USDA Natural Resources
Conservation Service

Ecological site R030XB062NV
GRANITIC SLOPE 3-5 P.Z.

Last updated: 3/11/2025
Accessed: 05/12/2025

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 sideslopes of low hills on all exposures. Slopes range from 2 to over 50 percent, but slope gradients of 4 to 30 percent are typical. Elevations are 1500 to about 3000 feet. The soil associated with this site are shallow and have formed in residuum or colluvium from granitic (gneiss or schist) or quartzite parent material.

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

Associated sites

R030XB070NV	**VOLCANIC HILL 5-7 P.Z.**
R030XB077NV	**STEEP SOUTH SLOPE**
R030XB087NV	**GRANITIC SLOPE 5-7 P.Z.**

Similar sites

R030XB060NV	**GRANITIC NORTH SLOPE 5-7 P.Z.** More productive site
R030XB087NV	**GRANITIC SLOPE 5-7 P.Z.** SEAR8 and MESP2 codominant shrubs with AMDU2
R030XB007NV	**GRANITIC LOAM 5-7 P.Z.** more productive site; occurs on fan piedmonts
R030XB008NV	**SHALLOW GRANITIC HILL 5-7 P.Z.** ERFAP dominant shrub

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Ambrosia dumosa* (2) *Senna armata*
Herbaceous	Not specified

Physiographic features

This site occurs on sideslopes of low hills on all exposures. Slopes range from 2 to over 50 percent, but slope gradients of 4 to 30 percent are typical. Elevations are 1500 to about 3000 feet.

Table 2. Representative physiographic features

Landforms	(1) Hill
Elevation	457–914 m
Slope	2–50%

Climatic features

The climate is hot and arid, with mild winters and very hot summers. Precipitation is greatest in the winter with a lesser secondary peak in summer, typical of the Mojave Desert. Average annual precipitation is about 3 to 5 inches. Mean annual air temperature is 62 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)	127 mm

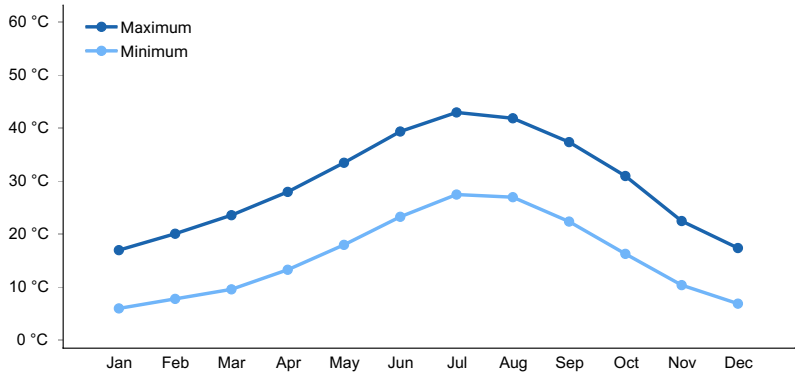


Figure 1. Monthly average minimum and maximum temperature

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soil associated with this site are shallow and have formed in residuum or colluvium from granitic (gneiss or schist) or quartzite parent material The water intake rate is moderately rapid and available water capacity is very low. Runoff is medium to rapid and the soils are well drained.

Table 4. Representative soil features

Drainage class	Well drained

Ecological dynamics

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

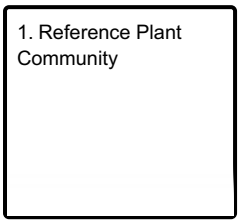
As ecological condition deteriorates, creosotebush and white bursage increase as perennial grasses decrease. Species likely to invade this site are annual forbs and grasses such filaree and red brome.

Fire Ecology:
Fires in the Mojave desert are infrequent and of low severity because production of annual and perennial herbs seldom provides a fuel load capable of sustaining fire. Fire generally kills white bursage. However, most white bursage plants burned because their canopies contained numerous small branches in proximity to herbaceous fuels. Range ratany is top-killed by fire. Range ratany resprouts from the root crown after fire. Fires in creosotebush

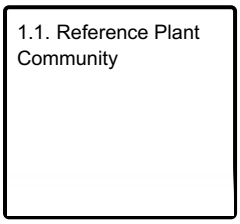
scrub were an infrequent event in pre-settlement desert habitats, because fine fuels from winter annual plants were probably sparse, only occurring in large amounts during exceptionally wet winters. Fire kills many creosotebush. Creosotebush is poorly adapted to fire because of its limited sprouting ability. Creosotebush survives some fires that burn patchily or are of low severity. Nevada ephedra is top-killed by fire. Underground regenerative structures commonly survive when aboveground vegetation is consumed by fire. Nevada ephedra generally sprouts after fire damages aboveground vegetation and may increase in plant cover. Mojave buckwheat is vulnerable to hot fires. Resprout success is low and most regeneration is from seeds. Frequent fires deplete the seed bank, making populations vulnerable to extinction.

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 1
Reference Plant Community

Community 1.1
Reference Plant Community

The reference plant community is dominated by white bursage, range ratany, and desertsenna. Potential vegetative composition is about 10% grasses, 10% annual and perennial forbs, and 80% shrubs. Approximate ground cover (basal and crown) is 5 to 10 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	90	179	314
Grass/Grasslike	11	22	39
Forb	11	22	39
Total	**112**	**223**	**392**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Perennial grasses**			11–34	
	desert needlegrass	ACSP12	*Achnatherum speciosum*	1–11	–
	threeawn	ARIST	*Aristida*	1–11	–
	low woollygrass	DAPU7	*Dasyochloa pulchella*	1–11	–
	big galleta	PLRI3	*Pleuraphis rigida*	1–11	–
2	**Annual Grasses**			1–15	
Forb					
3	**Perennial forbs**			4–18	
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	1–7	–
4	**Annual forbs**			1–34	
	plantain	PLANT	*Plantago*	1–7	–
Shrub/Vine					
5	**Primary shrubs**			67–196	
	burrobush	AMDU2	*Ambrosia dumosa*	34–84	–
	desertsenna	SEAR8	*Senna armata*	11–34	–
	Mojave woodyaster	XYTO2	*Xylorhiza tortifolia*	4–11	–
	creosote bush	LATR2	*Larrea tridentata*	4–11	–
	Nevada jointfir	EPNE	*Ephedra nevadensis*	1–11	–
	Eastern Mojave buckwheat	ERFAP	*Eriogonum fasciculatum var. polifolium*	1–11	–
6	**Secondary shrubs**			4–18	
	dyssodia	DYSSO	*Dyssodia*	2–7	–
	Virgin River brittlebush	ENVI	*Encelia virginensis*	2–7	–
	California barrel cactus	FECY	*Ferocactus cylindraceus*	2–7	–
	beavertail pricklypear	OPBA2	*Opuntia basilaris*	2–7	–
	Parish's goldeneye	VIPA14	*Viguiera parishii*	2–7	–

Animal community

Livestock Interpretations:
This site has limited value for livestock grazing, due to the low forage production steep slopes and stony surfaces. White bursage is of intermediate forage value. It is fair to good forage for horses and fair to poor for cattle and sheep. However, because there is often little other forage where white bursage grows, it is often highly valuable to browsing animals and is sensitive to browsing. Range ratany is an important forage species for all classes of livestock. Palatability of range ratany is rated fair to good for cattle and sheep. Creosotebush is unpalatable to livestock. Consumption of creosotebush may be fatal to sheep. Mojave aster has zero to low palatability and is a worthless forage plant. Mojave aster will increase on overgrazed ranges. Nevada ephedra is important winter range browse for domestic cattle, sheep and goats. Nevada ephedra is usually grazed heavily and seems to be perfectly safe for grazing livestock since it induces neither toxicity in ewes or cows, nor congenital deformities in lambs. Mojave buckwheat has a browse rating of fair to poor for cattle.

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:

White bursage is an important browse species for wildlife. Range ratany is an important forage species for deer. Mule deer browse range ratany year-long with seasonal peaks. Mule deer peak use is from February to April and from August to October. Creosotebush is unpalatable to most browsing wildlife. Mule deer, bighorn sheep, and pronghorn browse Nevada ephedra, especially in spring and late summer when new growth is available. Mountain quail eat Ephedra seeds.

Hydrological functions

The water intake rate is moderately rapid and available water capacity is very low. Runoff is medium to rapid and the soils are well drained.

Other products

White bursage is a host for sandfood, a parasitic plant. Sandfood was a valuable food supply for Native Americans. The Papago Indians used an infusion of range ratany twigs externally for treating sore eyes and internally for dysentery. The roots provided them with a red dye for wool and other materials. The dye was also used as an ink. Creosotebush has been highly valued for its medicinal properties by Native Americans. It has been used to treat at least 14 illnesses. Twigs and leaves may be boiled as tea, steamed, pounded into a powder, pressed into a poultice, or heated into an infusion. Some Native American tribes steeped the twigs of Nevada ephedra and drank the tea as a general beverage.

Other information

White bursage may be used to revegetate disturbed sites in southwestern deserts. Once established, creosotebush may improve sites for annuals that grow under its canopy by trapping fine soil, organic matter, and symbiont propagules. It may also increase water infiltration and storage.

Type locality

Location 1: Clark County, NV	
Township/Range/Section	T25S R63E S10
General legal description	About 2 miles southeast of US Highway 95 and Nevada Highway 165 (Nelson Road) intersection, Clark County, Nevada. This site also occurs in southern Lincoln counties.

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

GKB

Approval

Kendra Moseley, 3/11/2025

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	05/12/2025
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):**

---

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:**
