Ecological site R030XA063NV
SANDY 5-7 P.Z.

Last updated: 3/11/2025
Accessed: 05/11/2025

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.

Ecological site concept

This site occurs on thick sandsheets. Slopes range from 2 to 15 percent. Elevations are 3400 to 3900 feet. Soils associated with this site are very deep and have formed in aeolian sands from mixed rock sources.

Please refer to group concept R030XB148CA to view the provisional STM.

Associated sites

R030XA058NV	**LIMY 5-7 P.Z.**
R030XA069NV	**LIMY SAND 5-7 P.Z.**

Similar sites

R030XA069NV	**LIMY SAND 5-7 P.Z.** Less productive site; AMDU2 major species
R030XA064NV	**LOAMY BOTTOM** More productive site; PROSO codominant
R030XA011NV	**SILTY TERRACE 5-7 P.Z.** ATTO-ATCA2 codominant; ATCO major shrub

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex canescens* (2) *Krascheninnikovia lanata*
Herbaceous	(1) *Achnatherum hymenoides*

Physiographic features

This site occurs on thick sandsheets. Slopes range from 2 to 15 percent. Elevations are 3400 to 3900 feet.

Table 2. Representative physiographic features

Landforms	(1) Sand sheet
Elevation	3,400–3,900 ft
Slope	2–15%
Aspect	Aspect is not a significant factor

Climatic features

The climate is hot and arid, with mild winters and very hot summers. Precipitation is greatest in the winter with a lesser secondary peak in summer, typical of the Mojave Desert. Average annual precipitation is 5 to 7 inches. Mean annual air temperature is 56 to 65 degrees F. The average growing season is about 190 to 240 days.

Table 3. Representative climatic features

Frost-free period (average)	240 days
Freeze-free period (average)	
Precipitation total (average)	7 in

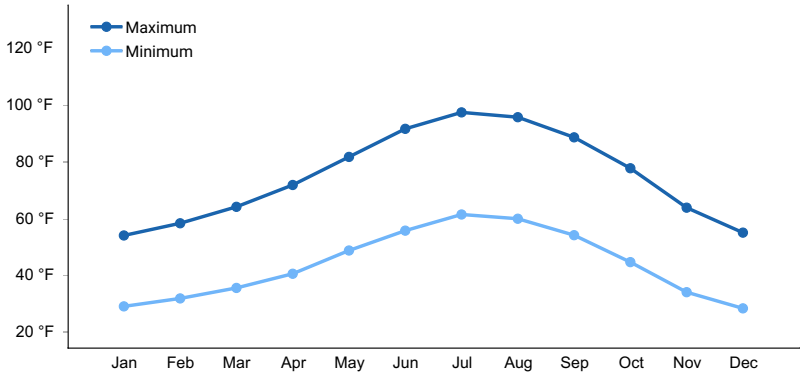

Figure 1. Monthly average minimum and maximum temperature

Influencing water features

There are no influencing water features associated with this site.

Soil features

Soils associated with this site are very deep and have formed in aeolian sands from mixed rock sources. The soil surface has a cover of less than 15 percent, small, usually rounded, pebbles (<1.2” diameter). Water intake rates are moderately rapid and available water capacity is very low, and runoff is very low. The soil series associated with this site includes: Bluepoint.

Table 4. Representative soil features

Surface texture	(1) Loamy fine sand (2) Gravelly loamy fine sand (3) Very fine sandy loam
Family particle size	(1) Sandy
Drainage class	Somewhat excessively drained
Permeability class	Moderately rapid
Soil depth	72–84 in
Surface fragment cover <=3"	15–16%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	2.7–2.8 in
Calcium carbonate equivalent (0-40in)	0–15%
Electrical conductivity (0-40in)	0–4 mmhos/cm

Sodium adsorption ratio (0-40in)	1–12
Soil reaction (1:1 water) (0-40in)	7.4–9
Subsurface fragment volume <=3" (Depth not specified)	15–16%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Please refer to group concept R030XB148CA to view the provisional STM.

As ecological condition deteriorates, Indian ricegrass, fourwing saltbush and winterfat decrease as creosotebush and dalea increase. Introduced annual forbs and grasses readily invade this site.

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. 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. Nevada ephedra is top-killed by fire. Underground regenerative structures commonly survive when aboveground vegetation is consumed by fire. Nevada ephedra generally sprouts after fire damages aboveground vegetation and may increase in plant cover. Communities in which Nevada dalea occur rarely burned, thus Nevada dalea has little adaptation to fire and is probably killed. 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. Sand dropseed is usually killed or top killed by fire. Individual plants are badly damaged to completely killed by fire, with younger plants suffering less than older plants. Sand dropseed has the potential for postfire regeneration and seedling establishment as seeds within burned areas may remain viable.

State and transition model

Ecosystem states

1. Reference Plant Community

State 1 submodel, plant communities

1.1. Reference Plant Community

State 1
Reference Plant Community

Community 1.1
Reference Plant Community

The reference plant community is dominated by fourwing saltbush, winterfat, and Indian ricegrass. Sand dropseed, Nevada ephedra, and Nevada dalea are other important species associated with this site. Potential vegetative

composition is about 35% grasses, 10% forbs and 55% shrubs. Approximate ground cover (basal and crown) is 4 to 10 percent.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	165	275	385
Grass/Grasslike	105	175	245
Forb	30	50	70
Total	**300**	**500**	**700**

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**			110–200	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	100–150	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	10–50	–
2	**Secondary Perennial Grasses**			1–25	
	desert needlegrass	ACSP12	*Achnatherum speciosum*	3–15	–
	low woollygrass	DAPU7	*Dasyochloa pulchella*	3–15	–
3	**Annual Grasses**			1–15	
Forb					
4	**Perennial forbs**			10–40	
	milkvetch	ASTRA	*Astragalus*	3–10	–
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	3–10	–
5	**Annual forbs**			1–50	
Shrub/Vine					
6	**Primary shrubs**			170–360	
	fourwing saltbush	ATCA2	*Atriplex canescens*	100–200	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	50–100	–
	Nevada jointfir	EPNE	*Ephedra nevadensis*	10–35	–
	Nevada dalea	PSPO	*Psorothamnus polydenius*	10–25	–
7	**Secondary shrubs**			25–75	
	snakeweed	GUTIE	*Gutierrezia*	5–15	–
	pricklypear	OPUNT	*Opuntia*	5–15	–
	horsebrush	TETRA3	*Tetradymia*	5–15	–

Animal community

Livestock Interpretations:
This site is suitable for livestock grazing. 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. Sand dropseed provides fair to good forage for livestock. Sand dropseed's value as livestock forage is regional and dependent upon season. If fall rains are adequate, sand dropseed may have a period of renewed growth, producing new shoots in old sheaths. The persistent green base throughout winter makes sand dropseed an important desert winter range plant. In general, sand dropseed provides fair winter forage for domestic sheep

and is most preferred by cattle of dune rangelands. Fourwing saltbush is 1 of the most palatable shrubs in the West. It provides nutritious forage for all classes of livestock. Fourwing saltbush is adapted to browsing, and may show compensatory growth after stem removal. Old crown wood can produce vigorous sprouts after new growth is browsed; however, plants decline when subjected to overuse. Winterfat is an important forage plant for livestock in salt-desert shrub rangeland and subalkaline flats. Winterfat palatability is rated as good for sheep, good to fair for horses, and fair for cattle. Abusive grazing practices have reduced or eliminated winterfat on some areas even though it is fairly resistant to browsing. Grazing season has more influence on winterfat than grazing intensity. Early winter grazing may actually be beneficial. Nevada ephedra is important winter range browse for domestic cattle, sheep and goats. Nevada ephedra is usually grazed heavily and seems to be perfectly safe for grazing livestock since it induces neither toxicity in ewes or cows, nor congenital deformities in lambs. Nevada dalea is of little importance to livestock due to its low palatability.

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. Winterfat is an important forage plant for wildlife in salt-desert shrub rangeland and subalkaline flats. Animals that browse winterfat include mule deer, Rocky Mountain elk, desert bighorn sheep, and pronghorn antelope. Mule deer, bighorn sheep, and pronghorn browse Nevada ephedra, especially in spring and late summer when new growth is available. Mountain quail eat Ephedra seeds. Nevada dalea has low palatability to many wildlife species. Indian ricegrass is eaten by pronghorn in "moderate" amounts whenever available. In Nevada it is consumed by desert bighorns. 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. In Nevada, Indian ricegrass may even dominate jackrabbit diets during the spring through early summer months. 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. Sand dropseed provides poor forage for wildlife. Large mammals in general show little use of sand dropseed. Sand dropseed is not preferred by pronghorn, elk, and deer. Small mammals and birds utilize sand dropseed to a greater extent than large mammals.

Hydrological functions

Runoff is very low. Permeability is moderately rapid.

Other products

Indian ricegrass was traditionally eaten by some Native Americans. The Paiutes used seed as a reserve food source. Sand dropseed is an edible grass used by Native Americans. Some Native American tribes steeped the twigs of Nevada ephedra and drank the tea as a general beverage.

Other information

Sand dropseed is recommended as a component of grass seed mixtures for sandy and heavy to semi-sandy soils. Good results are seen reseeding dry low lands receiving less than 9 inches (230mm) of precipitation within rangelands of Nevada.

Type locality

Location 1: Nye County, NV	
Township/Range/Section	T9S R45E S22
General legal description	Sarcobatus Flat area, Nye County, Nevada.
Location 2: Nye County, NV	
Township/Range/Section	T9S R45E S23
General legal description	Sarcobatus Flat area, Nye 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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Approval

Kendra Moseley, 3/11/2025

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	05/11/2025
Approved by	Kendra Moseley
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):**

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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):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

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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):**

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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:

    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:**