

Ecological site R030XB204AZ

Breaks 6-9" p.z.

Last updated: 10/21/2024
Accessed: 09/01/2026

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

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.

LRU notes

AZ LRU 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.

Ecological site concept

This ecological site is located on steeply sloping uplands (slopes 15%-65%). Soils vary greatly in depth over fractured sandstone. They are very cobbly and gravelly, effervescent, sandy loams throughout.

Associated sites

R030XB214AZ	Limy Upland 6-9" p.z. Limy Upland, 6 to 10
-------------	--

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Ambrosia dumosa</i>
Herbaceous	Not specified

Physiographic features

This ecological site occurs in an upland position on escarpments. It is found on all aspects.

Table 2. Representative physiographic features

Landforms	(1) Escarpment
Flooding frequency	None
Ponding frequency	None
Elevation	490 – 1,040 m
Slope	20 – 70 %
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)	260 days
Freeze-free period (average)	290 days
Precipitation total (average)	230 mm

Influencing water features

Soil features

Soil depth of the ecological site varies between shallow to very deep. Soil parent materials are alluvium and colluvium from sedimentary formations. The available water capacity of the soil is very low to low. The soil's erosion hazard by water is very severe; by wind is slight. The soil moisture regime is typic aridic and the temperature regime is thermic. Varying amounts of lime are found in the surface and subsoil.

A typical soil profile is:

A-0 to 2 inches; very channery fine sandy loam; strongly effervescent

C-2 to 6 inches very channery fine sandy loam; strongly effervescent

R-6 inches; fractured sandstone

This ecological site has been correlated to map unit 701071, Lithic Torriorthents in the Grand Canyon Area, AZ, Parts of Coconino and Mohave County SSA.

Table 4. Representative soil features

Surface texture	(1) Very cobbly sandy loam (2) Gravelly clay loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Rapid to moderately rapid
Soil depth	30 – 130 cm
Surface fragment cover <=3"	50 – 70 %
Subsurface fragment volume <=3" (Depth not specified)	50 – 70 %

Ecological dynamics

Breaks, 6"-9" p.z., is a dispersed desert shrub dominated ecological site. Perennial grasses and forbs are widely scattered. Annual forbs and grasses flourish following rainfall. Natural disturbances are rare. After introduction of non-native annuals (forbs and/or grasses), seasonal herbaceous production may increase 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				8-21	
	big galleta	PLR13	<i>Pleuraphis rigida</i>	8-21	–
2				2-8	
3				0-6	
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	0-6	–
4				0-6	
	mesa dropseed	SPFL2	<i>Sporobolus flexuosus</i>	0-6	–
5				0-6	
	threeawn	ARIST	<i>Aristida</i>	0-6	–
6				0-13	
	Grass, perennial	2GP	<i>Grass, perennial</i>	0-13	–
7				0-8	
	Grass, annual	2GA	<i>Grass, annual</i>	0-8	–
Forb					
8				0-8	

	desert globemallow	SPAM2	<i>Sphaeralcea ambigua</i>	0-8	–
9				2-8	
	Forb, perennial	2FP	<i>Forb, perennial</i>	2-8	–
10				0-8	
	Forb, annual	2FA	<i>Forb, annual</i>	0-8	–
Shrub/Vine					
11				133-160	
	burrobush	AMDU2	<i>Ambrosia dumosa</i>	56-67	–
12				13-40	
	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	13-40	–
13				13-40	
	creosote bush	LATR2	<i>Larrea tridentata</i>	13-40	–
14				2-8	
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	2-8	–
15				13-40	
	Shrub, other	2S	<i>Shrub, other</i>	1-6	–
	blackbrush	CORA	<i>Coleogyne ramosissima</i>	1-6	–
	button brittlebush	ENFR	<i>Encelia frutescens</i>	1-6	–
	burrobrush	HYSA	<i>Hymenoclea salsola</i>	1-6	–
	white ratany	KRGR	<i>Krameria grayi</i>	1-6	–
	winterfat	KRLA2	<i>Krascheninnikovia lanata</i>	1-6	–
	desert almond	PRFA	<i>Prunus fasciculata</i>	1-6	–
	Fremont's dalea	PSFR	<i>Psoralethamnus fremontii</i>	1-6	–
	Mojave sage	SAMO3	<i>Salvia mohavensis</i>	1-6	–
	banana yucca	YUBA	<i>Yucca baccata</i>	1-6	–
Tree					
16				2-8	
	Joshua tree	YUBR	<i>Yucca brevifolia</i>	2-8	–

Table 6. Community 2.1 plant community composition

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

Contributors

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)	
--------------------------	--

Contact for lead author	
Date	09/01/2026
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:
