

Ecological site R030XC306AZ
Granitic Hills
10-13" p.z.
Alkaline

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 steeply sloping (15%-65%) uplands. Soils are very shallow to shallow over granitic or schist bedrock.

Associated sites

R030XC311AZ	Limy Upland 10-13" p.z. Limy Upland, 10 to 13
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Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Eriogonum fasciculatum</i> (2) <i>Ambrosia dumosa</i>
Herbaceous	(1) <i>Achnatherum speciosum</i> (2) <i>Bouteloua eriopoda</i>

Physiographic features

This ecological site is located in an upland postion on backslopes and summits of mountains and hills.

Table 2. Representative physiographic features

Landforms	(1) Mountain (2) Hill
Flooding frequency	None
Ponding frequency	None
Elevation	1,100 – 1,770 m
Slope	30 – 70 %
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 shallow to very shallow. Sol surface textures are extremely stony sandy loam, extremely cobbly sandy loam, extremely stony coarse sandy loam and very gravelly coarse sandy loam. Subsoil textures are very gravelly sandy loam, extremely cobbly loam, very gravelly clay, very gravelly clay loam, extremely stony coarse sandy loam, and very gravelly coarse sandy loam. Soil parent materials are colluvium and alluvium from igneous and metamorphic rocks. Soil available water capacity is very low. The soils's erosion hazard by water is slight to very severe and by wind is slight. The soil is non-saline, non-sodic with mild to moderate alkalinity (pH 7.6-8.0). The soil moisture regime is typic aridic and temperature regime is thermic. Granite bedrock is found at a depth of 8-13 inches.

A typical soil profile is:

A-0- to 2 inches; extremely cobbly sandy loam
 Bt1-2 to 5 inches; extremely gravelly sandy loam
 Bt2-5 to 8 inches; very gavelly sandy clay loam
 Bt3-8 to 10 inches; very gravelly sandy clay loam
 2Cr-10 to 60 inches;weathered bedrock

Taxanomioc classification of soils correlated to this ecological site include Loamy-skeletal, mixed, superactive, thermic, shallow Typic

Haplargids, Loamy-skeletal, mixed, nonacid, thermic Lithic Toriorthents.

Map units correlated to this ecological site include 697035, Nodman soil;697066 and 697068, Hulda soil, Mohave County, AZ, Central Part SSA and 623057, Nipton soil, Shivwits Area, AZ, Part of Mohave County, AZ SSA.

Table 4. Representative soil features

Surface texture	(1) Extremely stony sandy loam (2) Extremely cobbly sandy loam (3) Very gravelly sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderately rapid
Soil depth	150 cm
Surface fragment cover <=3"	50 – 70 %
Surface fragment cover >3"	60 – 70 %
Available water capacity (0-101.6cm)	6.35 – 10.16 cm
Calcium carbonate equivalent (0-101.6cm)	Not specified
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	7.4 – 8.4

Subsurface fragment volume <=3" (Depth not specified)	50 – 80 %
Subsurface fragment volume >3" (Depth not specified)	20 – 50 %

Ecological dynamics

Granitic/Schist Hills, Alkaline, 10"-13" p.z., is a shrub dominated ecological site. Sparse perennial grasses and forbs are occasionally encountered. Annual forbs and grasses flourish following rainfall. Natural disturbances are rare. After introduction of non-native annuals (forbs and/or grasses), they flourish following wet winters. Dominant shrubs are flattop buckwheat, 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				56-84	
	desert needlegrass	ACSP12	<i>Achnatherum speciosum</i>	56-84	–
2				6-28	
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	6-28	–
3				28-56	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	28-56	–
4				6-28	
	big galleta	PLRI3	<i>Pleuraphis rigida</i>	6-28	–
5				6-17	
	threeawn	ARIST	<i>Aristida</i>	6-17	–
6				0-28	
	sideoats grama	BOCU	<i>Bouteloua curtipendula</i>	0-28	–
7				6-28	
	Grass, perennial	2GP	<i>Grass, perennial</i>	0-11	–
	low woollygrass	DAPU7	<i>Dasyochloa pulchella</i>	0-11	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	0-11	–
	slim tridens	TRMU	<i>Tridens muticus</i>	0-11	–
8				17-28	
	Grass, annual	2GA	<i>Grass, annual</i>	17-28	–
Forb					
9				0-6	
	desert globemallow	SPAM2	<i>Sphaeralcea ambigua</i>	0-6	–
	desert globemallow	SPAM2	<i>Sphaeralcea ambigua</i>	0-6	–
10				6-28	
	Forb, perennial	2FP	<i>Forb, perennial</i>	6-28	–
11				0-11	
	Forb, annual	2FA	<i>Forb, annual</i>	0-11	–

Shrub/Vine					
12				140-168	
	burrobush	AMDU2	<i>Ambrosia dumosa</i>	84-112	–
	Eastern Mojave buckwheat	ERFAP	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	84-112	–
13				28-56	
	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	28-45	–
	mormon tea	EPVI	<i>Ephedra viridis</i>	28-45	–
14				0-11	
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	0-11	–
15				6-28	
	littleleaf ratany	KRER	<i>Krameria erecta</i>	6-22	–
	white ratany	KRGR	<i>Krameria grayi</i>	6-22	–
16				0-6	
	banana yucca	YUBA	<i>Yucca baccata</i>	0-6	–
17				0-11	
	catclaw acacia	ACGR	<i>Acacia greggii</i>	0-11	–
18				6-28	
	button brittlebush	ENFR	<i>Encelia frutescens</i>	6-28	–
19				0-17	
	creosote bush	LATR2	<i>Larrea tridentata</i>	0-17	–
20				28-84	
	Shrub, other	2S	<i>Shrub, other</i>	0-28	–
	rayless goldenhead	ACSP	<i>Acamptopappus sphaerocephalus</i>	0-28	–
	blackbrush	CORA	<i>Coleogyne ramosissima</i>	0-28	–
	purple coneflower	ECHIN	<i>Echinacea</i>	0-28	–
	turpentine bush	ERLA12	<i>Ericameria laricifolia</i>	0-28	–
	barrel cactus	FEROC	<i>Ferocactus</i>	0-28	–
	burrobrush	HYSA	<i>Hymenoclea salsola</i>	0-28	–
	water jacket	LYAN	<i>Lycium andersonii</i>	0-28	–
	pricklypear	OPUNT	<i>Opuntia</i>	0-28	–
	desert almond	PRFA	<i>Prunus fasciculata</i>	0-28	–
	Mexican bladdersage	SAME	<i>Salazaria mexicana</i>	0-28	–

Table 6. Community 2.1 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	08/29/2026
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:
