Ecological site R030XA176CA
Sandy lower fan apron 5-8" p.z.

Last updated: 2/18/2025
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 ecological site is located on lower fan aprons. It is farther from hills and receives more dissipated water flow than the upper fan apron. This ecological site is found on sandy and sandy-skeletal soils.

Please refer to group concept R030XA020CA to view the provisional STM.

Table 1. Dominant plant species

Tree	(1) *Larrea tridentata*
Shrub	(1) *Ephedra californica*
Herbaceous	Not specified

Physiographic features

This ecological site is located on lower fan aprons. It is farther from hills and receives more dissipated water flow than the upper fan apron.

Table 2. Representative physiographic features

Landforms	(1) Fan apron (2) Alluvial fan
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	Very rare to rare
Elevation	750–1,036 m

Slope	2–8%
Water table depth	183 cm
Aspect	Aspect is not a significant factor

Climatic features

The Mojave Deserts experiences clear, dry conditions for most of the year. Monthly minimum temperature averages range from 30 to 80 degrees F (-1 to 27 degrees C). Monthly maximum temperature averages range from 60 to 110 degrees F (16 to 43 degrees C). This ecological site receives 5 to 8 inches of rain in an average year. Rainfall distribution is bimodal.

Influencing water features

Soil features

This ecological site is found on sandy and sandy-skeletal soils.

Morongo--Mixed, thermic Typic Torripsamments
Arizo--Sandy-skeletal, mixed, thermic Typic Torriorthents

Table 3. Representative soil features

Surface texture	(1) Sand (2) Fine sand (3) Coarse sand
Family particle size	(1) Sandy
Drainage class	Somewhat excessively drained to excessively drained
Permeability class	Rapid to very rapid
Soil depth	152–203 cm
Surface fragment cover <=3"	40–75%
Surface fragment cover >3"	0–10%
Available water capacity (0-101.6cm)	2.03–8.13 cm
Calcium carbonate equivalent (0-101.6cm)	0–1%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm

Sodium adsorption ratio (0-101.6cm)	0–4
Soil reaction (1:1 water) (0-101.6cm)	6.6–7.8
Subsurface fragment volume <=3" (Depth not specified)	1–60%
Subsurface fragment volume >3" (Depth not specified)	5–25%

Ecological dynamics

Please refer to group concept R030XA020CA to view the provisional STM.

Water is a major factor affecting this ecological site. Water flow is more dissipated on lower fan aprons than on upper fan aprons. This allows more species less tolerant of water disturbance to dominate. Water drains toward the base of the fan apron and promotes high production of the species found there. The major species are creosote bush (*Larrea tridentata*) and California jointfir (*Ephedra californica*). Species present on upper fan aprons, such as catclaw (*Acacia greggii*) and Mojave indigobush (*Psorothamnus arborescens*), are present in trace amounts.

State and transition model

Ecosystem states

1. California jointfir-Creosote bush

State 1 submodel, plant communities

1.1. California jointfir-Creosote bush

State 1
California jointfir-Creosote bush

Community 1.1

California jointfir-Creosote bush

This plant community is dominated by California jointfir (*Ephedra californica*) and creosote bush (*Larrea tridentata*). Other species on this site include catclaw acacia (Acacia gregii), white ratany (*Krameria grayi*), Mojave indigobush (*Psorothamnus arborescens*), and Mojave yucca (*Yucca schidigera*).

Table 4. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	448	616	841
Forb	–	112	224
Grass/Grasslike	–	112	224
Total	**448**	**840**	**1289**

Table 5. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	20-40%
Grass/grasslike foliar cover	5-15%
Forb foliar cover	5-35%
Non-vascular plants	0%
Biological crusts	0%
Litter	0%
Surface fragments >0.25" and <=3"	20-35%
Surface fragments >3"	1-2%
Bedrock	0%
Water	0%
Bare ground	5-15%

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Shrub/Vine					
1	**Shrubs**			448–841	
	creosote bush	LATR2	*Larrea tridentata*	336–785	–
	catclaw acacia	ACGR	*Acacia greggii*	22–224	–
	white ratany	KRGR	*Krameria grayi*	11–67	–
	California jointfir	EPCA2	*Ephedra californica*	39–56	–
	burrobrush	HYSA	*Hymenoclea salsola*	34–56	–
	Mojave yucca	YUSC2	*Yucca schidigera*	11–28	–

Animal community

Small animals live in this ecological site.

Hydrological functions

This ecological site receives water from the upper fan apron. Due to its lower landscape position, moisture settles in this area and promotes high vegetation productivity. Due to its greater distance from water sources and less steep slopes, vegetation more common to areas disturbed by water is less abundant.

Recreational uses

Urban development occurs in the vicinity of this ecological site.

Inventory data references

Cover data for this ecological site was described using 2 line-point intercept transects. The complete protocol for this sampling method is found in Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems, Volume 1: Quick Start.

Production data for this ecological site was described using 2 modified double-sampling transects. The protocol was modified by California State Rangeland Ecologist Kendra Moseley to use fewer plots and less destructive sampling. The complete protocol for this sampling method is found in Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems, Volume 2: Design, supplementary methods and interpretation.

Contributors

Allison Tokunaga

Approval

Kendra Moseley, 2/18/2025

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	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:**
