USDA Natural Resources
Conservation Service

Ecological site R029XY162NV
ERODED SLOPE 8-10 P.Z.

Accessed: 05/12/2025

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.

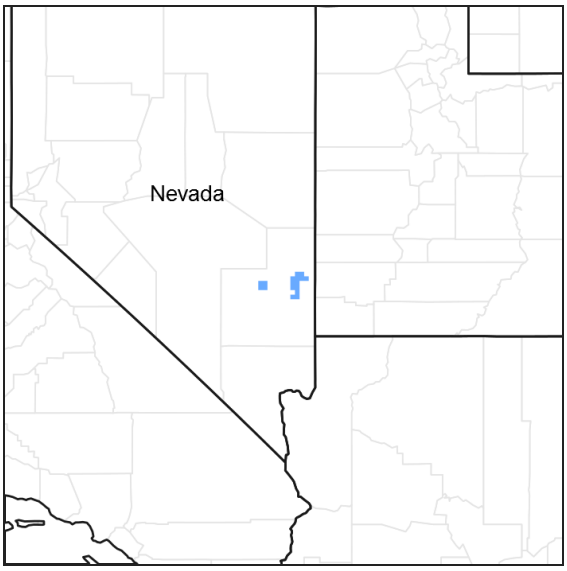

Figure 1. Mapped extent

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

R029XY006NV	**LOAMY 8-10 P.Z.**
R029XY161NV	**SHALLOW COBBLY LOAM 8-10 P.Z.**

Similar sites

R029XY085NV	**BOULDERY SLOPE 5-8 P.Z.** EPVI-ERFAP dominant shrubs; more productive site
R029XY021NV	**LOAMY HILL 5-8 P.Z.** GRSP-LYCIU dominant shrubs

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Psorothamnus polydenius* (2) *Chrysothamnus nauseosus*
Herbaceous	(1) *Achnatherum hymenoides*

Physiographic features

This site occurs on eroding sideslopes of fan remnants and partial ballenas. Slopes range from 15 to 50 percent. Elevations are 4250 to about 6400 feet.

Table 2. Representative physiographic features

Landforms	(1) Ballena (2) Fan remnant
Elevation	4,250–6,400 ft
Slope	15–50%
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 (6) 8 to 10 inches. Mean annual air temperature is 50 to 53 degrees F. The average growing season is about 110 to 140 days.

Table 3. Representative climatic features

Frost-free period (average)	140 days
Freeze-free period (average)	0 days
Precipitation total (average)	10 in

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soils associated with this site are very shallow to a duripan and well drained. These soils have formed in calcareous loess over gravelly alluvium derived from limestone. The soil profile is modified with over 35 percent rock fragments. High amounts of rock fragments occur at the soil surface. Coarse fragments on the surface provide a stabilizing affect on surface erosion conditions. Runoff is high to very high, available water capacity is very low and water intake rates are very slow to moderate.
The soil series associated with this site is Treadwell.

Table 4. Representative soil features

Surface texture	(1) Gravelly sandy loam
Drainage class	Well drained to somewhat excessively drained
Permeability class	Very slow to moderate
Soil depth	2–10 in
Surface fragment cover <=3"	0–45%
Surface fragment cover >3"	0–70%
Available water capacity (0-40in)	0.4–0.5 in
Calcium carbonate equivalent (0-40in)	10–20%
Electrical conductivity (0-40in)	0–2 mmhos/cm

Sodium adsorption ratio (0-40in)	0–5
Soil reaction (1:1 water) (0-40in)	7.4–11
Subsurface fragment volume <=3" (Depth not specified)	10–65%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

As ecological condition declines, Nevada dalea, rubber rabbitbrush, and horsebrush will increase while Indian ricegrass will decrease. Red brome and cheatgrass are species likely to invade this site.

Fire Ecology:
Mean fire return intervals for desert shrub communities is greater than 100 years. Fire is a very rare occurrence on this sparse site. Rubber rabbitbrush is often top-killed by fire. Rubber rabbitbrush is a fire-adapted species that is typically unharmed or enhanced by fire. Recovery time is often rapid to very rapid. Rubber rabbitbrush is often one of the first species to colonize burned areas by sprouting or from off-site seed. Nevada dalea has little adaptation to fire and is probably killed. Green ephedra generally sprouts vigorously from the roots or root crown after fire and rapidly produces aboveground biomass from surviving meristematic tissue. 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

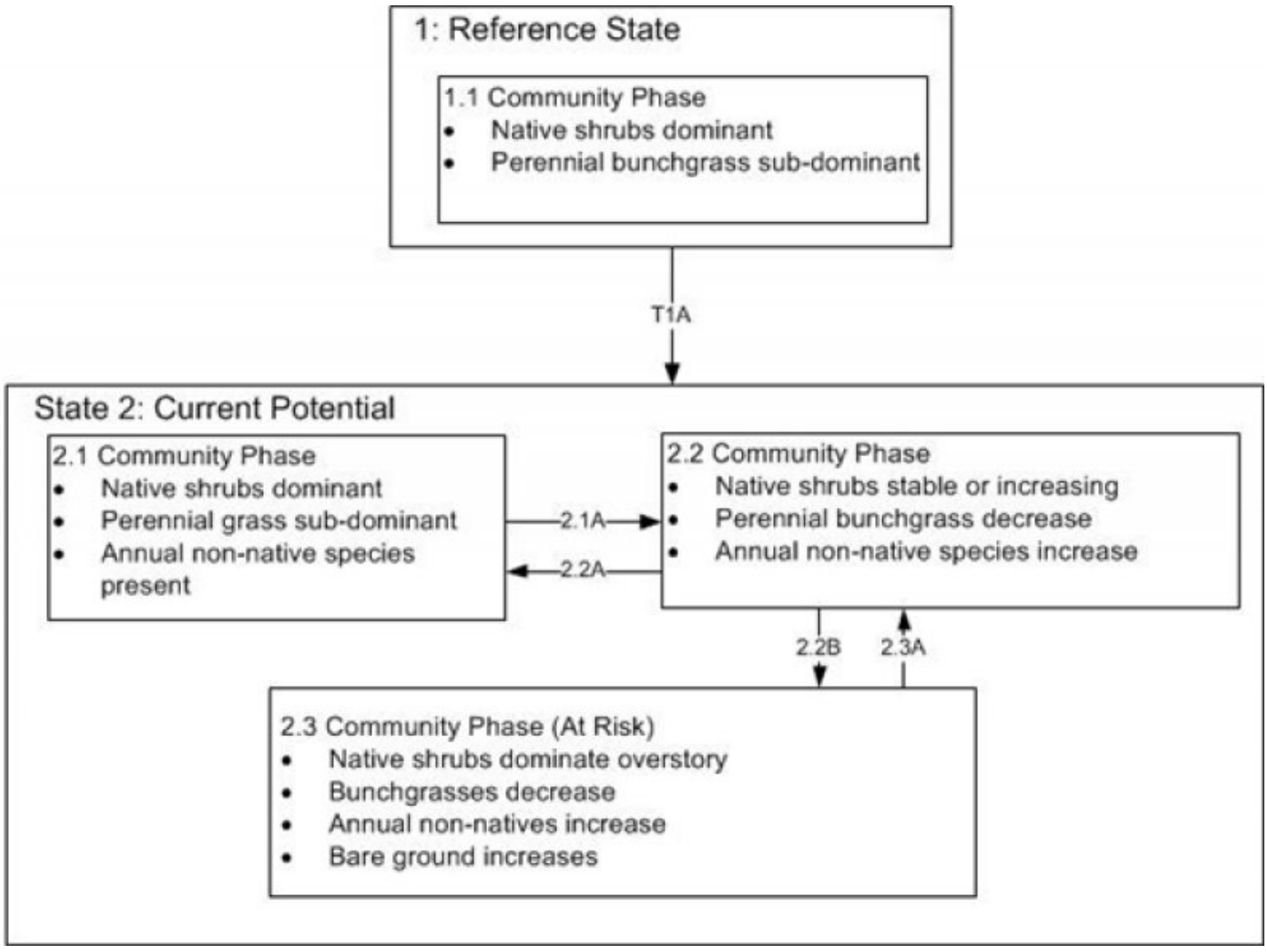

Figure 3. DRAFT STM

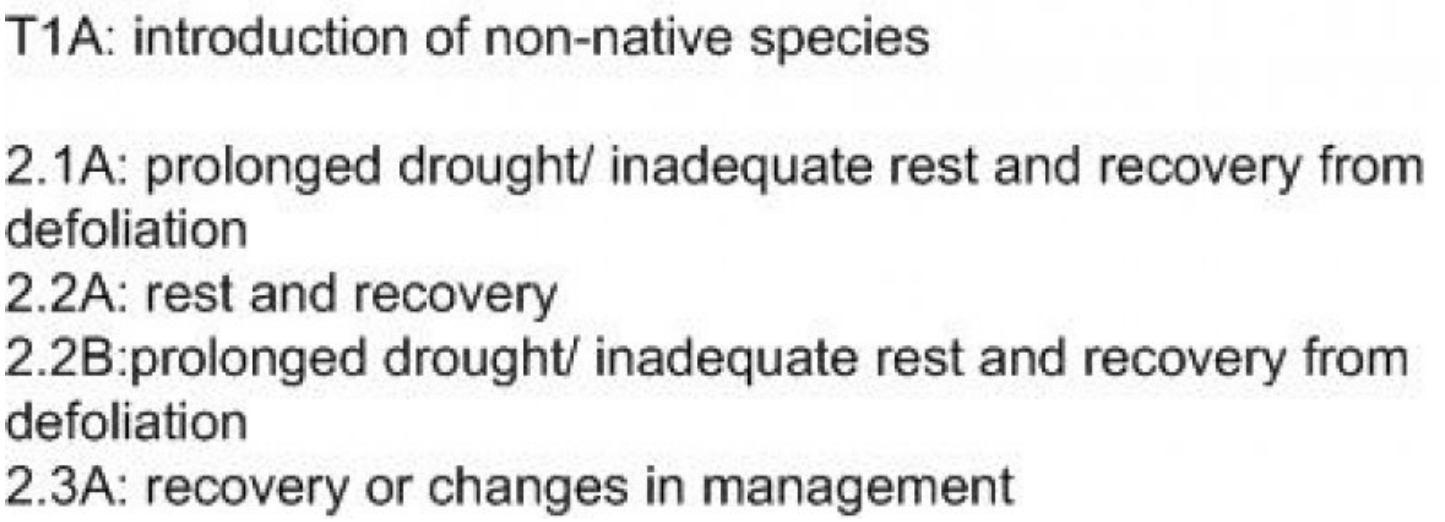

Figure 4. DRAFT STM LEGEND

State 1
Reference State

Community 1.1
Reference Plant Community

The reference plant community is dominated by Nevada dalea, rubber rabbitbrush, and Indian ricegrass. Potential vegetative composition is about 15% grasses, 10% forbs, and 75% shrubs. Approximate ground cover (basal and crown) is 5 to 10 percent.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	56	94	131
Grass/Grasslike	11	18	26
Forb	8	13	18
Total	**75**	**125**	**175**

State 2
Current Potenital

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**			6–13	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	6–13	–
2	**Secondary Perennial Grasses**			3–10	
	threeawn	ARIST	*Aristida*	1–3	–
	King's eyelashgrass	BLKI	*Blepharidachne kingii*	1–3	–
	squirreltail	ELEL5	*Elymus elymoides*	1–3	–
	James' galleta	PLJA	*Pleuraphis jamesii*	1–3	–
Forb					
3	**Perennial**			3–10	
	James' galleta	PLJA	*Pleuraphis jamesii*	1–3	–
	globemallow	SPHAE	*Sphaeralcea*	1–3	–
4	**Annual**			1–4	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	6–13	–
	squirreltail	ELEL5	*Elymus elymoides*	1–3	–
Shrub/Vine					
5	**Primary Shrubs**			68–107	
	rubber rabbitbrush	ERNAN5	*Ericameria nauseosa ssp. nauseosa var. nauseosa*	31–44	–
	Nevada dalea	PSPO	*Psorothamnus polydenius*	31–44	–
	mormon tea	EPVI	*Ephedra viridis*	6–19	–
6	**Secondary Shrubs**			6–19	
	Heermann's buckwheat	ERHE	*Eriogonum heermannii*	1–4	–
	burrobrush	HYSA	*Hymenoclea salsola*	1–4	–
	desert pepperweed	LEFR2	*Lepidium fremontii*	1–4	–
	Fremont's mahonia	MAFR3	*Mahonia fremontii*	1–4	–
	spiny menodora	MESP2	*Menodora spinescens*	1–4	–
	desert snowberry	SYLO	*Symphoricarpos longiflorus*	1–4	–
	littleleaf horsebrush	TEGL	*Tetradymia glabrata*	1–4	–

Animal community

Livestock Interpretations:
This site has limited value for livestock production due to steep slopes and low forage production. Grazing management should be keyed to perennial grass 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. In general, livestock forage only lightly on this species during the summer, but winter use can be heavy in some locations. Fall use is variable, but flowers are often used by livestock. A few leaves and the more tender stems may also be used. Nevada dalea is of little importance to livestock due to its low palatability. Green ephedra is heavily browsed by livestock on winter range but only moderately or lightly browsed during other seasons.

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:
Wildlife forage only lightly on rubber rabbitbrush during the summer, but winter use can be heavy in some locations. Fall use is variable, but flowers are often used by wildlife. A few leaves and the more tender stems may also be used. The forage value of rubber rabbitbrush varies greatly among subspecies and ecotypes. Green ephedra is an important browse species for big game. It is heavily browsed by big game on winter range because the stems are usually above the snow. It is only moderately or lightly browsed during other seasons. Nevada dalea has low palatability so is little used by wildlife. Indian ricegrass is eaten by pronghorn in moderate amounts whenever available. A number of heteromyid rodents inhabiting desert rangelands show preference for seed of Indian ricegrass. Indian ricegrass is an important component of jackrabbit diets in spring and summer. Indian ricegrass seed provides food for many species of birds. Doves, for example, eat large amounts of shattered Indian ricegrass seed lying on the ground.

Hydrological functions

Runoff is medium to high. Permeability is very slow to moderate.

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.

Type locality

Location 1: Lincoln County, NV	
Township/Range/Section	T2S R61E S23
General legal description	West of Hwy. 318, approximately 15 miles north of Hiko, Nevada.

Other references

Fire Effects Information System (Online; http://www.fs.fed.us/database/feis/plants/)

Hood, Sharon M.; Miller, Melanie, editors. 2007. Fire Ecology and Management of the Major Ecosystems of Southern Utah. Gen. Tech. Rep. RMRS-GTR-202. Fort Collins, CO: U.S. Department of agriculture, Forest Service, Rocky Mountain Research Station. 110p.

USDA-NRCS Plants Database (Online; http://www.plants.usda.gov)

Contributors

CMJ/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)	
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:**

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:**
