Ecological site R030XB227AZ
Clay Loam Upland 6-9" 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.

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): 030X–Mojave Basin and Range

AZ CRA 30.2 – Middle Mohave Desert

Elevations range from 1500 to 3200 feet and precipitation averages 6 to 9 inches per year. Vegetation includes creosotebush, white bursage, yucca, prickly pear and cholla species, Mormon tea, flattop buckwheat, ratany, winterfat, bush muhly, threeawns, and big galleta. The soil temperature regime is thermic and the soil moisture regime is typic aridic. This unit occurs within the Basin and Range Province and is characterized by broad basins, valleys, and old lakebeds. Widely spaced mountains trending north to south occur throughout the area. Isolated, short mountain ranges are separated by an aggraded desert plain. The mountains are fault blocks that have been tilted up. Long alluvial fans coalesce with dry lakebeds between some of the ranges.

Associated sites

R030XB214AZ	**Limy Upland 6-9" p.z.**

Similar sites

R030XC334AZ	**Clay Loam Upland 10-13" p.z.** This site occurs at higher elevations and higher precipitation.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Larrea tridentata* (2) *Ambrosia dumosa*
Herbaceous	Not specified

Physiographic features

This ecological site is found in an upland position on fan terraces of plateaus and benches.

Table 2. Representative physiographic features

Landforms	(1) Plateau (2) Fan (3) Terrace
Flooding frequency	None
Ponding frequency	None
Elevation	2,000–2,700 ft
Slope	2–10%
Aspect	Aspect is not a significant factor

Climatic features

The climate is arid and warm. Annual precipitation ranges from 6 to 9 inches. About 65 percent of the rainfall comes from October through May as gentle rain from Pacific storms which may last for a couple of days. The rest of the rainfall comes during the summer monsoon season from July through September as spotty, brief, intense thunderstorms. Snow rarely falls, and only remains on the ground a few hours at most. Annual air temperature ranges from 59 to 70 degrees F. The average frost-free period ranges from 156 to 259 days.

Table 3. Representative climatic features

Frost-free period (average)	259 days
Freeze-free period (average)	290 days
Precipitation total (average)	9 in

Influencing water features

Soil features

The soil of this ecological site is deep. The soil's parent material is mixed alluvium from volcanics. Its available water capacity is high. The soil erosion hazard by water is moderate and by wind is slight. The soil is non-saline, non-sodic and mildly to moderately alkaline (pH7.4-8.4). The soil moisture regime is typic aridic and temperature regime is thermic.

A typical soil profile is:
A-0 to 2 inches; very gravelly sandy loam
BA-2 to 6 inches; clay loam
Btk-6 to 40 inches; clay

2Btk-40 to 60 inches; cobbly clay loam

Table 4. Representative soil features

Parent material	(1) Alluvium–volcanic breccia
Surface texture	(1) Very gravelly sandy loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Slow
Soil depth	60 in
Surface fragment cover <=3"	45–70%
Surface fragment cover >3"	0–5%
Available water capacity (0-40in)	8.5–10 in
Calcium carbonate equivalent (0-40in)	1–25%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–45%
Subsurface fragment volume >3" (Depth not specified)	0–25%

Ecological dynamics

The historic climax plant community (HCPC) for a site in North America is the plant community that existed at the time of European immigration and settlement. It is the plant community that was best adapted to the unique combination of environmental factors associated with the site at that time. The HCPC was in dynamic equilibrium with its environment and was able to avoid displacement by the suite of disturbances and disturbance patterns (magnitude and frequency) that naturally occurred within the area occupied by the site. Natural disturbances, such as drought, fire, grazing of native fauna, and insects, were inherent in the development and maintenance of the plant community. The effects of these disturbances are part of the range of characteristics of the site that contribute to the dynamic equilibrium. Fluctuations in the plant community's structure and function caused by the effects of these natural disturbances establish the boundaries of dynamic equilibrium. They are accounted for as part of the range of characteristics for the ecological site. The HCPC is not a precise assemblage of species for which the proportions are the same from place to place or from year to year. Variability is apparent in productivity and occurrence of individual species.

The HCPC for this ecological site has been estimated by sampling relict or relatively undisturbed sites and/or reviewing historic records.

A plant community that is subjected to abnormal disturbances and physical site deterioration or that is protected from natural influences, such as fire and grazing, for long periods seldom typifies the HCPC. Any physical site deterioration caused by the abnormal disturbance may result in the crossing of a threshold or irreversible boundary to another state, or equilibrium, for the ecological site. There may be multiple thresholds and states possible for an ecological site, determined by the type and or severity of abnormal disturbance. The known states and transition pathways for this ecological site are described in the accompanying state and transition model.

The "Plant Community Plant Species Composition" table provides a list of species and each species or group of

species' annual production in pounds per acre (air-dry weight) expected in a normal rainfall year. Low and high production yields represent the modal range of variability for that species or group of species across the extent of the ecological site.

The "Annual Production by Plant Type" table provides the median air-dry production and the fluctuations to be expected during favorable, normal, and unfavorable years.
The present plant community on an ecological site can be compared to the various common vegetation states that can exist on the site. The degree of similarity is expressed through a similarity index. To determine the similarity index, compare the production 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 representative value shown in the "Annual Production by Plant Type" table for the reference plant community. Variations in production due to above or below normal rainfall, incomplete growing season or utilization must be corrected before comparing it to the site description. The "Worksheet for Determining Similarity Index" is useful in making these corrections. The accompanying growth curve can be used as a guide for estimating percent of growth completed.

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

The dominant aspect of this plant community is a desert shrub community with annual grasses and forbs. Creosotebush and white bursage are the main shrubs. Big galleta is the main grass, present in minor amounts. With

severe disturbance, creosotebush and white bursage will increase, unwanted annual grasses, such as red brome, and forbs will invade.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	116	225	328
Forb	17	38	61
Grass/Grasslike	17	37	61
Total	**150**	**300**	**450**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0-2%
Grass/grasslike foliar cover	0%
Forb foliar cover	0%
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	–	–	–	1-3%
>0.5 <= 1	–	–	0-2%	–
>1 <= 2	–	–	–	–
>2 <= 4.5	–	9-11%	–	–
>4.5 <= 13	–	–	–	–
>13 <= 40	–	–	–	–
>40 <= 80	–	–	–	–
>80 <= 120	–	–	–	–
>120	–	–	–	–

Figure 5. Plant community growth curve (percent production by month). AZ3022, 30.2 6-9" p.z. upland sites. Growth begins in the late winter, most growth occurs in the spring..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	19	33	18	7	7	11	3	0	0	0

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				3–15	
	big galleta	PLRI3	*Pleuraphis rigida*	3–15	–
2				0–6	
	low woollygrass	DAPU7	*Dasyochloa pulchella*	0–6	–
3				3–30	
	Grass, annual	2GA	*Grass, annual*	3–30	–
4				0–6	
	Grass, perennial	2GP	*Grass, perennial*	0–6	–
Forb					
5				3–6	
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	3–6	–
6				3–30	
	Forb, annual	2FA	*Forb, annual*	3–30	–
7				3–15	
	Forb, perennial	2FP	*Forb, perennial*	3–15	–
Shrub/Vine					
8				60–90	
	creosote bush	LATR2	*Larrea tridentata*	60–90	–
9				45–75	
	burrobush	AMDU2	*Ambrosia dumosa*	45–75	–
10				3–15	
	Nevada jointfir	EPNE	*Ephedra nevadensis*	3–15	–
11				3–15	
	water jacket	LYAN	*Lycium andersonii*	3–15	–
12				3–15	
	littleleaf ratany	KRER	*Krameria erecta*	3–15	–
13				3–15	
	catclaw acacia	ACGR	*Acacia greggii*	3–15	–
14				3–15	
	Schott's yucca	YUSC	*Yucca ×schottii*	3–15	–
15				3–15	
	Shrub, other	2S	*Shrub, other*	3–15	–

Animal community

Wildlife species found on this ecological site include snakes, coyotes, lizards and ground squirreltail.

Type locality

Location 1: Mohave County, AZ	
Township/Range/Section	T18N R18W S7
General legal description	Yucca NW Quad, 2.5 miles NNW of Caliche Spring.

Contributors

Harmon Hodgkinson
Harmon S. Hodgkinson
Larry D. Ellicott
Stephen Cassady

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:**