

Ecological site R030XC170CA Bouldery Slopes

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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

MLRA Description:

Major Land Resource Area (MLRA) 30, Mojave Desert, is found in southern California, southern Nevada, the extreme southwest corner of Utah and northwestern Arizona within the Basin and Range Province of the Intermontane Plateaus. The climate of the area is hot and dry with mostly hyperthermic and thermic soil temperature regimes. However, at higher elevations of this MLRA, generally above 5,000 feet, soil temperature regimes can be mesic, cryic and frigid. The most arid regimes of this MLRA can receive less than 4 inches (100 mm) Elevations range from below sea level to over 12,000 feet (3650 meters) in the higher mountain areas found within the MLRA. Due to the extreme elevational range found within this MLRA, land resource units (LRUs) were designated to group the MLRA into similar land units.

LRU notes

LRU Description:

The Bi-Modal Semi-Arid (XC) Land Resource Unit (LRU), represents a semi-arid zone as defined by the United Nations Food and Agriculture Organization and is a semi-arid region distinguished by other semi-arid regions of the Mojave by the amounts of summer precipitation it receives. Semi-arid regions in the western Mojave can experience hot and very dry summers whereas regions within the XC LRU can receive more than 2.5 inches (63.5 mm) of rain during the months of July, August and September. The Bi-Modal Semi-Arid LRU is found primarily in eastern Mojave such as in Nevada at the higher elevations, in California in the New York, Providence, Castle and Clark Mountain Ranges as well as the Cerbat and Virgin Mountains of Arizona. Elevations range from approximately 4000 to 12,000 feet (1500 to 3650 meters) and precipitation ranges 8 to 18 inches (200 – 450 mm) per year in the form of rain. Snow is not uncommon in this LRU with the chance of receiving 3 to 48 inches of snow per year. Due to the relatively high volume of summer rainfall, soil moisture regimes may have been designated as ustic-aridic, however emerging soil moisture data suggests the xeric-aridic soil moisture regime may be more appropriate and is likely to dominate this LRU. Soils within this LRU also have a cool thermic or cooler soil temperature regime. The combination of cooler temperatures [mean annual air temperatures lower than 62 degrees F (17 degrees C)] with summer monsoonal rains help to create a unique climate within the Mojave Desert which may be more similar to the Southern Nevada Basin and Range (MLRA). Vegetation at the lower elevations of this LRU includes blackbrush, Joshua tree, juniper, pinyon pine, and mountain big sagebrush. At the higher elevations, vegetation includes oaks, Mojave sagebrush, Ponderosa pine, white fir, limber pine and the Great Basin bristlecone pine.

Ecological site concept

Please refer to group concept R030XC236CA to view the provisional STM.

This site occurs at on steep rocky slopes and summits with representative conditions between elevations of 3300 to 5800 feet on soils with an ustic-aridic soil moisture regime. There is a high percentage of rock outcrops and large boulders throughout the site, with shallow to moderately deep sandy skeletal and coarse loamy soils on slopes

among boulders and rock outcrops. Single-leaf pinyon pine (*Pinus monophylla*) is a visual dominant but a trace species. The roots of single-leaf pinyon pine can access relatively high water content available in cracks in the weathering granitic bedrock of rock outcrops and between large surface fragments. Utah juniper may have also been a visual dominant trace species at this site but no evidence currently exists. Black brush may have formed more solid stands in areas among the rock outcrops. Frequent lightning strikes in combination with the steep bouldery slopes may have maintained a plant community composed of desert almond, Parish's goldeneye, Eastern Mojave buckwheat and shrubby deervetch dominate this site and are typical post-fire colonizing species. Blackbrush may also occupy this site but does not form nonspecific stands. Production RV is around 500 lb/acre.

Please

Similar sites

R030XB170CA	Bouldery Very Shallow To Shallow Gravelly Slopes This site has the xeric <i>juniperus californica</i> rather than <i>juniperus osteosperma</i> and does not have other ustic plant species such as black grama.
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Table 1. Dominant plant species

Tree	(1) <i>Acacia greggii</i>
Shrub	(1) <i>Prunus fasciculata</i> var. <i>fasciculata</i>
Herbaceous	Not specified

Physiographic features

Climatic features

Influencing water features

Soil features

Ecological dynamics

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Current areas of this ecological site are in close proximity to recent burns however burning of these areas are not blatantly apparent, except for a couple burned single-leaf pinyon pines, based on 1950 aerial photos.

State and transition model

Approval

Sarah Quistberg, 2/25/2025

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)	
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Contact for lead author	
Date	05/11/2025
Approved by	Sarah Quistberg
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):**
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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:**
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