USDA Natural Resources Conservation Service

Ecological site R029XY072NV
VALLEY WASH

Accessed: 12/19/2025

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.

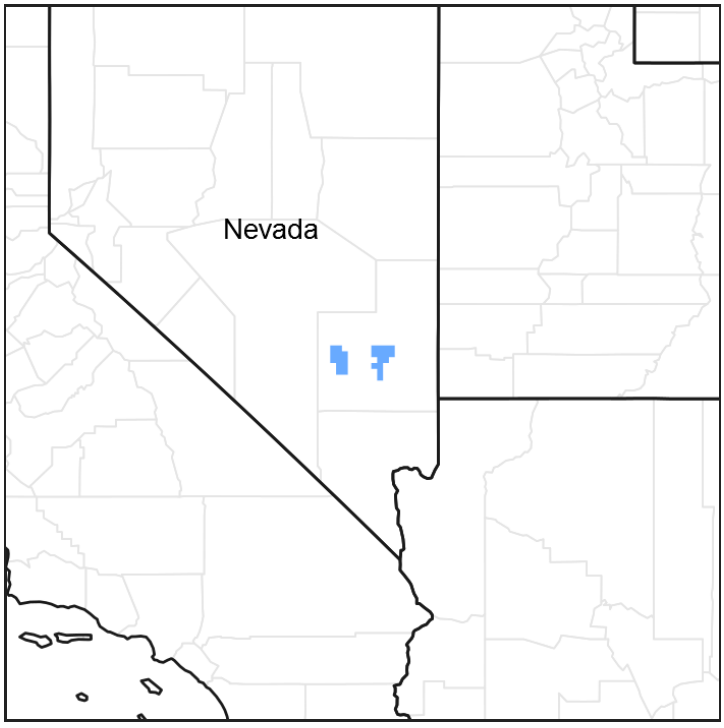

Figure 1. Mapped extent

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

R029XY017NV	**LOAMY 5-8 P.Z.**
R029XY020NV	**SILTY 5-8 P.Z.**

Similar sites

R029XY041NV	**DRY WASH** ERNAN5-ATCO codominant shrubs; less productive site
R029XY009NV	**UPLAND WASH** ARTR2 dominant shrub; higher elevations

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex canescens* (2) *Ambrosia eriocentra*
Herbaceous	(1) *Achnatherum hymenoides*

Physiographic features

This site occurs in drainageways of inset fans and axial-stream terraces. Slopes range from 0 to 15 percent, but slope gradients of 2 to 8 percent are typical. Elevations are 4000 to about 5500 feet.

Table 2. Representative physiographic features

Landforms	(1) Inset fan (2) Drainageway
Elevation	4,000–5,500 ft
Slope	0–15%
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 5 to 8 inches. Mean annual air temperature is 49 to 60 degrees F. The average growing season is about 120 to 180 days.

Table 3. Representative climatic features

Frost-free period (average)	180 days
Freeze-free period (average)	0 days
Precipitation total (average)	8 in

Influencing water features

This site is frequently disturbed by intense, natural, flood flows.

Soil features

The soils associated with this site are deep alluvium from mixed sources. The soils are quite variable as they continue to be re-worked by water. These soils typically have high amounts of gravels and cobbles distributed throughout the soil profile as well as at the surface. The water intake rates are high, available water capacity is low, runoff is medium and soils are well drained.

Ecological dynamics

This site is frequently disturbed by intense, natural, flood flows. Hollyleaf bursage, burrobrush, and rabbitbrush are the dominant shrubs as the plant community begins to stabilize following major disturbance. Species likely to invade this site are annuals such as cheatgrass and mustards. Ratings of ecological condition and determinations of similarity index are not applicable to this site due to the inherent instability of the plant community.

Fire Ecology:
Fourwing saltbush is most common under regimes of infrequent fire and moderate browsing. Fire top-kills or kills fourwing saltbush, depending upon ecotype. Fourwing saltbush may sprout after top-kill. There is little mention of fire in relation to hollyleaf bursage in the literature. Downy rabbitbrush is usually top-killed by fire. It has high resin content, and both foliage and stems may be consumed, even with relatively high moisture content. Fuel distribution as well as overall fuel loading affects the potential survival of downy rabbitbrush. Downy rabbitbrush regenerates after fire by sprouting and by establishing from off-site seed. Nevada ephedra generally sprouts after fire damages aboveground vegetation. Underground regenerative structures commonly survive when aboveground vegetation is consumed by fire. However, severe fires may kill shallowly buried regenerative structures. Purple sage has a high tolerance to fire and will resprout following fire. Fire generally kills hollyleaf bursage. 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

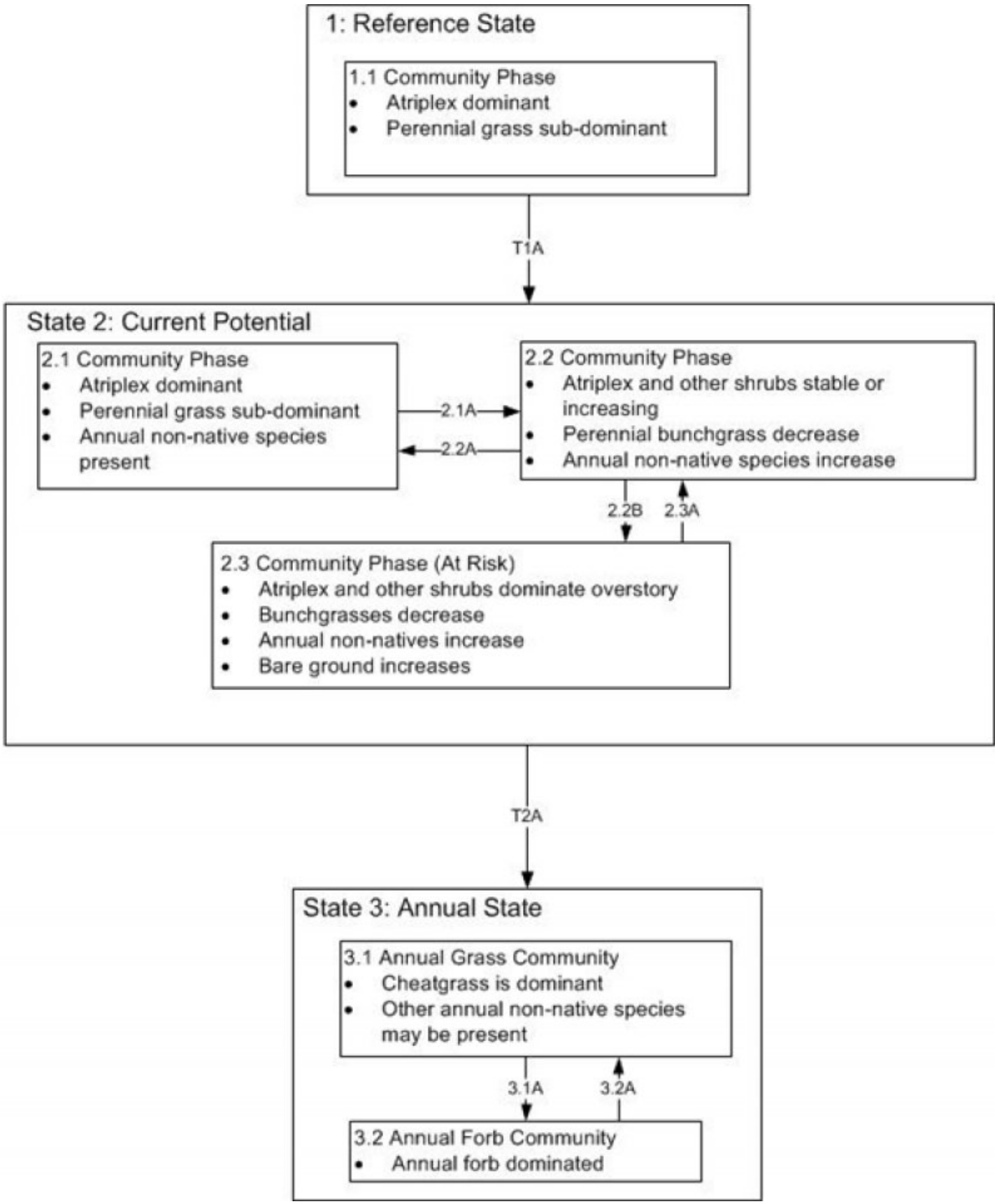

Figure 3. DRAFT STM

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

State 1
Reference State

Community 1.1
Reference Plant Community

The reference plant community is dominated by fourwing saltbush and hollyleaf bursage. Potential vegetative composition is about 5% grasses, 15% annual and perennial forbs and 80% shrubs. Approximate ground cover (basal and crown) is less than 10 percent (~7%).

Table 4. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	160	400	560
Forb	30	75	105
Grass/Grasslike	10	25	35
Total	**200**	**500**	**700**

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**			10–50	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	3–15	–
	threeawn	ARIST	*Aristida*	3–15	–
	squirreltail	ELEL5	*Elymus elymoides*	3–15	–
	needle and thread	HECO26	*Hesperostipa comata*	3–15	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	3–15	–
Forb					
2	**Perennial**			12–75	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	3–15	–
	squirreltail	ELEL5	*Elymus elymoides*	3–15	–
	needle and thread	HECO26	*Hesperostipa comata*	3–15	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	3–15	–
	buckwheat	ERIOG	*Eriogonum*	3–15	–
	smoothstem blazingstar	MELA2	*Mentzelia laevicaulis*	3–15	–
	beardtongue	PENST	*Penstemon*	3–15	–
	globemallow	SPHAE	*Sphaeralcea*	3–15	–
3	**Annual**			1–25	
Shrub/Vine					
4	**Primary Shrubs**			290–490	
	fourwing saltbush	ATCA2	*Atriplex canescens*	150–200	–
	woolly fruit bur ragweed	AMER	*Ambrosia eriocentra*	100–150	–
	yellow rabbitbrush	CHVIP4	*Chrysothamnus viscidiflorus ssp. puberulus*	25–75	–
	Nevada jointfir	EPNE	*Ephedra nevadensis*	10–40	–
	purple sage	SADOI	*Salvia dorrii ssp. dorrii var. incana*	5–25	–

5	**Secondary Shrubs**			25–75	
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	5–15	–
	brittlebush	ENCEL	*Encelia*	5–15	–
	rubber rabbitbrush	ERNAN5	*Ericameria nauseosa ssp. nauseosa var. nauseosa*	5–15	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	5–15	–
	burrobrush	HYMEN3	*Hymenoclea*	5–15	–
	water jacket	LYAN	*Lycium andersonii*	5–15	–
	banana yucca	YUBA	*Yucca baccata*	5–15	–

Animal community

Livestock Interpretations:
This site is suited to livestock grazing. 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. 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. Downy rabbitbrush is tolerant of grazing and may be rejuvenated by foliage removal. Downy rabbitbrush commonly increases on degraded rangelands as more palatable species are removed. Nevada ephedra is important winter range browse for domestic cattle, sheep and goats. Purple sage has low to medium platability for livestock.

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. Downy rabbitbrush provides an important source of browse for wildlife, particularly in the late fall and early winter after more palatable species have been depleted. Wild ungulates show varying preference for Douglas' rabbitbrush depending on season, locality, and subspecies. Mature or partially mature plants are generally preferred

to green, immature ones. Downy rabbitbrush provides important cover for pronghorn fawns. In parts of the Great Basin, plants regrew rapidly after they were nearly completely consumed by spring-browsing black-tailed jackrabbits. Mule deer, bighorn sheep, and pronghorn browse Nevada ephedra, especially in spring and late summer when new growth is available. Purple sage has low to medium platability for wildlife. Indian ricegrass is an important forage for several wildlife species.

Hydrological functions

Runoff is medium.

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. They ground the seeds 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. Downy rabbitbrush can be a source of rubber and possibly valuable resins. Native Americans used Nevada ephedra as a tea to treat stomach and kidney ailments. Indian ricegrass was traditionally eaten by some Native Americans. The Paiutes used seed as a reserve food source.

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. Nevada ephedra is useful for erosion control, and seedlings have been successfully planted onto reclaimed strip mines, with survival ranging from 12 to 94%. Atrazine may be effective in controlling Nevada ephedra, though some plants can survive through crown sprouting. Irrigation may increase control by atrazine. Indian ricegrass is well-suited for surface erosion control and desert revegetation although it is not highly effective in controlling sand movement.

Type locality

Location 1: Lincoln County, NV	
Township/Range/Section	T6S R64E S10

Latitude	37° 26′ 43″
Longitude	114° 48′ 2″
General legal description	37º 26' 43" N Latitude 114º 48' 02" W Longitude Cedar Wash, about 2 miles southwest of Delamar (Site), Delamar Valley, 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

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

Indicators

1. **Number and extent of rills:**

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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:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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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:**

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17. **Perennial plant reproductive capability:**
