

Ecological site R042BE055NM

Salty Bottomland, Cool Desert Grassland

Accessed: 05/17/2024

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

These soils are usually occurring along major waterways (Rio Puerco and Rio Grande). In valleys on stream terraces, fan terraces, drainageways. occasionally floodwaters from major streams will flood these areas. There may be a water table at varying depths which affects the vegetation. Slopes are from 1 to 5 percent. Elevations are from 4,500 feet above sea level to 5,500 feet.

Table 2. Representative physiographic features

Landforms	(1) Drainageway (2) Flood plain (3) Stream terrace
Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to occasional
Ponding frequency	None
Elevation	1,372–1,676 m
Slope	1–10%
Water table depth	102–183 cm
Aspect	Aspect is not a significant factor

Climatic features

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 precipitation is received from July to November, which is the dominant growing season of native plants. Summer precipitation 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 77 F in July to 34 F in January, with a maximum of 104 F and a minimum of -10 F. The average last killing frost in spring is April 15 and the average first killing frost in fall is October 28. Frost-free season averages 185 days. Temperatures are conducive to native grass and forb 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.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F, respectively.

**Table 3. Representative climatic features**

Frost-free period (average)	165 days
Freeze-free period (average)	213 days
Precipitation total (average)	254 mm

## Influencing water features

This site is not influenced by water from wetland or stream.

## Soil features

Soils are deep to very deep. Surface textures are clay loam, sandy clay loam, or clay. There are a few with loam to very fine sandy loam textures. Substrata are mainly clay loam, silty clay loam, or clay. There are some areas of Tome soils which have loam to very fine sandy loam substrata.

Salinity is 4 to 24 millimhos per centimeter. Some areas of Armijo and Aga are strongly saline with exchangeable sodium of 15 percent. Some subhorizons are very gravelly.

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

Characteristic Soils Are:

Tome  
Armijo  
Gilco  
Aga  
Peralta  
Belen  
Brazito  
Gila  
Vinton

**Table 4. Representative soil features**

Surface texture	(1) Clay loam (2) Sandy clay loam (3) Clay
Family particle size	(1) Clayey
Drainage class	Somewhat poorly drained to well drained
Permeability class	Moderately slow
Soil depth	152–183 cm

Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0–1%
Available water capacity (0-101.6cm)	12.7–22.61 cm
Calcium carbonate equivalent (0-101.6cm)	0–7%
Electrical conductivity (0-101.6cm)	2–16 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	6–30
Soil reaction (1:1 water) (0-101.6cm)	7.4–9.6
Subsurface fragment volume <=3" (Depth not specified)	4–25%
Subsurface fragment volume >3" (Depth not specified)	0–2%

## Ecological dynamics

The aspect and biomass of vegetation on this site is a shrub/grass mixture characterized by fourwing saltbrush and greasewood. Tall, mid-grass, and short grasses are present. Mid- and short grasses are dominant. Annual and perennial forbs are always present in varying amounts. When the plant community deteriorates, there is a definite increase in amounts of shrubs and short grasses.

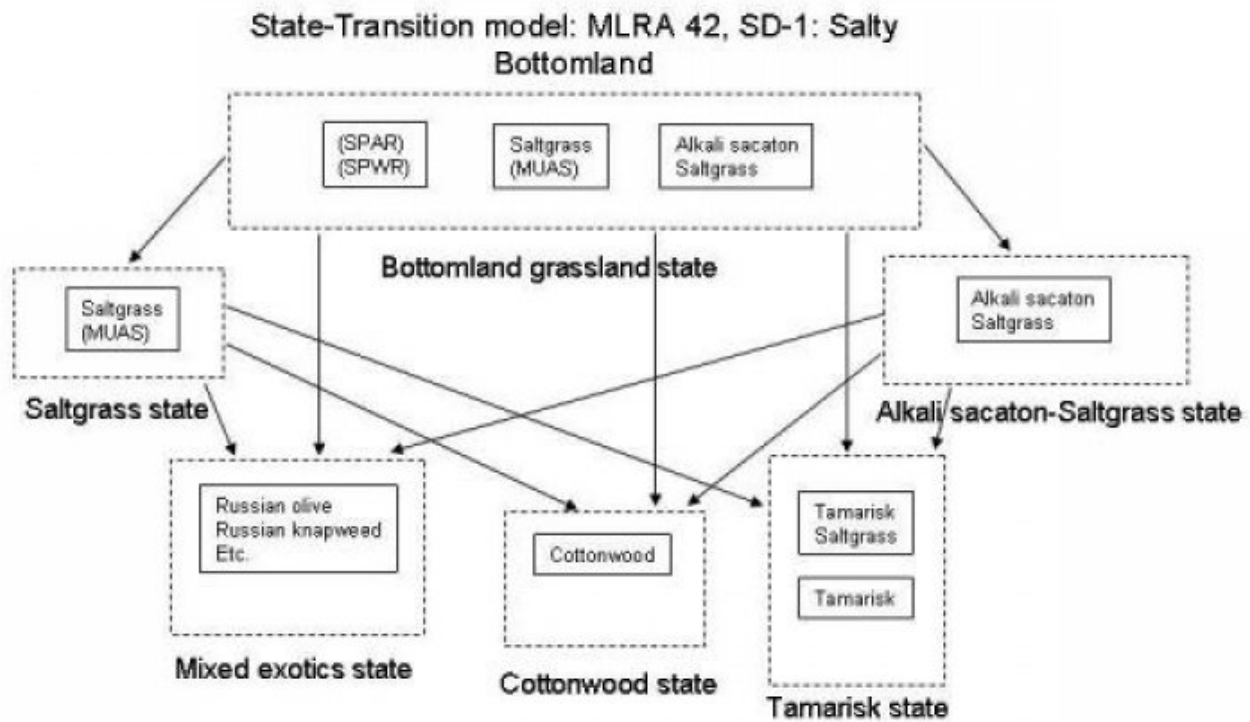
The potential plant community produces approximately 2,000 pounds (air dry) per acre during years of favorable growing conditions and about 1,000 pounds during unfavorable years. The total average annual production is approximately 1,500 pounds.

Other grasses that could appear on this site include: blue grama, foxtail, sand dropseed, spike dropseed, giant dropseed, and New Mexico feathergrass.

Other woody plants include: none other mentioned.

Other forbs include tansymustard.

## State and transition model



## 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	729	1093	1457
Shrub/Vine	280	420	560
Forb	112	168	224
<b>Total</b>	<b>1121</b>	<b>1681</b>	<b>2241</b>

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	20%
Grass/grasslike foliar cover	35%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	0%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	45%

Figure 5. Plant community growth curve (percent production by month).  
 NM2241, R042XA055NM-Salty Bottomland- Warm Season Plant-HCPC. SD-1  
 Salty Bottomland HCPC Warm Season Plant Community.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

Figure 6. Plant community growth curve (percent production by month).  
 NM2242, R042XA055NM-Salty Bottomland-Cool Season Plant-HCPC. SD-1  
 Salty Bottomland HCPC Cool Season Plant Community.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	15	20	20	2	5	10	15	13	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 (%)
<b>Grass/Grasslike</b>					
1	<b>Warm Season</b>			252–336	
	big sacaton	SPWR2	<i>Sporobolus wrightii</i>	252–336	–
2	<b>Warm Season</b>			504–673	
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	504–673	–
3	<b>Warm Season</b>			84–168	
	vine mesquite	PAOB	<i>Panicum obtusum</i>	84–168	–
4	<b>Warm Season</b>			252–336	
	saltgrass	DISP	<i>Distichlis spicata</i>	252–336	–
5	<b>Warm Season</b>			84–168	
	tobosagrass	PLMU3	<i>Pleuraphis mutica</i>	84–168	–
6	<b>Warm Season</b>			34–84	
	burrograss	SCBR2	<i>Scleropogon brevifolius</i>	34–84	–
7	<b>Warm Season</b>			34–84	
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	34–84	–
8	<b>Warm Season</b>			34–84	
	sedge	CAREX	<i>Carex</i>	34–84	–
<b>Shrub/Vine</b>					
9	<b>Shrub</b>			168–336	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	168–336	–
10	<b>Shrub</b>			84–168	
	shadscale saltbush	ATCO	<i>Atriplex confertifolia</i>	84–168	–
11	<b>Shrub</b>			84–252	
	greasewood	SAVE4	<i>Sarcobatus vermiculatus</i>	84–252	–
12	<b>Shrub</b>			50–84	
	rubber rabbitbrush	ERNAN5	<i>Ericameria nauseosa</i> ssp. <i>nauseosa</i> var. <i>nauseosa</i>	50–84	–
<b>Forb</b>					
13	<b>Forb</b>			34–84	
	iodinebush	ALOC2	<i>Allenrolfea occidentalis</i>	34–84	–
14	<b>Forb</b>			50–84	
	Russian thistle	SAKA	<i>Salsola kali</i>	50–84	–
15	<b>Forb</b>			50–84	
	Cuman ragweed	AMPS	<i>Ambrosia psilostachya</i>	50–84	–
16	<b>Forb</b>			50–84	

## Animal community

Habitat for wildlife:

This ecological site provides habitats which support a resident animal community that is characterized by coyote, striped skunk, black-tailed jackrabbit, desert cottontail, banner-tailed kangaroo rat, tawny-bellied cotton rat, kildeer, roadrunner, loggerhead shrike, fence lizard, New Mexico whiptail, and Sonora gopher snake.

When woody vegetation is present, these sites are breeding areas for mockingbird, mourning dove, roadrunner, and

red-winged blackbird.

## 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  
Most soils in site. D

## Recreational uses

This site has limited potential for recreational use.

## Wood products

This site has no potential for wood products.

## Other products

Grazing: This site is well suited for year-long grazing use by cattle, sheep, horses, burros, antelope, and deer.

## Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index-----Ac/AUM

100 - 76-----0.8 – 1.1

75 – 51-----1.0 – 1.7

50 – 26-----1.6 – 3.4

25 – 0-----3.4 – 3.4+

## 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 Area 42, of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Valencia, Socorro, and Bernalillo.

## 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:**

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**2. Presence of water flow patterns:**

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**3. Number and height of erosional pedestals or terracettes:**

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

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**5. Number of gullies and erosion associated with gullies:**

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

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

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

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

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

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

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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:

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13. **Amount of plant mortality and decadence** (include which functional groups are expected to show mortality or decadence):
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14. **Average percent litter cover (%) and depth ( in):**
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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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