

Ecological site R030XC005NV PIEDMONT WASH

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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 in drainageways. Slopes range from 2 to 8 percent. Elevations range from 4700 to about 5800 feet. The soils in this site are deep alluvium from mixed sources. They are quite variable as they continue to be re-worked by water. Please refer to group concept R030XB186CA to view the provisional STM.

Associated sites

R030XC007NV	SHALLOW GRAVELLY LOAM 7-9 P.Z.
R030XC012NV	GRAVELLY CALCAREOUS INSET FAN 9-11 P.Z.

Similar sites

R030XC012NV	GRAVELLY CALCAREOUS INSET FAN 9-11 P.Z. A more stable plant community. Mountain sagebrush important shrub.
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Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Fallugia paradoxa</i> (2) <i>Lepidospartum latisquamum</i>
Herbaceous	(1) <i>Achnatherum speciosum</i>

Physiographic features

This site occurs in drainageways. Slopes range from 2 to 8 percent. Elevations range from 4700 to about 5800 feet.

Table 2. Representative physiographic features

Landforms	(1) Drainageway
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Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	Occasional to frequent
Elevation	1,430 – 1,770 m
Slope	0 – 10 %
Aspect	Aspect is not a significant factor

Climatic features

The primary air masses affecting the Spring Mountains are cold maritime polar air from the Gulf of Alaska and warmer, moist maritime subtropical air from lower latitudes. Occasionally there are invasions of cold continental polar air from northern Canada or the Rocky Mountains. Precipitation in the area results primarily from the passage of cyclones with associated fronts during fall, winter and spring; from closed cyclones in late winter and spring; and from the flow of moist tropical air from the southeast to the southwest quadrant in the summer.

The mean annual precipitation is about 7 to 9 inches and mean annual air temperature is 51 to 56 degrees F., and the frost-free season is 130 to 180 days. There are no climate stations associated with this site.

Table 3 Representative climatic features

Frost-free period (average)	180 days
Freeze-free period (average)	
Precipitation total (average)	230 mm

Influencing water features

This site is intermittently flooded from spring runoff and runoff from convective summer storms.

Soil features

The soils in this site are deep alluvium from mixed sources. They 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 capacity is low to moderate, runoff is negligible and soils are well drained. Soil classification is Sandy-skeletal, Typic Torriorthents.

Table 4. Representative soil features

Surface texture	(1) Very gravelly sand
Family particle size	(1) Sandy
Drainage class	Excessively drained

Permeability class	Rapid
Soil depth	180 cm
Surface fragment cover <=3"	30 – 50 %
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	3.56 – 4.06 cm
Calcium carbonate equivalent (0-101.6cm)	Not specified
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	0 – 10
Soil reaction (1:1 water) (0-101.6cm)	7.9 – 10
Subsurface fragment volume <=3" (Depth not specified)	40 – 50 %
Subsurface fragment volume >3" (Depth not specified)	0 – 10 %

Ecological dynamics

Please refer to group concept R030XB186CA to view the provisional STM.

This site is frequently disturbed by intense natural flood flows. Rubber rabbitbrush, Nevada broomsage and Apache plume are dominant shrubs as the plant community begins to stabilize following major disturbance. Species likely to invade this site are annuals such as red brome 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 effects:

Fire regimes for this site are similar to adjacent blackbrush plant communities, which historically is on the order of centuries. Aboveground portions of Apache plume are top-killed by fire. It is classified as a survivor following fire. It exhibits vigorous sprouting from root suckers after fire. 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. Desert almond resprouts following fire. Desert peach is typically only top-killed by fire. Neither aboveground stem survival nor complete shrub kill is reported following fire; however, literature on these topics is limited. Desert needlegrass has persistent dead leaf bases, which make it susceptible to burning. Fire removes the accumulation; a rapid, cool fire will not burn deep into the root crown and surviving tufts will resprout.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Primary Perennial Grasses			45-67	
	desert needlegrass	ACSP12	<i>Achnatherum speciosum</i>	45-67	–
2	Secondary Perennial Grasses			22-45	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	2-9	–
	threeawn	ARIST	<i>Aristida</i>	2-9	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	2-9	–
	needle and thread	HECO26	<i>Hesperostipa comata</i>	2-9	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	2-9	–
Forb					
3	Perennial Forbs			22-45	
	desert marigold	BAMU	<i>Baileya multiradiata</i>	2-9	–
	desert trumpet	ERIN4	<i>Eriogonum inflatum</i>	2-9	–
	evening primrose	OENOT	<i>Oenothera</i>	2-9	–
	Palmer's penstemon	PEPA8	<i>Penstemon palmeri</i>	2-9	–
	globemallow	SPHAE	<i>Sphaeralcea</i>	2-9	–
4	Annual Forbs			1-22	
	cushion cryptantha	CRCI2	<i>Cryptantha circumscissa</i>	1-6	–
	Palmer's buckwheat	ERPA11	<i>Eriogonum palmerianum</i>	1-6	–
	blazingstar	MENTZ	<i>Mentzelia</i>	1-6	–
	phacelia	PHACE	<i>Phacelia</i>	1-6	–
Shrub/Vine					
5	Primary Shrubs			179-426	
	Apache plume	FAPA	<i>Fallugia paradoxa</i>	112-224	–
	Nevada broomsage	LELA4	<i>Lepidospartum latisquamum</i>	22-112	–
	desert almond	PRFA	<i>Prunus fasciculata</i>	22-45	–
	rubber rabbitbrush	ERNAN5	<i>Ericameria nauseosa ssp. nauseosa var. nauseosa</i>	22-45	–
6	Secondary Shrubs			22-45	
	big sagebrush	ARTR2	<i>Artemisia tridentata</i>	2-9	–
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	2-9	–
	blackbrush	CORA	<i>Coleogyne ramosissima</i>	2-9	–
	mormon tea	EPVI	<i>Ephedra viridis</i>	2-9	–
	threadleaf snakeweed	GUMI	<i>Gutierrezia microcephala</i>	2-9	–
	water jacket	LYAN	<i>Lycium andersonii</i>	2-9	–
	Stansbury cliffrose	PUST	<i>Purshia stansburiana</i>	2-9	–

	purple sage	SADOD2	<i>Salvia dorrii ssp. dorrii</i>	2-9	–
	Mexican bladdersage	SAME	<i>Salazaria mexicana</i>	2-9	–
	banana yucca	YUBA	<i>Yucca baccata</i>	2-9	–
	Joshua tree	YUBR	<i>Yucca brevifolia</i>	2-9	–

Animal community

Livestock Interpretations: This site has limited value for livestock grazing, due to the low forage production. Grazing management should be keyed to dominant perennial grasses or palatable shrubs production. Apache-plume is usually considered low to fair in palatability to livestock. However, in the southeastern part of its range and in winter it is considered important forage. In general, livestock 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 livestock. A few leaves and the more tender stems may also be used. Heavy grazing by livestock decreased the per acre stem count of desert peach. Young desert needlegrass is palatable to all classes of livestock. Mature herbage is moderately grazed by horses and cattle, but rarely grazed by sheep. 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:** Reports of its value as food to wildlife vary, but most sources rate it as fair or moderate. There are no references in the literature describing its value as cover for large wildlife, but it does provide cover for small mammals and birds. 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. Use of desert peach by mule deer varies largely by location; as low as 1-5% of diet on some sites and up to 57% on other sites. Mule deer consume new desert peach growth in the early spring and frequent desert peach habitat. Numerous small mammals gather and consume desert peach fruits and seeds and/or browse desert peach stems. White-tailed antelope squirrels, Great Basin pocket mice, deer mice, and Panamint kangaroo rats utilize desert peach fruits and seeds. Black-tailed jackrabbits seasonally utilize desert peach as forage. Young desert needlegrass is palatable to many species of wildlife. Desert needlegrass produces considerable basal foliage and is good forage while young. Desert bighorn sheep graze desert needlegrass.

Hydrological functions

This site is frequently disturbed by flash floods for short durations.

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

Bundles of twigs from Apache plume were used by Native Americans as brooms and older stems for arrow shafts. A concoction from leaves was used as a growth stimulant for hair.

Other information

Apache-plume's chief value for rehabilitation of disturbed sites is erosion control/soil stabilization, especially under arid or semi-arid conditions. It is valuable for erosion control/soil stabilization because it spreads underground vegetatively. In addition to its utilization for erosion control, Apache-plume is also used for seeding rangeland. Desert needlegrass seeds are easily germinated and have potential for commercial use. Desert needlegrass may be used for groundcover in areas of light disturbance, but it is susceptible to excessive trampling.

Type locality

Location 1: Clark County, NV	
Township/Range/Section	T19 S. R55 E. S20

General legal description	Lower Wheeler Wash. Approximately 9 miles northeast of Pahrump on Wheeler Pass road. Spring Mountains, Clark County, Nevada.
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Other references

Clokey, Ira. 1951. Flora of the Charleston Mountains, Clark County, Nevada. University of California Press, Berkeley and Los Angeles.

Fire Effects Information System [Online]. <http://www.fs.fed.us/feis>.

Glenne, G., Johnson, D. 2002. Guide to Species of Concern in the Spring Mountains National Recreation Area, Clark and Nye Counties, Nevada. USFS, Las Vegas, NV.

Nachlinger, J., G. Reese. 1996. Plant Community Classification of the Spring Mountains National Recreation Area, Clark and Nye Counties, Nevada. The Nature Conservancy. Reno, Nevada.

Contributors

TJW

Approval

Sarah Quistberg, 2/25/2025

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)	P NOVAK-ECHENIQUE
Contact for lead author	State Rangeland Management Specialist
Date	05/06/2013
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills are none to few.

2. **Presence of water flow patterns:** Water flow patterns are common and may be long (>3 m) and connected. This site is intermittently flooded from spring runoff and during summer convection storms.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are rare with occurrence typically limited to areas within water flow patterns.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**
Bare Ground to 20%; surface rock fragments to 75%;

5. **Number of gullies and erosion associated with gullies:** None

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter (foliage from grasses and annual & perennial forbs) expected to move distance of slope length during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during rainfall or runoff events.

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 4 on most soil textures found on this site. (To be field tested.)

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface structure is typically weak coarse to weak medium platy. Soil surface colors are pale browns and soils are typified by an ochric epipedon. Organic matter of the surface 2 to 3 inches is less than 0.5 percent.

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 raindrop impact. Perennial bunchgrasses and forbs aid in infiltration.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None.

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: evergreen shrubs

Sub-dominant: deciduous shrubs> deep-rooted, cool-season bunchgrasses > perennial forbs > warm-season, bunchgrasses > succulents > annual forbs

Other:

Additional:

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

Dead branches within individual shrubs common and standing dead shrub canopy material may be as much as 25% of total woody canopy; mature bunchgrasses commonly ($\pm 25\%$) have dead centers.

14. Average percent litter cover (%) and depth (in): Between plant interspaces 10-20% and depth ($< \frac{1}{4}$ -inch).

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

For normal or average growing season ± 400 lbs/ac. Favorable years ± 800 lbs/ac and unfavorable years ± 200 lbs/ac

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 on this site include red brome, annual mustards, salt cedar, Mediterranean grass, and redstem filaree.

17. Perennial plant reproductive capability: All functional groups should reproduce in above average and average growing season years.

Less reproduction will occur in below average precipitation years.
