

Ecological site R030XB057NV SHALLOW GRANITIC LOAM 5-7 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.

Ecological site concept

This site occurs on alluvial fans and footslopes of hills and mountains. Slopes range from 2 to 50 percent, but slope gradients of 2 to 8 percent are most typical. Elevations are 2200 to 5000 feet. The soils associated with this site are 4 inches to 20 inches deep to a layer restrictive to root development and have formed in colluvium derived from granite, schist, gneiss, quartzite, or other kinds of metamorphic parent material. Please refer to group concept R030XB076NV to view the provisional STM.

Similar sites

R030XB015NV	SHALLOW GRAVELLY SLOPE 7-9 P.Z. BOER4 major grass
R030XB107NV	COARSE GRAVELLY LOAM 5-7 P.Z. PLR13 co-dominant plant; more productive site
R030XB014NV	SHALLOW GRAVELLY LOAM 7-9 P.Z. BOER4 major grass
R030XB108NV	GRAVELLY INSET FAN 7-9 P.Z. more productive site; occurs on inset fans
R030XB090NV	GRAVELLY FAN 7-9 P.Z. BOER4 major grass

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Coleogyne ramosissima</i>

Herbaceous	(1) <i>Achnatherum speciosum</i> (2) <i>Muhlenbergia porteri</i>
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Physiographic features

This site occurs on alluvial fans and footslopes of hills and mountains. Slopes range from 2 to 50 percent, but slope gradients of 2 to 8 percent are most typical. Elevations are 2200 to 5000 feet.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Alluvial fan
Elevation	670 – 1,520 m
Slope	0 – 50 %
Aspect	Aspect is not a significant factor

Climatic features

The climate of the Mojave Desert has extreme fluctuations of daily temperatures, strong seasonal winds, and clear skies. The climate is arid and is characterized with cool, moist winters and hot, dry summers. Most of the rainfall falls between November and April. Summer convection storms from July to September may contribute up to 25 percent of the annual precipitation. Average annual precipitation is 5 to 7 inches. Mean annual air temperature is 60 to 70 degrees F. The average growing season is about 180 to 290 days.

Table 3 Representative climatic features

Frost-free period (average)	290 days
Freeze-free period (average)	
Precipitation total (average)	180 mm

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soils associated with this site are 4 inches to 20 inches deep to a layer restrictive to root development and have formed in colluvium derived from granite, schist, gneiss, quartzite, or other kinds of metamorphic parent material. Water intake rates are moderately slow to moderately rapid and available water capacity is low. Runoff is very low to very high and the soils are well drained. The soils associated with this site include Molena and Straycow.

Table 4. Representative soil features

Parent material	(1) Colluvium – granite
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Surface texture	(1) Extremely gravelly sandy loam (2) Extremely stony sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderately rapid
Soil depth	10 – 50 cm
Surface fragment cover <=3"	60 – 70 %
Surface fragment cover >3"	10 – 30 %
Available water capacity (0-101.6cm)	0.51 – 7.11 cm
Calcium carbonate equivalent (0-101.6cm)	0 – 20 %
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	0 – 10
Soil reaction (1:1 water) (0-101.6cm)	6.6 – 10
Subsurface fragment volume <=3" (Depth not specified)	30 – 70 %
Subsurface fragment volume >3" (Depth not specified)	0 – 40 %

Ecological dynamics

Please refer to group concept R030XB076NV to view the provisional STM.

Following wildfire, horsebrush, snakeweed, deserttrue, and threeawn significantly increase and may dominate the site. Introduced annual forbs and grasses are invaders on this site.

Fire Ecology:

Historic fire return intervals for blackbrush communities appear to have been on the order of centuries, allowing late seral blackbrush stands to establish. Low amounts of fine fuels in interspaces probably limited fire spread to only extreme fire conditions, during which high winds, low relative humidity, and low fuel moisture led to high intensity stand-replacing crown fires. Blackbrush stands are subject to fire, and fire will start and spread easily due to the dense, close spacing nature and resinous foliage of blackbrush. Blackbrush is slow to reestablish. It is generally removed from the site for more than 60 years.

Desert needlegrass has persistent dead leaf bases, which make it susceptible to burning. Fire removes the accumulation; a rapid, cool fire will not burn deep into the root crown.

Bush muhly regenerates following fire from soil-stored seed. Fire top-kills bush muhly. A nonrhizomatous species, bush muhly regenerates following fire from soil-stored seed. Burning causes at least short-term decline of bush muhly. Recovery time is thought to vary considerably and is probably dependent on postfire weather and competition. When ungrazed, bush muhly's dense growth may contribute to fire spread. It may be most susceptible to fire damage when growing beneath shrubs because of increased fuels and higher temperatures as shrubs burn.

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	Primary Perennial Grasses			99-224	
	desert needlegrass	ACSP12	<i>Achnatherum speciosum</i>	67-112	—
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	22-67	
	big galleta	PLRI3	<i>Pleuraphis rigida</i>	9-45	—
2	Secondary Perennial Grasses			1-22	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	2-9	—
	threeawn	ARIST	<i>Aristida</i>	2-9	—
	low woollygrass	DAPU7	<i>Dasyochloa pulchella</i>	2-9	—
3	Annual Grasses			1-22	
Forb					
4	Perennial			9-36	
5	Annual			1-36	
Shrub/Vine					
6	Primary shrubs			224-269	
	blackbrush	CORA	<i>Coleogyne ramosissima</i>	224-269	—
7	Secondary shrubs			45-157	
	burrobush	AMDU2	<i>Ambrosia dumosa</i>	4-22	—
	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	4-22	—
	Eastern Mojave buckwheat	ERFAP	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	4-22	—
	goldenbush	ERICA2	<i>Ericameria</i>	4-22	—
	spiny hopsage	GRSP	<i>Grayia spinosa</i>	4-22	—
	Utah juniper	JUOS	<i>Juniperus osteosperma</i>	4-22	—
	creosote bush	LATR2	<i>Larrea tridentata</i>	4-22	—
	water jacket	LYAN	<i>Lycium andersonii</i>	4-22	—
	spiny menodora	MESP2	<i>Menodora spinescens</i>	4-22	

	Fremont's dalea	PSFR	<i>Psoralea fremontii</i>	4-22	–
	Parish's goldeneye	VIPA14	<i>Viguiera parishii</i>	4-22	–
	Joshua tree	YUBR	<i>Yucca brevifolia</i>	4-22	–
	Mojave yucca	YUSC2	<i>Yucca schidigera</i>	4-22	–

Animal community

Livestock Interpretations: This site is suitable for livestock grazing. Grazing management should be keyed to perennial grass and palatable shrub production. Desert needlegrass produces considerable basal foliage and is good forage while young. Young desert needlegrass is palatable to all classes of livestock. Mature herbage is moderately grazed by horses and cattle but rarely grazed by sheep. Bush muhly is readily eaten by livestock throughout the year when available; however, it is usually not abundant enough to provide much forage. It is grazed heavily in winter when other species become scarce. Because of its branching habit, it is extremely susceptible to heavy grazing. Bush muhly is damaged when continuously grazed to a stubble height of less than 4 inches (10 cm). Blackbrush is not preferred as forage by domestic livestock, but does provide some forage during the spring, summer and fall. Stocking rates vary over time depending upon season of use, climate variations, site, and previous and current management goals. A safe starting stocking rate is an estimated stocking rate that is fine tuned by the client by adaptive management through the year and from year to year. Wildlife Interpretations: Blackbrush is a valuable browse species for bighorn sheep. It may also comprise up to 25% of the mule deer winter diet. Blackbrush provides cover for upland game birds, nongame birds and small mammals. Desert needlegrass and bush muhly are other important forage species for several wildlife species.

Hydrological functions

Runoff is medium. Permeability is moderately slow to moderately rapid.

Other information

Desert needlegrass seeds are easily germinated and have potential for commercial use. Desert needlegrass may be used for groundcover in areas of light disturbance, but it is susceptible to excessive trampling. Blackbrush contributes to desert fertility by 1) protecting the soil against wind erosion through retarding the movement of soil and increasing the accumulation of fine soil particles around its base; 2) protecting understory vegetation from the effects of high temperatures, thereby helping to retain surface nitrogen and adding organic matter to the soil; and 3) serving as a nitrogen reservoir through the storage of nitrogen in roots, leaves, and stems.

Type locality

Location 1: Clark County, NV	
Township/Range/Section	T27S R64E S32
General legal description	Section 32, T27S. R64E. MDBM. South end of Eldorado Mountains, about 6 miles northeast of Searchlight, Clark County, Nevada. This site also occurs in southern Lincoln and southern Nye counties, Nevada.

Other references

Fire Effects Information System (Online; <http://www.fs.fed.us/database/feis/plants/>).

USDA-NRCS Plants Database (Online; <http://www.plants.usda.gov>).

Contributors

RWA/GKB

Approval

Sarah Quistberg, 2/24/2025

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)	
Contact for lead author	
Date	09/10/2026
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:
