USDA Natural Resources
Conservation Service

# Ecological site R030XB132NV
# GRAVELLY WASH 3-5 P.Z.

Last updated: 2/26/2025
Accessed: 05/21/2025

## 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 ephemeral stream channels of inset fans. Slopes range from 2 to 8 percent. Elevations are 1200 to 2500 feet. The soil associated with this site are very deep and 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 available water capacity.

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

## Associated sites

| | |
|---|---|
| R030XB133NV | **GRAVELLY INSET FAN 5-7 P.Z.** |

## Similar sites

| | |
|---|---|
| R030XY047NV | **ALLUVIAL PLAIN**<br>ATPO dominant shrub; site occurs on lake plains |
| R030XB051NV | **UPLAND WASH**<br>Higher elevations; creosotebush minor spp., if present |

**Table 1. Dominant plant species**

| | |
|---|---|
| Tree | Not specified |
| Shrub | (1) *Acacia greggii*<br>(2) *Psorothamnus fremontii* |
| Herbaceous | Not specified |

## Physiographic features

This site occurs on ephemeral stream channels of inset fans. Slopes range from 2 to 8 percent. Elevations are 1200 to 2500 feet.

**Table 2. Representative physiographic features**

| | |
|---|---|
| Landforms | (1) Channel<br>(2) Inset fan |
| Elevation | 366–762 m |
| 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. This site is intermittently flooded. Average annual precipitation is 3 to 5 inches with most of this moisture falling as rain during the period November through March. About 30 percent of the total annual precipitation occurs from July to September as a result of summer convection storms. Mean annual air temperature is 60 to 72 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 |

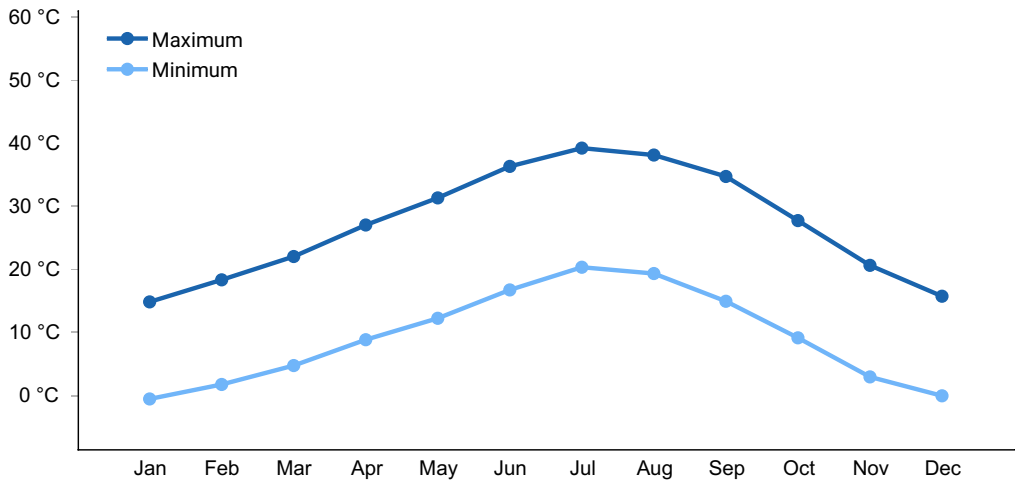


**Figure 1. Monthly average minimum and maximum temperature**

## Influencing water features

There are no influencing water features associated with this site.

## Soil features

The soil associated with this site are very deep and 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 available water capacity.

**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, density, and diversity of this site. These changes can be very subtle or extremely obvious depending on the intensity and frequency of disturbance. Short-lived perennials such as white burrobrush and wirelettuce can become dominant following major disturbance. Species likely to invade this site include saltcedar and non-native annual grasses and forbs such as red brome, cheatgrass, and red-stem filaree.

Fire Ecology:
Catclaw is typically top-killed by fire. Following top-kill by fire, catclaw sprouts from the base. Postfire sprouting is considered prolific by some. White burrobrush establishes after fire via off-site seeds and sprouting. Because it seeds prolifically, white burrobrush can quickly colonize burned sites. Desert rabbitbrush is top-killed by moderate to severe fire. Desert rabbitbrush recovers well after fire by sprouting from the root crown. Desert rabbitbrush sprouts and seedlings are probably abundant the first years after fire. Most 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. 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. Fire most likely top-kills big galleta. Big galleta sprouts from rhizomes following fire. Damage to big galleta from fire varies, depending on whether big galleta is dormant when burned. If big galleta is dry, damage may be severe. However, when plants are green, fire will tend to be less severe and damage may be minimal, with big galleta recovering quickly.

## State and transition model

**Ecosystem states**

1. Reference Plant Community

**State 1 submodel, plant communities**

1.1. Reference Plant Community

## State 1
## Reference Plant Community

## Community 1.1
## Reference Plant Community

Catclaw and Fremont dalea dominate the reference plant community. Potential vegetative composition is about 15 % annual and perennial grasses, 15% annual and perennial forbs, and 70% shrubs. Approximate ground cover (basal and crown) is 15 to 25 percent.

**Table 5. Annual production by plant type**

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|---|---|---|---|
| Shrub/Vine | 157 | 314 | 471 |
| Grass/Grasslike | 34 | 67 | 101 |
| Forb | 34 | 67 | 101 |
| **Total** | **225** | **448** | **673** |

## 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 | **Primary Perennial Grasses** | | | 22–45 | |
| 2 | **Secondary Perennial Grasses** | | | 9–36 | |

| | | | | | |
|---|---|---|---|---|---|
| | Indian ricegrass | ACHY | *Achnatherum hymenoides* | 2–13 | – |
| | desert needlegrass | ACSP12 | *Achnatherum speciosum* | 2–13 | – |
| | threeawn | ARIST | *Aristida* | 2–13 | – |
| | low woollygrass | DAPU7 | *Dasyochloa pulchella* | 2–13 | – |
| | alkali sacaton | SPAI | *Sporobolus airoides* | 2–13 | – |
| 3 | **Annual Grasses** | | | 1–22 | |
| **Forb** | | | | | |
| 4 | **Perennial forbs** | | | 9–36 | |
| | woollypod milkweed | ASER | *Asclepias eriocarpa* | 2–9 | – |
| | rush milkweed | ASSU | *Asclepias subulata* | 2–9 | – |
| | desert globemallow | SPAM2 | *Sphaeralcea ambigua* | 2–9 | – |
| 5 | **Annual forbs** | | | 1–45 | |
| | desert trumpet | ERIN4 | *Eriogonum inflatum* | 2–9 | – |
| **Shrub/Vine** | | | | | |
| 6 | **Primary shrubs** | | | 175–314 | |
| | catclaw acacia | ACGR | *Acacia greggii* | 90–135 | – |
| | Fremont's dalea | PSFR | *Psorothamnus fremontii* | 45–90 | – |
| | burrobrush | HYSA | *Hymenoclea salsola* | 22–45 | – |
| | creosote bush | LATR2 | *Larrea tridentata* | 9–22 | – |
| 7 | **Secondary shrubs** | | | 22–67 | |
| | burrobush | AMDU2 | *Ambrosia dumosa* | 4–22 | – |
| | fourwing saltbush | ATCA2 | *Atriplex canescens* | 4–22 | – |
| | desert willow | CHLI2 | *Chilopsis linearis* | 4–22 | – |
| | jointfir | EPHED | *Ephedra* | 4–22 | – |
| | desert pepperweed | LEFR2 | *Lepidium fremontii* | 4–22 | – |
| | Mexican bladdersage | SAME | *Salazaria mexicana* | 4–22 | – |

## Animal community

Livestock Interpretations:

This site is suitable for livestock grazing. Big galleta is considered a valuable forage plant for cattle and domestic sheep. Its coarse, rigid culms make it relatively resistant to heavy grazing and trampling. Catclaw is typically grazed in the spring or when new growth is available, but animal densities and availability of other forage also affect livestock use of catclaw. Utilization of catclaw is typically restricted to spring when young twigs and leaves are available. Catclaw is able to withstand heavy grazing pressure. Desert rabbitbrush provides an important source of browse for livestock, particularly in the late fall and early winter after more palatable species have been depleted. 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:
Catclaw acacia provides food, shelter, nesting sites, and nesting material to a host of wildlife species. Catclaw acacia browsers include deer and rabbits. Both game and nongame bird species feed on catclaw acacia. Desert rabbitbrush provides an important source of browse for wildlife, particularly in the late fall and early winter after more palatable species have been depleted. Desert rabbitbrush communities provide a home for many bird species. 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 available water capacity.

## Other products

Native Americans used white burrobrush twigs and stems in several remedies. The twigs or leaves are mixed with all-thorn twigs, boiled, and the tea taken to treat skin rashes. The tea was used to relieve pain in the lungs and trachea, and to reduce swelling. Additionally, they use white burrobrush as a remedy for rheumatism. Rabbitbrush species are burned by the Hopi in religious ceremonies. The Hopi also use them in windbreaks, for making arrows, and in wicker work. A yellow dye is obtained from the flowers, and a green dye from the inner bark. 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

Big galleta's clumped growth form stabilizes blowing sand. Rabbitbrush species are useful for erosion control because of their deep roots, heavy litter production, and ability to

establish on harsh sites. 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 | T20S R65E S7 |
| General legal description | West End Wash in the Gale Hills area, east of Las Vegas, 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

PN-E/GKB

## Approval

Sarah Quistberg, 2/26/2025

## 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 | 05/21/2025 |
| 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):**

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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:**

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