USDA Natural Resources
Conservation Service

Ecological site R030XB134CA
Cobbly Claypan 5-7" P.Z.

Last updated: 2/26/2025
Accessed: 05/21/2025

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 colluvial footslopes of hills and mountains. Elevations are 3000 to 4600 feet. Slopes range from 30 to 75 percent. The soils that characterize this site are well drained and moderately deep. They are formed in mixed alluvium.

Please refer to group concept R030XB188CA to view the provisional STM.

Associated sites

R029XY180CA	**SHALLOW GRAVELLY SLOPE 5-8" P.Z.** Shallow Gravelly Slope 5-8
R030XB139CA	**Shallow Dry Hill 4-6 P.Z.** Limy Hill 5-7
R030XB146CA	**Volcanic Hill 5-7" P.Z.** Volcanic Hill 5-7

Similar sites

R030XB137CA	**Granitic Loam** Granitic Loam 3-5
R030XB044NV	**COBBLY CLAYPAN 5-7 P.Z.** Cobbly Claypan 5-7

Table 1. Dominant plant species

Tree	Not specified

Shrub	(1) *Ambrosia dumosa*
Herbaceous	(1) *Pleuraphis rigida*

Physiographic features

This site occurs on colluvial footslopes of hills and mountains. Elevations are 3000 to 4600 feet. Slopes range from 30 to 75 percent.

Table 2. Representative physiographic features

Landforms	(1) Mountain slope (2) Mountain slope
Elevation	914–1,402 m
Slope	30–75%
Aspect	N, NE, NW

Climatic features

The climate on this site is arid characterized by warm, moist winters (30 to 60 degrees F) and hot, dry summers (70 to 100 degrees F). The average annual precipitation ranges from 4 to 7 inches with most falling as rain from November to March. Approximately 25% of the annual precipitation occurs from July to September as a result of summer convection storms. Mean annual air temperature is 61 to 66 degrees F.

The average frost-free period is 240 to 300 days.

Table 3. Representative climatic features

Frost-free period (average)	300 days
Freeze-free period (average)	
Precipitation total (average)	178 mm

Influencing water features

Soil features

The soils that characterize this site are well drained and moderately deep. They are formed in mixed alluvium. Surface textures are loamy sands. Available water capacity is low and the permeability is moderately rapid. Wind erosion hazard is moderate. Effective rooting depth is 0 to 40 inches to bedrock.

Representative_Soil Map Units

109 Inclusion in Juratrias-Crosgrain association, 15-50% slopes

245 Inclusion in Dalvord-Rock Outcrop-Langwell complex, 15-50% slopes

370 Inclusion in Juratrias-Mulespring-Newera complex, 8-50% slopes

Ecological dynamics

Please refer to group concept R030XB188CA to view the provisional STM.

As ecological condition deteriorates the perennial grasses decrease. Opportunistic perennial species such as white bursage, wirelettuce and desert trumpet increase. Non-native species likely to invade this site include red brome, schismus, and red-stem filaree. White burrobush is the primary perennial pioneer species.

Desert 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. When fires do occur, the effect on the ecosystem may be extreme due to the harsh environment and the slow rate of recovery. White bursage and creosotebush possess limited sprouting ability, thus, can be killed by fire. White bursage, however, can rapidly re-establish from seed. Fire damage to big galleta varies, depending on whether plants are dormant when burned. If plants are dry, damage may be severe because the live center may be burned out. Big galleta may resprout from rhizomes.

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.

Species indigenous to this site are recommended for any revegetation efforts. White bursage is valuable for erosion control and cover restoration. Big galleta has moderate potential for erosion control and long-term revegetation and low potential for short-term revegetation projects. Big galleta is somewhat effective at holding blowing sand because of its isolated, clumped growth form.

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.

State and transition model

Ecosystem states

1. Reference State - Plant Community 1.1

State 1 submodel, plant communities

1.1. Reference State - Plant Community 1.1

State 1
Reference State - Plant Community 1.1

Community 1.1
Reference State - Plant Community 1.1

The historic site potential is characterized by a fairly dense grassland dominated by big galleta with several shrubby species from Mojave Creosotebush throughout. Pockets of cryptogamic crust have developed between the surface rock and vegetation. This site is stable in this condition. The representative natural plant community is Mojave Mixed Steppe or Big Galleta Series. This community is dominated by big galleta. Potential vegetative composition is about 70% grasses, 10% forbs, and 20% 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 3% of each shrub species of this group and no more than 8% in aggregate.

Forest understory. **Allow no more than 3% of each grass species and no more than 10% in aggregate.

Other perennial grasses comprise 5 to 10 composition (air-dry weight)

Other annual grasses comprise trace to 3% (air-dry weight)

**Allow no more than 3% of each forb species and no more than 10% in aggregate.

Other perennial forbs comprise 2 to 10 composition (air-dry weight)

Other annual forbs comprise trace to 10% (air-dry weight)

Table 4. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	471	628	785
Shrub/Vine	135	179	224
Forb	67	90	112
Total	**673**	**897**	**1121**

Table 5. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	3-6%
Grass/grasslike foliar cover	10-21%
Forb foliar cover	1-3%
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%

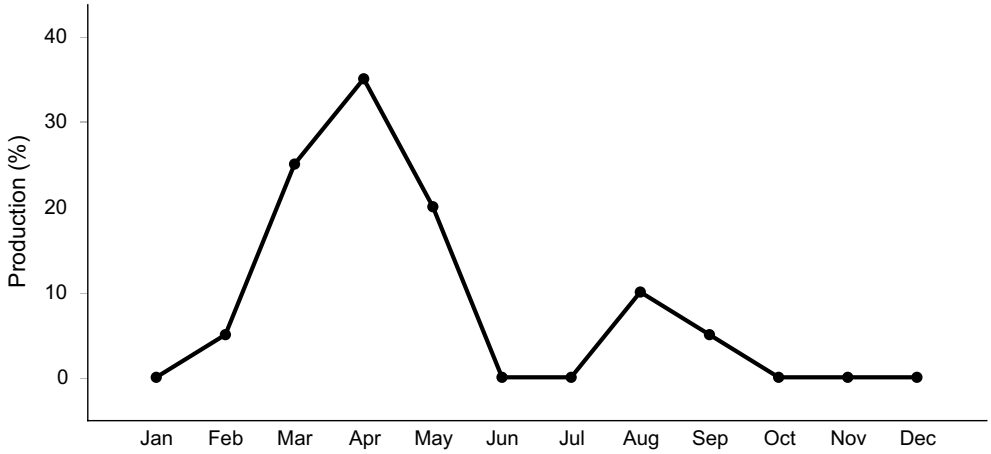

Figure 2. Plant community growth curve (percent production by month). CA3004, Burrobush XB. Growth starts in early spring, flowering and seed set occur by July. Dormancy occurs during the hot summer months. With sufficient summer/fall precipitation, some vegetation may break dormancy and produce a flush of new growth..

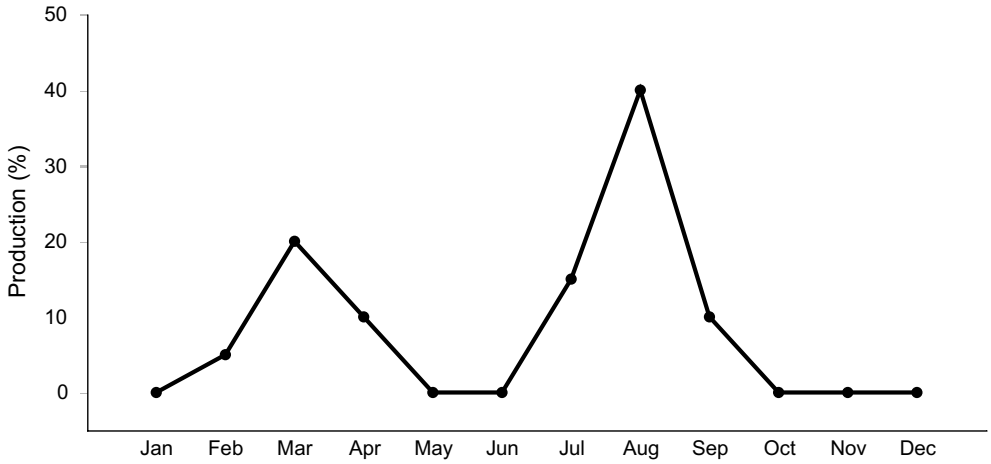

Figure 3. Plant community growth curve (percent production by month). CA3024, Big galleta. Some green up in spring; dormant May and June; most growth occurs after summer rains..

Additional community tables

Animal community

This site provides habitat for small mammals such as pocket mice and Merriam's and desert kangaroo rats. Black-tailed jackrabbits and coyotes may also occur.

This site provides habitat for lizards such as the zebra-tailed lizard, side-blotched lizard, desert spiny lizard and the western whiptail. The rock fragments are a restrictive feature to burrowing reptiles such as the desert tortoise.

Birds common on this site include horned larks, common ravens, cactus wrens, and black-throated and sage sparrows.

Hydrological functions

Runoff is high. Hydrologic group B - soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well drained to well drained soils with moderately fine to moderately coarse textures. Hydrologic conditions: good - >70% ground cover (includes litter, grass and brush overstory); fair - 30 to 70% ground cover; poor <30% ground cover.

Soil Series: Typic Torriorthents
Hydrologic Group: B
Hydrologic Conditions and Runoff Curves:
Good 68; Fair 72; Poor 77

Recreational uses

This site is highly valued for open space and those interested in desert ecology. Flowering wildflowers and shrubs may also attract visitors during the spring.

Other information

Other Mgt. Considerations: Big galleta is considered good forage for cattle and horses, although the steep, rocky slopes limit grazing use of this site. White bursage is fair browse for cattle and horses, and fair to good browse for sheep. White bursage is one of the major forage species of feral burros, especially in winter. Feral burros can eliminate this shrub through browsing and trampling. Creosotebush is unpalatable to livestock.

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

Pounds/acre
air/dry
Normal Years 700

Military Operations - The steep rocky slopes restrict extensive vehicle and foot traffic. Management for this site would be to protect it from excessive disturbance and maintain existing plant cover. Disturbance of the cryptogamic crust may result in increased soil erosion. Land clearing or other disturbances that destroy the vegetation and the soil crust and structure can result in soil compaction, reduced infiltration rates, accelerated erosion, soil blowing and barren areas.

Inventory data references

Sampling technique

_1_ NV-ECS-1
___ SCS-Range 417
_1_ Other

Type locality

Location 1: San Bernardino County, CA	
Township/Range/Section	T15N R6E S6
UTM zone	N
UTM northing	3919310
UTM easting	555750
General legal description	TYPICAL SITE LOCATION: SW1/4, Sec. 6, T15N R6E Approximately 5 miles southeast of No Name Lake Red Pass Lake NW Quadrangle UTM 11S 0555750e 3919310n (Datum=NAS-C) San Bernardino Co., CA

Contributors

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Approval

Sarah Quistberg, 2/26/2025

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	05/21/2025
Approved by	Sarah Quistberg
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

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2. **Presence of water flow patterns:**

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3. **Number and height of erosional pedestals or terracettes:**

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

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5. **Number of gullies and erosion associated with gullies:**

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6. **Extent of wind scoured, blowouts and/or depositional areas:**

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7. **Amount of litter movement (describe size and distance expected to travel):**

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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):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

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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):**

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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:

    Sub-dominant:

    Other:

    Additional:

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

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14. **Average percent litter cover (%) and depth (in):**

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

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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:**

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17. **Perennial plant reproductive capability:**
