# Ecological site R029XY063NV
# DRY SODIC TERRACE

Accessed: 04/24/2024

## 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.

**Figure 1. Mapped extent**

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

## Associated sites

| | |
|---|---|
| R029XY002NV | **SALINE MEADOW** |
| R029XY024NV | **SODIC TERRACE 5-8 P.Z.** |
| R029XY034NV | **SANDY 3-5 P.Z.** |
| R029XY039NV | **COARSE GRAVELLY LOAM 3-5 P.Z.** |
| R029XY076NV | **SODIC FLAT** |

## Similar sites

| | |
|---|---|
| R029XY087NV | **GRAVELLY LOAM 5-8 P.Z.**<br>SAVEB dominant shrub; SAVE4 rare to absent; more productive site; |
| R029XY076NV | **SODIC FLAT**<br>SAVE4 dominant shrub |
| R029XY018NV | **SODIC DUNE**<br>SAVE4 dominant plant; occurs on dunes |
| R029XY091NV | **SODIC TERRACE 8-10 P.Z.**<br>More productive site; ARTR2-SAVE4 codominant shrubs |

| | |
|---|---|
| R029XY024NV | **SODIC TERRACE 5-8 P.Z.**<br>More productive site; SAVEB rare to absent |

**Table 1. Dominant plant species**

| | |
|---|---|
| Tree | Not specified |
| Shrub | (1) *Atriplex confertifolia* |
| Herbaceous | (1) *Achnatherum hymenoides* |

## Physiographic features

This site occurs on fan skirts, beach terraces, and alluvial flats. Slopes range from 0 to 8 percent, but slope gradients of 2 to 4 percent are most typical. Elevations are 4000 to 5700 feet.

**Table 2. Representative physiographic features**

| | |
|---|---|
| Landforms | (1) Fan skirt<br>(2) Alluvial flat<br>(3) Beach terrace |
| Flooding duration | Very brief (4 to 48 hours) |
| Flooding frequency | Occasional |
| Ponding frequency | None |
| Elevation | 4,000–5,700 ft |
| Slope | 0–8% |
| Aspect | Aspect is not a significant factor |

## Climatic features

The climate associated with this site is arid, characterized by cool, moist winters and hot, dry summers. Average annual precipitation is 3 to 7 inches. Mean annual air temperature is 49 to 60 degrees F. The average growing season is about 170 to 220 days.

**Table 3. Representative climatic features**

| | |
|---|---|
| Frost-free period (average) | 220 days |
| Freeze-free period (average) | 0 days |
| Precipitation total (average) | 7 in |

## Influencing water features

This site recieves run-off from adjacent higher landscape.

## Soil features

The soils associated with this site have formed in alluvium from mixed sources and are very deep and well drained to somewhat excessively drained. Soils are coarse textured with variable amounts of rock fragments on the surface. Reaction is moderately to strongly alkaline. Water intake rates are moderate to rapid and available water holding capacity is very low. Runoff is negligible to very low. The soil moisture regime is typic aridic and the soil temperature regime is mesic. Potential for sheet and rill erosion is slight. Soil series associated with this site include: Cirac, Gynelle, Luning and Oricto.

**Table 4. Representative soil features**

| | |
|---|---|
| Surface texture | (1) Sandy loam<br>(2) Very gravelly sand |
| Family particle size | (1) Sandy |
| Drainage class | Well drained to somewhat excessively drained |
| Permeability class | Moderate to rapid |
| Soil depth | 72–84 in |
| Surface fragment cover <=3" | 35–40% |
| Surface fragment cover >3" | 0–5% |
| Available water capacity (0-40in) | 1.6–5.1 in |
| Calcium carbonate equivalent (0-40in) | 1–30% |
| Electrical conductivity (0-40in) | 16–30 mmhos/cm |
| Sodium adsorption ratio (0-40in) | 13–90 |
| Soil reaction (1:1 water) (0-40in) | 8.2–9 |
| Subsurface fragment volume <=3" (Depth not specified) | 15–35% |
| Subsurface fragment volume >3" (Depth not specified) | 0–5% |

## Ecological dynamics

As ecological condition deteriorates, shadscale and greasewood increase. Species likely to invade this site are annuals such as cheatgrass, halogeton, Russian thistle, and mustards.

Fire Ecology:
The mean fire return interval for shadscale-greasewood communities range from 35 to over 100 years. Shadscale 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. Increased presence of non-native annual grasses, such as cheatgrass, can alter fire regimes in shadscale 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. Greasewood may be killed by severe fires, but it commonly sprouts soon after low to moderate-severity fire. 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

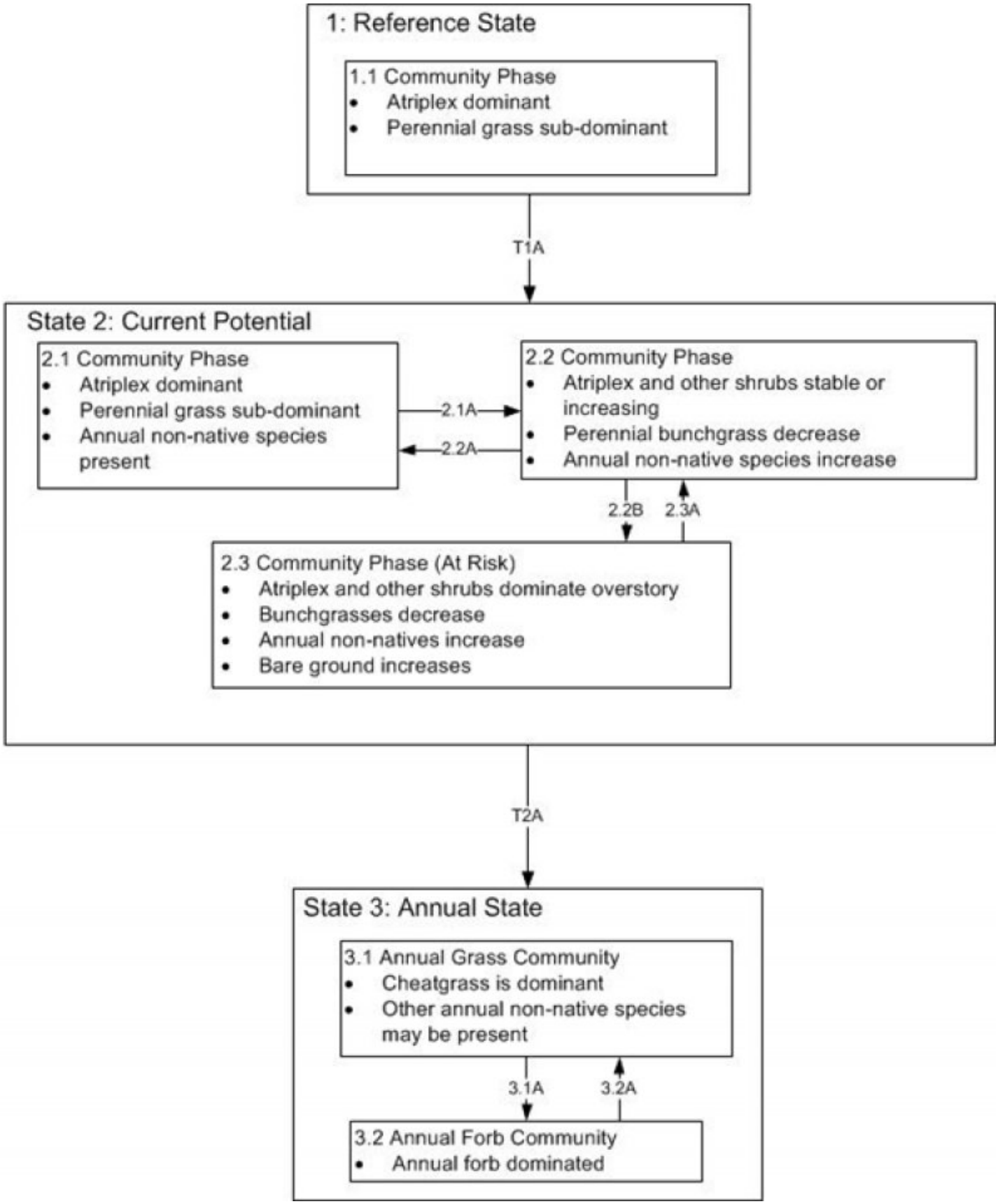


**Figure 3. DRAFT STM**

T1A: introduction of non-native species

2.1A: prolonged drought/ inadequate rest and recovery from defoliation
2.2A: rest and recovery
2.2B:prolonged drought/ inadequate rest and recovery from defoliation
2.3A: recovery or changes in management

T2A: Inadequate rest and recovery from defoliation and/or prolonged drought/Catastrophic wildfire.

3.1A: fire or cheatgrass die off
3.2A: time

**Figure 4. DRAFT STM LEGEND**

T1A: introduction of non-native species

2.1A: prolonged drought/ inadequate rest and recovery from defoliation
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3.1A: fire or cheatgrass die off
3.2A: time

**Figure 5. DRAFT STM LEGEND**

**State 1**
**Reference State**

## Community 1.1
## Reference Plant Community

The reference plant community is dominated by shadscale, black greasewood, and Bailey's greasewood. Potential vegetative composition is about 15% grasses, 5% forbs and 80% shrubs. Approximate ground cover (basal and crown) is less than 10 percent.

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

| Plant Type | Low (Lb/Acre) | Representative Value (Lb/Acre) | High (Lb/Acre) |
|---|---|---|---|
| Shrub/Vine | 20 | 80 | 200 |
| Grass/Grasslike | 4 | 15 | 38 |
| Forb | 1 | 5 | 12 |
| **Total** | **25** | **100** | **250** |

## State 2
## Current Potential State

## State 3
## Annual State

## State 4
## Annual State

## Additional community tables

**Table 6. Community 1.1 plant community composition**

| Group | Common Name | Symbol | Scientific Name | Annual Production (Lb/Acre) | Foliar Cover (%) |
|---|---|---|---|---|---|
| **Grass/Grasslike** | | | | | |
| 1 | **Primary Perennial Grasses** | | | 5–15 | |
| | Indian ricegrass | ACHY | *Achnatherum hymenoides* | 5–15 | – |
| 2 | **Secondary Perennial Grasses** | | | 1–5 | |
| | desert needlegrass | ACSP12 | *Achnatherum speciosum* | 1–2 | – |
| | squirreltail | ELEL5 | *Elymus elymoides* | 1–2 | – |
| | James' galleta | PLJA | *Pleuraphis jamesii* | 1–2 | – |
| **Forb** | | | | | |
| 3 | **Perennial** | | | 2–5 | |
| 4 | **Annual** | | | 1–5 | |
| **Shrub/Vine** | | | | | |
| 5 | **Primary Shrubs** | | | 120–205 | |
| | shadscale saltbush | ATCO | *Atriplex confertifolia* | 100–175 | – |
| | greasewood | SAVE4 | *Sarcobatus vermiculatus* | 10–20 | – |
| 6 | **Secondary Shrubs** | | | 5–15 | |
| | fourwing saltbush | ATCA2 | *Atriplex canescens* | 1–3 | – |
| | Parry's saltbush | ATPA3 | *Atriplex parryi* | 1–3 | – |
| | Nevada jointfir | EPNE | *Ephedra nevadensis* | 1–3 | – |
| | desert-thorn | LYCIU | *Lycium* | 1–3 | – |
| | bud sagebrush | PIDE4 | *Picrothamnus desertorum* | 1–3 | – |
| | Nevada dalea | PSPO | *Psorothamnus polydenius* | 1–3 | – |
| | seepweed | SUAED | *Suaeda* | 1–3 | – |

## Animal community

Livstock Interpretations:
This site has limited value for livestock grazing, due to low forage production. Grazing management should be keyed to perennial grass and palatable shrub production. Indian ricegrass has good forage value for domestic sheep, cattle and horses. It supplies a source of green feed before most other native grasses have produced much new growth. 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. Greasewood is an important winter browse plant for domestic sheep and cattle. It also receives light to moderate use by domestic sheep and cattle during spring and summer months. Greasewood contains soluble sodium and potassium oxalates that may cause poisoning and death in domestic sheep and cattle if large amounts are consumed in a short time.

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:
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. Greasewood is an important winter browse plant for big game animals and a food source for many other wildlife species. It also receives light to moderate use by mule deer and pronghorn during spring and summer months. Indian ricegrass is an important forage for several wildlife species.

## Hydrological functions

Runoff is neglibile to very low. Permeability is moderate to rapid.

## 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

The leaves, seeds and stems of greasewood are edible. Indian ricegrass was traditionally eaten by some Native American peoples. The Paiutes used seed as a reserve food source.

## Other information

Seeds of shadscale were used by Native Americans of Arizona, Utah and Nevada for bread and mush. Indian ricegrass is well-suited for surface erosion control and desert revegetation although it is not highly effective in controlling sand movement. Greasewood is useful for stabilizing soil on wind-blown areas. It successfully revegetates eroded areas and sites too saline for most plant species.

## Type locality

| Location 1: Esmeralda County, NV | |
|---|---|
| Township/Range/Section | T4N R36E S35 |
| Latitude | 38° 9′ 37″ |
| Longitude | 117° 56′ 23″ |
| General legal description | Section 35, T4N. R36E. MDBM. Along USHwy 95 approximately 9 miles north of Coaldale Junction, northeast of Columbus Salt Marsh, Esmeralda County, Nevada. Also occurs in Mineral, and Nye Counties, 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

HA/GED/VWM

## 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) | P. Novak-Echenique |
| Contact for lead author | State Rangeland Management Specialist |
| Date | 12/10/2012 |

| | |
|---|---|
| Approved by | |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

1. **Number and extent of rills:** Rills are none to rare.

2. **Presence of water flow patterns:** Water flow patterns are none to rare. A few can be expected where run-in from higher landscapes occurs. These can be long and connected.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are rare with occurrence typically limited to areas within water flow patterns.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground 70 to 80% depending on amount of surface rock fragments.

5. **Number of gullies and erosion associated with gullies:** None

6. **Extent of wind scoured, blowouts and/or depositional areas:** Deposition may occur at base of shrubs.

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter (foliage from grasses and annual & perennial forbs) expected to move distance of slope length during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during large rainfall events.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil stability values should be 2 to 4 on most soil textures found on this site.(To be field tested.)

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface structure is typically single grained. Soil surface colors are light grays and are typified by an ochric epipedon. Organic matter of the surface 2 to 3 inches is less than to 1 percent.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Sparse shrub canopy and associated litter provide little protection from raindrop impact.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None. Massive or prismatic structure should not be mistaken for compaction.

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: Reference Plant Community: Salt desert shrubs (shadscale & black greasewood) >>

    Sub-dominant: cool season perennial grasses > associated shrubs > deep-rooted, cool season, perennial forbs = fibrous, shallow-rooted, cool season, annual and perennial forbs

    Other: warm-season perennial grasses

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Dead branches within individual shrubs common and standing dead shrub canopy material may be as much as 35% of total woody canopy; mature bunchgrasses commonly (±25%) have dead centers.

14. **Average percent litter cover (%) and depth ( in):** Between plant interspaces (5-10%) and depth (± ¼ in.)

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** For normal or average growing season (April through June) ± 100 lbs/ac. Favorable years ± 250 lbs/ac and unfavorable years ± 25 lbs/ac.

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:** Potential invaders include halogeton, Russian thistle, annual mustards, and cheatgrass.

17. **Perennial plant reproductive capability:** All functional groups should reproduce in average and above average growing season years.