

Ecological site R029XY117NV SILTY PLAIN

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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

R029XY046NV	SANDY LOAM 5-8 P.Z.
R029XY059NV	SHALLOW SILTY 5-8 P.Z.
R029XY159NV	DEEP SILTY 5-8 P.Z.

Similar sites

R029XY059NV	SHALLOW SILTY 5-8 P.Z. Essentially a pure ATCO site
R029XY017NV	LOAMY 5-8 P.Z. ATCO-ARSP5 codominant; not on basin floors
R029XY024NV	SODIC TERRACE 5-8 P.Z. SAVE4 dominant shrub
R029XY159NV	DEEP SILTY 5-8 P.Z. ATCO codominant shrub; more productive site

Table 1. Dominant plant species

Tree	Not specified
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Shrub	(1) <i>Atriplex bonnevillensis</i>
Herbaceous	(1) <i>Achnatherum hymenoides</i>

Physiographic features

This site occurs on basin floors. Slopes range from 0 to 2 percent. Elevations are 4500 to about 5650 feet.

Table 2. Representative physiographic features

Landforms	(1) Basin floor
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Climatic features

The climate associated with this site is arid, characterized by cool, moist winters and hot, dry summers. The climate is semiarid with cool, moist winters and warm, dry summers. Average annual precipitation is 5 to 8 inches. Mean annual air temperature is 55 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)	8 in

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soils of this site are very deep, well drained soils formed in alluvium and lacustrine deposits from mixed limestone and welded tuff. Surface textures are usually silt loams. The soils are moderately to strongly alkaline. These soils have slow intake rates, available water capacity is moderate, and runoff is negligible or very low. Potential for sheet and rill erosion is slight.

Ecological dynamics

Where management results in abusive livestock use by cattle and /or feral horses, shadscale, and rabbitbrush increase, while Bonneville saltbush, winterfat, greenmolly kochia, Nevada ephedra and Indian ricegrass decrease. Species likely to invade this site are cheatgrass, annual mustards, halogeton, and Russian thistle.

Fire Ecology:

The mean fire return interval for salt-desert shrub communities ranges from 35 to 100 years. Increased presence of non-native annual grasses, such as cheatgrass, can alter fire regimes by increasing fire frequency under wet to near-normal summer moisture conditions. When fire does occur, the effect on the ecosystem may be extreme. Winterfat is either killed or top-killed by fire, depending on fire severity. Severe fire can kill the perennating buds located several inches above the ground surface and thus kills the plant. In addition, severe fire usually destroys seed on the plant. Low-severity fire scorches or only partially consumes the aboveground portions of winterfat and thus does not cause high mortality. 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

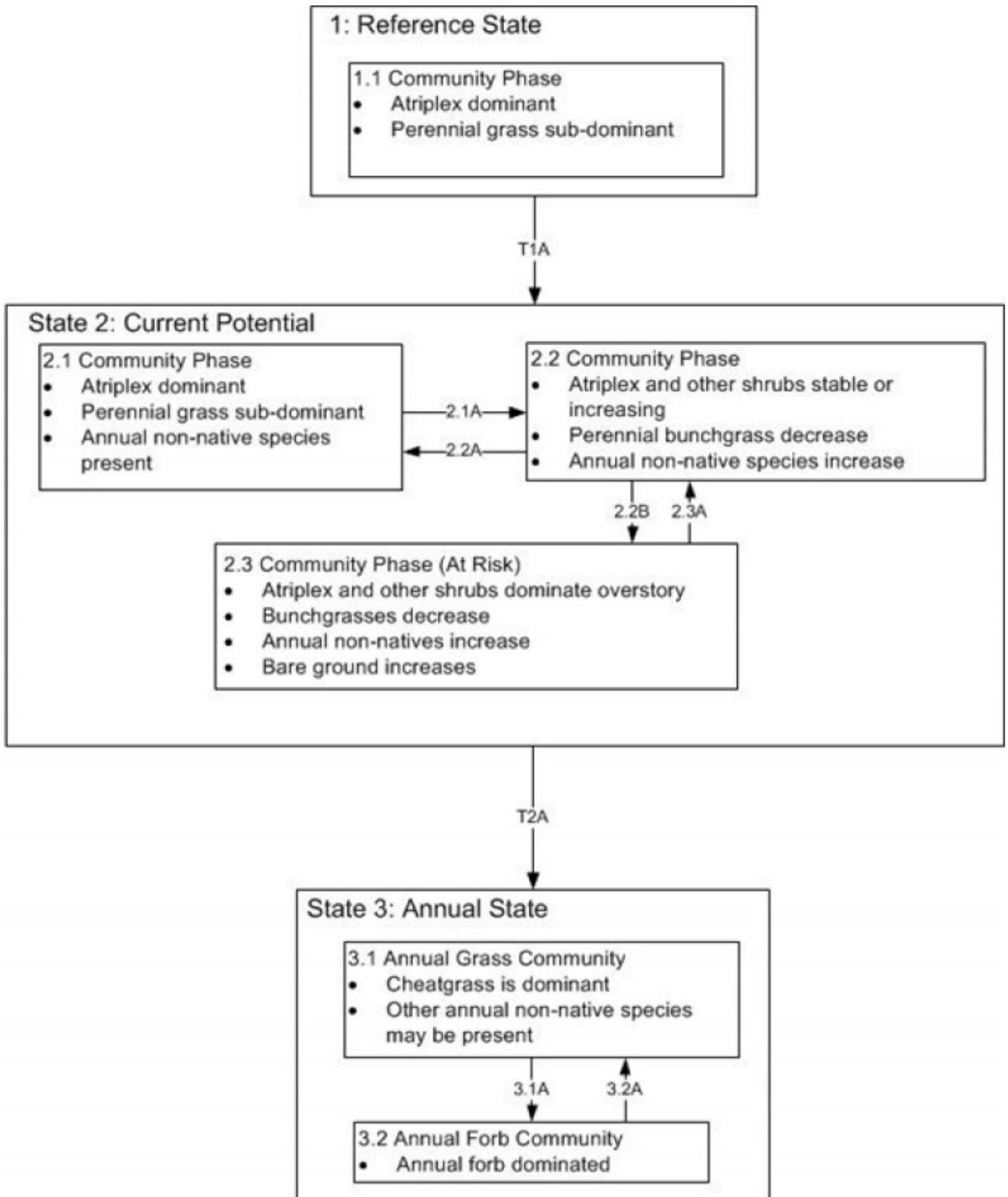


Figure 3. DRAFT STM

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 Bonneville saltbush and shadscale. Greenmolly kochia and Indian ricegrass are other important species associated with this site. Potential vegetative composition is about 20% grasses, 5% forbs and 75% shrubs. Approximate ground cover (basal and crown) is 15 to 20 percent.

Table 4. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	75	188	262
Grass/Grasslike	20	50	70
Forb	2	12	18
Total	97	250	350

State 2

Current Potential State

State 3

Annual State

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	Primary Perennial Grasses			38–63	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	25–38	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	13–25	–
2	Secondary Perennial Grasses			3–15	
	threeawn	ARIST	<i>Aristida</i>	1–5	–
	King's eyelashgrass	BLKI	<i>Blepharidachne kingii</i>	1–5	–
Forb					
3	Perennial			5–13	
	globemallow	SPHAE	<i>Sphaeralcea</i>	1–5	–
4	Annual			1–11	
Shrub/Vine					
5	Primary Shrubs			126–188	
	Bonneville saltbush	ATBO	<i>Atriplex bonnevillensis</i>	113–150	–
	winterfat	KRLA2	<i>Krascheninnikovia lanata</i>	13–38	–
6	Secondary Shrubs			12–32	
	shadscale saltbush	ATCO	<i>Atriplex confertifolia</i>	3–8	–
	chrysactinia	CHRY5	<i>Chrysactinia</i>	3–8	–
	Nevada jointfir	EPNE	<i>Ephedra nevadensis</i>	3–8	–

Animal community

Livestock Interpretations:

This site is suited to livestock production. Grazing management should be keyed to Indian ricegrass production. Indian ricegrass is highly palatable to all classes of livestock in both green and cured condition. 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. Winterfat is an important forage plant for livestock, especially during winter when forage is scarce. Abusive grazing practices have reduced or eliminated winterfat on some areas even though it is fairly resistant to browsing. Effects depend on severity and season of grazing.

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:

Winterfat is an important forage plant for Wildlife, especially during winter when forage is scarce. Winterfat seeds are eaten by rodents. Winterfat is a staple food for black-tailed jackrabbit. Mule deer and pronghorn antelope browse winterfat. Winterfat is used for cover by rodents. It is potential nesting cover for upland game birds, especially when grasses grow up through its crown. Bottlebrush squirreltail is a dietary component of several wildlife species. Bottlebrush squirreltail may provide forage for mule deer and pronghorn. Indian ricegrass is an important forage for several wildlife species.

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

Indian ricegrass was traditionally eaten by some Native Americans. The Paiutes used seed as a reserve food source.

Other information

Winterfat adapts well to most site conditions, and its extensive root system stabilizes soil. However, winterfat is intolerant of flooding, excess water, and acidic soils. Bottlebrush squirreltail is tolerant of disturbance and is a suitable species for revegetation.

Type locality

Location 1: Lincoln County, NV	
Township/Range/Section	T1S R60E S17
General legal description	Section 17, T1S. R60E. MDBM. Approximately 1.5 miles east of Murphy Gap Reservoir and 50 feet south of dirt road. USGS Murphy Gap SE 7.5 minute topographic quadrangle, Lincoln 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

CMJ/JWM/PN-E

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	05/15/2013
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None
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2. **Presence of water flow patterns:** Water flow patterns are often numerous where run-in occurs on the basin floor.
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3. **Number and height of erosional pedestals or terracettes:** Pedestals are none to rare with occurrence typically limited to areas within water flow patterns.
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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground >50%
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5. **Number of gullies and erosion associated with gullies:** None
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6. **Extent of wind scoured, blowouts and/or depositional areas:** None
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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.
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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 3 on most soil textures found on this site. (To be field tested.)
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Structure of soil surface is subangular blocky or 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 to 1 percent. Surface soils are typically silt loams. The surface layer of these soils will normally develop a vesicular crust, inhibiting water infiltration and seedling emergence
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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. Subangular blocky structure or subsoil argillic 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: Tall-statured shrubs (four-wing saltbush)
- Sub-dominant: deep-rooted, cool season, perennial bunchgrass (Indian ricegrass) > associated shrubs > shallow-rooted, cool season, perennial bunchgrasses > deep-rooted, cool season, perennial forbs = fibrous, shallow-rooted, cool season, annual and perennial forbs
- Other:

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 (15-20%) 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 (thru May) ± 250 lbs/ac; Favorable years ± 350 lbs/ac and unfavorable years ± 100 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 drought years.
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