Ecological site R035XD410AZ
Saline Upland 7-11" p.z. Loamy

Accessed: 05/19/2024

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.

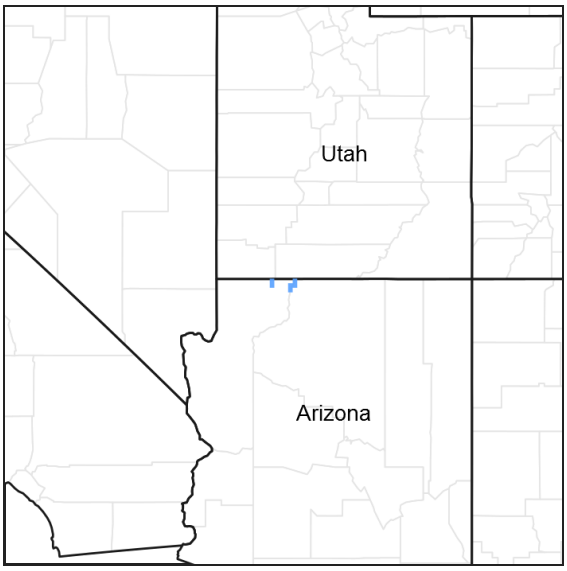

Figure 1. Mapped extent

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 35.4 – 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) *Atriplex canescens* (2) *Sarcobatus vermiculatus*
Herbaceous	(1) *Pascopyrum smithii* (2) *Achnatherum hymenoides*

Physiographic features

This site occurs in an upland position as entrenched alluvial fans and low stream terraces. Historically, this site was primarily bottoms and floodplains; but through deep gully erosion, they no longer benefit from excess run-in moisture. Some irrigation induced water tables may exist at about 20"-40" during some times of the year.

Table 2. Representative physiographic features

Landforms	(1) Alluvial fan (2) Stream terrace
Flooding frequency	None to rare
Ponding frequency	None to rare
Elevation	1,158–1,615 m
Slope	0–5%
Water table depth	51–152 cm
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 characterizing this site are deep and well-drained. Surface textures range from sandy to silty clay loam and subsurface textures range from sandy loam to silty clay loam. Salts are in the profile in varying amounts and conductivity ranges from 5 - 20 mmhos/cc. Water erosion hazard is sever unless a good cover of vegetation is maintained.

Some taxonomic units included are;

SSA625 - Mohave County NE part MU 18 Jocity
SSA629 - Coconino County North Kaibab part MU 16 Glenyon.

Table 4. Representative soil features

Parent material	(1) Alluvium–sandstone and shale

Surface texture	(1) Sandy clay loam (2) Silty clay loam (3) Sand
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderately slow to moderately rapid
Soil depth	102–152 cm
Surface fragment cover <=3"	0–5%
Electrical conductivity (0-101.6cm)	5–20 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	5–30
Soil reaction (1:1 water) (0-101.6cm)	7.6–8.8

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

This site is composed of grasses intermixed with shrubs. This plant community has the potential for a mixture of cool season and warm season species. Plants most likely to increase on the site through disturbance are greasewood, saltgrass, and rabbitbrush. Annuals such as cheatgrass and russian thistle will invade these areas.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	538	605	673
Shrub/Vine	179	224	269
Forb	9	27	45
Total	**726**	**856**	**987**

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). AZ3562, 35.4 7-11" p.z. bottlebrush squirreltail. Most growth occurs in the spring, plants may remain green during the winter..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	5	30	35	15	5	0	0	0	5	5	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				179–269	
	fourwing saltbush	ATCA2	*Atriplex canescens*	90–224	–
	greasewood	SAVE4	*Sarcobatus vermiculatus*	45–90	–
	shadscale saltbush	ATCO	*Atriplex confertifolia*	18–63	–
	rabbitbrush	CHRYS9	*Chrysothamnus*	9–45	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	0–27	–
Grass/Grasslike					
0				538–673	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	45–179	–
	saltgrass	DISP	*Distichlis spicata*	45–179	–
	western wheatgrass	PASM	*Pascopyrum smithii*	45–179	–
	needle and thread	HECOC8	*Hesperostipa comata ssp. comata*	45–135	–
	squirreltail	ELELE	*Elymus elymoides ssp. elymoides*	45–90	–
	blue grama	BOGR2	*Bouteloua gracilis*	45–90	–
	James' galleta	PLJA	*Pleuraphis jamesii*	9–45	–
	spike dropseed	SPCO4	*Sporobolus contractus*	9–45	–
	alkali sacaton	SPAI	*Sporobolus airoides*	0–27	–
Forb					
0				9–45	
	Forb, annual	2FA	*Forb, annual*	9–45	–
	Forb, perennial	2FP	*Forb, perennial*	9–45	–

Animal community

This site is suitable for year-long grazing by domestic livestock and is easily traversed. This site is very susceptible

to erosion, particularly overgrazed areas, old roads, cattle trails and concentration areas.

Diversity on this site is fair for wildlife. Cover is good in the potential plant community. Open water is lacking except where seasonal livestock waters are maintained. Some wildlife species are pronghorn, mule deer, and cottontail rabbits.

Recreational uses

This site occurs as floodplains and eroded bottoms. The general appearance of the site is a grassland interspersed with shrubs. The landscape has good texture and form and is pleasing to the eye.

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, 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: Coconino County, AZ	
Township/Range/Section	T41N R2W S8
General legal description	About 1/4 mile north of Fredonia, AZ; Coconino County; Section 8, T41N, R2W.

Contributors

Larry D. Ellicott
Steve Barker

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:**
