clay loam, alkali

Belen silty clay loam, alkali

Arno clay loam, saline

Pima clay loam, saline

Pecos silty clay loam, saline

Mead silt loam

Balmorhea loam, drained

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:**
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17. **Perennial plant reproductive capability:**
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