

Ecological site R030XC334AZ

Clay Loam Upland

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 is located on gently sloping uplands. Soils are non-calcareous, moderately deep to deep. Textures range from from sandy clay to cobbly clay loam.

Associated sites

R030XC331AZ	Sandy Loam Slopes 10-13" p.z. Limy, Skeletal
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Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Eriogonum fasciculatum</i> (2) <i>Salazaria mexicana</i>
Herbaceous	(1) <i>Pleuraphis rigida</i>

Physiographic features

This ecological site occurs in an upland position on shoulders, ridges and footslopes of fan terraces.

Table 2. Representative physiographic features

Landforms	(1) Terrace (2) Fan
Flooding frequency	None
Ponding frequency	None
Elevation	820 – 1,280 m
Slope	0 – 20 %
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

The soil of this ecological site is deep with surface textures of very gravelly sandy loam, gravelly loamy sand and sandy loam. Subsoil textures are very gravelly clay, very gravelly sandy clay, very gravelly loam, clay loam, clay, and cobbly clay loam. The parent material is alluvium from varied geologic formations. Soil available water capacity is high. The soil's erosion hazard for water is slight to moderate and for wind is slight to severe. Runoff from this soil is slow. The soil is non-saline and non-sodic. The soil moisture regime is typic aridic and temperature regime is thermic.

A typical soil profile is:

A-0 to 1 inch; very gravelly sandy loam

Bt-1 to 8 inches; very gravelly clay

Bt-8 to 32 inches; very gravelly clay

Bt3-32 to 52 inches; very gravelly sandy clay

2Bkb-52 to 60 inches; very gravelly loam

The taxonomic classification of soils correlated to this ecological site include Clayey-skeletal, mixed, superactive, thermic Typic Calciargids.

Soil map units correlated to this ecological site include 697096, Eba family soil, Mohave County, AZ, Central Part SSA.

Table 4. Representative soil features

Surface texture	(1) Very gravelly sandy loam (2) Gravelly loamy sand (3) Sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Slow
Soil depth	150 cm
Surface fragment cover <=3"	50 – 70 %
Surface fragment cover >3"	0 – 20 %
Available water capacity (0-101.6cm)	7.62 – 15.24 cm
Calcium carbonate equivalent (0-101.6cm)	0 – 30 %
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	6.6 – 8.4
Subsurface fragment volume <=3" (Depth not specified)	50 – 70 %

Subsurface fragment volume >3" (Depth not specified)	0 – 30 %
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Ecological dynamics

Clay Loam Upland, 10"-13" p.z., is a grass-shrubland ecological site. Shrubs are well-dispersed across the site. Annual forbs and grasses flourish following rainfall. 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. Continuous, yearlong, livestock grazing will remove the perennial grass dominance.

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				73-110	
	big galleta	PLRI3	<i>Pleuraphis rigida</i>	73-110	–
2				3-11	
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	3-11	–
3				3-18	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	3-18	–
4				3-18	
	low woollygrass	DAPU7	<i>Dasyochloa pulchella</i>	3-18	–
5				0-7	
	Parish's threeawn	ARPUP5	<i>Aristida purpurea</i> var. <i>parishii</i>	0-7	–
6				0-3	
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	0-3	–
7				0-7	
	desert needlegrass	ACSP12	<i>Achnatherum speciosum</i>	0-7	–
8				3-18	
	Grass, perennial	2GP	<i>Grass, perennial</i>	3-7	–
Forb					
9				0-3	
	desert trumpet	ERIN4	<i>Eriogonum inflatum</i>	0-3	–
10				0-3	
	desert marigold	BAMU	<i>Baileya multiradiata</i>	0-3	–
11				3-11	
	Forb, perennial	2FP	<i>Forb, perennial</i>	0-7	–
12				0-7	
	Forb, annual	2FA	<i>Forb, annual</i>	0-7	–
Shrub/Vine					
13				36-55	
	Eastern Mojave buckwheat	ERFAP	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	36-55	–
14				3-18	
	banana yucca	YUBA	<i>Yucca baccata</i>	3-18	–
15				0-11	

	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	0-11	–
16				3-18	
	rayless goldenhead	ACSP	<i>Acamptopappus sphaerocephalus</i>	3-18	–
17				0-18	
	crucifixion thorn	CAHO3	<i>Canotia holacantha</i>	0-18	–
18				3-18	
	littleleaf ratany	KRER	<i>Krameria erecta</i>	3-18	–
19				3-18	
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	3-18	–
20				0-11	
	water jacket	LYAN	<i>Lycium andersonii</i>	0-11	–
21				0-11	
	creosote bush	LATR2	<i>Larrea tridentata</i>	0-11	–
22				18-36	
	Mexican bladdersage	SAME	<i>Salazaria mexicana</i>	18-36	–
23				3-7	
	catclaw acacia	ACGR	<i>Acacia greggii</i>	3-7	–
24				0-7	
	buckhorn cholla	CYACM	<i>Cylindropuntia acanthocarpa var. major</i>	0-7	–
25				0-3	
	whitestem paperflower	PSCO2	<i>Psilostrophe cooperi</i>	0-3	–
26				3-18	
	Shrub, other	2S	<i>Shrub, other</i>	3-18	–
Tree					
27				0-3	
	California juniper	JUCA7	<i>Juniperus californica</i>	0-3	–
28				0-7	
	Joshua tree	YUBR	<i>Yucca brevifolia</i>	0-7	–

Table 6. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 7. Community 3.1 plant community composition

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

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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)	
Contact for lead author	
Date	08/27/2026
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:
