

Ecological site R030XC317AZ

Sandy Bottom

10-13" p.z.

Last updated: 10/21/2024
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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): 030X–Mojave Basin and Range

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.

LRU notes

AZ LRU 30-3 – Upper Mohave Desert Elevations range from 2800 to 4500 feet and precipitation averages 9 to 12 inches per year. Vegetation includes Joshua tree, blackbrush, creosotebush, ratany, bush muhly, big galleta, black grama, desert needlegrass, and Indian ricegrass. The soil temperature regime is thermic and the soil moisture regime is typic aridic.

Ecological site concept

This ecological site occurs in bottoms on narrow stream channels. Soils are deep sand, sandy loam to loamy sands throughout.

Similar sites

R030XC322AZ	Sandy Wash 10-13" p.z.
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Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Acacia greggii</i> (2) <i>Hymenoclea salsola</i>
Herbaceous	(1) <i>Muhlenbergia porteri</i>

Physiographic features

This ecological site is found in a bottom position on narrow stream channels and low stream terraces of floodplains. It receives additional run-in moisture from surrounding ecological sites.

Table 2. Representative physiographic features

Landforms	(1) Channel (2) Stream terrace
Flooding frequency	Rare to occasional
Ponding frequency	Rare to occasional
Elevation	670 – 1,400 m
Slope	0 %
Aspect	Aspect is not a significant factor

Climatic features

The climate is arid and warm. Annual precipitation ranges from 10 to 13 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 46 to 76 degrees F. The average frost-free period ranges from 121 to 231 days.

Table 3 Representative climatic features

Frost-free period (average)	230 days
Freeze-free period (average)	270 days
Precipitation total (average)	330 mm

Influencing water features

Soil features

Soils are deep to very deep. Surface textures are very gravelly sand, sandy loam, and gravelly sandy loam. Subsoil textures are gravelly loamy coarse sand, very cobbly coarse sand, very gravelly coarse sand, extremely gravelly sand, very gravelly sand, gravelly sandy loam, loamy sand and sand.

Available water capacity is very low to low.

Erosion hazard by water is slight to severe; by wind is slight to moderate. Soils are non-saline, non-sodic with pH range of 7.4-8.4. Soil temperature regime is thermic; moisture regime is typic aridic.

Landform and position is narrow stream channels and low stream terraces of floodplains.

Soil mapping units include Hualapai SSA (Arizo), Central Mohave SSA (Arizo), and So. Mohave SSA (Arizo, Ireteba, and Franconia).

Table 4. Representative soil features

Surface texture	(1) Gravelly sand (2) Very cobbly sandy loam (3) Extremely gravelly
Family particle size	(1) Sandy
Drainage class	Somewhat excessively drained to excessively drained
Permeability class	Moderately rapid to very rapid
Soil depth	150 cm
Surface fragment cover $\leq 3"$	50 – 60 %
Surface fragment cover $> 3"$	0 – 20 %
Available water capacity (0-101.6cm)	5.08 – 6.35 cm
Calcium carbonate equivalent (0-101.6cm)	10 %
Electrical conductivity (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	7.4 – 8.4
Subsurface fragment volume $\leq 3"$ (Depth not specified)	50 – 70 %
Subsurface fragment volume $> 3"$ (Depth not specified)	0 – 50 %

Ecological dynamics

Sandy Bottom, 10"-13" p.z., is a shrub dominated ecological site with occasional tree sized shrubs. Plant community receives additional moisture from run-on events. A lush understory of perennial grasses, sub-shrubs and forbs is present. Annual forbs and grasses flourish following rainfall. Other than flash flooding, natural disturbances are rare. After introduction of non-native annuals (forbs and/or grasses), the shift in total productivity is shift increased seasonal herbaceous production following periods of rain. Dominant shrubs are creosote and white bursage. Assorted half-shrubs are widely scattered.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1				67-101	
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	67-101	–
2				7-34	
	big galleta	PLRI3	<i>Pleuraphis rigida</i>	7-34	–
3				7-34	
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	7-34	–
4				7-34	
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	7-34	–
5				7-34	
	mesa dropseed	SPFL2	<i>Sporobolus flexuosus</i>	7-34	–
6				7-34	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	7-34	–
7				7-34	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	7-34	–
8				0-13	
	low woollygrass	DAPU7	<i>Dasyochloa pulchella</i>	0-13	–
9				0-13	
	slim tridens	TRMU	<i>Tridens muticus</i>	0-13	–
10				7-34	
	Grass, perennial	2GP	<i>Grass, perennial</i>	7-34	–
11				0-13	
	Grass, annual	2GA	<i>Grass, annual</i>	0-13	–
Forb					
12				7-13	
	beardtongue	PENST	<i>Penstemon</i>	7-13	–
13				7-13	
	desert trumpet	ERIN4	<i>Eriogonum inflatum</i>	7-13	–
14				7-34	
	Forb, perennial	2FP	<i>Forb, perennial</i>	7-34	–
15				0-13	
	Forb, annual	2FA	<i>Forb, annual</i>	0-13	–
Shrub/Vine					
16				34-67	
	catclaw acacia	ACGR	<i>Acacia greggii</i>	34-67	–
17				7-34	
	woolly fruit bur ragweed	AMER	<i>Ambrosia eriocentra</i>	7-34	–

18				34-67	
	burrobrush	HYSA	<i>Hymenoclea salsola</i>	34-67	–
19				7-34	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	7-34	–
20				7-34	
	Mexican bladdersage	SAME	<i>Salazaria mexicana</i>	7-34	–
21				13-34	
	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	13-34	–
22				0-20	
	Mojave rabbitbrush	ERPA29	<i>Ericameria paniculata</i>	0-20	–
23				7-20	
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	7-20	–
24				7-20	
	banana yucca	YUBA	<i>Yucca baccata</i>	7-20	–
25				7-13	
	tulip pricklypear	OPPH	<i>Opuntia phaeacantha</i>	7-13	–
26				0-7	
	Whipple cholla	CYWH	<i>Cylindropuntia whipplei</i>	0-7	–
27				7-13	
	buckhorn cholla	CYACM	<i>Cylindropuntia acanthocarpa</i> var. <i>major</i>	7-13	–
28				0-13	
	creosote bush	LATR2	<i>Larrea tridentata</i>	0-13	–
29				0-13	
	water jacket	LYAN	<i>Lycium andersonii</i>	0-13	–
30				0-13	
	desert willow	CHLI2	<i>Chilopsis linearis</i>	0-13	–

Table 6. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Contributors

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

Approval

Kendra Moseley, 10/21/2024

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)	
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Contact for lead author	
Date	08/30/2026
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:
