Ecological site F035XA122AZ
Limy Upland 10-14" p.z. Gravelly (JUOS)

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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 35.1 - Colorado Plateau Mixed Grass Plains

Elevations range from 5100 to 6000 feet and precipitation averages 10 to 14 inches per year. Vegetation includes Stipa species, Indian ricegrass, galleta, and blue grama, fourwing saltbush, winterfat, and cliffrose. The soil temperature regime is mesic and the soil moisture regime is ustic 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	(1) *Juniperus osteosperma*
Shrub	(1) *Atriplex canescens* (2) *Krascheninnikovia lanata*
Herbaceous	(1) *Bouteloua gracilis* (2) *Bouteloua eriopoda*

Physiographic features

Table 2. Representative physiographic features

Landforms	(1) Fan (2) Terrace (3) Plateau
Elevation	4,300–5,200 ft
Slope	2–20%

Climatic features

50-60% of moisture falls as rain Jul-Sept and is the most effective moisture for plant growth. The remaining moisture comes as snow during the winter.

Mean temperatures for the hottest month (Jul) is 72 degrees F; for the coldest month (Jan) is 32 degrees F. Extreme temperatures of 105 degrees F and -26 degrees F have been recorded. Long periods with little or no effective moisture are relatively common.

Cool season plants begin growth in early spring and mature in the early summer. Warm season plants take advantage of the summer rains and grow and retain their nutrition from July through September.

Table 3. Representative climatic features

Frost-free period (average)	160 days
Freeze-free period (average)	180 days
Precipitation total (average)	13 in

Influencing water features

Soil features

Table 4. Representative soil features

Surface texture	(1) Extremely gravelly loam (2) Very gravelly sandy loam
Family particle size	(1) Loamy
Permeability class	Moderate to moderately rapid
Soil depth	40–65 in
Surface fragment cover <=3"	0–30%
Electrical conductivity (0-40in)	0–2 mmhos/cm
Soil reaction (1:1 water) (0-40in)	7.4–7.8

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 Natural Plant Community

Community 1.1
Historic Natural Plant Community

Woodland community with an overstory of Utah juniper and Singleleaf pinyon. Understory species include Blue grama, Black grama, Needleandthread, astragalus, Fourwing saltbush, Winterfat, Broom snakeweed.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	195	260	290
Shrub/Vine	75	100	113
Tree	15	20	23
Forb	15	20	23
Total	**300**	**400**	**449**

Table 6. Ground cover

Tree foliar cover	5-40%
Shrub/vine/liana foliar cover	5-25%
Grass/grasslike foliar cover	25-65%
Forb foliar cover	0-5%
Non-vascular plants	0%
Biological crusts	0%
Litter	0%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

Table 7. Canopy structure (% cover)

Height Above Ground (Ft)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.5	–	–	–	–
>0.5 <= 1	–	–	0-40%	0-5%
>1 <= 2	–	5-10%	0-25%	–
>2 <= 4.5	0-5%	5-15%	–	–
>4.5 <= 13	–	–	–	–
>13 <= 40	30-40%	–	–	–
>40 <= 80	–	–	–	–
>80 <= 120	–	–	–	–
>120	–	–	–	–

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Tree					
0				0–20	
	Utah juniper	JUOS	*Juniperus osteosperma*	0–15	–
	singleleaf pinyon	PIMO	*Pinus monophylla*	0–5	–
Shrub/Vine					
0				35–100	
	California saltbush	ATCA	*Atriplex californica*	10–35	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	10–25	–
	pale desert-thorn	LYPA	*Lycium pallidum*	8–20	–
	mormon tea	EPVI	*Ephedra viridis*	5–20	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	5–15	–
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	5–10	–
	banana yucca	YUBA	*Yucca baccata*	1–5	–
Grass/Grasslike					
0				125–260	
	black grama	BOER4	*Bouteloua eriopoda*	45–100	–
	blue grama	BOGR2	*Bouteloua gracilis*	44–90	–
	needle and thread	HECOC8	*Hesperostipa comata ssp. comata*	5–20	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	5–18	–
	squirreltail	ELELE	*Elymus elymoides ssp. elymoides*	5–15	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	5–8	–
	Fendler's threeawn	ARPUF	*Aristida purpurea var. fendleriana*	5–8	–
	Grass-like, perennial	2GLP	*Grass-like, perennial*	5–8	–
Forb					
0				0–20	
	Forb, perennial	2FP	*Forb, perennial*	0–20	–

Animal community

This site is suitable for grazing during spring, summer and fall periods of the year by cows and calves, stocker cattle, sheep and horses. Prescribed grazing systems can benefit this site by allowing rest periods for the cool season species.

The potential plant community provides a variety of food and cover plants for wildlife.

Recreational uses

Site is typically fan terraces on undulating plateaus. It produces high desert grasslands which can be very picturesque.

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

Activities include hunting, cross-country riding, photography, hiking, rock collecting, and wildlife observation.

Wood products

Site Index: 45 - 50
Fuelwood (cds/ac): 6 - 7

Fence Posts (7 ft)/ac: 20 - 30
Christmas trees/ac: 0 - 2
CMAI* per year: 4.5 cuft/ac
Productivity class: 1

* CMAI is the "Culmination of Mean Annual Increment" or highest average growth rate of the stand in the units specified.

Other products

Woodland Uses and Interpretations
Equipment Suitability:
Harvesting: all kinds (slope > 15% may be a problem)
Site Preparation: all kinds
Tree Planting: all kinds
Precommercial thinning: all kinds
Equipment Limitations:
Slope: slopes >15% have a moderate limitation
Unsurfaced roads: None (may become dusty with use)
Stoniness/Rock Outcrop: Slight (some rock outcrop present)
Water Table/Flooding: None
Erosion potentials:
Cutover areas/bare ground: Slight (gravel on surface helps protect soil)
Roads/Trails/Landings: Slight (slopes > 15% moderate erosion hazard)
Soil Management:
Compaction potential: Good (soils & gravel mix well)
Rutting potential: Some rutting may occur when wet
Revegetation potential: Poor (somewhat droughty soil)
Silviculture potentials & limitations:
Harvest Cutting: harvest mature trees when canopy > 30%
Thinning & Improvement: This site is a low producer, thinning is usually not necessary
Prescribed burning: not recommended
Mechanical Tree Removal: no restriction except for slopes > 15%
Pest Control: Control pests to prevent tree damage & loss
Fire Hazard: Low (gravel on soil surface helps keep fuel load low)
Suitability for replanting: Fair (soils are droughty)
Seedling Mortality: Severe (low available water)
Natural Regeneration: Very slow (but will occur in time)
Seedling Protection: Seedlings should be protected from grazing and trampling
Plant competition: Severe (droughty soil)
Windthrow Hazard: Slight (rooting depth > 40”)

Table 9. Representative site productivity

Common Name	Symbol	Site Index Low	Site Index High	CMAI Low	CMAI High	Age Of CMAI	Site Index Curve Code	Site Index Curve Basis	Citation
Utah juniper	*JUOS*	45	50	3	5	–	–	–	

Type locality

Location 1: Mohave County, AZ	
Township/Range/Section	T25N R12W S19
General legal description	Milkweed Canyon SE Quad - 3 miles NW of Truxton, AZ. Sections 19, 20, 29, 30, T25N, R12W on the Hualapai Indian Reservation.

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:**