USDA Natural Resources
Conservation Service

# Ecological site R030XA097NV
# CLAY TERRACE 3-5 P.Z.

Last updated: 2/18/2025
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 alluvial flats, lake plains, and lake terraces. Slope gradients of 0 to 2 percent are typical. Elevations are from 2000 to about 3000 feet. The soils associated with this site are very deep, silt loam alluvium derived from mixed rock sources.

Please refer to group concept R030XA096NV to view the provisional STM.

## Associated sites

| | |
|---|---|
| R030XA011NV | **SILTY TERRACE 5-7 P.Z.** |
| R030XA096NV | **COARSE SILTY 3-5 P.Z.** |
| R030XY013NV | **SHALLOW SILTY** |
| R030XY045NV | **DUNES 3-7 P.Z.** |
| R030XY047NV | **ALLUVIAL PLAIN** |

## Similar sites

| | |
|---|---|
| R030XY013NV | **SHALLOW SILTY**<br>ATCO dominant plant |
| R030XA011NV | **SILTY TERRACE 5-7 P.Z.**<br>ATTO-ATCA2 codominant shrubs; ATCO not codominant |
| R030XA096NV | **COARSE SILTY 3-5 P.Z.**<br>Less productive site |

**Table 1. Dominant plant species**

| | |
|---|---|
| Tree | Not specified |
| Shrub | (1) *Atriplex canescens*<br>(2) *Atriplex confertifolia* |
| Herbaceous | (1) *Sporobolus airoides* |

## Physiographic features

This site occurs on alluvial flats, lake plains, and lake terraces. Slope gradients of 0 to 2 percent are typical. Elevations are from 2000 to about 3000 feet.

**Table 2. Representative physiographic features**

| | |
|---|---|
| Landforms | (1) Alluvial flat<br>(2) Lake plain<br>(3) Lake terrace |
| Flooding duration | Extremely brief (0.1 to 4 hours) to very brief (4 to 48 hours) |
| Flooding frequency | Rare to occasional |
| Ponding frequency | None |
| Elevation | 610–914 m |
| Slope | 0–2% |
| 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 3 to 5 inches. Mean annual air temperature is 65 to 72 degrees F. The average growing season is about 240 to 320 days.

**Table 3. Representative climatic features**

| | |
|---|---|
| Frost-free period (average) | 320 days |
| Freeze-free period (average) | |
| Precipitation total (average) | 127 mm |

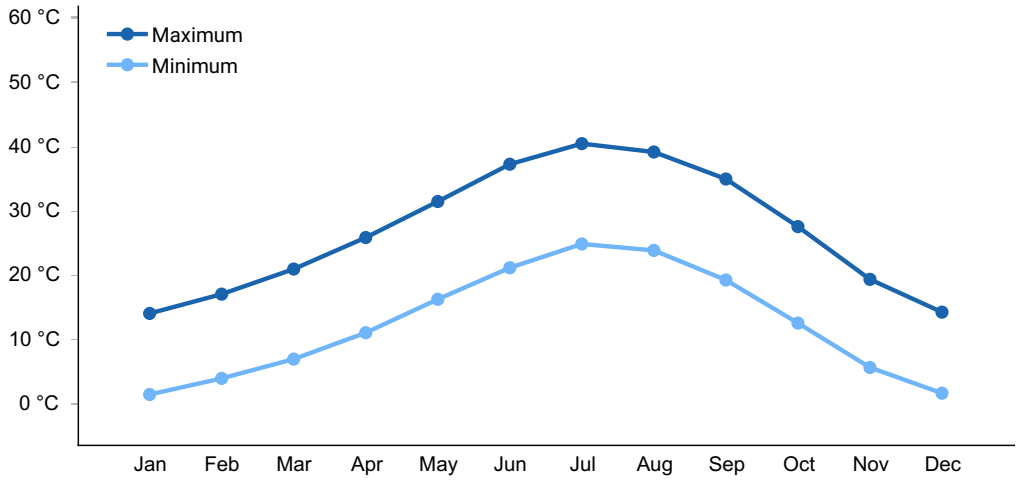


**Figure 1. Monthly average minimum and maximum temperature**

## Influencing water features

There are no influencing water features associated with this site.

## Soil features

The soils associated with this site are very deep, silt loam alluvium derived from mixed rock sources. Water intake rates are slow to moderately slow and available water capacity is high. The soils receive extra moisture as run-in from higher landscapes. The soil series associated with this site includes Noway.

**Table 4. Representative soil features**

| | |
|---|---|
| Surface texture | (1) Loam |
| Family particle size | (1) Loamy |
| Drainage class | Well drained |
| Permeability class | Slow to moderately slow |
| Soil depth | 183–213 cm |
| Surface fragment cover <=3" | 0% |
| Surface fragment cover >3" | 0% |
| Available water capacity (0-101.6cm) | 13.46–15.24 cm |
| Calcium carbonate equivalent (0-101.6cm) | 15–60% |
| Electrical conductivity (0-101.6cm) | 0–32 mmhos/cm |

| | |
|---|---|
| Sodium adsorption ratio (0-101.6cm) | 0–45 |
| Soil reaction (1:1 water) (0-101.6cm) | 7.9–9.5 |
| Subsurface fragment volume <=3" (Depth not specified) | 0–36% |
| Subsurface fragment volume >3" (Depth not specified) | 0% |

## Ecological dynamics

Please refer to group concept R030XA096NV to view the provisional STM.

As ecological condition deteriorates, fourwing saltbush cover declines as shadscale increases. This site receives additional water in the form of runoff from adjacent sites. Changing the hydrology of this site with diversion of overland flows will significantly alter plant community structure. Introduced annual forbs (filaree and Russian thistle) and grasses (Mediterranean grass) readily invade this site.

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. Fire top-kills or kills fourwing saltbush, depending upon ecotype. Fourwing saltbush may sprout after top-kill. 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**

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 alkali sacaton, shadscale, and fourwing saltbush. Potential vegetative composition is about 50% grasses, 10% annual and perennial forbs and 40% shrubs. Approximate ground cover (basal and crown) is 15 to 30 percent.

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

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|---|---|---|---|
| Grass/Grasslike | 168 | 280 | 448 |
| Shrub/Vine | 135 | 224 | 359 |
| Forb | 34 | 56 | 90 |
| **Total** | **337** | **560** | **897** |

## 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** | | | 224–336 | |
| | alkali sacaton | SPAI | *Sporobolus airoides* | 224–336 | – |
| 2 | **Secondary Perennial Grasses** | | | 11–45 | |
| | Indian ricegrass | ACHY | *Achnatherum hymenoides* | 3–17 | – |
| | saltgrass | DISP | *Distichlis spicata* | 3–17 | – |
| 3 | **Annual Grasses** | | | 1–11 | |
| **Forb** | | | | | |
| 4 | **Perennial** | | | 1–17 | |
| | desert globemallow | SPAM2 | *Sphaeralcea ambigua* | 3–17 | – |
| 5 | **Annual** | | | 1–17 | |
| **Shrub/Vine** | | | | | |
| 6 | **Primary shrubs** | | | 364–532 | |
| | shadscale saltbush | ATCO | *Atriplex confertifolia* | 252–336 | – |
| | fourwing saltbush | ATCA2 | *Atriplex canescens* | 112–196 | – |
| 7 | **Secondary shrubs** | | | 11–45 | |
| | Torrey's saltbush | ATTO | *Atriplex torreyi* | 6–17 | – |
| | seepweed | SUAED | *Suaeda* | 6–17 | – |

## Animal community

Livestock Interpretations:
This site is suited to livestock grazing. Grazing management should be keyed to alkali sacaton. 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 lagomorphis readily consume all aboveground portions of the plant. Palatability is rated good for deer, elk, pronghorn and bighorn sheep.
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 and permeability is slow to moderately slow.

## 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

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.
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.

## Type locality

| Location 1: Clark County, NV | |
|---|---|
| Township/Range/Section | T25S R57E S7 |

| | |
|---|---|
| General legal description | Mesquite Valley area, near the California-Nevada state line, about 2 miles southwest of Sandy, Clark County, Nevada. this site also occurs in Nye 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

Kendra Moseley, 2/18/2025

## 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 | Kendra Moseley |
| 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:**

---