USDA Natural Resources
Conservation Service

Ecological site R030XB145CA
Valley Wash

Last updated: 2/25/2025
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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 along drainageways of inset fans. Elevations are 620 to 4700 feet. Slopes range from 2 to 8 percent. The soils that characterize this site are very deep and excessively drained. They are formed in mixed alluvium. Surface textures are extremely gravelly sands and loamy sands.

Please refer to group concept R030XB103NV to view the provisional STM.

Associated sites

R030XB077NV	**STEEP SOUTH SLOPE** Steep South Slope
R030XB131CA	**Moist Granitic Drain** Moist Granitic Drain

Similar sites

R030XB149CA	**Gravelly Wash** Gravelly Wash [More productive site;ACGR absent]
R030XB136CA	**Dry Wash** Dry Wash [SEAR8 important shrub; less productive]
R030XB128CA	**Cobbly Wash** Cobbly Wash [HYEM-ACGR dominant shrubs]
R030XB131CA	**Moist Granitic Drain** Moist Granitic Drain [CHLI2-PSSP3 dominant species more productive site]

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Hymenoclea salsola* (2) *Larrea tridentata*
Herbaceous	(1) *Pleuraphis rigida*

Physiographic features

This site occurs on along drainageways of inset fans. Elevations are 620 to 4700 feet. Slopes range from 2 to 8 percent.

Table 2. Representative physiographic features

Landforms	(1) Drainageway
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	Frequent
Elevation	189–1,433 m
Slope	2–8%
Aspect	Aspect is not a significant factor

Climatic features

The climate on this site is arid, characterized by warm, moist winters (30 to 60 degrees F) and hot, somewhat dry summers (70 to 100 degrees F). The average annual precipitation ranges from 2 to 7 inches with most falling as rain from November to March. Approximately 30% of the annual precipitation occurs from July to September as a result of summer convection storms. Mean annual air temperature is 57 to 73 degrees F.

The average frost-free period is 180 to 360 days.

Table 3. Representative climatic features

Frost-free period (average)	360 days
Freeze-free period (average)	
Precipitation total (average)	178 mm

Influencing water features

Soil features

The soils that characterize this site are very deep and excessively drained. They are formed in mixed alluvium. Surface textures are extremely gravelly sands and loamy sands. Subsurface horizons are stratified lenses of extremely gravelly coarse sands, very gravelly coarse sands and very gravelly loamy coarse sands. Available water capacity is very low. Permeability is very rapid. Wind erosion hazard is negligible due to surface rock fragments. Effective rooting depth is 60 inches or more. Water tables are greater than 60 inches. This site is subject to frequent flooding.

Representative_Soil Map Units
292 Arizo association, 2-4% slopes
294 Arizo complex, 2-4% slopes
310 Carrizo association, 2-4% slopes,
frequently flooded
316 Carrizo-Carrizo warm, association 2-4%
slopes, frequently flooded

Ecological dynamics

Please refer to group concept R030XB103NV to view the provisional STM.

The historic site potential is a diverse community with an open canopy of shrubs and scattered trees. Perennial grasses and forbs are common. Annuals are seasonally present and are abundant in years of above average precipitation. This site is inherently unstable due to the occurrence and frequency of flooding.

Surface disturbance may reduce plant cover, density and diversity of this site. These changes can be very subtle or extremely obvious depending on the intensity of use, rate of use and an assortment of environmental factors (topography, soil type). Short-lived perennials as well as the long-lived perennials such as creosotebush, white bursage and catclaw acacia may decrease in cover. Species likely to invade this site include saltcedar and non-

native annual grasses and forbs such as schismus, red brome, red-stem filaree and Russian thistle.

Dry washes are known to be zones of high animal activity in the desert. An abundance of insects attracts both birds and mammals to the wash. The occurrence of taller statured shrubs also provide wildlife cover, thus the washes serve as wildlife corridors. Management for this site would be to protect it from excessive disturbance and maintain existing plant cover. Close roads and trails no longer being used and revegetate using native species indigenous to this site. Restore channel morphology where impacted. Water developments would also increase the species diversity of this site.

Species indigenous to this site are recommended for any revegetation efforts.White burrobush is a short-lived species, although the seeds have high viability and germination rates compared to other desert shrubs. Creosotebush, is a long-lived species, which once established may improve the site for annuals that grow under its canopy by trapping fine soil, organic matter and seeds. Creosotebush can be used for long-term stabilization and for improvement of desert tortoise habitat. Catclaw acacia has shown varying success when transplanted onto disturbed sites. Seedlings should be grown in tall containers to allow for the development of a deep root system.

Transplanting seedlings is more effective than direct seeding. Planting in late fall or early spring allows for acclimation to summer conditions. Transplants that are dormant during the hot, dry season are best maintained that way rather than attempting to force them to break dormancy and undergo new vegetative growth out of season. Supplemental irrigation is recommended for the first growing season, especially if winter rainfall has been sparse. Summer annuals and non-native plants should be removed from around the transplanted shrubs to reduce competition for water. Protection from rodents is also recommended.

This site is 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. White burrobush establishes quickly after fire via off-site seeds and sprouting. Creosotebush possesses limited sprouting ability, thus, can be killed by fire. Catclaw acacia is able to sprout from the root crown following top-kill by fire.

State and transition model

Ecosystem states

1. Reference State - Plant Community 1

State 1 submodel, plant communities

1.1. Reference State - Plant Community 1

State 1
Reference State - Plant Community 1

Community 1.1
Reference State - Plant Community 1

The representative natural plant community is Mojave Wash Scrub. White burrobush, creosotebush and catclaw acacia dominate this community. Potential vegetative composition is about 15% grasses, 15% forbs, and 70% shrubs. The following table lists the major plant species and percentages by weight, air dry, of the total plant community that each contributes in an average production year. Fluctuations in species composition and relative production may change from year to year dependent upon abnormal precipitation or other climatic factors.

Forest overstory. Allow no more than 5% of each species of this group and no more than 25% in aggregate

Forest understory. Allow no more than 2% of each species of the grasses group and no more than 5% in aggregate

Allow no more than 2% of each species of the forbs group, and no more than 10% in aggregate

Table 4. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	157	275	392
Grass/Grasslike	34	59	84
Forb	34	58	84
Total	**225**	**392**	**560**

Table 5. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	4-11%
Grass/grasslike foliar cover	1-2%
Forb foliar cover	1-2%
Non-vascular plants	0%
Biological crusts	0%
Litter	0%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

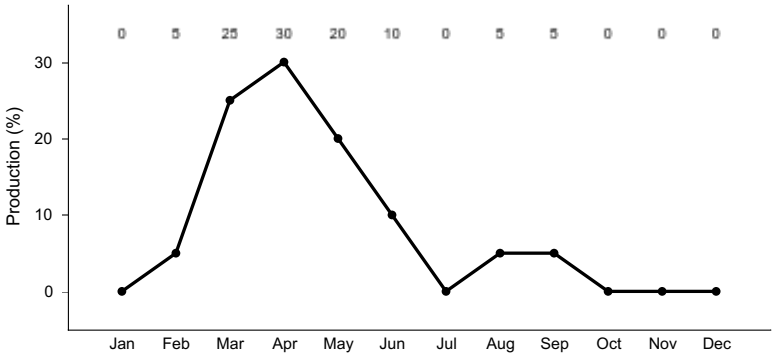

Figure 2. Plant community growth curve (percent production by month). CA3011, Burrobrush . Growth starts in early spring; flowering and seed set occur by June. Plants go dormant as a result of summer stress. New twig and leaf growth are initiated after summer and winter rains..

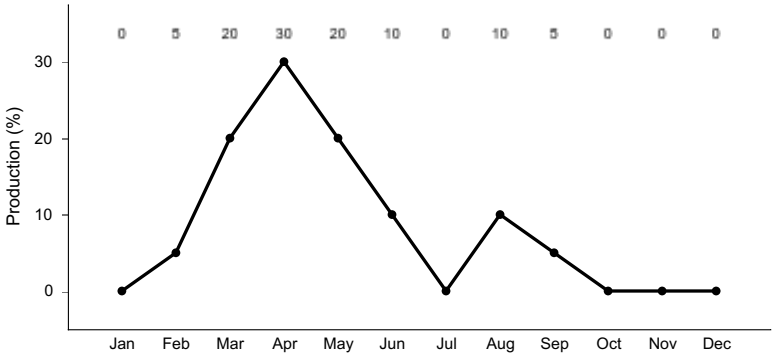

Figure 3. Plant community growth curve (percent production by month). CA3015, Creosote bush XB. Growth starts in early spring with flowering and seed set occurring by July. Dormancy occurs during the hot summer months. With sufficient summer/fall precipitation, some vegetation may break dormancy and produce a flush of growth..

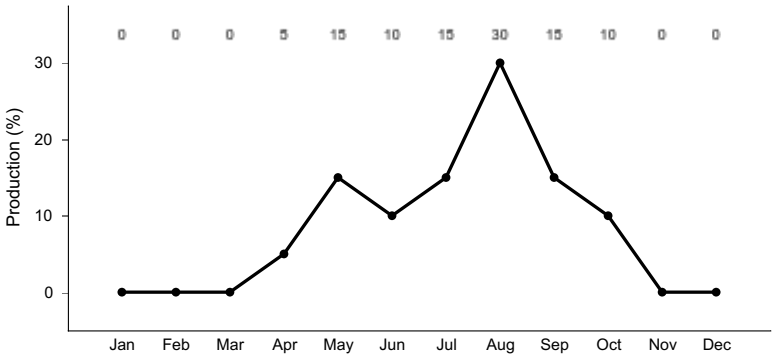

Figure 4. Plant community growth curve (percent production by month). CA3091, Catclaw acacia. Growth starts in early spring, flowering and seed set occur by July. Dormancy occurs during the hot summer months. With sufficient summer/fall precipitation, some vegetation may break dormancy and produce a flush of growth..

Additional community tables

Animal community

Mammals commonly occurring on this site include white-tailed antelope squirrels, long-tailed pocket mice, Merriam's kangaroo rats, cactus and canyon mice, coyotes and black-tailed jackrabbits.

Reptiles commonly occurring on this site include lizards such as the zebra-tailed, desert horned, desert spiny, long-tailed, side-blotched and western whiptail. Speckled rattlesnakes and coachwhips may also occur. Desert tortoises frequently den in the banks and berms of washes and feed on vegetation occurring in the wash.

Birds common to this site include mourning dove, Costa's hummingbirds, verdins, black-tailed gnatcatchers, Northern mockingbirds, phainopeplas, lesser goldfinches, house finches and Brewer's and white-crowned sparrows. Raptors that occur include red-tailed hawks and prairie falcons. Catclaw acacia's spiny branches provide cover for numerous songbirds, and nesting habitat for verdins.

LIVESTOCK GRAZING:
This site has low value for livestock grazing due to low productivity. White burrobush seeds are readily eaten by domestic sheep. Creosotebush is unpalatable to livestock. Catclaw acacia is considered poor forage for livestock. It may be browsed in the early spring when twigs are green but is otherwise seldom eaten. Annual forbs and grasses provide abundant forage during favorable years.

General guide to initial stocking rate. Before making specific recommendations, an on-site evaluation must be made.

Pounds/acre
air dry AUM/AC AC/AUM

Normal Years 350

Hydrological functions

Runoff is very low and low. Hydrologic soil group A - soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well drained to excessively drained sands or gravels. Hydrologic conditions: good - >70% ground cover (includes litter, grass and brush overstory); fair - 30 to 70% ground cover; poor <30% ground cover.

Soil Series: Arizo
Hydrologic Group: A
Hydrologic Conditions and Runoff Curves:
Good 49; Fair 55; Poor 63

Soil Series: Carrizo
Hydrologic Group: A
Hydrologic Conditions and Runoff Curves:
Good 49; Fair 55; Poor 63

Recreational uses

This site is valued for open space and those interested in desert ecology. Flowering wildflowers and shrubs provide spectacular displays especially in years with above average precipitation.

Other information

Military Operations - Vehicle use in washes may alter the vegetation and channel morphology. This may result in increased peak flows, accelerated erosion, soil blowing and barren areas. The frequency of flash flooding may also increase with increased surface runoff and loss of vegetative cover. Channel width and depth will also increase. Gully stabilization methods include straw bale checkdams, rock riprap and sand bags. Management for this site would be to protect it from excessive disturbance and maintain existing plant cover.

Inventory data references

Sampling technique

_9_ NV-ECS-1
___ SCS-Range 417
_2_ Other

Type locality

Location 1: San Bernardino County, CA	
Township/Range/Section	T7N R7E S29
UTM zone	N
UTM northing	3835820
UTM easting	567400
General legal description	SE1/4 Sec. 29, T7N R7E; Approximately seven miles southwest of Ludlow, CA Lavic Lake Quadrangle UTM 11S 0567400e 3835820n (Datum=NAS-C) San Bernardino Co., CA

Other references

Cutler, P.L., P.R. Krausman, and D.J. Griffin. 1998. Draft Report: Wildlife inventory of the Marine Corps Air Ground Combat Center, Twentynine Palms, California. The University of Arizona, Tucson. U.S. Dept. of Defense Contract N68711-96-LT-60025.

Contributors

P. Novak-Echenique

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)	
Contact for lead author	
Date	05/13/2025
Approved by	Sarah Quistberg
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 annual-production):**

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:**