

Ecological site R035XD418AZ Clay Loam Bottom 7-11" p.z.

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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.

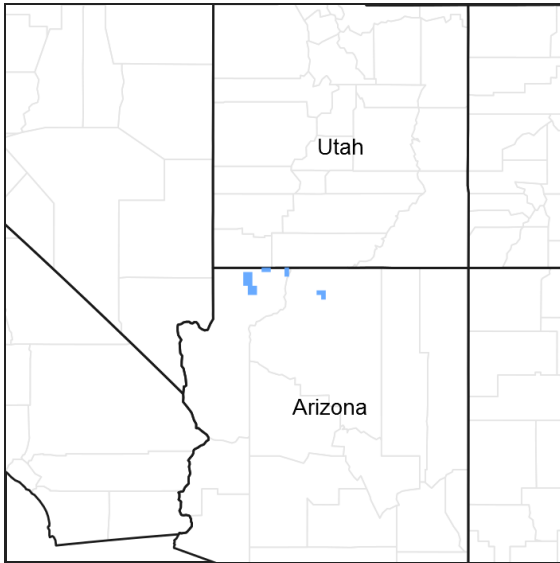


Figure 1. Mapped extent

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 35.4 – Colorado Plateau Cold Sagebrush – Grasslands

Elevations range from 4200 to 5100 feet and precipitation averages 7 to 11 inches. Vegetation includes winterfat, fourwing saltbush, buckwheat species, needlegrass, bottlebrush squirreltail, Indian ricegrass, black grama, blue grama, sideoats grama, gyp dropseed, and galleta. 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) <i>Atriplex canescens</i> (2) <i>Krascheninnikovia lanata</i>
Herbaceous	(1) <i>Pascopyrum smithii</i> (2) <i>Elymus elymoides</i> ssp. <i>elymoides</i>

Physiographic features

This site occurs in a bottom position with no entrenched channel. Therefore, it benefits from run-in moisture from adjacent areas.

Table 2. Representative physiographic features

Landforms	(1) Alluvial fan (2) Flood plain
Flooding duration	Brief (2 to 7 days) to long (7 to 30 days)
Flooding frequency	Occasional to frequent
Ponding duration	Brief (2 to 7 days) to long (7 to 30 days)
Ponding frequency	Occasional to frequent
Elevation	1,433–1,676 m
Slope	0–2%
Aspect	Aspect is not a significant factor

Climatic features

Winter-Summer moisture ratios are typically 70:30 on the west side of this LRU and shift to 60:40 on the east side. Late spring is usually the driest period, and early fall moisture can be sporadic. Summer rains fall June-September; moisture originates in the Gulf of Mexico and creates convective, usually brief, intense thunderstorms. Cool season moisture October-May tends to be frontal; it originates in the Pacific and the Gulf of California and falls in widespread storms with longer duration and lower intensity. Precipitation generally comes as snow December-February. Accumulations above 10 inches are not common, but can occur. Snow usually lasts 3-4 days, but can persist much longer. Summer daytime temperatures are commonly 95-100 F and, on occasion, exceed 105F. Winter air temperatures can regularly go below 15 F and have been recorded below -15 F.

Table 3. Representative climatic features

Frost-free period (average)	220 days
Freeze-free period (average)	150 days
Precipitation total (average)	279 mm

Influencing water features

Soil features

Soils on this site are characterized as deep to any plant root restriction layer. The surface texture is generally a silty clay loam and the subsurface textures are silty clay loam, silt loam, or loam. The water erosion hazard is slight.

Typical taxonomic units include:

SSA623 Shivwits Area - MU 79 Tours;
SSA625 Mohave County NE part - MU 21 Jocity;
SSA629 Coconino County North Kaibab part - MU 18 Jocity.

Table 4. Representative soil features

Parent material	(1) Alluvium–sandstone and shale
Surface texture	(1) Silty clay loam (2) Sandy clay loam
Family particle size	(1) Loamy

Drainage class	Moderately well drained to well drained
Permeability class	Moderately slow to moderate
Soil depth	102–152 cm
Surface fragment cover <=3"	0%
Calcium carbonate equivalent (0-101.6cm)	0–15%
Electrical conductivity (0-101.6cm)	5–30 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	2–30
Soil reaction (1:1 water) (0-101.6cm)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–5%

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



**State 1
Historic Climax Plant Community**

**Community 1.1
Historic Climax Plant Community**

The plant community is made up primarily of mid and short grasses with a relatively small percentage of forbs and shrubs. 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 shadscale, annuals, and cacti. Continuous grazing during the winter and spring periods will decrease or eliminate 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 (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	841	925	1009
Shrub/Vine	112	168	224
Forb	34	62	90
Total	987	1155	1323

Figure 5. Plant community growth curve (percent production by month). AZ0004, 35.4 7-11" p.z. fourwing saltbush. Some growth in spring, most growth in summer to early fall rainy season..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	10	15	30	40	5	0	0	0

Figure 6. Plant community growth curve (percent production by month). AZ0005, 35.4 7-11" p.z. Indian ricegrass. Most growth occurs in the spring, some growth occurs in the fall..

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

Figure 7. Plant community growth curve (percent production by month). AZ3541, 35.4 7-11" p.z. all sites. Most growth occurs in the spring and during the summer rainy season..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	9	20	15	5	16	25	6	2	1	0

Figure 8. Plant community growth curve (percent production by month). AZ3543, 35.4 7-11" p.z. western wheatgrass. Growth begins in the spring and continues into fall during the rainy season..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	20	30	20	5	5	10	5	0	0

Figure 9. Plant community growth curve (percent production by month). AZ3566, 35.4 7-11" p.z. winterfat. Growth occurs from spring through summer..

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

Figure 10. Plant community growth curve (percent production by month). AZ0001, 35.4 7-11" p.z. galleta. Growth begins in the spring, most growth occurs during the summer rainy season..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	3	15	5	25	40	10	2	0	0

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Shrub/Vine					
0				112–224	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	56–112	–
	winterfat	KRLA2	<i>Krascheninnikovia lanata</i>	56–112	–
	shadscale saltbush	ATCO	<i>Atriplex confertifolia</i>	0–56	–
	rabbitbrush	CHRY9	<i>Chrysothamnus</i>	11–34	–
3				11–34	
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	6–22	–
	threadleaf ragwort	SEFL3	<i>Senecio flaccidus</i>	6–22	–
	plains pricklypear	OPPO	<i>Opuntia polyacantha</i>	2–11	–
Grass/Grasslike					
0				841–1009	
	blue grama	BOGR2	<i>Bouteloua gracilis</i>	224–392	–
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	168–280	–
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	112–168	–
	James' galleta	PLJA	<i>Pleuraphis jamesii</i>	56–112	–
	vine mesquite	PAOB	<i>Panicum obtusum</i>	56–112	–
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	56–90	–
	squirreltail	ELELE	<i>Elymus elymoides ssp. elymoides</i>	34–56	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	11–56	–
1				11–56	
	threeawn	ARIST	<i>Aristida</i>	6–28	–
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	6–28	–
	burrograss	SCBR2	<i>Scleropogon brevifolius</i>	6–28	–
Forb					
0				11–34	
	menodora	MENOD	<i>Menodora</i>	6–22	–
	globemallow	SPHAE	<i>Sphaeralcea</i>	6–22	–
2				22–56	
	Forb, perennial	2FP	<i>Forb, perennial</i>	17–34	–
	Forb, annual	2FA	<i>Forb, annual</i>	11–28	–

Animal community

This site is suitable for yearlong grazing by any class of livestock. The close proximity of livestock water calls for special management techniques for sustained production of high quality forage without sacrificing the site because of overuse.

This site offers a fair diversity in the vegetative complex for wildlife. In higher condition classes the site is most suitable to grassland wildlife species. As retrogression occurs the woody species increase and wildlife species utilizing the site may change.

Recreational uses

The site is located on non-entrenched swales and bottoms. It has good aesthetic appeal and in high ecological condition it has a grassland dominance with pockets of brush or scattered brushy species.

Winters are cold and summers are quite warm. Spring and fall are the dry seasons and are typically cool and windy.

Recreational activities most likely to occur are hunting, cross-country riding, photography and wildlife observation.

Other information

Threatened and Endangered Species: Golden eagles and Prairie falcons occasionally use the site for feeding areas.

Type locality

Location 1: Mohave County, AZ	
Township/Range/Section	T40N R10W S7
General legal description	Mohave County; about 8.5 miles south of the Arizona-Utah state line and 4 miles west of the Hurricane Cliffs; Section 7, T40N, R10W.

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:
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17. **Perennial plant reproductive capability:**
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