

Ecological site R030XB133NV **GRAVELLY INSET FAN 5-7 P.Z.**

Last updated: 3/10/2025
 Accessed: 05/11/2025

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 inset fans on all exposures. Slopes range from 2 to 8 percent. Elevations are 2800 to 3000 feet. The soil associated with this site are very deep, well drained, and have formed in mixed alluvium.

Please refer to group concept R030XB103NV to view the provisional STM.

Associated sites

R030XB132NV	GRAVELLY WASH 3-5 P.Z.
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Similar sites

R030XB075NV	GRAVELLY FAN 5-7 P.Z. More productive site; PLRI3 dominant plant
R030XB074NV	COBBLY LOAM 5-7 P.Z. Less productive site; PSFR minor species
R030XB132NV	GRAVELLY WASH 3-5 P.Z. ACGR dominant shrub; MESP2 absent

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Ambrosia dumosa</i> (2) <i>Menodora spinescens</i>
Herbaceous	Not specified

Physiographic features

This site occurs on inset fans on all exposures. Slopes range from 2 to 8 percent. Elevations are 2800 to 3000 feet.

Table 2. Representative physiographic features

Landforms	(1) Inset fan
Elevation	2,800–3,000 ft
Slope	2–8%

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. The average annual precipitation ranges from 5 to 7 inches with most moisture occurring as rain during the period November to March. About 30 percent of the total annual precipitation occurs during July through September as a result of summer convection storms. Mean annual air temperature is 64 to 69 degrees F. The average frost-free period is 240 to 300 days.

Table 3. Representative climatic features

Frost-free period (average)	300 days
Freeze-free period (average)	
Precipitation total (average)	7 in

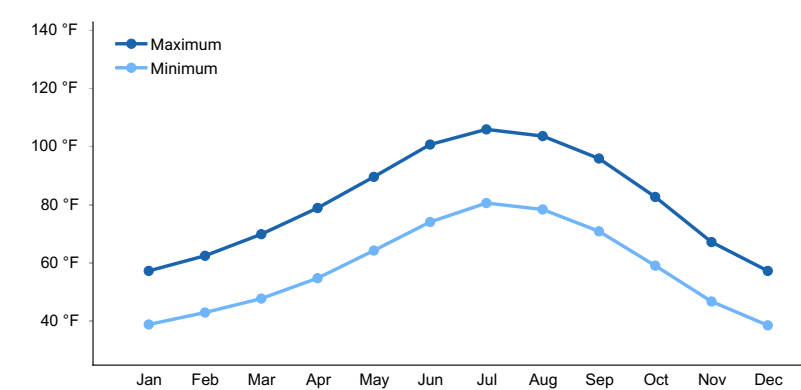


Figure 1. Monthly average minimum and maximum temperature

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soil associated with this site are very deep, well drained, and have formed in mixed alluvium. These soils have very low to low runoff, moderately rapid to rapid permeability and very low to low water supply capacity. Although available water capacity is low, these soils periodically receive run-in moisture from higher landscapes.

Table 4. Representative soil features

Drainage class	Well drained
Permeability class	Moderately rapid to rapid

Ecological dynamics

Please refer to group concept R030XB103NV to view the provisional STM.

Surface disturbance may reduce plant cover, plant density, and species diversity of this site. These changes can be very subtle or extremely obvious depending on the kind, intensity, and frequency of disturbance. As ecological condition deteriorates, big galleta and other perennial grasses decrease. Short-lived perennials such as white burrobrush and wirelettuce will initially increase. White bursage, a long-lived, opportunistic, species may also increase. With a loss of perennial cover, non-native annual grasses and forbs such as red brome and red-stem filaree may invade this site.

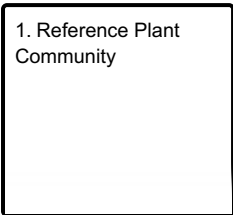
Fire Ecology:

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. Spiny menodora often survives fire because its foliage does not readily burn. Fires in creosotebush scrub were an infrequent event in pre-settlement desert habitats, because fine fuels from winter annual plants were

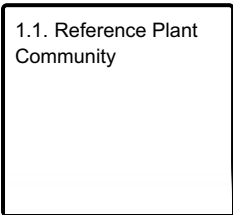
probably sparse, only occurring in large amounts during exceptionally wet winters. Fire kills many creosotebush. Creosotebush is poorly adapted to fire because of its limited sprouting ability. Creosotebush survives some fires that burn patchily or are of low severity.

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 1
Reference Plant Community

Community 1.1
Reference Plant Community

White bursage, spiny menodora and Fremont dalea dominate the reference plant community. Potential vegetative composition is about 10 % annual and perennial grasses, 10% annual and perennial forbs, and 80% shrubs. Approximate ground cover (basal and crown) is 15 to 25 percent.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	160	320	480
Grass/Grasslike	20	40	60
Forb	20	40	60
Total	200	400	600

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	Perennial grasses			8–40	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	2–12	–
	threeawn	ARIST	<i>Aristida</i>	2–12	
	low woollygrass	DAPU7	<i>Dasyochloa pulchella</i>	2–12	–
	big galleta	PLRI3	<i>Pleuraphis rigida</i>	2–12	–
2	Annual Grasses			1–20	
Forb					
3	Perennial forbs			8–32	
	desert globemallow	SPAM2	<i>Sphaeralcea ambigua</i>	2–8	–
4	Annual forbs			1–40	
Shrub/Vine					
5	Primary shrubs			168–300	
	burrobush	AMDU2	<i>Ambrosia dumosa</i>	80–120	–
	creosote bush	LATR2	<i>Larrea tridentata</i>	40–80	–
	spiny menodora	MESP2	<i>Menodora spinescens</i>	40–80	–
	Fremont's dalea	PSFR	<i>Psorothamnus fremontii</i>	40–80	–
6	Secondary shrubs			20–60	
	catclaw acacia	ACGR	<i>Acacia greggii</i>	4–12	–
	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	4–12	–
	burrobrush	HYSA	<i>Hymenoclea salsola</i>	4–12	–
	white ratany	KRGR	<i>Krameria grayi</i>	4–12	–
	desert-thorn	LYCIU	<i>Lycium</i>	4–12	–
	Koolau Range wild coffee	PSFA	<i>Psychotria fauriei</i>	4–12	–
	Nevada dalea	PSPO	<i>Psorothamnus polydenius</i>	4–12	–
	Mexican bladdersage	SAME	<i>Salazaria mexicana</i>	4–12	–

Animal community

Livestock Interpretations:

This site is suitable for livestock grazing. 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. Cattle will graze the stems of spiny menodora in the spring before the stems become woody and spiny. Spiny menodora has lower palatability than the other shrubs but is consumed during early spring before spines mature. Creosotebush is unpalatable to livestock. Consumption of creosotebush may be fatal to sheep.

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. Elk will graze the stems of spiny menodora in the spring before the stems become woody and spiny. Creosotebush is unpalatable to most browsing wildlife.

Hydrological functions

These soils have very low to low runoff, moderately rapid to rapid permeability and very low to low water supply

capacity. Although available water capacity is low, these soils periodically receive run-in moisture from higher landscapes.

Other products

White bursage is a host for sandfood, a parasitic plant. Sandfood was a valuable food supply for Native Americans. 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.

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	T65E R18S S36
General legal description	Approximately three miles north of Muddy Peak, east of Las Vegas, Clark County, 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

PN-E/GKB

Approval

Kendra Moseley, 3/10/2025

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	05/11/2025
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):**

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:**
