Ecological site R030XY048NV
LAKE TERRACE

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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 toe slopes of dissected elevated remnants of ancient lakebeds and offshore bars. Slopes range from 0 to 4 percent. Elevations are 2500 to 2800 feet. The soils are deep and typically have formed in lake sediments from mixed rock sources.

Please refer to group concept R030XB049CA to view the provisional STM.

Associated sites

R030XY045NV	**DUNES 3-7 P.Z.**

Similar sites

R030XY045NV	**DUNES 3-7 P.Z.** ATCO dominant shrub; less productive site; deep, sandy soils
R030XY024NV	**SALINE BOTTOM** ATLE dominant shrub; mesquite minor species to absent

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Prosopis* (2) *Atriplex lentiformis*
Herbaceous	(1) *Sporobolus airoides*

Physiographic features

This site occurs on toe slopes of dissected elevated remnants of ancient lakebeds and offshore bars. Slopes range from 0 to 4 percent. Elevations are 2500 to 2800 feet.

Table 2. Representative physiographic features

Landforms	(1) Lakebed (2) Bar (3) Flood plain
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	Occasional
Elevation	762–853 m

Slope	0–4%
Water table depth	46–183 cm

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 61 to 66 degrees F. The average growing season is about 160 to 220 days.

Table 3. Representative climatic features

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

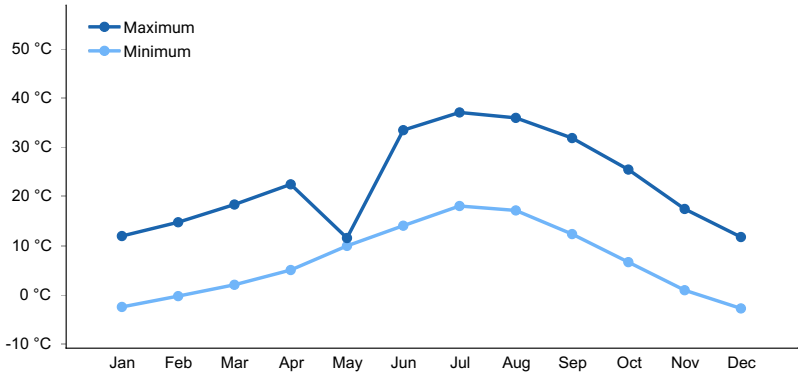

Figure 1. Monthly average minimum and maximum temperature

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soils are deep and typically have formed in lake sediments from mixed rock sources. These soils are well drained, have medium runoff, and have slow permeability. Available water capacity is high. These soils are strongly to very strongly alkaline throughout their profile. Potential for sheet and rill erosion is slight to moderate. The soils are classified as Aquic Haplocalcids.

Table 4. Representative soil features

Surface texture	(1) Silty clay loam
Family particle size	(1) Loamy
Drainage class	Poorly drained
Permeability class	Slow
Soil depth	183–213 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	19.56–19.81 cm

Calcium carbonate equivalent (0-101.6cm)	20–60%
Electrical conductivity (0-101.6cm)	2–32 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	5–30
Soil reaction (1:1 water) (0-101.6cm)	8.5–9.6
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Please refer to group concept R030XB049CA to view the provisional STM.

As ecological conditions decline mesquite is localized to those areas receiving additional moisture as run-in from higher landscapes or with natural subirrigation and will therefore occur in a patchy mosaic throughout the site. As ecological condition deteriorates, inland saltgrass, shadscale and mesquite increase. Gumweed and snakeweed increase following major disturbance. Species which are likely to invade this site are annuals such as red brome and mustards.

Fire Ecology:
The fire return interval for mesquite communities is 35 to 100 years. Alkali sacaton is classified as tolerant of, but not resistant to, fire. Top-killing by fire is probably frequent, and the plants can be killed by severe fire. Mortality is low in honey mesquite, particularly in lowland areas where root systems are well developed. Screwbean mesquite can survive fire, but little is known of the adaptations that allow for this. Weak resprouting after fire has been reported, but whether this was from surviving apical buds or adventitious buds on the root crown, as in other southwestern mesquites is not discussed. Big saltbush produces abundant seeds and is demonstrably fire resistant. Big saltbush has been shown to have reduced flammability due to high moisture and ash contents. Big saltbush can survive at least some fires. The most likely post fire regeneration strategy of big saltbush is seed production.

State and transition model

Ecosystem states

1. Reference State

State 1 submodel, plant communities

1.1. Reference Plant Community

State 1
Reference State

Community 1.1

Reference Plant Community

The reference plant community is dominated by alkali sacaton. Other important species associated with this site are mesquite and big saltbush. Potential vegetative composition is about 65% grasses and 5% forbs and 30% shrubs. Approximate ground cover (basal and crown) is 40 to 60 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	656	874	1166
Shrub/Vine	303	404	538
Forb	50	67	90
Total	**1009**	**1345**	**1794**

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**			699–1049	
	alkali sacaton	SPAI	*Sporobolus airoides*	673–942	–
	saltgrass	DISP	*Distichlis spicata*	27–108	–
2	**Secondary Perennial Grasses**			1–67	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	7–40	–
3	**Annual Grasses**			1–40	
Forb					
4	**Secondary Perennial Forbs**			1–108	
	princesplume	STANL	*Stanleya*	7–40	–
5	**Annual Forbs**			1–40	
Shrub/Vine					
6	**Primary Shrubs**			94–404	
	mesquite	PROSO	*Prosopis*	67–269	–
	big saltbush	ATLE	*Atriplex lentiformis*	27–135	–
7	**Secondary Shrubs**			67–135	
	fourwing saltbush	ATCA2	*Atriplex canescens*	13–40	–
	shadscale saltbush	ATCO	*Atriplex confertifolia*	13–40	–
	threadleaf snakeweed	GUMI	*Gutierrezia microcephala*	13–40	–
	desert-thorn	LYCIU	*Lycium*	13–40	–
	seepweed	SUAED	*Suaeda*	13–40	–

Animal community

Livestock Interpretations:
This site is suitable for livestock grazing. Grazing management should be keyed to dominant grass production. Alkali sacaton is a valuable forage species in arid and semiarid regions. Plants are tolerant to moderate grazing and can produce abundant herbage utilized by livestock. Saltgrass's value as forage depends primarily on the relative availability of other grasses of higher nutritional value and palatability. It can be an especially important late summer grass in arid environments after other forage grasses have deceased. Saltgrass is rated as a fair to good forage species only because it stays green after most other grasses dry. Livestock generally avoid saltgrass due to its

coarse foliage. Saltgrass is described as an increaser under grazing pressure. The fruit of screwbean and honey mesquite is valuable forage for livestock. Cattle, horses, domestic sheep and goats, eat large quantities of the ripe fruit during summer and fall. Livestock do not consume the foliage to any great extent. Foliage consumption is high only during drought years, especially in the early spring when other forage is sparse. Honey mesquite provides cover for large wildlife species and shade for livestock.
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:
The western salt desert shrub and grassland communities where alkali sacaton is common support an abundance of mule deer, pronghorn, carnivores, small mammals, birds, amphibians, and reptiles. Saltgrass provides cover for a variety of bird species, small mammals, and arthropods and is on occasion used as forage for several big game wildlife species. The fruit of screwbean and honey mesquite is valuable forage for wildlife. The fruit crop of honey mesquite is quite predictable, annually providing an abundant and nutritious food source for numerous wildlife species upon ripening in July and August. Honey mesquite seeds form an important part of the diet of mice, kangaroo rats, woodrats, chipmunks, ground squirrels, rock squirrels, cottontail, skunks, quail, doves, ravens, the black-tailed prairie dog, black-tailed jackrabbit, porcupine, raccoon, coyote, collared peccary, white-tailed deer, mule deer, wild turkey, and mallard. Quail eat mesquite buds and flowers in the spring and seeds during the fall and winter. Mesquite browse is generally not a very important wildlife food source. For both livestock and wildlife, the palatability of leaves and twigs is relatively low. Leaves and seeds of big saltbush are eaten by many species including mule deer, pronghorn, small rodents, game birds, and insects. Dense stands of big saltbush provide excellent cover for several species.

Hydrological functions

Runoff is medium. Permeability is moderately slow. Hydrologic sol group is D.

Recreational uses

Aesthetic value is derived from the diverse floral and faunal composition and the colorful flowering of wild flowers and shrubs during the spring and early summer. This site offers rewarding opportunities to photographers and for nature study. This site is used for camping and hiking and has potential for upland and big game hunting.

Other products

Mesquites were probably the most important wild plant staple of indigenous Southwest Native Americans. The pods were a very reliable food source because fruiting occurred even during drought years. Pods were collected in large quantities and stored in granary baskets on the roofs of houses or sheds. The beans were ground into flour which was used to prepare cakes and breads, the main staple of the diet. Various refreshing drinks were made from the pods. An alcoholic drink was sometimes prepared by allowing the juices of the pods to ferment. Flowers were eaten raw or roasted, formed into balls, and stored in pottery vessels. Native Americans used the wood for fuel as well as for weapons, tools, and construction. The wood is also used locally for small items, such as tool handles and trinkets. The bark and roots had medicinal value and were used to treat wounds. Native American’s practice of pit curing and drying big saltbush seeds before using them to make a thick gruel, as well as use of the flour to make small cakes, use of leaves as a soap, and use of flowers, stems and leaves as a treatment for nasal congestion. The seeds were likely used in a similar way to fourwing saltbush. Seeds of fourwing saltbush were also reportedly ground into flour. Other uses for fourwing saltbush that may have been similar for big saltbush are the use of the ground meal as an emetic, use of ground flowers or roots moistened with saliva in treating ant bites, and addition of ashes to water for dyeing meal greenish-blue.

Other information

Alkali sacaton is one of the most commonly used species for seeding and stabilizing disturbed lands. Due to alkali sacaton’s salt tolerance, is recommended for native grass seeding on subirrigated saline sites. Given its extensive system of rhizomes and roots which form a dense sod, saltgrass is considered a suitable species for controlling wind and water erosion. Mesquites are widely used as ornamental shade trees throughout the Southwest because they need little or no watering and can survive on limited rainfall. The wood can also be made into wood chips.

Honey mesquite provides an excellent source of nectar for honey bees. Honey mesquite causes an allergic contact dermatitis in some humans. Big saltbush is a suspected hay fever plant. Big saltbush is a recommended revegetation species in riparian areas throughout its range. It has been planted in projects with varied goals, including soil stabilization and improvement or creation of habitat and forage for wildlife and those with constraints, such as the need for quick growth or revegetation sites with high salinity.

Type locality

Location 1: Lincoln County, NV	
Township/Range/Section	T11S R62E S13-14
UTM zone	N
UTM northing	4095732
UTM easting	677547
Latitude	36° 59′ 27″
Longitude	115° 0′ 17″
General legal description	About ½ mile west of US Highway 93, Coyote Springs area, Desert National Wildlife Range, Lincoln County, Nevada. This site also occurs in 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

RRK

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	05/13/2025
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:**