Ecological site R030XB211AZ
Limy Fan
6-9" p.z.

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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 gently sloping uplands. Soils are deep, non-skeletal, calcareous sandy loams.

Associated sites

R030XB212AZ	**Limy Slopes 6-9" p.z.**
R030XB227AZ	**Clay Loam Upland 6-9" p.z.**

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Larrea tridentata* (2) *Ambrosia dumosa*
Herbaceous	Not specified

Physiographic features

This ecological site is found in an upland position on fan terraces.

Table 2. Representative physiographic features

Landforms	(1) Fan (2) Terrace
Flooding frequency	None
Ponding frequency	None
Elevation	580 – 880 m
Slope	0 – 20 %
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 deep to very deep. Soil surface textures include gravelly fine sandy loam, gravelly sandy loam, gravelly clay loaml, very cobbly loam and very gravelly loam. The soil subsoil textures include gravelly sandy clay loam, gravelly sandy loam, sandy clay loam and gravelly loamy sand. The soil parent material is mixed fan alluvium. The available water capacity of the soil is moderate to high. The soil's erosion hazard is slight to moderate for wind and water. The soil is non-sodic, non-saline with a pH range of 7.2-8.6 (neutral to strongly alkaline). The soil moisture regime is typic aridic and the soil temperature regime is thermic. Calcium carbonate equivalent content is 15-30% throughout the soil profile.

A typical soil profile is:
A-0 to 2 inches; gravelly sandy loam
Bw-2 to 24 inches; sandy loam
Btw-24 to 38 inches; sandy clay loam
Bk-38 to 60 inches; gravelly coarse sandy loam

The soil taxinomic classification is Fine-loamy, mixed, superactive, thermic Typic Calciargids.

This ecological site has been correlated to map units 627067, 627083 and 627089, Kinley and Poachie soils in the Mohave County, AZ, Southern Part SSA and map unit 701087, Meadview soil in the Grand Canyon, AZ, Parts of Coconino and Mohave Counties SSA.

Table 4. Representative soil features

Surface texture	(1) Fine gravelly sandy loam (2) Gravelly loam (3) Very cobbly clay loam
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderately slow to moderate
Soil depth	150 cm
Surface fragment cover <=3"	20 – 50 %
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	12.7 – 20.32 cm
Calcium carbonate equivalent (0-101.6cm)	0 – 40 %
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)	0 – 20 %

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

Ecological dynamics

Limy Fan, 6"-9" p.z., is a dispersed desert shrub dominated ecological site. Perennial grasses and forbs are present in natural depressions. 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 with shift slightly toward 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				2-13	
	big galleta	PLRI3	*Pleuraphis rigida*	2-13	–
2				0-6	
	low woollygrass	DAPU7	*Dasyochloa pulchella*	0-6	–
3				17-36	
	Grass, annual	2GA	*Grass, annual*	17-36	–
4				0-6	
	Grass, perennial	2GP	*Grass, perennial*	0-6	–
Forb					
5				2-9	
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	2-9	–
6				0-9	
	Forb, perennial	2FP	*Forb, perennial*	0-9	–
7				13-43	
	Forb, annual	2FA	*Forb, annual*	13-43	–
	Forb, annual	2FA	*Forb, annual*	3-16	–
Shrub/Vine					
8				84-99	
	creosote bush	LATR2	*Larrea tridentata*	84-99	–
	Forb, perennial	2FP	*Forb, perennial*	0-3	–
9				56-84	
	burrobush	AMDU2	*Ambrosia dumosa*	56-84	–
10				2-9	
	water jacket	LYAN	*Lycium andersonii*	2-9	–
11				0-9	
	littleleaf ratany	KRER	*Krameria erecta*	0-9	–
12				0-6	
	Mojave yucca	YUSC2	*Yucca schidigera*	0-6	–
13				0-13	
	rayless goldenhead	ACSP	*Acamptopappus sphaerocephalus*	0-13	–
14				2-13	

	Nevada jointfir	EPNE	*Ephedra nevadensis*	2-13	–
15				0-2	
	Eastern Mojave buckwheat	ERFAP	*Eriogonum fasciculatum var. polifolium*	0-2	–
16				0-2	
	ocotillo	FOSP2	*Fouquieria splendens*	0-2	–
17				2-13	
	Shrub, other	2S	*Shrub, other*	2-13	–
Tree					
18				2-13	
	Joshua tree	YUBR	*Yucca brevifolia*	2-13	–

Table 6. Community 2.1 plant community composition

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

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	08/31/2026
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

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2. **Presence of water flow patterns:**

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3. **Number and height of erosional pedestals or terracettes:**

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

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5. **Number of gullies and erosion associated with gullies:**

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6. **Extent of wind scoured, blowouts and/or depositional areas:**

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7. **Amount of litter movement (describe size and distance expected to travel):**

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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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:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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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:**
