USDA Natural Resources
Conservation Service

Ecological site R030XB032NV
DRY FLOODPLAIN

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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 stream terraces, and fan skirts on all exposures. Slope gradients of 0 to 2 percent are typical. Elevations are 500 to 3800 feet.

Please refer to group concept R030XB020NV to view the provisional STM.

Associated sites

R030XB039NV	**LIMY FAN 5-7 P.Z.**

Similar sites

R030XB121NV	**SANDY PLAIN 3-5 P.Z.** ATCA2 minor species
R030XB039NV	**LIMY FAN 5-7 P.Z.** ATCA2 minor species
R030XB033NV	**SANDY PLAIN 7-9 P.Z.** BOER4 major species
R030XB034NV	**SANDY PLAIN 5-7 P.Z.** more productive site; MUPO2 major species

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex canescens*

Herbaceous	(1) *Pleuraphis rigida*

Physiographic features

This site occurs on stream terraces, and fan skirts on all exposures. Slope gradients of 0 to 2 percent are typical. Elevations are 500 to 3800 feet.

Table 2. Representative physiographic features

Landforms	(1) Stream terrace (2) Fan skirt
Elevation	152–1,158 m
Slope	0–2%
Aspect	Aspect is not a significant factor

Climatic features

The climate of the Mojave Desert has extreme fluctuations of daily temperatures, strong seasonal winds, and clear skies. The climate is arid and is characterized with cool, moist winters and hot, dry summers. Most of the rainfall falls between November and April. Summer convection storms from July to September may contribute up to 25 percent of the annual precipitation. Average annual precipitation is 3 to 7 inches. Mean annual air temperature is 55 to 76 degrees F. The average growing season is about 140 to 320 days.

Table 3. Representative climatic features

Frost-free period (average)	320 days
Freeze-free period (average)	
Precipitation total (average)	178 mm

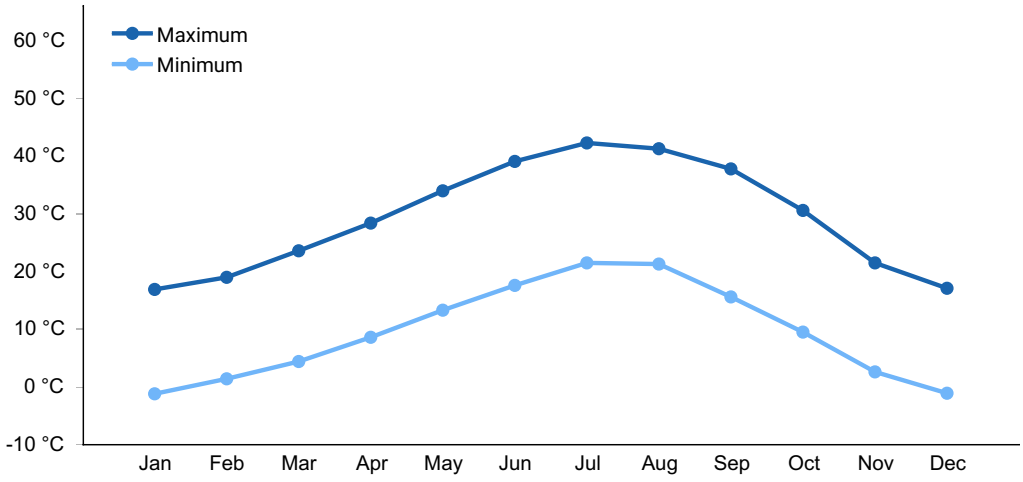

Figure 1. Monthly average minimum and maximum temperature

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 formed in alluvium derived from mixed sources. Surface soils are medium to moderately coarse or coarse textured and may be modified by gravels throughout the soil profile. Water intake rates are moderately slow to moderate, available water holding capacity is low to moderate, runoff is very low to medium and soils are well drained. Potential for sheet or rill erosion is slight. The soil series associated with this site include: Geta and Nonamewash.

Table 4. Representative soil features

Surface texture	(1) Very fine sandy loam (2) Gravelly sandy loam (3) Loamy fine sand
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderate
Soil depth	183–213 cm
Surface fragment cover <=3"	1–23%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	8.89–13.21 cm
Calcium carbonate equivalent (0-101.6cm)	1–41%
Electrical conductivity (0-101.6cm)	0–4 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–12
Soil reaction (1:1 water) (0-101.6cm)	7.9–9
Subsurface fragment volume <=3" (Depth not specified)	1–23%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Please refer to group concept R030XB020NV to view the provisional STM.

As ecological condition deteriorates, creosotebush and wolfberry increase as fourwing saltbush and perennial grasses decrease. With further site deterioration this site is dominated by creosote bush, wolfberry and introduced annual forbs (i.e. filaree) and grasses (i.e. Mediterranean grass and red brome) that readily invade this site.

Fire Ecology:
Fires in the Mojave Desert are infrequent and of low severity because production of annual and perennial herbs seldom provides a fuel load capable of sustaining fire. Fire top-kills or kills fourwing saltbush, depending upon ecotype. Fourwing saltbush may sprout after top-kill. Fire typically destroys aboveground parts of Anderson wolfberry, but the degree of damage to the plant depends on fire severity. Severe fires may kill pale wolfberry, but low- to moderate-severity fires probably only consume its aerial portions. Pale wolfberry sprouts from the root crown following damage, thus, it probably sprouts after fire. 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. Torrey’s ephedra has medium fire tolerance and is similar to Nevada ephedra. Range ratany is top-killed by fire. Range ratany resprouts from the root crown after fire. Fire most likely top-kills big galleta. Big galleta sprouts from rhizomes following fire. Damage to big galleta from fire varies, depending on whether big galleta is dormant when burned. If big galleta is dry, damage may be severe. However, when plants are green, fire will tend to be less severe and damage may be minimal, with big galleta recovering quickly.

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 big galleta and fourwing saltbush. Potential vegetative composition is about 80% grasses, 5% annual and perennial forbs, 15% shrubs. Approximate ground cover (basal and crown) is less than 45 to 60 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1076	1435	2152
Shrub/Vine	202	269	404
Forb	67	90	135
Total	**1345**	**1794**	**2691**

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	**Primary Perennial Grasses**			1076–1345	
	big galleta	PLRI3	*Pleuraphis rigida*	1076–1345	–
2	**Secondary Perennial Grasses**			36–90	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	9–54	–
	dropseed	SPORO	*Sporobolus*	9–54	–
3	**Annual Grasses**			1–54	
	sixweeks grama	BOBA2	*Bouteloua barbata*	9–54	–
Forb					
4	**Perennial forbs**			36–90	
	milkvetch	ASTRA	*Astragalus*	9–54	–
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	9–54	–
5	**Annual forbs**			18–90	
Shrub/Vine					
6	**Primary shrubs**			127–430	
	fourwing saltbush	ATCA2	*Atriplex canescens*	90–269	–
	Nevada jointfir	EPNE	*Ephedra nevadensis*	9–27	–
	Torrey's jointfir	EPTO	*Ephedra torreyana*	9–27	–
	water jacket	LYAN	*Lycium andersonii*	6–18	–
	peach thorn	LYCO2	*Lycium cooperi*	6–18	–
	pale desert-thorn	LYPA	*Lycium pallidum*	6–18	–
7	**Secondary shrubs**			36–143	
	catclaw acacia	ACGR	*Acacia greggii*	18–36	–
	burrobush	AMDU2	*Ambrosia dumosa*	18–36	–
	cattle saltbush	ATPO	*Atriplex polycarpa*	18–36	–
	Torrey's saltbush	ATTO	*Atriplex torreyi*	18–36	–
	burrobrush	HYSA	*Hymenoclea salsola*	18–36	–
	creosote bush	LATR2	*Larrea tridentata*	18–36	–
	mesquite	PROSO	*Prosopis*	18–36	–

Animal community

Livestock Interpretations:
This site is suitable for livestock grazing. Big galleta is considered a valuable forage plant for cattle and domestic sheep. Its coarse, rigid culms make it relatively resistant to heavy grazing and trampling. Fourwing saltbush is one 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. Anderson wolfberry is sometimes used as forage by livestock and feral burros. Pale wolfberry fruits and its foliage may be browsed by livestock. Nevada and Torrey's ephedra is important winter range browse for domestic cattle, sheep and goats. Range ratany is an important forage species for all classes of livestock. Palatability of range ratany is rated fair to good for cattle and 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:
Fourwing saltbush provides valuable habitat and year-round browse for wildlife. Mountain quail eat Ephedra seeds. Nevada and Torrey’s ephedra is an important browse species for big game. Ephedra is moderately palatable to many big game species, especially as winter browse. Mountain quail eat ephedra seeds. Range ratany is an important forage species for deer. Mule deer browse range ratany year-long with seasonal peaks. Mule deer peak use is from February to April and from August to October.

Hydrological functions

Runoff is very low to medium. Permeability is moderately slow to moderate.

Other products

Native Americans used the fleshy berries of Anderson wolfberry either fresh or boiled and then dried them for later use. Historically, Native Americans have eaten pale wolfberry berries and have used the plant for a wide variety of medicinal purposes. Some Native American tribes steeped the twigs of Nevada ephedra and drank the tea as a general beverage.

Other information

Big galleta's clumped growth form stabilizes blowing sand. Anderson wolfberry is also used as an ornamental valued chiefly for its showy red berries. Pale wolfberry is grown as

an ornamental.

Type locality

Location 1: Clark County, NV	
Township/Range/Section	T16S R65E S10
Latitude	36° 33′ 2″
Longitude	114° 41′ 44″
General legal description	South of I15 at Ute exit, Moapa Indian Reservation, Clark County, Nevada. This site also occurs in southern Nye, and southern Lincoln Counties, Nevada. 36º 33’ 02” N 114º 41’ 44” W
Location 2: Lincoln County, NV	
Township/Range/Section	T9S R65E S29
General legal description	Kane Springs Wash, Lincoln County, Nevada.
Location 3: Lincoln County, NV	
Latitude	37° 4′ 57″
Longitude	114° 19′ 53″
General legal description	About ¾ mile south of Tule Desert Well, Lincoln County, Nevada. 37º 4’ 57” N 114º 19’ 53” W

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)	P NOVAK-ECHENIQUE
Contact for lead author	State Rangeland Management Specialist
Date	07/20/2012
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None

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2. **Presence of water flow patterns:** Water flow patterns are none.

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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 to 20%.

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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):** 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 catastrophic 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 3 to 6 on most soil textures found on this site. (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):** Surface structure is typically weak medium to moderate medium platy. Soil surface colors are light and soils are typified by 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:** Deep-rooted perennial grasses and grass-like plants slow runoff and increase infiltration. Sparse shrub canopy, perennial grasses and associated litter break 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 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: deep-rooted, warm-season, bunchgrasses

    Sub-dominant: Mojave Desert shrubs > perennial forbs > deep-rooted, cool-season, bunchgrasses > 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 common and standing dead shrub canopy material may be as much as 25% of total woody canopy.

14. **Average percent litter cover (%) and depth (in):** Between plant interspaces 30-40% and depth (±½-inch).

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** For normal or average growing season ±1600 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:** Invaders on this site include annual grasses and forbs, such as red brome, Mediterranean grass, red-stem filaree and saltcedar.

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