

Ecological site R030XA027CA  
Sandy 5-7" P.Z.

Last updated: 10/21/2024  
Accessed: 05/11/2025

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 sand sheets on basin floors and toe slopes of fan piedmonts. Elevations are 2300 to 3000 feet. Slopes range from 0 to 5 percent.

The soils that characterize this site are very deep and somewhat excessively drained. They are formed in granitic alluvium. Surface textures are loamy sands. Subsoils are sands, and loamy sands which are slightly to moderately alkaline.

Please refer to group concept R030XA016CA to view the provisional STM.

Associated sites

R030XA031CA	<b>Sodic Dunes 5-7" P.Z.</b> Sodic Dune 5-7
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Similar sites

R030XA031CA	<b>Sodic Dunes 5-7" P.Z.</b> Sodic Dune 5-7
R030XA019CA	<b>Dune 5-7" p.z.</b> Dune 5-7

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Atriplex canescens</i> (2) <i>Krascheninnikovia lanata</i>
Herbaceous	(1) <i>Achnatherum hymenoides</i>

Physiographic features

This site occurs on sand sheets on basin floors and toe slopes of fan piedmonts. Elevations are 2300 to 3000 feet. Slopes range from 0 to 5 percent.

Table 2. Representative physiographic features

Landforms	(1) Sand sheet
Flooding frequency	Rare

Elevation	2,300–3,000 ft
Slope	0–5%
Aspect	Aspect is not a significant factor

## Climatic features

The climate on this site is characterized by cool, relatively dry winters (30 to 60 degrees F) and hot, dry summers (70 to 100 degrees F). The average annual precipitation ranges from 3 to 7 inches with most falling as rain from November to March. Mean annual air temperature is 60 to 64 degrees F.

The average frost free period is 200 to 250 days.

**Table 3. Representative climatic features**

Frost-free period (average)	350 days
Freeze-free period (average)	
Precipitation total (average)	7 in

## Influencing water features

### Soil features

The soils that characterize this site are very deep and somewhat excessively drained. They are formed in granitic alluvium. Surface textures are loamy sands. Subsoils are sands, and loamy sands which are slightly to moderately alkaline. Available water capacity is low and the hazard of water erosion is slight. Wind erosion hazard is severe. Effective rooting depth is 60 inches or more. Water tables are greater than 60 inches.

#### Soil Map Units

102 Cajon loamy sand, 0-2% slopes

108 Cajon-Norob complex, 0-5% slopes

117 Helendale-Cajon complex, 2-5% slopes

## Ecological dynamics

Please refer to group concept R030XA016CA to view the provisional STM.

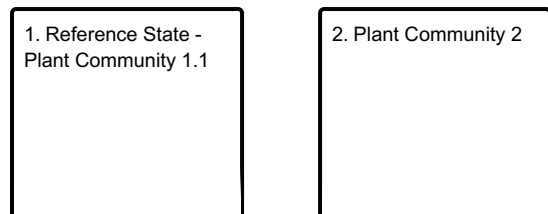
As ecological condition deteriorates, Indian ricegrass, desert needlegrass, fourwing saltbush and winterfat decrease, while horsebrush and ephedra increase. Burrobush, snakeweed and goldenhead will dominate disturbed areas resulting from land clearing. Other species likely to invade this site include non-native annual forbs and grasses such as Russian thistle, filaree, brome and schismus.

Fire is infrequent and is not recommended as a management tool due to the sparse cover, severe hazard of wind erosion and slow recovery rates.

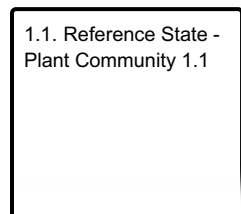
Water is the main limitation on this site. Water developments would greatly increase the diversity of species. Management for this site would be to protect it from excessive disturbance and maintain existing plant cover.

## State and transition model

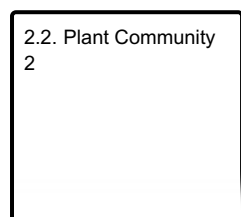
## Ecosystem states



## State 1 submodel, plant communities



## State 2 submodel, plant communities



## State 1

### Reference State - Plant Community 1.1

## Community 1.1

### Reference State - Plant Community 1.1

The representative natural plant community is Stabilized and Partially Stabilized Desert Sand Fields or Fourwing saltbush series. This community is dominated by fourwing saltbush, winterfat and Indian ricegrass. Potential vegetative composition is about 30% grasses, 10% forbs, and 60% shrubs. The historic site potential varies from an open to nearly continuous canopy of shrubs less than 2 meters tall. Perennial grasses and forbs are common. Annuals are seasonally present and are especially abundant in favorable years. This site occurs on desert sand accumulations that are not obviously worked into dune landforms. This site increases in stability as vegetative cover increases. 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 species of this group, and no more than 15% 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 5% in aggregate

Table 4. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	120	240	360
Grass/Grasslike	60	120	180
Forb	20	40	60
Total	200	400	600

Table 5. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	9-15%
Grass/grasslike foliar cover	4-8%
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%

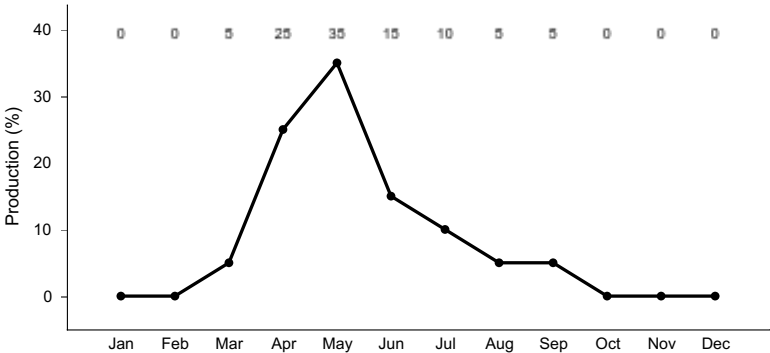


Figure 2. Plant community growth curve (percent production by month). CA3008, Fourwing saltbush. Growth begins in spring to early summer. Flowering occurs from May through September, and fruit ripens from October to December. Seed dispersal occurs from October through April. Seed may remain on the plants from one to two years..

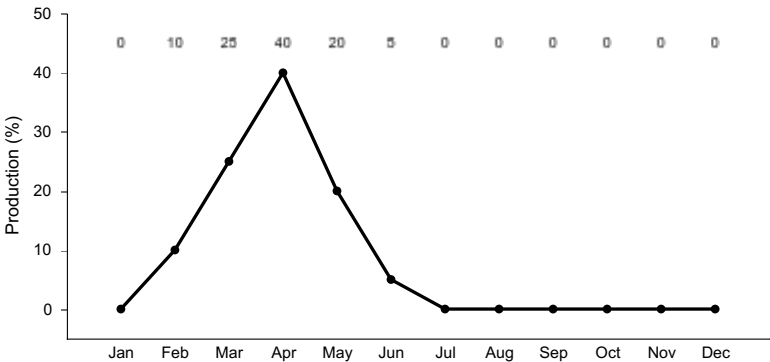
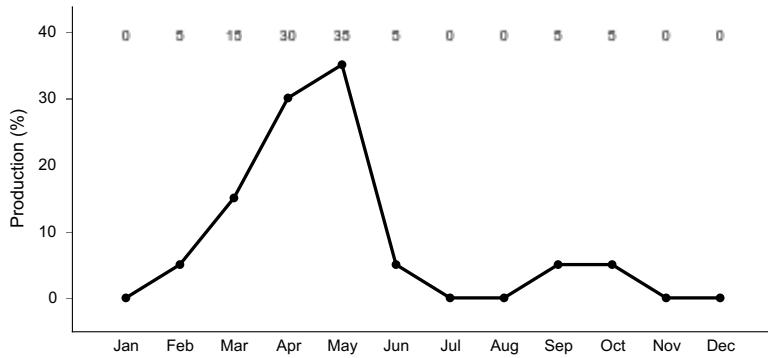


Figure 3. Plant community growth curve (percent production by month). CA3009, Winterfat. Growth starts in late winter. Flowering and seed set occur by June. Seeds remain on the shrubs for several months. Dormancy occurs during the hot summer months..



**Figure 4. Plant community growth curve (percent production by month). CA3022, Indian ricegrass. Growth begins in late winter, flowering and fruiting finished by the hot summer months. Early fall rains can trigger a flush of new growth..**

## State 2 Plant Community 2

### Community 2.1 Plant Community 2

This plant community occurs across the west end of the MLRA. Introduced annuals such as red brome, schismus, and filaree have invaded the historic climax plant community and have become a dominant component of the herbaceous cover. It is hypothesized that the change from natives to non-natives is due to a combination of factors such as (1) invasion of alien species, (2) changes in the kinds of animals and grazing pressure, (3) drought, and (4) changes in fire patterns. This site increases in stability as vegetative cover increases.

### Additional community tables

#### Animal community

Historically, this site may have provided habitat for antelope and wild burros. At present, this site provides habitat for small mammals such as kangaroo rats and ground squirrels, and fur and game mammals such as coyotes and rabbits. The Joshua trees provide song perches, lookout posts and nest sites for birds. Other wildlife species occurring on this site include: ravens, raptors, reptiles and various songbirds. The soils of this site are poorly suited for desert tortoise as the sandy subsoil horizons have reduced burrow stability.

Other Mgt. Considerations: This site is suitable for limited spring grazing by sheep and also cattle where water is available. In favorable years, annual forbs and grasses provide additional forage.

General guide to initial stocking rate. Before making specific recommendations, an on-site evaluation must be made. Stocking rate based on proper use factors and proportion of grazeable forage.

Pounds/acre  
Airdry AUM/AC AC/AUM

Normal Years 400 20-25

### Hydrological functions

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

Soil Series:Cajon

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

## Recreational uses

This site has value for open space and is used by mountain bikers and other off-road enthusiasts. Flowering wildflowers may also attract visitors during the spring. Off-road vehicle use can easily damage the soil structure and vegetative cover, causing increased soil blowing.

## Other information

Military Operations - Clearing or any other disturbance that destroys the soil structure and vegetation can result in increased soil blowing and barren areas. Vehicles should be restricted to existing roads and trails. Native species indigenous to this site are recommended for any revegetation efforts.

## Inventory data references

Sampling technique

☐\_3\_ NV-ECS-1  
☐\_1\_ SCS-Range 417  
☐\_\_\_ Other

## Type locality

Location 1: Kern County, CA	
Township/Range/Section	TT9N RR8W S6
General legal description	SW 1/4 Section 6, T9N, R8W East of Rogers Lake, Kern Co., CA

## Contributors

P. Novak-Echenique

## Approval

Kendra Moseley, 10/21/2024

## 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	05/11/2025
Approved by	Kendra Moseley
Approval date	

## 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):**
- 

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:**
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