

Ecological site R030XB208AZ

Gypsum Hills

6-9" 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 30-2 – 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 very shallow to shallow gypsiferous loam overlying stratified (alternating hard and soft) gypsite.

Associated sites

R030XB205AZ	Sandy Loam Upland 6-10" p.z. Limy Subsurface, Gravelly
R030XB210AZ	Limestone Hills 6-9" p.z.
R030XB214AZ	Limy Upland 6-9" p.z.
R030XB222AZ	Gypsum Hills 6-9" p.z. Alkaline

Table 1. Dominant plant species

Tree	Not specified
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Shrub	(1) <i>Ephedra nevadensis</i> (2) <i>Hymenoclea salsola</i>
Herbaceous	Not specified

Physiographic features

This ecological site occurs in an upland position as rounded, eroded hills and escarpments. The soil is very shallow to shallow to gypsiferous layers. Slopes range from 6 to 70 percent.

Table 2. Representative physiographic features

Landforms	(1) Escarpment (2) Hill
Flooding frequency	None
Ponding frequency	None
Elevation	490 – 1,040 m
Slope	10 – 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

The soil of this ecological site is very shallow to shallow to gypsiferous layers. The surface texture ranges from fine sandy loam to loam. The subsurface texture is loam. The soil contains high amounts of gypsum. The available water holding capacity is very low. The hazard of erosion by water is very severe and by wind is slight.

A typical soil profile is as follows:

0 to 2 inches - gypsiferous fine sandy loam

2 to 12 inches - gypsiferous loam

12 to 16 inches - alternate layers of soft and hard gypsite

Soil map units correlated to this ecological site include 623030 and 623034, Gypill soil, Shivwits Area SSA.

Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate
Soil depth	10 – 40 cm
Surface fragment cover ≤3"	Not specified
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	3.3 – 4.83 cm
Calcium carbonate equivalent (0-101.6cm)	10 – 40 %
Electrical conductivity (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	7.4 – 8.4

Subsurface fragment volume <=3" (Depth not specified)	Not specified
Subsurface fragment volume >3" (Depth not specified)	Not specified

Ecological dynamics

Gypsum Hills, 6"-9" p.z., is a sparse shrubland. Perennial grasses and forbs are generally absent. Annual forbs and grasses may encountered 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. Dominant shrubs are Nevada Mormon tea, white bursage, and Fremont dalea. Other assorted half-shrubs are very 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				0-1	
	gyp dropseed	SPNE	<i>Sporobolus nealleyi</i>	0-1	–
2				0-1	
	Grass, perennial	2GP	<i>Grass, perennial</i>	0-1	–
Forb					
3				0-7	
	Forb, perennial	2FP	<i>Forb, perennial</i>	0-7	–
4				0-4	
	Forb, annual	2FA	<i>Forb, annual</i>	0-4	–
Shrub/Vine					
5				43-56	
	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	43-56	–
6				21-35	
	burrobrush	HYSA	<i>Hymenoclea salsola</i>	21-35	–
7				13-21	
	Fremont's dalea	PSFR	<i>Psoralea fremontii</i>	13-21	–
8				7-21	
	water jacket	LYAN	<i>Lycium andersonii</i>	7-21	–
9				1-2	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	1-2	–
10				0-21	
	banana yucca	YUBA	<i>Yucca baccata</i>	0-21	–
11				0-7	
	creosote bush	LATR2	<i>Larrea tridentata</i>	0-7	–
12				0-7	
	winterfat	KRLA2	<i>Krascheninnikovia lanata</i>	0-7	–
13				1-6	

	Shrub (>.5m)	2SHRUB	Shrub (>.5m)		1-6	-
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Table 6. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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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	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:
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17. Perennial plant reproductive capability:
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