

# Ecological site R035XB028NM

## Sandy Bottom

### 6-10"

Last updated: 5/20/2025  
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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.

#### Ecological site concept

This site occurs on flood plains of valley floors and eolium-mantled high flood plains adjacent to the San Juan River or Chaco River. It receives some additional moisture from rare to frequent flooding and is influenced by a fluctuating water table. The soils are very deep and well drained. They are formed in recent alluvium derived from sandstone and quartzite. Surface textures include very fine sandy loam and sand. EC ranges from 0 to 8, and SAR ranges from 0 to 5.

**Table 1. Dominant plant species**

Tree	Not specified
Shrub	(1) <i>Atriplex canescens</i>
Herbaceous	(1) <i>Pascopyrum smithii</i> (2) <i>Achnatherum hymenoides</i>

#### Physiographic features

This site occurs on flood plains of valley floors and eolium-mantled high flood plains adjacent to the San Juan River or Chaco River. It receives some additional moisture from rare to frequent flooding and is influenced by a fluctuating water table. It occurs on all exposures. Slopes range from 0 to 1 percent. Elevations range from 4,600 to 6,000 feet.

**Table 2. Representative physiographic features**

Landforms	(1) Flood plain
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	Rare to occasional
Ponding frequency	None
Elevation	1,400 – 1,830 m

Slope	0 %
Water table depth	150 – 180 cm
Aspect	Aspect is not a significant factor

### Climatic features

Mean annual precipitation varies from 7 to 10 inches. About 60% of this moisture comes as rain from April through October. May and June are the driest months. Most summer rainfall occurs as brief, sometimes heavy, thunderstorms. Most of the moisture from November through March comes as snow. Winds of high velocity during late winter and early spring are common.

Mean temperature for the hottest month, July, is about 83 degrees F. Mean temperature for the coldest month, January, is about 27 degrees F. Extreme temperatures of 104 degrees F and -17 degrees F have been recorded. The frost-free period ranges from 140 to 160 days.

The cool-season plants start growth in March and end with plant maturity and seed dissemination about mid-June. During June, July, August, and September, the warm-season plants make optimum growth taking advantage of the warm temperature and moisture from tropical air out of the Gulf of Mexico. About 40% of the total precipitation is received during these summer months. The other 60% received during the fall-winter-spring months influences cool-season plants.

**Table 3 Representative climatic features**

Frost-free period (average)	160 days
Freeze-free period (average)	170 days
Precipitation total (average)	250 mm

### Influencing water features

This site occurs on flood plains of valley floors and eolium-mantled high flood plains adjacent to the San Juan River or Chaco River. It receives some additional moisture from rare to frequent flooding and is influenced by a fluctuating water table.

### Soil features

The soils are very deep and well drained. They are formed in recent alluvium derived from sandstone and quartzite. Surface textures include very fine sandy loam and sand. The subsoil has textures of fine sand, very fine sandy loam, sand, and loamy fine sand. Permeability is moderate to moderately rapid. Available water holding capacity is very low to low. Runoff is negligible to low, and the hazard of water erosion is none to slight. The hazard of soil blowing is severe. The depth to water table is 5 to 6 feet. They are non- to slightly saline (EC 0-8), non sodic (SAR 0-5), and slightly to strongly alkaline (pH 7.4-9.0).

Characteristic taxonomic units are:

Shiprock SSA:

147-Escavada Sand

160-Notal-Escavada-Riverwash Assoc. (Escavada part)

165-Jeddito-Escavada Assoc. (Escavada part)

Other soils included are:

**Table 4. Representative soil features**

Surface texture	(1) Sand (2) Very fine sandy loam
Family particle size	(1) Sandy
Drainage class	Well drained
Permeability class	Moderate to moderately rapid
Soil depth	150 – 180 cm
Surface fragment cover ≤3"	Not specified
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	5.08 – 7.62 cm
Calcium carbonate equivalent (0-101.6cm)	0 – 10 %
Electrical conductivity (0-101.6cm)	0 – 10 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0 – 10
Soil reaction (1:1 water) (0-101.6cm)	7.4 – 10
Subsurface fragment volume ≤3" (Depth not specified)	0 – 10 %
Subsurface fragment volume >3" (Depth not specified)	Not specified

## Ecological dynamics

This site has a plant community made up primarily of mid- and short grasses and some shrubs. In the historic climax plant community, there is a mixture of cool- and warm-season grasses and shrubs. Plant species most likely to invade or increase on this site when it deteriorates are saltcedar, Russian olive, cheatgrass, Russian thistle, goldenweed, rubber rabbitbrush and annual forbs. Continuous livestock grazing during winter and spring will decrease the cool-season grasses, which are replaced by lower forage value grasses and shrubs.

Grazing: This site is suitable for yearlong grazing by all classes of livestock and is easily traversed. Planned grazing systems adapt well to use on this site. When the stream bottoms and floodplains are in flood stage, this site can be very hazardous to livestock. The soils have a high wind erosion hazard rating leaving overgrazed areas especially susceptible to accelerated erosion.

## 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 (%)
<b>Grass/Grasslike</b>					
1	<b>western wheatgrass</b>			146-191	
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	143-191	–
2	<b>alkali sacaton</b>			90-146	
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	95-143	–
3	<b>Indian ricegrass</b>			146-191	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	143-191	–
4	<b>sand dropseed</b>			22-34	
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	19-38	–
5	<b>spike dropseed</b>			0-10	
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	0-10	–
6	<b>giant dropseed</b>			0-10	
	giant dropseed	SPGI	<i>Sporobolus giganteus</i>	0-10	–
7	<b>galleta</b>			0-34	
	James' galleta	PLJA	<i>Pleuraphis jamesii</i>	0-29	–
8	<b>saltgrass</b>			0-10	
	saltgrass	DISP	<i>Distichlis spicata</i>	0-10	–
10	<b>other perennial grasses</b>			0-45	
	Grass, perennial	2GP	<i>Grass, perennial</i>	0-48	–
<b>Forb</b>					
11	<b>perennial forbs</b>			22-45	
	Forb, perennial	2FP	<i>Forb, perennial</i>	19-48	–
12	<b>annual forbs</b>			0-45	
	Forb, annual	2FA	<i>Forb, annual</i>	0-48	–
<b>Shrub/Vine</b>					
13	<b>saltcedar</b>			146-191	
	saltcedar	TARA	<i>Tamarix ramosissima</i>	143-191	–
	spineless horsebrush	TECA2	<i>Tetradymia canescens</i>	143-191	–
14	<b>fourwing saltbush</b>			45-90	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	48-95	–
15	<b>rubber rabbitbrush</b>			0-34	
	rubber rabbitbrush	ERNAG	<i>Ericameria nauseosa ssp. nauseosa var. glabrata</i>	0-29	–
16	<b>broom snakeweed</b>			0-34	

	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	0-29	-
17	other shrubs			0-45	
	Shrub (>.5m)	2SHRUB	<i>Shrub (&gt;.5m)</i>	0-48	-

Table 6. Community 1.2 plant community composition

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

Run-in water produces thickets of shrubs and some trees which supply habitat for various wildlife species. These corridors are used as travel lanes by larger animals.

## Hydrological functions

Runoff is negligible to low, and the hazard of water erosion is none to slight. The depth to water table is 5 to 6 feet. Capillary water rises from a fluctuating water table in early spring. Rainfall and floodwater wet the profile in the late summer.

## Recreational uses

This site is characterized by flood plains, providing a stark contrast to the surrounding uplands. Bird watching, hunting, and horseback riding are a few of the popular activities suited to this site.

## Wood products

This site has no significant value for wood products.

## Other products

Grazing: This site is suitable for yearlong grazing by all classes of livestock and is easily traversed. Planned grazing systems adapt well to use on this site. When the stream bottoms and floodplains are in flood stage, this site can be very hazardous to livestock. The soils have a high wind erosion hazard rating leaving overgrazed areas especially susceptible to accelerated erosion.

## Inventory data references

The potential historic climax plant community has been determined by study of range relict areas or areas protected from excessive grazing. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

## Type locality

Location 1: San Juan County, NM	
Township/Range/Section	T29N R16W S20
General legal description	Along the Chaco River, 7-8 miles ESE of Shiprock, NM –NW1/4 Sec. 20, T29N, R16W - Navajo Reservation, NM.

## Contributors

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## Approval

### 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	06/20/2026
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):

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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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