USDA Natural Resources
Conservation Service

Ecological site R030XB079NV
GYPSIC SLOPE 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 fan piedmonts, alluvial fans and alluvial plains on all exposures. Slopes range from 0 to 15 percent, but slope gradients of 2 to 8 percent are most typical. Elevations are 1500 to about 3000 feet. The soil associated with this site are deep and very high in gypsum. They are somewhat excessively drained and formed in residuum and colluvium from gypsiferous sedimentary rocks.

Please refer to group concept R030XB104NV to view the provisional STM.

Associated sites

R030XB019NV	**Eroded Fan Remnant Pavette 4-6 P.Z.**

Similar sites

R030XB109NV	**GYPSIC BARREN 3-5 P.Z.** PSFR & PEPA13 codominant shrubs
R030XB117NV	**GYPSIC SAND 3-5 P.Z.** PSFR dominant shrub; ATCA2 major shrub; ATHY rare to absent
R030XB026NV	**GYPSIC LOAM 3-5 P.Z.** PSFR codominant shrub; PEPA13 important shrub

Table 1. Dominant plant species

Tree	Not specified

Shrub	(1) *Atriplex hymenelytra* (2) *Suaeda*
Herbaceous	Not specified

Physiographic features

This site occurs on fan piedmonts, alluvial fans and alluvial plains on all exposures. Slopes range from 0 to 15 percent, but slope gradients of 2 to 8 percent are most typical. Elevations are 1500 to about 3000 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Alluvial fan (3) Alluvial flat
Elevation	457–914 m
Slope	0–15%

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 inches or less. Mean annual air temperature is 65 to 76 degrees F. The average growing season is about 270 to 360 days.

Table 3. Representative climatic features

Frost-free period (average)	360 days
Freeze-free period (average)	
Precipitation total (average)	76 mm

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soil associated with this site are deep and very high in gypsum. They are somewhat excessively drained and formed in residuum and colluvium from gypsiferous sedimentary rocks. Permeability is moderately rapid, available water capacity is moderate to high, and runoff is medium. The soils are usually dry, but are moist for short periods in winter and spring, and moist for 10 to 20 days intermittently in the summer. The soils have a thermic

temperature regime and a typic aridic moisture regime. The soils have an ochric epipedon and a gypsic horizon. There are identifiable secondary carbonates from 2 to 49 inches.

The soil series correlated to this site is Bracken, a coarse-loamy, gypsic, thermic Leptic Haplogypsid.

Table 4. Representative soil features

Parent material	(1) Colluvium–rock gypsum
Surface texture	(1) Material
Family particle size	(1) Loamy
Drainage class	Somewhat excessively drained
Permeability class	Moderately rapid
Soil depth	122–124 cm
Surface fragment cover <=3"	35–40%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	12.7–17.78 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	7.8–7.9
Subsurface fragment volume <=3" (Depth not specified)	0–30%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Please refer to group concept R030XB104NV to view the provisional STM.

As ecological condition deteriorates, total shrub canopy decreases and large openings develop between individual shrubs. Few introduced annual forbs or grasses (red brome, Mediterranean grass, African mustard) will invade this site.

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 desert holly and Suaeda spp. Potential vegetative composition is about 10% annual and perennial native forbs, 10% grasses and 80% shrubs. Approximate ground cover (basal and crown) is less than 5 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	1	45	72
Grass/Grasslike	–	6	9
Forb	–	6	9
Total	**1**	**57**	**90**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Perennial grasses**			1–3	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	0–2	–
	low woollygrass	DAPU7	*Dasyochloa pulchella*	0–2	–
	big galleta	PLRI3	*Pleuraphis rigida*	0–2	–
Forb					
2	**Perennial forbs**			6–11	
3	**Annual forbs**			1–9	
Shrub/Vine					
4	**Primary shrubs**			18–72	
	desertholly	ATHY	*Atriplex hymenelytra*	4–40	–
	desert-thorn	LYCIU	*Lycium*	9–18	–
	seepweed	SUAED	*Suaeda*	9–18	–
5	**Secondary shrubs**			4–13	
	desert pepperweed	LEFR2	*Lepidium fremontii*	1–3	–

Animal community

Livestock Interpretations:
This site has limited value for livestock grazing, due to the low forage production.

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.

Hydrological functions

Water intake rates are slow, available water capacity is moderate to high, runoff is rapid, and the soils are well drained.

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

RWA

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	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills are none to rare. A few may occur on steeper slopes after summer convection storms.

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2. **Presence of water flow patterns:** Water flow patterns are none to rare. A few (short <1m and stable) may occur on steeper slopes after summer convection storms.

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3. **Number and height of erosional pedestals or terracettes:** None

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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 is variable (40-60%) depending on amount of surface rock fragments

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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):** Litter typically remains in place. Fine litter (foliage from grasses and annual & perennial forbs) may move the 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. (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):** Soil surface structure is typically weak coarse platy. Soil surface colors are pale browns and the soils have an ochric epipedon. Organic matter of the surface 2 to 3 inches is less than 1 percent.

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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 break 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):** None. Massive or gypsic sub-surface 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: salt-desert shrubs

Sub-dominant: perennial forbs > perennial grasses > annual forbs > annual grasses

Other:

Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Dead branches within individual shrubs are common and standing dead shrub canopy material may be as much as 25% of total woody canopy.

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14. **Average percent litter cover (%) and depth (in):** Between plant interspaces (trace) and depth (<¼-inch). Litter is concentrated under shrubs and generally stays in place.

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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 ~50lbs/ac. Favorable years ~80 lbs. Little growth during drought years.

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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 red brome, red-stem filaree, mustards, and Mediterranean grass.

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17. **Perennial plant reproductive capability:** All functional groups should reproduce in normal and above-normal rainfall years .Little growth or reproduction during drought years.
