USDA Natural Resources
Conservation Service

Ecological site R030XA019CA
Dune 5-7" p.z.

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

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 dunes and sand sheets on basin floors. Elevations are 2280 to 2400 feet. Slopes range from 2 to 9 percent.

The soils that characterize this site are very deep and somewhat excessively drained. They are formed in wind blown sandy alluvium dominately from granitic sources. Surface textures are loamy sands, loamy fine sands and fine sands.

Associated sites

R030XA025CA	**Saline Bottom** Saline Bottom
R030XA031CA	**Sodic Dunes 5-7" P.Z.** Sodic Dune 5-7

Similar sites

R030XA031CA	**Sodic Dunes 5-7" P.Z.** Sodic Dune 5-7
R030XA027CA	**Sandy 5-7" P.Z.** Sandy 5-7

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex canescens* (2) *Ephedra nevadensis*
Herbaceous	(1) *Achnatherum hymenoides*

Physiographic features

This site occurs on dunes and sand sheets on basin floors. Elevations are 2280 to 2400 feet. Slopes range from 2 to 9 percent.

Table 2. Representative physiographic features

Landforms	(1) Dune (2) Sand sheet

Elevation	695–732 m
Slope	2–9%
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 4 to 6 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)	250 days
Freeze-free period (average)	
Precipitation total (average)	152 mm

Influencing water features

Soil features

The soils that characterize this site are very deep and somewhat excessively drained. They are formed in wind blown sandy alluvium dominately from granitic sources. Surface textures are loamy sands, loamy fine sands and fine sands. Subsurface textures 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
103 Cajon loamy sand, 2-9% slopes
106 Cajon-Challenger complex, 2-9% slopes

Ecological dynamics

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

As ecological condition deteriorates the perennial grasses, fourwing saltbush and winterfat decrease, while Nevada ephedra, horsebrush and allscale saltbush increase. Species likely to invade this site include burrobush, threadleaf snakeweed, and non-native annual forbs and grasses such as Russian thistle, bromes 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.

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 representative natural plant community is Stabilized and Partially-Stabilized Desert Dunes or Fourwing saltbush series. This community is dominated by fourwing saltbush, Nevada ephedra and Indian ricegrass. Potential vegetative composition is about 30% grasses, 10% forbs, and 60% shrubs. The Stabilized and Partially-Stabilized Desert Dunes or Fourwing Saltbush series are wind blown sand accumulations which are stabilized or partially stabilized by shrubs, scattered low annuals and perennial grasses. Dunes will retain water just below the surface allowing the perennial vegetation to survive long drought periods. Total cover increases as the dunes are progressively stabilized. The stability of the site also increases as the dunes become stabilized. 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 the shrub and tree 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 8% 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	135	235	336
Grass/Grasslike	67	118	168
Forb	22	39	56
Total	**224**	**392**	**560**

Table 5. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	9-15%
Grass/grasslike foliar cover	4-7%
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%

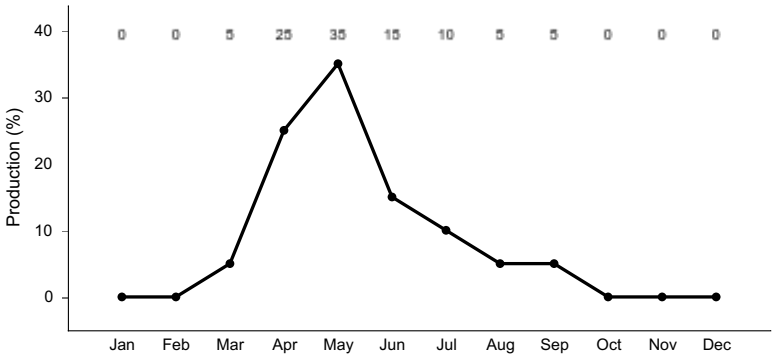

Figure 2. Plant community growth curve (percent production by month). CA3008, Fourwing saltbush. Growth begins in spring to early summer. Flowering occurs from May through September, and fruit ripens from October to December. Seed dispersal occurs from October through April. Seed may remain on the plants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

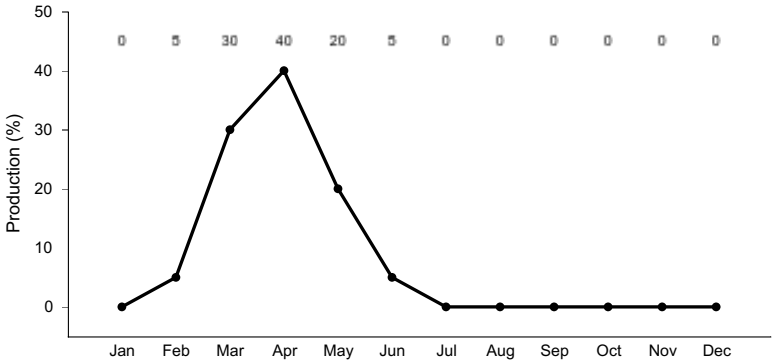

Figure 3. Plant community growth curve (percent production by month). CA3019, Nevada ephedra. Growth starts in late winter. Flowering and seed set occur by June. Seeds remain on the shrubs for several months. Dormancy occurs during the hot summer months..

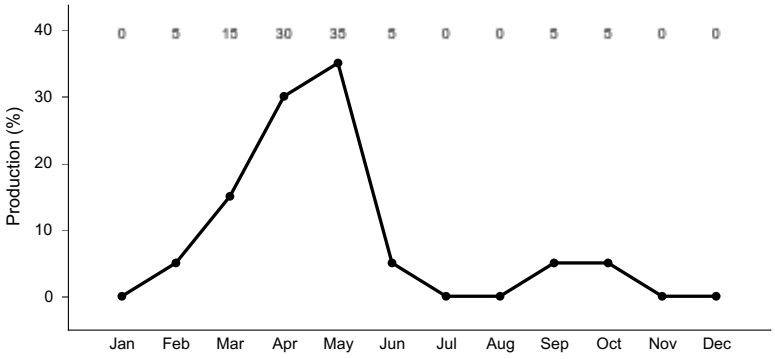

Figure 4. Plant community growth curve (percent production by month). CA3022, Indian ricegrass. Growth begins in late winter, flowering and fruiting finished by the hot summer months. Early fall rains can trigger a flush of new growth..

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 nesting sites for birds. Other wildlife species occurring on this site include: ravens, raptors, and reptiles. The soils of this site are poorly suited for desert tortoise as the sandy subsoil horizons have reduced burrow stability.

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

LIVESTOCK GRAZING:

a. Season of Use- 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.

b. 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 AUM/AC AC/AUM
air dry
Normal Years 350 20-30

Hydrological functions

Runoff is very low or low. Hydrologic soil group A - soils having 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 Run off Curves:
Good 49; Fair 55; Poor 63

Recreational uses

This site has value for open space and is used by 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. Revegetation with native species indigenous is recommended for disturbed areas.

Inventory data references

Sampling technique

_8_ NV-ECS-1
_1_ SCS-Range 417
___ Other

Type locality

Location 1: Los Angeles County, CA	
Township/Range/Section	T8N R10W S6
General legal description	SE1/4 Section 6, T8N, R10W South of Buckhorn Lake, Los Angeles 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	11/21/2024
Approved by	Kendra Moseley
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:**