

Ecological site R030XA175CA Sandy upper fan apron 5-8" p.z.

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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 ecological site is located on alluvial fans and fan aprons. It is typically located near hills from which it receives more direct runoff than the lower end of the fan apron. This ecological site occurs on sandy and sandy-skeletal soils.

Please refer to group concept R030XA002CA to view the provisional STM.

Table 1. Dominant plant species

Tree	(1) <i>Acacia greggii</i>
Shrub	(1) <i>Ephedra californica</i> (2) <i>Psoralea arborescens</i>
Herbaceous	Not specified

Physiographic features

This ecological site is located on alluvial fans and fan aprons. It is typically located near hills from which it receives more direct runoff than the lower end of the fan apron.

Table 2. Representative physiographic features

Landforms	(1) Fan apron (2) Alluvial fan (3) Drainageway
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	None to rare
Elevation	750–1,067 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 occurs 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
Family particle size	(1) Sandy
Drainage class	Somewhat excessively drained
Permeability class	Rapid to very rapid
Soil depth	152 cm
Surface fragment cover <=3"	40–75%
Surface fragment cover >3"	0–10%
Available water capacity (0-101.6cm)	4.06–8.13 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)	6.2–7.8
Subsurface fragment volume <=3" (Depth not specified)	1–30%

Ecological dynamics

Please refer to group concept R030XA002CA to view the provisional STM.

Water is a major factor affecting this ecological site. The major species on this site have a greater water requirement than other Mojave Desert species. This site is typically found near hills from which it receives runoff. Close to the hills, the water disturbance is more pronounced than on the lower fan apron. This allows several species tolerant of water disturbance to dominate.

The major species are catclaw (*Acacia greggii*), California jointfir (*Ephedra californica*), and Mojave indigobush (*Psoralea arborescens*). These species are found on alluvial soils as well as hilly, rocky areas from which water runs off quickly. The ability to adapt to these different growing substrates helps explain why this ecological site can be found on skeletal and non-skeletal soils.

This ecological site is located near urban areas that may affect the ecological site. Road and housing construction may alter flow of water down the alluvial fan and fan apron. Disturbance-adapted, colonizing species such as burrobrush (*Hymenoclea salsola*) may become more abundant. Joints of cactus species such as golden cholla (*Cylindropuntia echinocarpa*) are easily broken off during a disturbance and readily distributed by gravity and by attaching to distribution agents such as humans or animals.

State and transition model

Ecosystem states

1. Catclaw-California jointfir

State 1 submodel, plant communities

1.1. Catclaw-California jointfir

State 1
Catclaw-California jointfir

Community 1.1
Catclaw-California jointfir

This ecological site is dominated by catclaw acacia (*Acacia gregii*) and California jointfir (*Ephedra californica*). Other species include burrobrush (*Hymenoclea salsola*) and Mojave indigobush (*Psoralethamnus arborescens*). Big galleta (*Pleuraphis rigida*) may be present in small amounts.

Table 4. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	112	560	897
Forb	28	280	560
Grass/Grasslike	28	112	224
Total	168	952	1681

Table 5. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	20-30%
Grass/grasslike foliar cover	5-10%
Forb foliar cover	5-25%
Non-vascular plants	0%
Biological crusts	0%
Litter	10-20%
Surface fragments >0.25" and <=3"	20-30%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	10-15%

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			112–897	
	catclaw acacia	ACGR	<i>Acacia greggii</i>	168–336	–
	California jointfir	EPCA2	<i>Ephedra californica</i>	112–336	–
	creosote bush	LATR2	<i>Larrea tridentata</i>	0–112	–
	Mojave indigobush	PSAR4	<i>Psoralea argophylla</i>	56–112	–
	burrobrush	HYSB	<i>Hymenoclea salsola</i>	28–84	–
	desert almond	PRFA	<i>Prunus fasciculata</i>	56–84	–
	Mojave yucca	YUSC2	<i>Yucca schottii</i>	28–84	–
	white ratany	KRGR	<i>Krameria grayi</i>	28–56	–
	Eastern Mojave buckwheat	ERFA2	<i>Eriogonum fasciculatum</i>	28–56	–
	Mexican bladdergrass	SAME	<i>Salazaria mexicana</i>	6–28	–
	Wiggins' cholla	CYEC3	<i>Cylindropuntia echinocarpa</i>	6–17	–
Grass/Grasslike					
2	Annual grasses			28–224	
	red brome	BRRU2	<i>Bromus rubens</i>	28–224	–
	common Mediterranean grass	SCBA	<i>Schismus barbatus</i>	28–224	–
Forb					
3	Annual forbs			28–560	
	pincushion flower	CHFR	<i>Chaenactis fremontii</i>	28–504	–
	redstem stork's bill	ERCI6	<i>Erodium cicutarium</i>	28–224	–
	chuckwalla combseed	PEHE	<i>Pectocarya heterocarpa</i>	28–112	–
	small wirelettuce	STEX	<i>Stephanomeria exigua</i>	28–112	–

Animal community

This area is suitable habitat for small mammals and reptiles.

Hydrological functions

This ecological site receives run-on from adjacent hills. Water availability and disturbance is an important factor affecting plant community composition.

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	05/13/2025
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):**
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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):**
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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:
-
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:**
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17. **Perennial plant reproductive capability:**
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