

Ecological site R030XA062NV SILT FLAT 3-5 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.

Ecological site concept

This site occurs on lake plains and alluvial flats. Slope gradients of 0 to 8 percent are typical. Elevations are 2400 to about 2700 feet. Surface soil textures are clay loam to clay. These soils are well drained and have very high amounts of salt and sodium throughout the soil profile.

Please refer to group concept R030XA096NV to view the provisional STM.

Similar sites

R030XY047NV	ALLUVIAL PLAIN ATPO dominant plant	
R030XY040NV	SODIC TERRACE SPAI & DISP major grasses; ATPO major shrub	

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) Atriplex
Herbaceous	(1) Achnatherum hymenoides

Physiographic features

This site occurs on lake plains and alluvial flats. Slope gradients of 0 to 8 percent are typical. Elevations are 2400 to about 2700 feet.

Table 2. Representative physiographic features

Landforms	(1) Lake plain (2) Alluvial flat
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	Rare
Ponding frequency	None
Elevation	2,400–2,700 ft
Slope	0–8%
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 3 to about 5 inches. Mean annual air temperature is 60 to 72 degrees F. The average growing season is 220 to about 290 days.

Table 3. Representative climatic features

Frost-free period (average)	290 days
Freeze-free period (average)	
Precipitation total (average)	5 in



Figure 1. Monthly average minimum and maximum temperature

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soils associated with this site are very deep and have formed in alluvium from mixed rock sources. Surface soil textures are clay loam to clay. These soils are well drained and have very high amounts of salt and sodium throughout the soil profile. Runoff is low to very high, available water capacity is low to high, and the water intake rate is slow to moderate. The soil surface develops a thick vesicular crust and large bare areas (playettes) are common. The soil series associated with this site includes: Besherm, Haymont, Nopah, and Sanwell.

Surface texture	(1) Clay loam(2) Silty clay(3) Gravelly fine sandy loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Slow to moderate
Soil depth	72–84 in
Surface fragment cover <=3"	20–40%
Surface fragment cover >3"	4–5%
Available water capacity (0-40in)	3.9–7.7 in
Calcium carbonate equivalent (0-40in)	1–65%
Electrical conductivity (0-40in)	0–16 mmhos/cm

Sodium adsorption ratio (0-40in)	0–45
Soil reaction (1:1 water) (0-40in)	7.9–9.6
Subsurface fragment volume <=3" (Depth not specified)	2–40%
Subsurface fragment volume >3" (Depth not specified)	4–5%

Ecological dynamics

Please refer to group concept R030XA096NV to view the provisional STM

As ecological condition deteriorates, shadscale, spinescale saltbush, wolfberry and Torrey's quailbush increase. Introduced annual grasses and forbs readily invade this site.

Fire Ecology:

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. The mean fire return interval for shadscale communities range 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. Fourwing saltbush is most common under regimes of infrequent fire and moderate browsing. Fire topkills or kills fourwing saltbush, depending upon ecotype. Fourwing saltbush may sprout after top-kill. In desert shrublands fire is rare due to lack of continuous fuels. The expansion of invasive annuals such as cheatgrass and red brome can increase the frequency of fire in these ecosystems. Fires in saltbush vegetation are likely to be more severe and spread faster with increasing fuel porosity, decreasing levels of moisture, and increasing amounts of fine fuels and dead vegetation. Little is known of the role of fire in riparian habitats of the desert Southwest. Big saltbrush produces abundant seeds and is demonstrably fire resistant. Big saltbrush has been shown to have reduced flammability due to high moisture and ash contents. More research is needed to fully understand the ability of big saltbrush to recover from fire and recolonize burned areas. However, big saltbrush is likely to have the best chance of persistence when prefire plant moisture contents are high and fire severity and frequency are low. Following fire, Parry's saltbush regenerates from on and off-site seed sources. 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

Ecosystem states



State 1 submodel, plant communities

1.1. Reference Plant Community

Community 1.1 Reference Plant Community

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

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	170	425	595
Forb	20	50	70
Grass/Grasslike	10	25	35
Total	200	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/	Grass/Grasslike				
1	Primary Perennial Grasses		1–30		
	Indian ricegrass	ACHY	Achnatherum hymenoides	1–30	-
2	Secondary Perennial	Grasses		1–30	
	threeawn	ARIST	Aristida	3–10	-
	low woollygrass	DAPU7	Dasyochloa pulchella	3–10	-
Forb					
3	Perennial forbs			10–40	
4	Annual forbs			1–30	
Shrub/Vine					
5	Primary shrubs		180–500		
	shadscale saltbush	ATCO	Atriplex confertifolia	75–225	_
	spinescale saltbush	ATSP	Atriplex spinifera	50–100	_
	fourwing saltbush	ATCA2	Atriplex canescens	25–75	-
	Torrey's saltbush	ATTO	Atriplex torreyi	10–50	_
	desert-thorn	LYCIU	Lycium	10–25	-
	Parry's saltbush	ATPA3	Atriplex parryi	10–25	-
6	Secondary shrubs			25–75	
	burrobush	AMDU2	Ambrosia dumosa	5–25	-
	winterfat	KRLA2	Krascheninnikovia lanata	5–25	-
	creosote bush	LATR2	Larrea tridentata	5–25	-
	seepweed	SUAED	Suaeda	5–25	_

Animal community

Livestock Interpretations:

This site has limited value for livestock grazing, due to the low forage 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. Shadscale provides good browse for domestic sheep and goats. Shadscale leaves and seeds are an important component of domestic sheep and cattle winter diets. Shadscale

tends to be browse tolerant. Heavy grazing during the winter and/or spring reduces shadscale. Die-off can also occur during extended periods of high precipitation. Shadscale is tolerant of early spring light-intensity browsing. 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. Big saltbrush is important and is used to some extent as livestock forage. Leaves and seeds of big saltbrush are eaten by many species of livestock. Parry's saltbush is highly palatable to 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:

Shadscale is a valuable browse species providing a source of palatable, nutritious forage for a wide variety of wildlife. The fruits and leaves are a food source for deer, desert bighorn sheep and pronghorn antelope. Fourwing saltbush provides valuable habitat and year-round browse for wildlife. Leaves and seeds of big saltbrush are eaten by many species like the mule deer and pronghorn antelope. Parry's saltbush is highly palatable to wildlife. 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.

Hydrological functions

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

Other products

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

Other information

Big saltbrush is a recommended revegetation species in riparian areas and has also been used in revegetation projects in other habitats and outside its native distribution. It has been utilized in soil stabilization and improvement or creation of habitat and forage for wildlife.

Type locality

Location 1: Nye County, NV				
Township/Range/Section	T20S R53E S20			
General legal description	Pahrump Valley area, about 4 miles west of Pahrump, Nye County, Nevada.			
Location 2: Nye County, NV				
Township/Range/Section	T20S R53E S21			
General legal description	Pahrump Valley area, about 4 miles west of Pahrump, 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):
- 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:

- 13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):
- 14. Average percent litter cover (%) and depth (in):
- 15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annualproduction):
- 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:
- 17. Perennial plant reproductive capability: