Ecological site R035XG710AZ
Loamy Bottom 14-18" p.z.

Accessed: 05/18/2024

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.

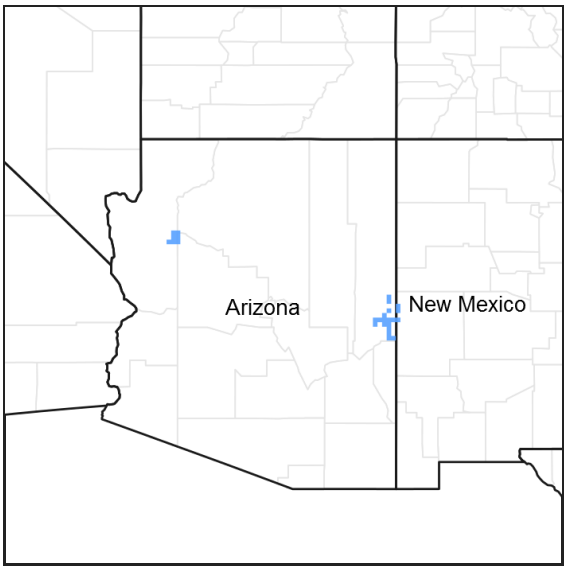

Figure 1. Mapped extent

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 35.7 – Colorado Plateau Woodland – Grassland

Elevations range from 5000 to 7000 feet and precipitation averages 14 to 18 inches per year. Vegetation includes one-seed juniper, Colorado pinyon, Stansbury cliffrose, Apache plume, four-wing saltbush, green Mormon tea, needle and thread, sideoats grama, blue grama, black grama, galleta, bottlebrush squirreltail, and muttongrass. The soil temperature regime is mesic and the soil moisture regime is aridic ustic. 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 canescens* (2) *Krascheninnikovia lanata*
Herbaceous	(1) *Pascopyrum smithii* (2) *Bouteloua gracilis*

Physiographic features

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

Table 2. Representative physiographic features

Landforms	(1) Drainageway (2) Swale
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Rare to occasional
Ponding frequency	None to rare
Elevation	1,676–2,134 m
Slope	0–5%
Aspect	Aspect is not a significant factor

Climatic features

The climate of the land resource unit is semiarid with warm summers and cool winters. The mean annual precipitation ranges from 14 to 18 inches, but is very erratic, often varying substantially from year to year. The majority of the precipitation is received from October through April. This precipitation comes as gentle rain or snow from frontal storms coming out of the Pacific Ocean. Snow is common from November through February. Generally no more than a few inches of snow accumulates, melting within a few days, but may last a week or more. The remaining precipitation, approximately 40 percent, is received from July through September as spotty, unreliable and sometimes violent thunderstorms. The moisture for this precipitation originates in the Gulf of Mexico (and the Pacific Ocean in the fall) and flows into the area on the north end of the Mexican monsoon. Late May through late June is generally a dry period. The mean annual temperature ranges from 46 to 52 degrees Fahrenheit (F). The frost-free period (air temperature > 32 degrees F) ranges from 108 to 151 days (@ 50 percent probability). Strong winds are common, especially in the spring.

Table 3. Representative climatic features

Frost-free period (average)	151 days
Freeze-free period (average)	170 days
Precipitation total (average)	457 mm

Influencing water features

Soil features

Soils are deep, dark colored from >1% organic matter, well drained and have no plant root restricting layers. Surface texture ranges from sandy loam and gravelly sandy loam to silt loam. Underlying horizons are textures of light clay loam to sandy loam. Soluble salts are low; soil reaction ranges from neutral to moderately alkaline (ph 6.6-8.4). Soil profile may contain gravel, but averages less than 35% by volume throughout. Soil can normally absorb and hold all moisture the climate provides. With good vegetative cover, infiltration rates are high, stability against erosion processes is good, and plant-soil moisture relationships are better than average.

Typical taxonomic units include:

SSA-635 Apache County Central part MU's NT, NuA, NuB, NuC Nutrioso;
SSA-697 Mohave County Central part MU 39 Goesling family.

Table 4. Representative soil features

Surface texture	(1) Loamy sand (2) Loam (3) Silt loam
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderate to moderately slow
Soil depth	102–152 cm
Surface fragment cover <=3"	0–10%
Available water capacity (0-101.6cm)	17.78–25.4 cm
Calcium carbonate equivalent (0-101.6cm)	15–30%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–5
Soil reaction (1:1 water) (0-101.6cm)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	5–35%

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 fire, grazing, 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 amount shown for each group. Divide the resulting total by the total normal year production shown in the plant community description. If the rainfall has ben 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

This range site has a plant community 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 when this site deteriorates are borrograss, rabbitbrush, broom snakeweed, annuals, cacti and wolfberry. Continuous grazing during the winter and spring periods will decrease cool season grasses which are replace by 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	605	681	757
Shrub/Vine	151	202	252
Forb	10	30	50
Total	**766**	**913**	**1059**

Figure 5. Plant community growth curve (percent production by month). AZ3921, 35.7 14-18" p.z. all sites. Growth begins in the spring and continues through the summer..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	14	21	17	18	14	8	3	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				146–280	
	fourwing saltbush	ATCA2	*Atriplex canescens*	101–202	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	50–101	–
	rough menodora	MESC	*Menodora scabra*	0–50	–
3				50–101	
	sideoats grama	BOCU	*Bouteloua curtipendula*	34–68	–
	rubber rabbitbrush	ERNAN5	*Ericameria nauseosa ssp. nauseosa var. nauseosa*	22–45	–
	threadleaf ragwort	SEFL3	*Senecio flaccidus*	17–34	–
	prairie sagewort	ARFR4	*Artemisia frigida*	13–28	–
4				10–30	
	plains pricklypear	OPPO	*Opuntia polyacantha*	4–13	–
	mat muhly	MURI	*Muhlenbergia richardsonis*	0–13	–
	ring muhly	MUTO2	*Muhlenbergia torreyi*	0–13	–
Grass/Grasslike					
0				291–695	
	western wheatgrass	PASM	*Pascopyrum smithii*	252–504	–
	muttongrass	POFE	*Poa fendleriana*	10–50	–
	squirreltail	ELELE	*Elymus elymoides ssp. elymoides*	10–50	–
	common wolfstail	LYPH	*Lycurus phleoides*	0–50	–
	spike muhly	MUWR	*Muhlenbergia wrightii*	10–50	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	10–30	–
1				213–504	
	blue grama	BOGR2	*Bouteloua gracilis*	151–347	–
	sideoats grama	BOCU	*Bouteloua curtipendula*	50–101	–
	vine mesquite	PAOB	*Panicum obtusum*	10–50	–
	little bluestem	SCSC	*Schizachyrium scoparium*	0–50	–
	common wolfstail	LYPH	*Lycurus phleoides*	0–34	–
	little bluestem	SCSCS	*Schizachyrium scoparium var. scoparium*	0–34	–
2				11–112	
	blue grama	BOGR2	*Bouteloua gracilis*	102–239	–
	threeawn	ARIST	*Aristida*	10–50	–
	mat muhly	MURI	*Muhlenbergia richardsonis*	0–20	–
	ring muhly	MUTO2	*Muhlenbergia torreyi*	0–20	–
	tumblegrass	SCPA	*Schedonnardus paniculatus*	0–20	–

Forb					
3				10–50	
	globemallow	SPHAE	*Sphaeralcea*	4–22	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	7–20	–
	Forb, annual	2FA	*Forb, annual*	3–17	–
	Forb, perennial	2FP	*Forb, perennial*	3–17	–

Animal community

This site is suitable for yearlong grazing by cows, calves, stocker cattle, sheep and horses. Planned grazing systems can be readily adapted when this site is involved. This site will respond relatively soon to good management.

This site has relatively poor diversity in the plant community and is primarily suited to grassland wildlife species. The site may be important to wildlife because of the proximity to water.

Recreational uses

The site occurs in drainage bottoms and swales and is characterized as mixed grass bottoms with few forbs and shrubs. Warm summers and cold winters are common. During the spring and winter, high winds are common. Hunting is the primary recreational activity, with other activities that include horseback riding, backpacking, hiking, camping and wildlife observation.

Other information

T&E species: golden eagles and prairie falcons use this site for feeding.

Type locality

Location 1: Apache County, AZ	
Township/Range/Section	T7N R30E S9
General legal description	About eleven miles Southeast of Springerville, AZ - Apache County - Center of Section 9, T7N, R30E. In Mohave County - Section 17, T24N, 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:

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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:**
