USDA Natural Resources
Conservation Service

Ecological site R035XB224AZ
Clayey Slopes 6-10" p.z. Bouldery

Accessed: 05/11/2025

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.

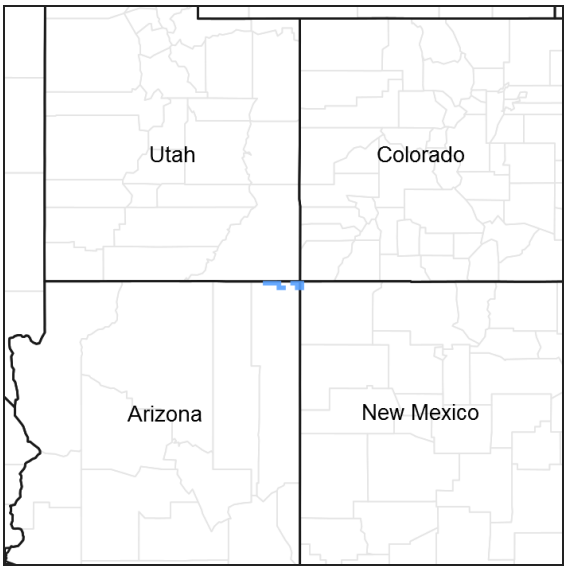


Figure 1. Mapped extent

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.

MLRA notes

Major Land Resource Area (MLRA): 035X–Colorado Plateau

AZ CRA 35.2 - Colorado Plateau Shrub – Grasslands

Elevations range from 3500-5500 feet and precipitation averages 6 to 10 inches per year. Vegetation includes shadscale, fourwing saltbush, Mormon tea, blackbrush, Indian ricegrass, galleta, blue grama, and black grama. The soil temperature regime is mesic and the soil moisture regime is typic aridic. This unit occurs within the Colorado Plateau Physiographic Province and is characterized by a sequence of flat to gently dipping sedimentary rocks eroded into plateaus, valleys and deep canyons. Sedimentary rock classes dominate the plateau with volcanic fields occurring for the most part near its margin.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex confertifolia* (2) *Picrothamnus desertorum*
Herbaceous	(1) *Pleuraphis jamesii* (2) *Achnatherum hymenoides*

Physiographic features

Site occurs on backslopes of escarpments of mesas, buttes, and benches. Also occurs on scarp faces and backslopes of cuestas and mesas, and backslopes of hills.

This site occurs in an upland position. It neither benefits significantly from run-in of moisture nor does it suffer from excessive loss of moisture from runoff, unless denuded of its vegetative cover.

Table 2. Representative physiographic features

Landforms	(1) Mesa (2) Structural bench (3) Cuesta
Flooding frequency	None
Ponding frequency	None
Elevation	4,700–6,000 ft
Slope	35–65%
Aspect	Aspect is not a significant factor

Climatic features

Area has a very dry and windy climate that is hot in the summer and cold in the winter. Average annual precipitation is from 6 to 10 inches. Soil moisture regime is typic aridic and the soil temperature regime is mesic. A slight majority of the precipitation arrives during the late fall, winter, and early spring. this winter season moisture originates in the Pacific Ocean and arrives as rain, or sometimes snow, during widespread frontal storms of generally low intensity. The majority of the snow falls from December through February, but rarely lasts more than a few days. The driest period is from late May to early July. Summer rains occur from July through September during brief intense local thunderstorms. The rain is sporadic in intensity and location. Windy conditions are common year round with the strongest most frequently in the spring.

Table 3. Representative climatic features

Frost-free period (average)	181 days
Freeze-free period (average)	207 days
Precipitation total (average)	10 in

Influencing water features

Soil features

Soils on this site consist of shallow and very shallow, well drained soils.

Typical taxonomic units includes:

SSA 717 Shiprock NM - MU's 503, 504, & 516 Claysprings.

Table 4. Representative soil features

Parent material	(1) Colluvium–shale and siltstone (2) Residuum–mudstone
Surface texture	(1) Very gravelly sandy clay loam (2) Extremely gravelly sandy clay loam (3) Extremely gravelly fine sandy loam
Family particle size	(1) Clayey

Drainage class	Moderately well drained to well drained
Permeability class	Very slow to slow
Soil depth	10–16 in
Surface fragment cover <=3"	20–35%
Surface fragment cover >3"	10–30%
Available water capacity (0-40in)	1–2 in
Calcium carbonate equivalent (0-40in)	3–5%
Electrical conductivity (0-40in)	2–8 mmhos/cm
Sodium adsorption ratio (0-40in)	13–30
Soil reaction (1:1 water) (0-40in)	7.6–9

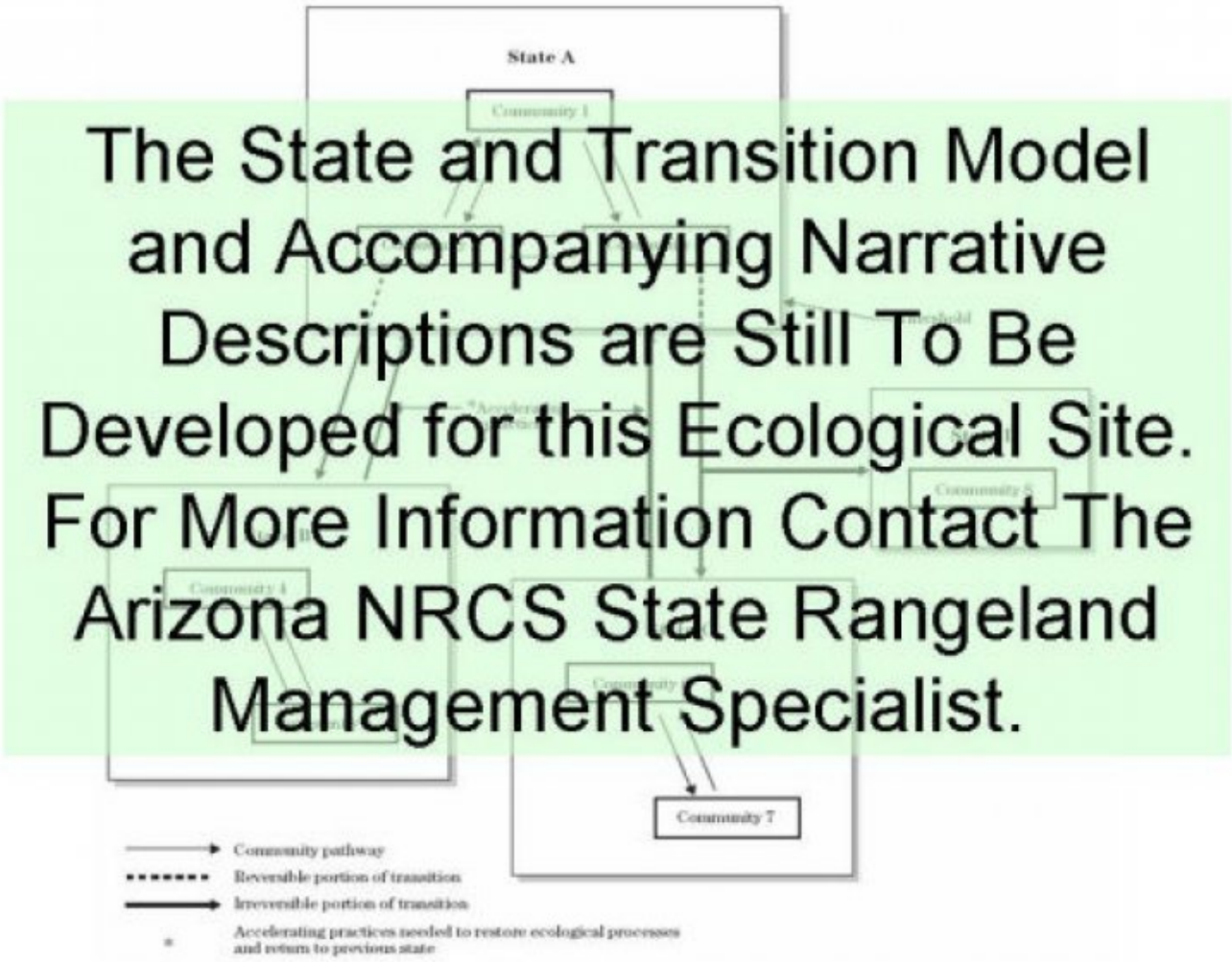
Ecological dynamics

The plant communities found on an ecological site are naturally variable. Composition and production will vary with yearly conditions, location, aspect, and the natural variability of the soils. The historical climax plant community represents the natural potential plant communities found on relict or relatively undisturbed sites. Other plant communities described here represent plant communities that are known to occur when the site is disturbed by factors such as grazing, fire, or drought.

Production data provided in this site description is standardized to air-dry weight at the end of the summer growing season. The plant communities described in this site description are based on near normal rainfall years.

NRCS uses a Similarity Index to compare existing plant communities to the plant communities described here. Similarity Index is determined by comparing the production and composition of a plant community to the production and composition of a plant community described in this site description. To determine Similarity Index, compare the production (air-dry weight) of each species to that shown in the plant community description. For each species, count no more than the maximum amount shown for the species, and for each group, count no more than the maximum shown for the group. Divide the resulting total by the total normal year production shown in the plant community description. If rainfall has been significantly above or below normal, use the total production shown for above or below normal years. If field data is not collected at the end of the summer growing season, then the field data must be corrected to the end of the year production before comparing it to the site description. The growth curve can be used as a guide for estimating production at the end of the summer growing season.

State and transition model



The State and Transition Model and Accompanying Narrative Descriptions are Still To Be Developed for this Ecological Site. For More Information Contact The Arizona NRCS State Rangeland Management Specialist.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

The plant community is made up of primarily mid and short grasses with a significant percentage of cold desert shrubs and a few forbs. In the original plant community there is a mixture of both cool and warm season grasses. Plant species most likely to invade or increase on this site when it deteriorates are broom snakeweed and annuals. Continuous grazing during the winter and spring periods will decrease the cool season grasses, which are replaced by warm season, lower forage value grasses and shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	105	150	210
Shrub/Vine	45	65	90
Forb	5	8	11
Total	**155**	**223**	**311**

Figure 5. Plant community growth curve (percent production by month). AZ3509, 35.3 10-14" p.z. shadscale saltbush. Growth begins in spring and extends through the summer. Seed set occurs in summer to early fall..

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

Figure 6. Plant community growth curve (percent production by month). AZ3521, 35.2 6-10" p.z. all sites. Growth begins in the spring and continues through the summer. Most growth in this CRA occurs in the spring using stored winter moisture..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	9	20	27	14	10	11	5	3	0	0

Figure 7. Plant community growth curve (percent production by month). AZ5201, 35.2 6-10" p.z. galleta. Growth begins in spring, most growth occurs during summer rains..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	10	20	10	15	35	5	0	0	0

Figure 8. Plant community growth curve (percent production by month). AZ5202, Indian ricegrass, 35.2 6-10" p.z.. Growth begins in spring, most growth occurs in May, goes dormant during summer heat..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	10	15	40	20	0	0	10	5	0	0

Figure 9. Plant community growth curve (percent production by month). AZ5203, 35.2 6-10" p.z. alkali sacaton. Growth begins in the spring, most growth occurs in the summer, goes dormant in the fall..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	10	20	10	20	20	10	5	0	0

Figure 10. Plant community growth curve (percent production by month). AZ5212, 35.2 6-10" p.z. bud sagebrush. Growth begins in early spring, goes dormant from July through January. Flowers and sets seed in the spring..

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

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Shrub/Vine					
0				50–75	
	shadscale saltbush	ATCO	*Atriplex confertifolia*	25–50	–
	bud sagebrush	PIDE4	*Picrothamnus desertorum*	25–38	–
	mound saltbush	ATOB	*Atriplex obovata*	0–13	–
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	0–13	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	0–8	–
Grass/Grasslike					
0				138–163	
	James' galleta	PLJA	*Pleuraphis jamesii*	63–88	–
	alkali sacaton	SPAI	*Sporobolus airoides*	13–25	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	13–25	–
	squirreltail	ELELE	*Elymus elymoides ssp. elymoides*	3–13	–
	Grass-like, perennial	2GLP	*Grass-like, perennial*	3–13	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	0–8	–
	Fendler's threeawn	ARPUF	*Aristida purpurea var. fendleriana*	0–5	–
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	0–3	–
Forb					
0				3–13	
	Forb, perennial	2FP	*Forb, perennial*	3–8	–
	Forb, annual	2FA	*Forb, annual*	0–5	–

Animal community

This site is not suitable for grazing by livestock due to the steep terrain and large percentage of stones and cobbles on the surface. When deteriorated this site responds rather slowly to good management.

This site offers a fair diversity in the vegetative complex for small wildlife such as birds, rabbits, lizards and coyotes.

Recreational uses

Site is located on steeply sloping areas which lend themselves to activities such as wildlife observation, hiking and photography.

This site has a variety of spring and summer flowers which are particularly noticeable after good moisture periods. It has good aesthetic appeal when not severely disturbed.

Winters are cold, however, relatively mild spring, fall and summer months are attractive to recreationists.

Type locality

Location 1: Apache County, AZ	
Township/Range/Section	T41N R31E S6
General legal description	Teec Nos Pos quad - SW1/4 Section 6, T41N, R31E; 4.5 miles North of Teec Nos Pos on the Navajo Indian Reservation, AZ.

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:**

17. **Perennial plant reproductive capability:**