

Ecological site R029XY059NV SHALLOW SILTY 5-8 P.Z.

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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.

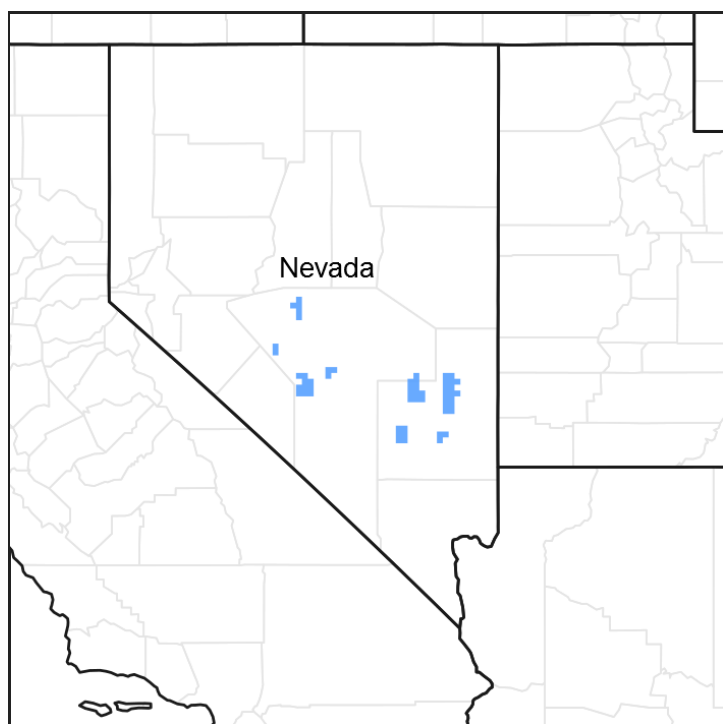


Figure 1. Mapped extent

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

R029XY020NV	SILTY 5-8 P.Z.
R029XY024NV	SODIC TERRACE 5-8 P.Z.
R029XY076NV	SODIC FLAT

Similar sites

R029XY017NV	LOAMY 5-8 P.Z. ATCO-ARSP5 codominant; greater shrub diversity; not on lake planes
R029XY024NV	SODIC TERRACE 5-8 P.Z. SAVE4 codominant shrub

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Atriplex confertifolia</i>
Herbaceous	Not specified

Physiographic features

This site occurs on lake plains and lake plain terraces of basin floors. Slopes gradients of 0 to 4 percent are most typical. Elevations are 3500 to about 6500 feet.

Table 2. Representative physiographic features

Landforms	(1) Lake plain
Flooding duration	Brief (2 to 7 days)
Flooding frequency	Occasional
Elevation	1,067–1,981 m
Slope	0–4%
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 4 to about (6)8 inches. Mean annual air temperature is 50 to 57 degrees F. The average growing season is about 120 to 160 days.

Table 3. Representative climatic features

Frost-free period (average)	160 days
Freeze-free period (average)	0 days
Precipitation total (average)	203 mm

Influencing water features

This site is occasionally flooded from runoff from adjacent, higher landscapes.

Soil features

The soils associated with this site have formed in alluvium over lacustrine deposits derived from mixed rock sources. The soils are very deep and are well drained. Permeability is slow and available water holding capacity is low to moderate. These soils have the potential for formation of gullies, especially in areas near shallow drainageways. The soils are usually moist in winter and spring and dry in summer and fall, except for 10 to 20 days between July and October due to convection storms. The soil moisture regime is aridic bordering on xeric and the soil temperature regime is mesic. Soil series associated with this site include: Ambush and Slaw. Ambush has a calcic horizon from 5 to 31 inches.

Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Silt loam
Family particle size	(1) Loamy
Drainage class	Well 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)	11.94–18.54 cm
Calcium carbonate equivalent (0-101.6cm)	0–35%
Electrical conductivity (0-101.6cm)	0–32 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–30
Soil reaction (1:1 water) (0-101.6cm)	7.9–9.6
Subsurface fragment volume ≤3" (Depth not specified)	0–40%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Where management results in abusive grazing use by livestock and/or feral horses, Indian ricegrass, bottlebrush squirreltail, and palatable shrub species will decrease allowing shadscale to completely dominate the site except for invader species. Species likely to invade this site are cheatgrass, halogeton, Russian thistle and mustards.

Fire Ecology:

The mean fire return interval for shadscale communities range from 35 to 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. 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. Bottlebrush squirreltail's small size, coarse stems, and sparse leafy material aid in its tolerance of fire. Postfire regeneration occurs from surviving root crowns and from on- and off-site seed sources. Frequency of disturbance greatly influences postfire response of bottlebrush squirreltail. Undisturbed plants within a 6 to 9 year age class generally contain large amounts of dead material, increasing bottlebrush squirreltail's susceptibility to fire.

State and transition model

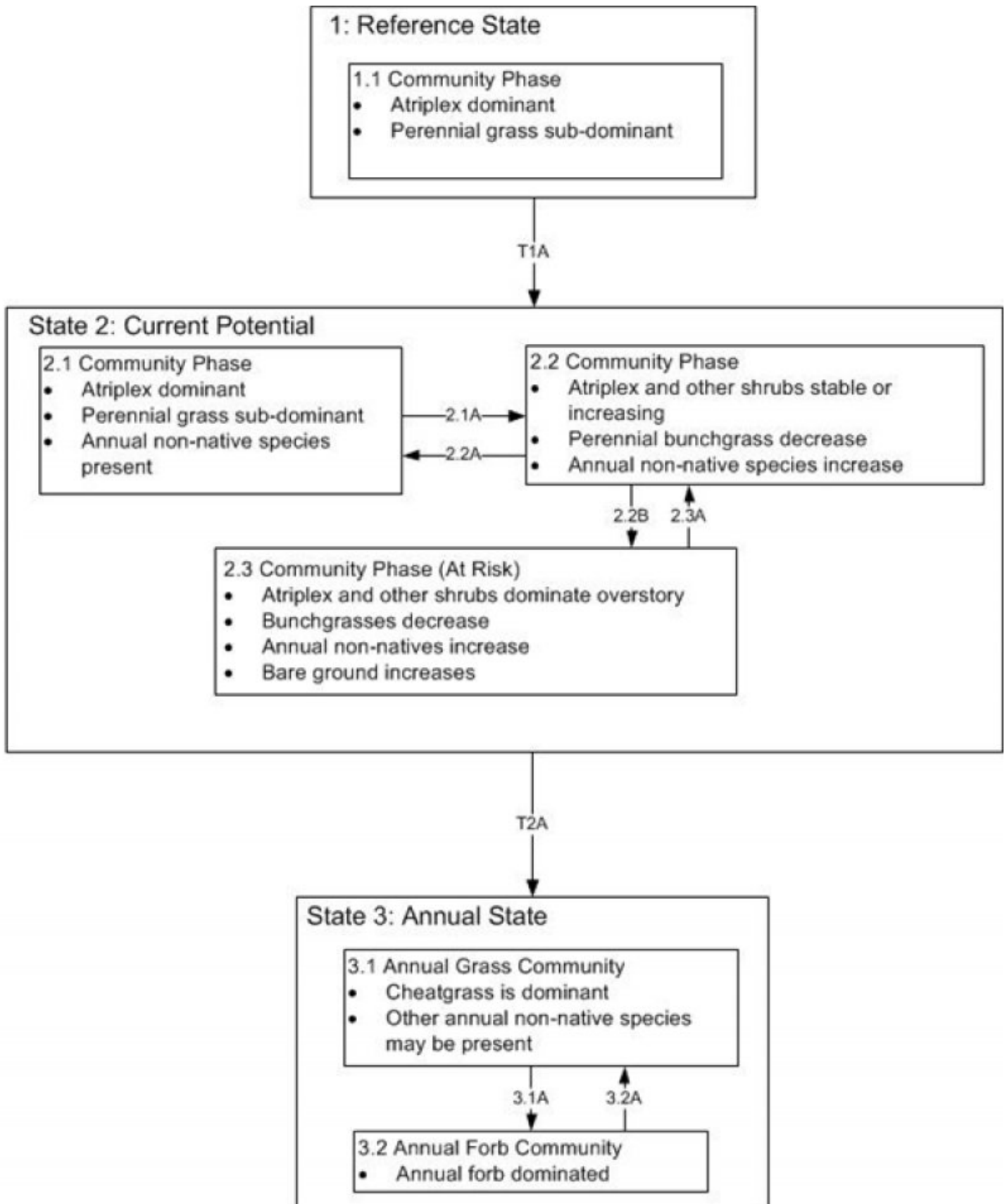


Figure 3. DRAFT STM

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

State 1

Reference State

Community 1.1

Reference Plant Community

The reference plant community is dominated by shadscale. Potential vegetative composition is about 10% grasses, 5% forbs and 85% shrubs. Approximate ground cover (basal and crown) is 15 to 25 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	191	358	476
Grass/Grasslike	22	41	56
Forb	11	21	28
Total	224	420	560

State 2

Current Potental

State 3
Annual State

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			18–55	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	9–34	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	9–21	–
2	Secondary Perennial Grasses			1–21	
	threeawn	ARIST	<i>Aristida</i>	2–9	–
	King's eyelashgrass	BLKI	<i>Blepharidachne kingii</i>	2–9	–
Forb					
3	Perennial			9–34	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	9–34	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	9–21	–
	globemallow	SPHAE	<i>Sphaeralcea</i>	2–9	–
4	Annual			1–12	
Shrub/Vine					
5	Primary Shrubs			295–336	
	shadscale saltbush	ATCO	<i>Atriplex confertifolia</i>	295–336	–
6	Secondary Shrubs			26–76	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	4–12	–
	green molly	BAAM4	<i>Bassia americana</i>	4–12	–
	yellow rabbitbrush	CHVIP4	<i>Chrysothamnus viscidiflorus</i> <i>ssp. puberulus</i>	4–12	–
	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	4–12	–
	spiny hopsage	GRSP	<i>Grayia spinosa</i>	4–12	–
	winterfat	KRLA2	<i>Krascheninnikovia lanata</i>	4–12	–
	bud sagebrush	PIDE4	<i>Picrothamnus desertorum</i>	4–12	–
	greasewood	SAVE4	<i>Sarcobatus vermiculatus</i>	4–12	–

Animal community

Livestock Interpretations:

This site has limited value for livestock grazing due to low forage production. Grazing management should be keyed to perennial grass 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. Bottlebrush squirreltail is very palatable winter forage for domestic sheep of Intermountain ranges. Domestic sheep relish the green foliage. Overall, bottlebrush squirreltail is considered moderately palatable to livestock. 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:

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. Indian ricegrass is an important forage for several wildlife species. Bottlebrush squirreltail is a dietary component of several wildlife species.

Hydrological functions

Runoff is low to high. Permeability is slow.

Recreational uses

Aesthetic value is derived from the floral and faunal composition . 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

Seeds of shadscale were used by Native Americans of Arizona, Utah and Nevada for bread and mush. Indian ricegrass was traditionally eaten by some Native American peoples. The Paiutes used seed as a reserve food source.

Other information

Indian ricegrass is well-suited for surface erosion control and desert revegetation although

it is not highly effective in controlling sand movement. Bottlebrush squirreltail is tolerant of disturbance and is a suitable species for revegetation.

Type locality

Location 1: Lincoln County, NV	
Township/Range/Section	T6S R63E S35
Latitude	37° 23' 1"
Longitude	114° 53' 38"
General legal description	Section 35, T6S. R63E. MDBM. Delamar Flat, Delamar Valley area, Lincoln County, Nevada. This site also occurs in Esmerelda, 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

BOD/GED

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	05/20/2013
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 often numerous after summer convection storms where run-in occurs on lake plains.

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 65 to 75%

5. **Number of gullies and erosion associated with gullies:** These soils have potential for gully formation where concentration of overland flows occurs.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

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 1 to 4 on most soil textures found on this site. Soils having thin surface sand sheet will have low stability values. (To be field tested.)

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Structure of soil surface typically is medium platy. Soil surface colors are pale browns and soils are typified by an ochric epipedon. Organic matter of the surface 2 to 3 inches is less than 1 percent. Surface soils are typically very fine sandy loams to silt loams.

The surface layer of these soils will normally develop a vesicular crust, inhibiting water infiltration and seedling emergence.

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 some protection from raindrop impact.
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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** Compacted layers are none. Platy or massive sub-surface horizons are not to be interpreted as compacted layers.
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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: Low-statured shrub (shadscale)

Sub-dominant: associated shrubs > deep-rooted, cool season, perennial bunchgrass (Indian ricegrass) > shallow-rooted, cool season, perennial bunchgrasses > deep-rooted, cool season, perennial forbs > annual 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 ($\pm 25\%$) have dead centers.
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14. **Average percent litter cover (%) and depth (in):** Between plant interspaces 10-20% and depth < $\frac{1}{4}$ in
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** For normal or average growing season (February thru May) ± 375 lbs/ac; Favorable years ± 500 lbs/ac and unfavorable years ± 200 lbs/ac.
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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.
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17. **Perennial plant reproductive capability:** All functional groups should reproduce in average and above average growing season years. Little growth or reproduction occurs during extreme or extended drought periods.
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