Ecological site R030XB082NV
CLAY PLAIN 5-7 P.Z.

Last updated: 2/26/2025
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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 plains and inset fans. Slopes range from 0 to 4 percent. Elevations are 2500 to 4500 feet. The soil associated with this site are deep to very deep. Soil permeability is slow, runoff is slow, and available water capacity is moderate to high.

Please refer to group concept R030XB006NV to view the provisional STM.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex* (2) *Ambrosia dumosa*
Herbaceous	(1) *Pleuraphis rigida* (2) *Achnatherum hymenoides*

Physiographic features

This site occurs on alluvial plains and inset fans. Slopes range from 0 to 4 percent. Elevations are 2500 to 4500 feet.

Table 2. Representative physiographic features

Landforms	(1) Alluvial flat (2) Inset fan
Elevation	762–1,372 m
Slope	0–4%

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 5 to 7 inches. Mean annual air temperature is 56 to 60 degrees F. The average growing season is about 190 to 220 days.

Table 3. Representative climatic features

Frost-free period (average)	220 days
Freeze-free period (average)	
Precipitation total (average)	178 mm

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soil associated with this site are deep to very deep. Soil permeability is slow, runoff is slow, and available water capacity is moderate to high.

Ecological dynamics

Please refer to group concept R030XB006NV to view the provisional STM.

As ecological condition deteriorates, creosotebush and Anderson wolfberry increase. Species likely to invade this site are annuals such as 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. Winterfat is either killed or top-killed by fire, depending on fire severity. Severe fire can kill the perennating buds located several inches above the ground surface and thus kills the plant. In addition, severe fire usually destroys seed on the plant. Low-severity fire scorches or only partially consumes the aboveground portions of winterfat and thus does not cause high mortality. Torrey's ephedra has medium fire tolerance and is similar to Nevada ephedra. Fire typically destroys aboveground parts of Anderson wolfberry, but the degree of damage to the plant depends on fire 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. Indian ricegrass can be killed by fire, depending on severity and season of burn. Indian ricegrass reestablishes on burned sites through seed dispersed from adjacent unburned areas.

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

The reference plant community is dominated by Atriplex spp., white bursage, big galleta and Indian ricegrass. Potential vegetative composition is about 30% perennial and annual grasses, 5% annual and perennial forbs and

65% shrubs. Approximate ground cover (basal and crown) is 10 to 20 percent.

Table 4. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	73	146	219
Grass/Grasslike	34	67	101
Forb	6	11	17
Total	**113**	**224**	**337**

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Primary Perennial Grasses**			34–56	
	big galleta	PLRI3	*Pleuraphis rigida*	22–34	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	11–22	–
2	**Secondary Perennial Grasses**			4–18	
	threeawn	ARIST	*Aristida*	1–4	–
	low woollygrass	DAPU7	*Dasyochloa pulchella*	1–4	–
	dropseed	SPORO	*Sporobolus*	1–4	–
3	**Annual Grasses**			1–11	
Forb					
4	**Perennial forbs**			4–18	
5	**Annual forbs**			1–11	
Shrub/Vine					
6	**Primary shrubs**			105–186	
	saltbush	ATRIP	*Atriplex*	67–101	–
	burrobush	AMDU2	*Ambrosia dumosa*	22–45	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	11–22	–
	Torrey's jointfir	EPTO	*Ephedra torreyana*	4–11	–
	water jacket	LYAN	*Lycium andersonii*	2–7	–
7	**Secondary shrubs**			17–22	
	ratany	KRAME	*Krameria*	2–7	–
	creosote bush	LATR2	*Larrea tridentata*	2–7	–
	pricklypear	OPUNT	*Opuntia*	2–7	–
	Fremont's dalea	PSFR	*Psorothamnus fremontii*	2–7	–
	Mojave yucca	YUSC2	*Yucca schidigera*	2–7	–

Animal community

Livestock Interpretations:
This site has limited value for livestock grazing, due to the low forage production. 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. Indian ricegrass is highly palatable to all classes of livestock in both green and cured condition. It supplies a source of green feed before most other native grasses have produced much new growth.

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. Winterfat is an important forage plant for livestock in salt-desert shrub rangeland and subalkaline flats. Winterfat palatability is rated as good for sheep, good to fair for horses, and fair for cattle. Abusive grazing practices have reduced or eliminated winterfat on some areas even though it is fairly resistant to browsing. Grazing season has more influence on winterfat than grazing intensity. Early winter grazing may actually be beneficial. Torrey’s ephedra is important winter forage for cattle and sheep. Torrey’s ephedra is moderately palatable to all domestic livestock especially as winter browse. Anderson wolfberry is sometimes used as forage by livestock and feral burros.

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. Winterfat is an important forage plant for wildlife in salt-desert shrub rangeland and subalkaline flats. Animals that browse winterfat include mule deer, Rocky Mountain elk, desert bighorn sheep, and pronghorn antelope. Torrey’s ephedra is an important browse species for big game. Torrey’s ephedra is moderately palatable to many big game species, especially as winter browse. Indian ricegrass is eaten by pronghorn in "moderate" amounts whenever available. In Nevada it is consumed by desert bighorns. A number of heteromyid rodents inhabiting desert rangelands show preference for seed of Indian ricegrass. Indian ricegrass is an important component of jackrabbit diets in spring and summer. In Nevada, Indian ricegrass may even dominate jackrabbit diets during the spring through early summer months. Indian ricegrass seed provides food for many species of birds. Doves, for example, eat large amounts of shattered Indian ricegrass seed lying on the ground.

Hydrological functions

Soil permeability is slow, runoff is slow, and available water capacity is moderate to high.

Other products

Indian ricegrass was traditionally eaten by some Native Americans. The Paiutes used seed as a reserve food source. White bursage is a host for sandfood, a parasitic plant. Sandfood was a valuable food supply for Native Americans. Native Americans used the fleshy berries of Anderson wolfberry either fresh or boiled and then dried them for later use.

Other information

Big galleta's clumped growth form stabilizes blowing sand. White bursage may be used to revegetate disturbed sites in southwestern deserts. Anderson wolfberry is also used as an ornamental valued chiefly for its showy red berries.

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

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	05/14/2025
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:**