USDA Natural Resources Conservation Service

Ecological site F035XA126AZ
Sandy Loam Upland 10-14" p.z. Gravelly (JUOS, PIMO)

Last updated: 5/20/2025
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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.

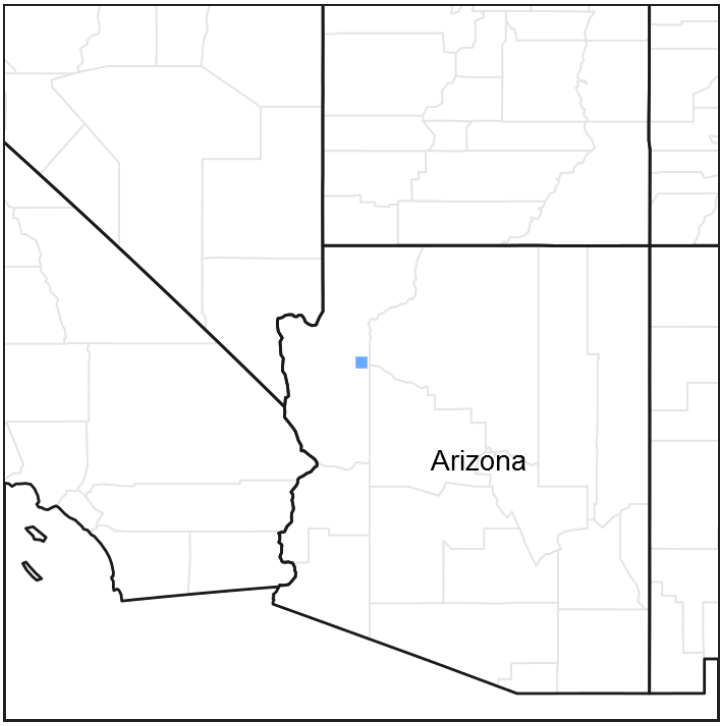

Figure 1. Mapped extent

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* (2) *Pinus monophylla*
Shrub	(1) *Ceanothus greggii* (2) *Quercus turbinella*
Herbaceous	(1) *Bouteloua eriopoda* (2) *Bouteloua curtipendula*

Physiographic features

Site exists on fan terraces and undulating plateaus.

Table 2. Representative physiographic features

Landforms	(1) Fan (2) Terrace (3) Plateau
Elevation	1,219–1,463 m
Slope	2–45%

Climatic features

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

Mean temperature for the hottest month (Jul) is 72 F; for the coldest month (Jan) is 32 F. Extreme temperatures of 105 F and -28F have been recorded. Long periods with little or no effective moisture are relatively common.

Cool season plants begin growth in early spring and mature early summer. Warm season plants take advantage of summer rains and are growing and nutritious from Jul-Sep

Table 3. Representative climatic features

Frost-free period (average)	160 days
Freeze-free period (average)	180 days
Precipitation total (average)	330 mm

Influencing water features

Soil features

Soils are deep with surface texture of extremely gravelly sandy loam and subsurface textures of very gravelly sandy loam, very gravelly coarse sandy loam, extremely cobbly coarse loamy sand, extremely cobbly coarse sand. Parent material is mixed alluvium. Geologic formation is quarternary alluvium.

Mapped in SSA-699 Hualapai/Havasupai Area MU 41 Saemo.

Table 4. Representative soil features

Surface texture	(1) Extremely gravelly sandy loam
Family particle size	(1) Sandy
Soil depth	102–152 cm
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Soil reaction (1:1 water) (0-101.6cm)	6.8–7

Ecological dynamics

For state and transition model refer to Ecological Group ID DX035X02CESG11
, Coconino Transition - Ustic Aridic - Sandstone or Sandy Upland.

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

Ecosystem states

1. Historic Natural Plant Community

State 1 submodel, plant communities

1.1. Historic Natural Plant Community

State 1
Historic Natural Plant Community

Community 1.1
Historic Natural Plant Community

Woodland community with an over story of Utah juniper and Singleleaf pinyon. Under story species include blue grama, black grama, desert needlegrass, rough menodora, desert ceanothus, and running prickly pear.

Forest overstory. Major overstory species are Utah juniper with a 20% canopy at 50% of

the canopy cover and Singleleaf Pinyon with a 20% canopy cover at 50% of the canopy.

Forest understory. Major understory species include black grama, sideoats grama, blue grama, rough menodora, desert ceanothus and turbinella oak.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	168	235	303
Shrub/Vine	84	118	151
Tree	15	20	26
Forb	13	19	25
Total	**280**	**392**	**505**

Table 6. Soil surface cover

Tree basal cover	0-20%
Shrub/vine/liana basal cover	5-30%
Grass/grasslike basal cover	5-60%
Forb basal 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 (M)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.15	–	–	–	0-2%
>0.15 <= 0.3	–	1-5%	5-45%	0-5%
>0.3 <= 0.6	–	5-10%	5-20%	–
>0.6 <= 1.4	–	5-20%	1-5%	–
>1.4 <= 4	5-20%	–	–	–
>4 <= 12	–	–	–	–
>12 <= 24	–	–	–	–
>24 <= 37	–	–	–	–
>37	–	–	–	–

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Tree					
0				15–26	
	Utah juniper	JUOS	*Juniperus osteosperma*	8–13	–
	oneseed juniper	JUMO	*Juniperus monosperma*	7–12	–
Shrub/Vine					
0				84–151	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	22–39	–
	desert ceanothus	CEGR	*Ceanothus greggii*	20–37	–
	Sonoran scrub oak	QUTU2	*Quercus turbinella*	20–36	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	13–17	–
	banana yucca	YUBA	*Yucca baccata*	7–10	–
	tulip pricklypear	OPPH	*Opuntia phaeacantha*	7–9	–
	crucifixion thorn	CAHO3	*Canotia holacantha*	7–9	–
Grass/Grasslike					
0				168–303	
	black grama	BOER4	*Bouteloua eriopoda*	58–106	–
	sideoats grama	BOCU	*Bouteloua curtipendula*	47–85	–
	desert needlegrass	ACSP12	*Achnatherum speciosum*	30–55	–
	blue grama	BOGR2	*Bouteloua gracilis*	28–52	–
	Grass-like, perennial	2GLP	*Grass-like, perennial*	6–11	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	4–9	–
	Fendler's threeawn	ARPUF	*Aristida purpurea var. fendleriana*	4–9	–
Forb					
0				13–25	
	Forb, perennial	2FP	*Forb, perennial*	8–13	–
	rough menodora	MESC	*Menodora scabra*	6–11	–

Animal community

This site is suitable for grazing by cattle, horses, and sheep during spring, summer and fall with a good variety of plants.

The potential plant community provides a variety of food and cover plants for wildlife. Water can be scarce in natural springs or pockets. The topography provides escape habitat.

Recreational uses

Site is typically low, gently rolling plains and fans.

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): 5 - 7
Fence Posts (7 ft)/ac: 15 - 25
Christmas trees/ac: 8 - 10
CMAI* per year: 4 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.

Woodland Uses and Interpretations
Equipment Suitability:
Harvesting: all kinds (slope > 15% may be a problem)
Site Preparation: all kinds (Slopes > 15% have limitations)
Tree Planting: all kinds (Slopes > 15% have limitations)
Precommercial thinning: all kinds (Slopes > 15% have limitations)
Equipment Limitations:
Slope: slopes >15% have a moderate to severe limitation
Unsurfaced roads: None (may become dusty with use)
Stoniness/Rock Outcrop: Slight (big cobbles)
Water Table/Flooding: None
Erosion potentials:
Cutover areas/bare ground: moderate to severe on slopes > 15%

Roads/Trails/Landings: moderate to severe on slopes > 15%

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 > 40%
Thinning & Improvement: 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 (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	4	–	–	–	

Type locality

Location 1: Mohave County, AZ	
Township/Range/Section	T25N R11W S9, 10
General legal description	Peach Springs Quad - 2 miles northwest of Peach Springs: Secs 9 and 10 T25N, R11W; Hualapai Indian Reservation, Arizona

Contributors

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Approval

Kendra Moseley, 5/20/2025

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	05/21/2025
Approved by	Kendra Moseley
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):**

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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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:**
