

Ecological site DX035X03F128 Clayey

Last updated: 5/20/2025
Accessed: 05/01/2026

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 (clay loam or finer) on upland positions. Slopes range from 5 to 15 percent.

Table 1. Dominant plant species

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

Legacy ID

R035XA128NM

Physiographic features

This site occurs on moderately sloping valley side slopes. It can also occur as sloping benches or rolling hills above valley bottoms and floodplain positions. Slopes range from 5 to 15 percent. Elevations range from 6,000 to 7,300 feet.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Valley side
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	None to rare
Ponding frequency	None

Elevation	1,800 – 2,380 m
Slope	0 – 20 %
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 about 5 inches to 25 inches are not uncommon. The overall climate is characterized by cold dry winters in which winter moisture is less than summer. As much as half or more of the annual precipitation can be expected to come during the period of July through September. Thus, fall conditions are often more favorable for good growth of cool-season perennial grasses, shrubs, and forbs than are those of spring.

The average frost-free season is about 120 days and extends from approximately mid-May to early or mid-September. Average annual air temperatures are 50 degrees F or lower and summer maximums rarely exceed 100 degree F. Winter minimums typically approach or go below zero. Monthly mean temperatures exceed 70 degree F for the period of July and August.

Rainfall patterns generally favor warm-season perennial vegetation, while the temperature regime tends to favor cool-season vegetation. This creates a somewhat complex community of plants on a given range site which is quite susceptible to disturbance and is at or near its productive potential only when both the natural warm- and cool- season dominants are present.

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 is an upland site, and is not associated with water features or wetlands. During heavy rain events, this site may receive run-on moisture from landforms above and contribute runoff to landforms below.

Soil features

Soils are typically moderately fine to fine-textured on the surface (clay loam, clay, silty clay loam) over fine textured subsoils. They are usually deep, but may be moderately deep. Water intake rates are slow to moderately slow. Permeability is slow, and water-holding capacity is high. Runoff from this site is usually excessive in the absence of adequate vegetative cover. It may also be excessive during periods of heavy rainfall or spring snowmelt. The erosion hazard is high when the vegetative cover deteriorates.

Table 4. Representative soil features

Surface texture	(1) Clay (2) Silty clay loam (3) Clay loam
Family particle size	(1) Clayey

Drainage class	Well drained
Permeability class	Very slow to moderately slow
Soil depth	50 – 180 cm
Surface fragment cover <=3"	0 – 20 %
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	5.08 – 20.32 cm
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 – 10
Subsurface fragment volume <=3" (Depth not specified)	0 – 40 %
Subsurface fragment volume >3" (Depth not specified)	Not specified

Ecological dynamics

Overview

This site occurs on flood plains, valley sides, sideslopes of hills and mesa tops. It is associated with Loamy, Clayey Bottomland, and Malpais sites. It occurs as a distinct unit adjacent to or as part of a mosaic with these sites. The historic plant community of the Clayey site is a grassland characterized by both warm and cool-season grasses, scattered shrubs, and forbs. The clayey site is dominated by alkali sacaton and western wheatgrass. Fourwing saltbush and winterfat are common shrubs. Forbs can occur in high relative abundance in years with above-average rainfall. Decreased available soil moisture due to blocked or redirected flow of run-on water, loss of grass cover, and gullyng 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. Loss of grass cover and decreased soil moisture 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				224-280	
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	224-280	–
	big sacaton	SPWR2	<i>Sporobolus wrightii</i>	224-280	–
2				224-336	
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	22-336	–
3				112-168	
	James' galleta	PLJA	<i>Pleuraphis jamesii</i>	112-168	–
4				56-224	
	blue grama	BOGR2	<i>Bouteloua gracilis</i>	56-224	–
5				0-56	
	vine mesquite	PAOB	<i>Panicum obtusum</i>	0-56	–
6				56-112	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	56-112	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	56-112	–
7				34-56	
	spike muhly	MUWR	<i>Muhlenbergia wrightii</i>	34-56	–
8				11-56	
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	11-56	–
9				11-56	
	dropseed	SPORO	<i>Sporobolus</i>	11-56	–
Shrub/Vine					
11				56-112	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	56-112	–
	winterfat	KRLA2	<i>Krascheninnikovia lanata</i>	56-112	–
12				11-56	
	rubber rabbitbrush	ERNAN5	<i>Ericameria nauseosa ssp. nauseosa var. nauseosa</i>	11-56	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	11-56	–
Forb					
13				11-90	
	Forb, perennial	2FP	<i>Forb, perennial</i>	11-90	–
14				11-56	
	Forb, annual	2FA	<i>Forb, annual</i>	11-56	–

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

Wildlife species indigenous to this site will be added when data is available.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups. Hydrologic Interpretations Soil Series-----Hydrologic Group Crown clay loam-----D Kimbeto clay loam (McKinley Co.)-----C Moncha silty clay loam-----C Silkie clay loam-----C Teco variant (mapped in Cibola Co.)-----C Las Lueas loam-----C Moriarity silty clay-----D

Recreational uses

This site offers a limited opportunity for establishing small intermittent water areas in the form of pit tanks. It has the potential for hiking, observing wildlife, horseback riding, photography, picnicking and camping. Trail establishment for hiking or horseback riding should be selected with care. Frequently used trails could create opportunities for overland flow to channelize and form gullies.

Wood products

This site has no value for wood products.

Other information

This site is suitable for grazing by all kinds and classes of livestock. Excessive grazing use over a prolonged period will result in a decrease of alkali sacaton, western wheatgrass and spike muhly. Blue grama and galleta may increase initially, but will eventually decrease if the heavy grazing continues. The site then becomes subject to the invasion of broom snakeweed, rabbitbrush and cacti. Ring muhly, threeawns, Russian thistle and tansy mustard increase significantly. The site may become severely eroded with deep vertical walled gullies when plant cover decreases. Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month Similarity Index-----Ac/AUM 100-76-----3.5-4.5 75-51-----4.5-6.5 50-26-----6.5-10.0 25-0-----10.0+

Other references

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. 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/SQL/rang.html>
3. Whisenant, S.G. 1988. Control of threadleaf rubber rabbitbrush with herbicides. *Journal of Range Management*. 41: 470-472
4. Whitson, T.D. (ed.). 1999. *Weeds of the West*. The Western Society of Weed Science, Wyoming. pp 103
5. 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]).

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.

Characteristic Soils Are:

Crown clay loam 3-8%

Kimbeto clay loam 1-8%

Moncho silty clay loam 4-8%

Teco 4-8%

Silkie clay loam

Contributors

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Approval

Kendra Moseley, 5/20/2025

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	05/01/2026
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:
