

Ecological site R030XY009NV

SILT BOTTOM

Last updated: 2/24/2025
Accessed: 05/13/2025

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 alluvial flats and lake plains. Slope gradients range from 0 to 4 percent, gradients of 0 to 2 percent are most typical. Elevations are 2000 to 3500 feet.

Please refer to group concept R030XB045CA to view the provisional STM.

Associated sites

R030XY013NV	SHALLOW SILTY
R030XY045NV	DUNES 3-7 P.Z.
R030XY046NV	OUTWASH PLAIN
R030XY047NV	ALLUVIAL PLAIN

Similar sites

R030XB035NV	SANDY LOAM 5-7 P.Z. GRSP & KRLA2 important shrubs
R030XB020NV	LOAMY BOTTOM More productive site; ATTO important shrub
R030XB032NV	DRY FLOODPLAIN PLRI3 dominant grass; surface soil is sandy

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Atriplex canescens</i> (2) <i>Sporobolus airoides</i>
Herbaceous	Not specified

Physiographic features

This site occurs on alluvial flats and lake plains. Slope gradients range from 0 to 4 percent, gradients of 0 to 2 percent are most typical. Elevations are 2000 to 3500 feet.

Table 2. Representative physiographic features

Landforms	(1) Alluvial flat (2) Lake plain
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Elevation	610–1,067 m
Slope	0–4%
Aspect	Aspect is not a significant factor

Climatic features

The climate is characterized by mild winters and very hot, dry summers. Average annual precipitation is 5 to 7 inches. Mean annual air temperature is 55 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

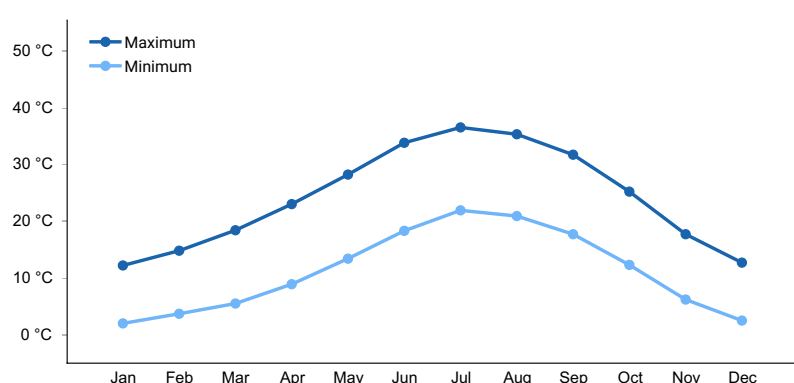


Figure 1. Monthly average minimum and maximum temperature

Influencing water features

Ponding may occur due to runoff from adjacent sites.

Soil features

The soils associated with this site are very deep alluvium derived from mixed rock sources. Water intake rates are moderate with moderate available water capacity. This site receives extra moisture as run-off in adjacent landscapes. The soils series associated with this site is Haymont.

Table 4. Representative soil features

Surface texture	(1) Very fine sandy loam (2) Silt loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate
Soil depth	183–213 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	16.51–16.76 cm
Calcium carbonate equivalent (0-101.6cm)	10–30%

Electrical conductivity (0-101.6cm)	0–16 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	5–15
Soil reaction (1:1 water) (0-101.6cm)	7.9–9
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Please refer to group concept R030XB045CA to view the provisional STM.

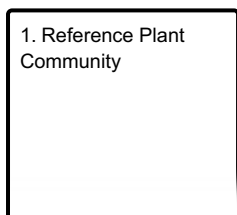
As ecological condition deteriorates, with abusive grazing management, perennial grasses and fourwing saltbush decrease as shadscale and mesquite increase. Following wildfire, shrub composition is reduced as perennial grasses increase. This site receives additional moisture as runoff from adjacent landscapes. Altering the hydrology of this site by diverting water away from the site will change plant community composition with fourwing saltbush and alkali sacaton decreasing and shadscale and cattle saltbush increasing.

Fire Ecology:

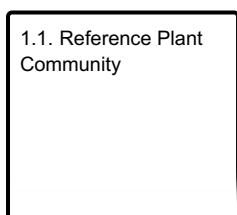
The mean fire return interval for salt desert shrub communities range from 35 to 100 years. Salt desert shrub communities are usually unaffected by fire because of low fuel loads, although a year of exceptionally heavy winter rains can generate fuels by producing a heavy stand of annual forbs and grasses, increasing fire frequency. Increased presence of non-native annual grasses, such as cheatgrass, can alter fire regimes in salt desert communities by increasing fire frequency under wet to near-normal summer moisture conditions. When fire does occur, the effect on the ecosystem may be extreme. Fire top-kills or kills fourwing saltbush, depending upon ecotype. Fourwing saltbush may sprout after top-kill. Shadscale is generally killed by fire. Records of fire occurrence in sacaton grasslands are rare. 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.

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 fourwing saltbush and alkali sacaton. Shadscale and honey mesquite are important species associated with this site. Potential vegetative composition is about 45% grasses, 5% annual and perennial forbs and 50% shrubs. Approximate ground cover (basal and crown) is 25 to 40 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	280	392	504
Grass/Grasslike	252	353	454
Forb	28	39	50
Total	560	784	1008

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			235–426	
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	235–314	—
2	Secondary Perennial Grasses			39–118	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	4–39	—
	saltgrass	DISP	<i>Distichlis spicata</i>	4–39	—
	big galleta	PLRI3	<i>Pleuraphis rigida</i>	4–39	—
Forb					
3	Perennial			8–39	
	saltgrass	DISP	<i>Distichlis spicata</i>	4–39	—
	big galleta	PLRI3	<i>Pleuraphis rigida</i>	4–39	—
4	Annual			8–39	
Shrub/Vine					
5	Primary Shrubs			267–573	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	235–392	—
	shadscale saltbush	ATCO	<i>Atriplex confertifolia</i>	16–118	—
6	Secondary Shrubs			16–63	
	cattle saltbush	ATPO	<i>Atriplex polycarpa</i>	8–24	—

Animal community

Livestock Interpretations:

This site is suited to livestock grazing. Grazing management should be keyed to perennial 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. Fourwing saltbush is one of the most palatable shrubs in the West. Its protein, fat, and carbohydrate levels are comparable to alfalfa. It provides nutritious forage for all classes of livestock. Palatability is rated as good for domestic sheep and domestic goats; fair for cattle; fair to good for horses in winter, poor for horses in other seasons. Shadscale is a valuable browse species, providing a source of palatable, nutritious forage for a wide variety of livestock. Shadscale provides good browse for domestic sheep. Shadscale leaves and seeds are an important component of domestic sheep and cattle winter diets.

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:

Fourwing saltbush provides valuable habitat and year-round browse for wildlife. Fourwing saltbush also provides browse and shelter for small mammals. Additionally, the browse provides a source of water for black-tailed jackrabbits in arid environments. Granivorous birds consume the fruits. Wild ungulates, rodent and lagomorphs readily consume all aboveground portions of the plant. Palatability is rated good.

Shadscale is a valuable browse species, providing a source of palatable, nutritious forage for a wide variety of wildlife particularly during spring and summer before the hardening of spiny twigs. It supplies browse, seed, and cover for birds, small mammals, rabbits, deer, and pronghorn antelope.

Hydrological functions

Runoff is low. Permeability is moderate.

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

Fourwing saltbush is traditionally important to Native Americans. The seeds were ground for flour. The leaves, placed on coals, impart a salty flavor to corn and other roasted food. Top-growth produces a yellow dye. Young leaves and shoots were used to dye wool and other materials. The roots and flowers were ground to soothe insect bites. Seeds of shadscale were used by Native Americans of Arizona, Utah and Nevada for bread and mush.

Other information

Fourwing saltbush is widely used in rangeland and riparian improvement and reclamation projects, including burned area recovery. It is probably the most widely used shrub for restoration of winter ranges and mined land reclamation.

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.

Type locality

Location 1: Clark County, NV	
Township/Range/Section	T25S R57E S35
UTM zone	N
UTM northing	630816
UTM easting	3954850
Latitude	34° 43' 44"
Longitude	115° 33' 12"
General legal description	NE 1/4 NE 1/4, About 3 miles southeast of Sandy, near Government Well, Sandy Valley, 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

BLS/GKB

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:**
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