

Ecological site DX035X03A119 Clayey Bottomland

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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 clayey soils that occupy floodplain positions along swales and drainageways.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Atriplex canescens</i> (2) <i>Krascheninnikovia lanata</i>
Herbaceous	(1) <i>Pascopyrum smithii</i> (2) <i>Panicum obtusum</i>

Legacy ID

R035XA119NM

Physiographic features

This site occurs in valley or floodplain positions, including swales or draws with substantial drainage areas. This site can receive periodic inundation from flood waters.

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Valley floor (3) Draw
Flooding duration	Very brief (4 to 48 hours) to long (7 to 30 days)
Flooding frequency	Rare to frequent
Ponding frequency	None

Elevation	1,830 – 2,230 m
Slope	0 %
Water table depth	140 – 180 cm
Aspect	Aspect is not a significant factor

Climatic features

Average annual precipitation varies from about 10 inches to just over 16 inches. Fluctuations ranging from 5 to 25 inches are not uncommon. The overall climate is characterized by cold dry winters in which winter moisture is less than summer. Half or more of the annual precipitation can be expected to come during the period of July through September. Fall conditions are often more favorable for growth of cool season perennial grasses, shrubs, and forbs than those of spring.

Table 3 Representative climatic features

Frost-free period (average)	170 days
Freeze-free period (average)	250 days
Precipitation total (average)	410 mm

Influencing water features

This site occurs on floodplains and, thus, is periodically inundated and sub-irrigated.

Soil features

These soils are moderately deep to deep with fine or very fine textured surfaces. Permeability is moderately slow to slow. Available water capacity is moderate to high. A thin strata of subsurface materials from gravel to clay is common. Erosion hazard is mainly in the form of gully, piping and draining of the site when vegetation has deteriorated from its natural potential.

Table 4. Representative soil features

Surface texture	(1) Clay loam (2) Silty clay loam (3) Sandy clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Very slow to slow

Soil depth	180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	12.7 – 17.78 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)	6.6 – 8.4
Subsurface fragment volume <=3" (Depth not specified)	0 – 10 %
Subsurface fragment volume >3" (Depth not specified)	0 – 10 %

Ecological dynamics

Overview

This site occurs on swales, depressions, and flood plains on valley floors. It occurs as a distinct unit or as part of a mosaic with Bottomland sites. The historic plant community of the Clayey Bottomland site is a productive grassland characterized by both warm and cool-season grasses, scattered shrubs, and forbs. Western wheatgrass is the dominant grass species. Fourwing saltbush and rabbitbrush are the more common shrubs. Decreased available soil moisture due to blocked or redirected flow of run-on water, loss of grass cover, or gullying can cause a transition to a less productive Dry Grassland State. Continued loss of grass cover and soil surface sealing may result in a state with extensive areas of bare ground. Alternatively, loss of grass cover and soil drying can decrease competition by grasses, facilitating shrub encroachment and result in a Shrub-Dominated state.

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				873-1122	
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	873-1122	–
2				250-374	
	vine mesquite	PAOB	<i>Panicum obtusum</i>	250-374	–
3				124-250	
	blue grama	BOGR2	<i>Bouteloua gracilis</i>	124-250	–
4				250-374	
	spike muhly	MUWR	<i>Muhlenbergia wrightii</i>	250-374	–
	James' galleta	PLJA	<i>Pleuraphis jamesii</i>	250-374	–
5				124-250	
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	124-250	–
6				25-75	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	25-75	–
7				25-124	
	threeawn	ARIST	<i>Aristida</i>	25-124	–
	creeping muhly	MURE	<i>Muhlenbergia repens</i>	25-124	–
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	25-124	–
Shrub/Vine					
8				75-250	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	75-250	–
9				25-75	
	winterfat	KRLA2	<i>Krascheninnikovia lanata</i>	25-75	–
10				25-124	
	Bigelow sage	ARBI3	<i>Artemisia bigelovii</i>	25-124	–
	rubber rabbitbrush	ERNAN5	<i>Ericameria nauseosa ssp. nauseosa var. nauseosa</i>	252-124	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	25-124	–
Forb					
11				25-124	
	Forb, perennial	2FP	<i>Forb, perennial</i>	25-124	–
12				25-75	
	Forb, annual	2FA	<i>Forb, annual</i>	25-75	–

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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Animal community

This range site provides habitats that support a resident animal community that is characterized by pronghorn antelope, coyote, black-tailed jackrabbit, Betta's pocket gopher, sparrow hawk, mourning dove, chipping sparrow, Western spadefoot toad, leopard lizard, and

prairie rattlesnake. The chestnut-collared longspur winters on this site and the common raven and prairie falcon hunt over it.

Hydrological functions

This site is in hydrologic group D. Runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups. Hydrologic Interpretations Soil Series-----Hydrologic Group Camelrock-----D

Recreational uses

This site offers limited opportunity for establishing small water areas, usually of intermittent nature, in the form of ponds or tanks. It also has potential for hiking, horseback riding, nature observation, photography, picnicking, and camping. The establishment of trails for hiking or horseback riding should be done with care, however, since frequently used trails can furnish places for natural flood waters to channel and thus begin gullying of the site. Permanent sites for picnicking and camping are best located away from this site because of flooding hazards. Lush vegetative growth resulting from summer flooding can cause this site to contrast sharply with those surrounding it, and natural beauty is thus enhanced.

Wood products

This site has little or no significant value for wood products.

Other products

This site is suitable for grazing by most kinds and classes of livestock without regard to season of the year. It is best suited, however, to mother cows with calves old enough to take a substantial amount of milk during spring and summer months when grasses are most productive following flooding. Excessive grazing use over a prolonged period will result in a decrease in western wheatgrass, vine-mesquite, and alkali sacaton. Blue grama may increase initially but will eventually decrease if the heavy grazing continues, and the site then becomes subject to a takeover by rabbitbrush and other invading woody plants such as sagebrush or greasewood. The site is subject to gullying or draining when the natural potential vegetation is so disturbed and may not be recoverable using improved grazing alone.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month Similarity Index-----Ac/AUM 100 - 76-----2.0 - 2.9 75 - 51-----2.7 - 4.3 50 - 26-----4.0 - 7.5 25 - 0-----7.5+

Other references

Data collection for this site was done in conjunction with the progressive soil surveys within the New Mexico and Arizona Plateaus & Mesas Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: McKinley, Catron, Cibola, Socorro and Sandoval.

1. Cluff, G.J., B.A. Roundy, R.A. Evans, and J.A. Young. 1983. Herbicidal control of greasewood (*Sarcobatus vermiculatus*) and salt rabbitbrush (*Chrysothamnus nauseosus* ssp. *consimilis*). *Weed Science*. 31: 275-279.
2. Pieper, R. D. and G. B. Donart. 1978. Response of fourwing saltbush to periods of protection. *Journal of Range Management*. 31: 314-315
3. Ueckert, D. N, and J. L. Pertersen. 1991. Selecting *Atriplex canescens* for greater tolerance to Competition. *Journal of Range Management*. 41: 220-222
4. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheet. Rangeland Soil Quality—Physical and Biological Soil Crusts. Rangeland Sheet 7 [Online]. Available: <http://www.statlab.iastate.edu/survey/SQI/range.html>
5. Whisenant, S.G. 1988. Control of threadleaf rubber rabbitbrush with herbicides. *Journal of Range Management*. 41: 470-472
6. Whitson, T.D. (ed.). 1999. *Weeds of the West*. The Western Society of Weed Science, Wyoming. pp 103
7. Wright, H. A. 1972. Shrub response to fire. In: *Fire Effects Information System*, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: [http://www.fs.fed.us/database/feis/\[2004\]](http://www.fs.fed.us/database/feis/[2004]).

Characteristic Soils Are:

Moriarty silty clay

Other Soils included are:

Navajo clay-----Manzano clay loam

Contributors

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Approval

Kendra Moseley, 5/29/2025

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	06/16/2026
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:
