

Ecological site R041XC328AZ

Saline Upland

12-16" 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.

MLRA notes

Major Land Resource Area (MLRA): 041X–Madrean Archipelago

AZ 41.3 – Chihuahuan – Sonoran Semidesert Grasslands Elevations range from 3200 to 5000 feet and precipitation ranges from 12 to 16 inches per year. Vegetation includes mesquite, catclaw acacia, netleaf hackberry, palo verde, false mesquite, range ratany, fourwing saltbush, tarbush, littleleaf sumac, sideoats grama, black grama, plains lovegrass, cane beardgrass, tobosa, vine mesquite, threeawns, Arizona cottontop and bush muhly. The soil temperature regime is thermic and the soil moisture regime is ustic aridic. This unit occurs within the Basin and Range Physiographic Province and is characterized by numerous mountain ranges that rise abruptly from broad, plain-like valleys and basins. Igneous and metamorphic rock classes dominate the mountain ranges and sediments filling the basins represent combinations of fluvial, lacustrine, colluvial and alluvial deposits.

Ecological site concept

Saline Upland ecological site occurs on an upland landscape position, generally old lake and fan deposited alluvium. All moisture for the plant community is received from precipitation. Terrain is generally flat to very gently sloping. The saline soil is moderately to deep with textures ranging from sandy loam to clay loam.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Atriplex canescens</i> (2) <i>Ephedra trifurca</i>
Herbaceous	(1) <i>Sporobolus airoides</i> (2) <i>Distichlis spicata</i>

Physiographic features

This unit occurs on long narrow slightly elevated ridges along the edges of the old lakebed.

Table 2. Representative physiographic features

Landforms	(1) Lakeshore
Elevation	1,280 – 1,400 m

Slope	0 %
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Climatic features

Precipitation in this common resource area ranges from 12-16 inches yearly in the eastern part with elevations from 3600-5000 feet, and 13-17 inches in the western part where elevations are 3300-4500 feet. Winter-Summer rainfall ratios are 40-60% in the west and 30-70% in the east. Summer rains fall July-September, originate in the Gulf of Mexico and are convective, usually brief, intense thunderstorms. Cool season moisture tends to be frontal, originates in the Pacific and Gulf of California, and falls in widespread storms with long duration and low density. Snow rarely lasts more than one day. May and June are the driest months of the year. Humidity is generally very low.

Temperatures are mild. Freezing temperatures are common at night from December-April; however temperatures during the day are frequently above 50 F. Occasionally in December-February, brief 0 F temperatures may be experienced some nights. During June, July and August, some days may exceed 100 F.

Cool season plants start growth in early spring and mature in early summer. Warm season plants take advantage of summer rains and are growing and nutritious July-September. Warm season grasses may remain green throughout the year.

Table 3 Representative climatic features

Frost-free period (average)	220 days
Freeze-free period (average)	
Precipitation total (average)	410 mm

Influencing water features

Soil features

Mapped on Crot, Gothard and Stewart soils near old lakebed in Willcox Playa. This unit was also mapped on the soils in SSA-665 Wilcox Area MU Co Comoro, Alkali variant.

Table 4. Representative soil features

Surface texture	(1) Sandy loam
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Slow to moderately slow
Soil depth	100 – 150 cm
Available water capacity (0-101.6cm)	6.35 – 17.78 cm

Subsurface fragment volume <=3" (Depth not specified)	0 – 20 %
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Ecological dynamics

The Saline Upland ecological site is strongly influenced by natural fire and, in the absence of fire, shrubs such as mesquite or the non-native salt cedar will increase in size and numbers. The plant community phases of the Saline Grassland State cycle through periods of grass dominance, a shrub-dotted grassland, and an annual forbs and grass dominated community. These community phases reflect the time since burning with the annual dominated community being present immediately after fire. Natural fire intervals are 8-15 years depending on weather cycles and fuel loads.

The two woodland states (Native and Non-native Woodlands) are reflective of extended time without fire and unmanaged livestock grazing. The difference between the two is the presence of non-native salt cedar. Heavy, or repeated, continuous, un-managed livestock grazing removes the opportunity for fine-fuel loads and interrupts fuel continuity for burning. Long-term unmanaged grazing also impacts the herbaceous community by selectively removing the most palatable forage species from the community. The Managed Grassland Community (in the Native or Non-Native Woodland State) is an anthropogenic grassland after brush management practices are applied. The Managed Grassland Community needs to be maintained with prescribed burning or chemical spot treatments or it will revert to Mesquite or Salt Cedar Community within 5-10 years.

Eroded State is located in small areas where slope increases. It seems to be a function of landscape position rather than disturbances. This State will be investigated further in ecological site description development.

State and transition model

Additional community tables

Contributors

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Approval

Curtis Talbot, 4/12/2021

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	09/21/2026
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:
