Ecological site R030XY154CA
Dune 3-5" P.Z.

Accessed: 05/19/2024

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.

MLRA notes

Major Land Resource Area (MLRA): 030X–Mojave Basin and Range

MLRA statement:
Major Land Resource Area (MLRA) 30, Mojave Desert, is found in southern California, southern Nevada, the extreme southwest corner of Utah and northwestern Arizona within the Basin and Range Province of the Intermontane Plateaus. The climate of the area is hot (primarily hyperthermic and thermic; however at higher elevations, generally above 5,000 feet, mesic, cryic and frigid) and dry (aridic). Elevations range from below sea level to over 12,000 feet in the higher mountain areas found within the MLRA. Due to the extreme elevational range found within this MLRA, land resource units (LRUs) were designated to group the MLRA into similar land units.

LRU Description:
This Land Resource Unit (designated by 'XY') is found throughout the Mojave Desert MLRA. This LRU designation is set aside for ecological sites that are ubiquitous throughout the MLRA. These sites are driven by environmental or chemical features that override the climatic designations of the other LRU's or are atypical compared to the surrounding landscape. Common overriding XY characteristics within this MLRA include: ephemeral streams subject to flash flood events, riparian areas, other water features, sand dunes, and soils with strong chemical influence (Na, Ca, etc).

Ecological Site Concept -

This ecological site occurs on stabilized sand dunes and sand sheets associated with a permanent groundwater source. This site occurs at relatively low positions within the bolson, but at positions where the water table is greater than 10 feet below the surface. Soils are very deep, have sand and fine sand textures, are somewhat excessively drained, and formed from sandy aeolian material. These soils are typically calcareous and moderately alkaline.

Production reference value (RV) is 525 pounds per acre, but may range from 190 to 660 pounds per acre depending on dune stabilization and annual precipitation. Total cover increases as dunes are progressively stabilized. The reference vegetation community consists of a dense stand of shrubs dominated by western honey mesquite (*Prosopis glandulosa* var. torreyana) and fourwing saltbush (*Atriplex canescens*). The plant community includes a mix of phreatophytic, salt tolerant, sand associates, and upland species, including creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*). This community co-exists in this site due to water table depth and aeolian dynamics.

Data ranges in the following physiographic, climate, and soils data is based on component data from the Bluepoint and Rositas soils series in the CA699 soil survey.

Classification relationships

Stabilized or Partially-Stabilized Desert Dunes (Holland, 1986).
Prosopis glandulosa Woodland Alliance (Sawyer, et al. 2009).

Associated sites

R030XB150CA	**Sandhill 3-5" P.Z.** This ecological site occurs on steep sandsheets without a permanent groundwater source. Big galleta (Pleuraphis rigida) is dominant and cresosote bush (Larrea tridentata) is an important secondary species.
R030XY127CA	**Sodic Dune 3-5" P.Z.** This ecological site occurs on coppice dunes and sandsheets. Fourwing saltbush (Atriplex canescens) and Mojave seablight (Suaeda moquinii) dominate.
R030XY133CA	**Sodic Sand 3-5" P.Z.** This ecological site occurs on low-relief sandsheets. Fourwing saltbush (Atriplex canescens) and creosote bush (Larrea tridentata) are dominant.

Similar sites

R030XY127CA	**Sodic Dune 3-5" P.Z.** This ecological site has lower production, is dominated by fourwing saltbush (Atriplex canescens) and Mojave seablight (Suaeda moquinii), and western honey mesquite (Prosopis glandulosa var. torreyana) is absent.
R030XY133CA	**Sodic Sand 3-5" P.Z.** This ecological site occurs on low-relief sandsheets. Production is lower and western honey mesquite (Prosopis glandulosa var. torreyana) is not present.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Prosopis glandulosa var. torreyana* (2) *Atriplex polycarpa*
Herbaceous	(1) *Suaeda moquinii* (2) *Croton californicus*

Physiographic features

This ecological site occurs on stabilized sand dunes and sand sheets at elevations of 520 to 2250 feet, and slopes ranging from 0 to 30 percent. Runoff class is very low to low.

Table 2. Representative physiographic features

Landforms	(1) Dune (2) Sand sheet
Flooding frequency	None
Ponding frequency	None
Elevation	158–686 m
Slope	0–30%
Aspect	Aspect is not a significant factor

Climatic features

The climate on this site is arid, characterized by warm, moist winters (30 to 60 degrees F) and hot, somewhat dry summers (70 to 110 degrees F). The average annual precipitation ranges from 2 to 6 inches with most falling as rain from November to March. Approximately 45% of the annual precipitation occurs from July to September as a result of summer convection storms. Mean annual air temperature is 64 to 73 degrees F.

The average frost-free period is 240 to 360 days.

Table 3. Representative climatic features

Frost-free period (average)	360 days
Freeze-free period (average)	365 days
Precipitation total (average)	152 mm

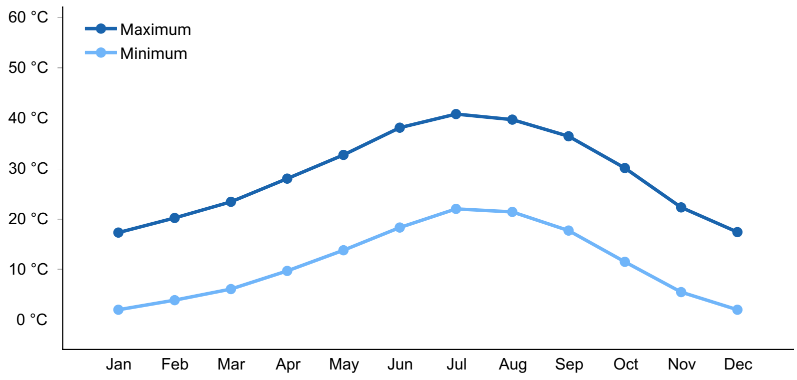

Figure 1. Monthly average minimum and maximum temperature

Influencing water features

Water tables are greater than 60 inches.

Soil features

The soils that characterize this site are very deep and somewhat excessively drained. They are formed in sandy aeolian material blown from recent alluvium. Surface and subsurface textures are loamy sands, fine sands and loamy fine sands. Available water capacity is very low and permeability is rapid. These soils are typically calcareous and moderately alkaline. Wind erosion hazard is severe to very severe. Effective rooting depth is greater than 60 inches.

This soil series associated with this ecological site include Bluepoint (mixed, thermic, Typic Torripsamments); Rositas (mixed, hyperthermic, Typic Torripsamments); and a minor component of a higher order Cambidic Haplodurids. Bluepoint soils may have trace gypsum, and C horizons contain more than 10% silt plus clay. The Cambidic Haplodurids soils are shallow to a duripan, and have a high surface fragment cover, and are not typical for this ecological site.

This ecological site is correlated in the following soil surveys:

CA699 Twentynine Palms Marine Corps Air Ground Combat Center, California
CA699;151; Rositas sand, 4 to 30 percent slopes; Rositas;;8
CA699;160; Bluepoint association, 4 to 30 percent slopes; Bluepoint;;45

CA794 Joshua Tree National Park, California
CA794;1541;Carrizo-Duric Torriorthents association, 4 to 15 percent slopes;Cambidic Haplodurids;sandy surface;5

Table 4. Representative soil features

Parent material	(1) Eolian sands–granite
Surface texture	(1) Loamy sand (2) Fine sand (3) Loamy fine sand
Family particle size	(1) Sandy

Drainage class	Somewhat excessively drained
Permeability class	Rapid
Soil depth	152 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	0.13–0.2 cm
Calcium carbonate equivalent (0-101.6cm)	0–1%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–2
Soil reaction (1:1 water) (0-101.6cm)	7–7.6
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Abiotic Factors:

This ecological site occurs throughout the Mojave Desert on coppice dunes, stabilized dunes and sandsheets associated with a permanent groundwater source. This site occurs at relatively low positions within the bolson, but at positions where the water table is greater than 10 feet below the surface. Soils are very deep, have sand and fine sand textures throughout, are somewhat excessively drained, and formed in sandy aeolian material. These soils are typically calcareous and moderately alkaline.

The reference vegetation community consists of a dense stand of shrubs dominated by western honey mesquite (*Prosopis glandulosa* var. torreyana) and fourwing saltbush (*Atriplex canescens*). Upland species, including creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*) are present in stable interdune areas. Total cover increases as dunes are progressively stabilized.

Western honey mesquite is a long-lived, deciduous, shrub or small tree with a wide distribution in the southwestern United States (Steinberg 2001). In the Mojave Desert, on deep sandy soils, it tends to grow as a spreading, multi-stemmed shrub. Western honey mesquite is an obligate phreatophyte in the Mojave Desert, that is, it relies on access to permanent groundwater to survive (Steinberg 2001, Sawyer et al. 2009). For this species, the water table must within 30 feet (9 m) (Laity 2003). Once established, western honey mesquite serves to stabilize active sand, accumulating sand underneath the canopy and building coppice dunes (Laity 2008). Fourwing saltbush is a relatively long-lived, drought, salt and cold tolerant shrub with an extremely wide distribution (Howard 2003). It is a common associate with western honey mesquite on sites where the water table is 10 to 30 feet below the surface (Howard 2003).

The sandy soils of this ecological site provide habitat for perennial grasses including big galleta (*Pleuraphis rigida*), Indian rice grass (Achnathurum speciosum), sand dropseed (*Sporobolus cryptandrus*), and salt grass (*Distichlis spicata*). These grasses are a minor component of the reference plant community, that also serve to stabilize active sands. California croton (Croton californica) is a subshrub associated with sandy soils, dunes, and washes in southern California, Arizona and Baja, Mexico (Baldwin et al. 2002). These soils also provide habitat for abundant annual species with above average precipitation (Urban et al. 2009).

The soils associated with this ecological site are moderately alkaline, enhancing habitat for a number of salt-tolerant species, including (in addition to fourwing saltbush and western honey mesquite), Mojave seablight (*Suaeda* *moquinii*), shadscale (*Atriplex polycarpa*), desert holly (*Atriplex hymenelytra*), and saltgrass. However, soils are not so alkaline that they exclude upland species, which include sparse creosote bush and burrobush.

Disturbance dynamics

The disturbances affecting this ecological site include drought, wind erosion, invasion by non-native species, and ground water depletion. Fire is so rare in this ecological site that it is not considered as an important disturbance factor (Sawyer et al. 2009).

Drought is an important shaping force in desert plant communities (Webb et al. 2003, Bowers 2005, Hereford et al. 2006, Miriti et al. 2007, Hamerlynk and McAuliffe , Urban et al. 2009). Drought leads to mortality in short-lived shrubs and perennial forbs and grasses (Webb et al. 2003, Bowers 2005, Hereford et al. 2006, Miriti et al. 2007), and lack of emergence of annual species (Beatley 1969, 1974). Long-lived species are more likely to exhibit branch die-back with limited recruitment during drought (Hereford et al. 2006, Miriti et al. 2007). The effects of drought are particularly important in systems driven by aeolian processes, because of the relationship between plant cover and soil erodibility (Lancaster 1994, Musick 1999, Okin et al. 2001, Urban et al. 2009). Severe loss of stabilizing plant cover may trigger a transition to an altered state where stabilized sand surfaces become active (Cooke et al. 1993, Lancaster 1994, Laity 2003, Urban et al. 2009).

Non-native annual species such as red brome (*Bromus rubens*), Mediterranean grass (*Schismus barbatus*), redstem stork's bill (*Erodium cicutarium*), Asian mustard (*Brassica tournefortii*), prickly Russian thistle (*Salsola tragus*), and saltcedar (*Tamarix ramosissima*) have become naturalized throughout the Mojave Desert over the past century (Rickard and Beatley 1965, D'Antonio and Vitousek 1992, Cleverly et al. 1997, Brooks et al. 2004, Bagstad et al. 2006, Barrows et al. 2009). Like native annuals, non-native annual cover and production is directly related to winter precipitation (Beatley 1969, Brooks and Berry 2006, Barrows et al. 2009, Urban et al. 2009). Asian mustard and prickly Russian thistle invasion poses significant threats in eolian habitats, with prickly Russian thistle abundant on disturbed areas or more active sand. Asian mustard may become dominant on stabilized sandsheets during years of above average precipitation (Barrows et al. 2009, Urban et al. 2009). Asian mustard is less abundant on active sand (Barrows et al. 2009), probably because of increased seed burial depths in these habitats from which seedlings cannot emerge (Abella et al. 2011). These species may overwhelm the native annual population (Barrows et al. 2009).

Saltcedar is an invasive phreatophytic tree that has become established across the southwest since its introduction as an ornamental tree and for erosion control in the 1900s (Di Tomaso 1998). If uncontrolled, this species has the potential to become dominant, displacing native woody species (Cleverly et al. 1997, Bagstad et al. 2006), and decreasing habitat quality for native arthropods, birds and reptiles (Shafroth et al. 2005). Saltcedar has become abundant in the western honey mesquite community of this ecological site (Sawyer et al. 2009); saltcedar has greater drought-tolerance than western honey mesquite, which may contribute to its ability to achieve dominance in these communities (Cleverly et al. 1997). Saltcedar may be effectively controlled with aggressive mechanical removal and herbicide application (Shafroth et al. 2005), but given the impacts and costs of treatment, early detection and eradication programs are advised.

State and transition model

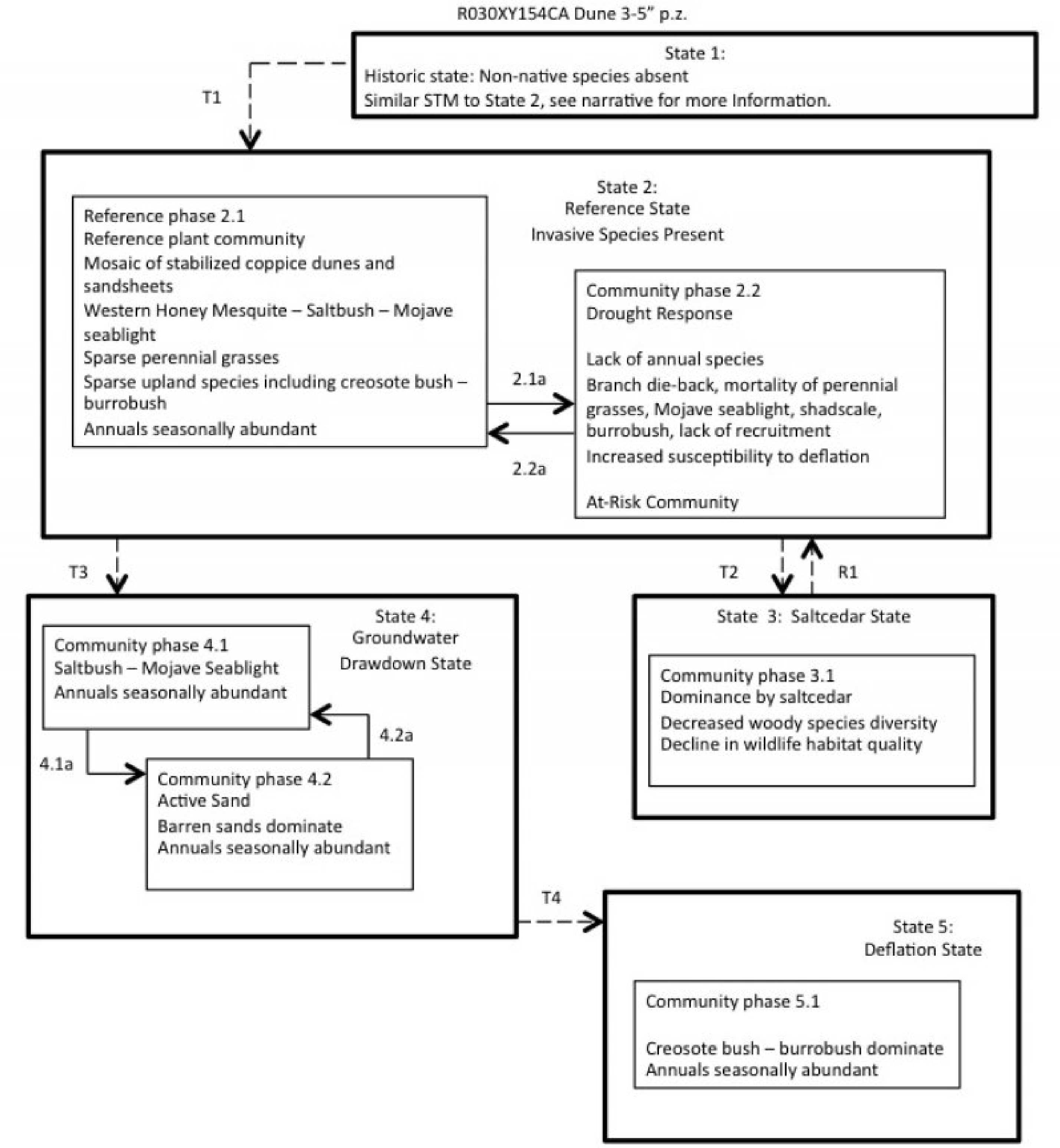

Figure 2. R030XY154CA

State 1
Historic State

State 1 represents the historic range of variability for this ecological site. This state no longer exists due to the ubiquitous naturalization of non-native species in the Mojave Desert. Periodic drought and wind erosion were the natural disturbances influencing this ecological site. Data for this State does not exist, but dynamics and composition would have been similar to State 2, except with only native species present. See State 2 narrative for more detailed information.

Community 1.1
Historic Reference Community

This community phase no longer exists due to the naturalization of non-native species in the Mojave Desert. The historic reference community composition would have been similar to community phase 2.1, but without non-native species.

State 2
Reference State

State 2 represents the current range of variability for this site. Non-native annuals, including red brome, Mediterranean grass, Asian Mustard, prickly Russian thistle, and red-stem stork's bill are naturalized in this plant community. Their abundance varies with precipitation, but they are at least sparsely present (as current year's growth or present in the soil seedbank).

Community 2.1
Reference Plant Community

Figure 3. Community Phase 2.1

The reference vegetation community consists of a dense stand of shrubs dominated by western honey mesquite and fourwing saltbush (*Atriplex canescens*). California croton (Croton californica), and sparse perennial grasses (*Pleuraphis rigida*, *Achnatherum speciosum*, and/or *Sporobolus cryptandrus*) are typically present in sandy interdune areas, and dune fringes. Shadscale (*Atriplex polycarpa*) and Mojave seablight (Suada mouqinii) are present in interdune areas. Upland species, including creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*) are present in more stable interdune areas. Annuals may be abundant with average to above average precipitation. Common species include bristly fiddleneck (*Amsinckia tessellata*), curvenut combseed (*Pectocarya recurvata*), Mojave calico (*Loeseliastrum matthewsii*), cryptantha (Crypantha sp) and birdcage evening primrose (*Oenothera deltoides*). Non-native plants were not recorded in inventory plots, but are naturalized in this ecological site. Naturalized species include red brome, Mediterranean grass, Asian mustard, redstem stork's bill, prickly Russian thistle, and saltcedar.

Forest overstory. Allow no more than 5% 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 8% in aggregate

Allow no more than 2% of each species of the forbs group and no more than 8% in aggregate

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	168	504	616
Forb	39	67	95
Grass/Grasslike	6	17	28
Total	**213**	**588**	**739**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	12-24%
Grass/grasslike foliar cover	2-3%
Forb foliar cover	2-3%
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%

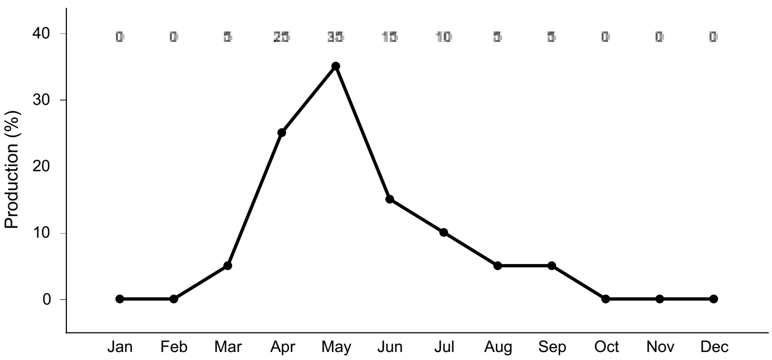

Figure 5. Plant community growth curve (percent production by month). CA3008, Fourwing saltbush. Growth begins in spring to early summer. Flowering occurs from May through September, and fruit ripens from October to December. Seed dispersal occurs from October through April. Seed may remain on the plants from one to two years..

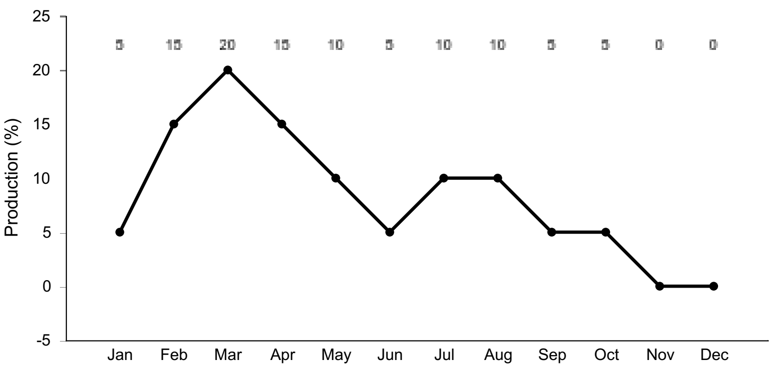

Figure 6. Plant community growth curve (percent production by month). CA3016, Western honey mesquite. Growth begins in early spring; leaves grow in two time periods, January to April and July to September. Flowers develop from February to May. Pods begin maturing in April to May and may continue until August..

Community 2.2
Drought Response

This community phase is characterized by declines in cover and production due to mortality of perennial grasses, Mojave seablight, shadscale, and burrobush, branch die-back and lack of recruitment of long-lived species, and lack of emergence of annual species. This is an at-risk phase, as the increase in bare ground increases the susceptibility of this site to wind erosion. Thus, any additional disturbance threatens to transition this community phase to an eroded state, where significant loss of ecological function has occurred. This community phase is also at risk for increased abundance of saltcedar, if saltcedar is established.

Pathway 2.1a
Community 2.1 to 2.2

This pathway occurs with severe or prolonged drought.

Pathway 2.2a
Community 2.2 to 2.1

This pathway occurs with time and a return to average or above average precipitation conditions.

State 3
Saltcedar State

This State is characterized by dominance by saltcedar, and a decline in native woody species diversity. Habitat quality for wildlife is reduced. Significant investments must be made to restore reference conditions once this state is reached.

Community 3.1
Saltcedar

This community phase is characterized by dominance by saltcedar, and a decline in native woody species diversity.

State 4
Groundwater Drawdown State

This State is characterized by the loss of western honey mesquite, and/or loss of dune and sandsheet stability, with increased rates of wind erosion. This state has been significantly altered from the natural range of variability found in States 1 and 2. Groundwater depletion reduces the ability of the site to support western honey mesquite, leading to a community dominated by fourwing saltbush and Mojave seablight. With additional disturbance, drought, and groundwater depletion, increased wind erosion may the suitability of this ecological site for vegetation, killing established or recruiting individuals by abrasion and burial (Okin et al. 2001). Ongoing disturbance could result in complete loss of vegetation cover. We do not have data for this State, and further research is necessary to describe the community phases and successional pathways that may exist within the state.

Community 4.1
Saltbush - Mojave seablight

This community phase is dominated by fourwing saltbush and Mojave seablight. Western honey mesquite is absent. Species composition is otherwise similar to community phase 2.1.

Community 4.2
Active Sand

This community is characterized by an active aeolian environment. Perennial vegetation is negligible, and barren sands dominate. Annual species may be abundant with years of above average precipitation.

Pathway 4.1a
Community 4.1 to 4.2

This pathway occurs with prolonged or severe drought, or disturbance that reduces plant cover.

Pathway 4.2a
Community 4.2 to 4.1

This pathway occurs with re-stabilization of barren sands by vegetatation. This is most likely to occur following several years of above average precipitation. Initially, high cover of annual species will stabilize the sand surface. With stability, perennial grasses and short-lived shrubs may colonize. With continued stability, longer-lived shrubs will colonize and re-establish dominance.

State 5
Deflation State

This State develops with sand deflation and an accumulation of surface rock fragments. The loss of loose sands decreases habitat suitability for perennial grasses, California croton, and annuals, leading to an upland dominated plant community.

Community 5.1
Deflation Community

This community phase is characterized by an upland vegetation community, dominated by creosote bush and burrobush. Loose sands are largely absent from the soil surface, which is stable and relatively gravelly. Species diversity is low.

Transition 1
State 1 to 2

This transition occurred with the naturalization of non-native species in this ecological site. Non-native species were introduced with settlement of the Southwest Desert region in the 1860s.

Transition 2
State 2 to 3

This transition occurs with uncontrolled invasion by saltcedar. Drought can facilitate saltcedar dominance in this ecological site, due to greater drought tolerance in saltcedar than native community dominants (Cleverly et al. 1997, Di Tomaso 1998).

Transition 3
State 2 to 4

This transition occurs when groundwater depletion reduces the ability of the site to sustain western honey mesquite, and/or when a threshold of the natural cycles of aeolian deposition and erosion are crossed, such as due to extreme drought followed by additional disturbance. Groundwater depletion due to increased urban and agricultural use in the lower Mojave River Valley has led to decline and destabilization of western honey mesquite dominated dunes, and reactivation of aeolian environments in this region (Laity 2003).

Restoration pathway 1
State 3 to 2

Saltcedar can be effectively controlled using a variety of aggressive mechanical and chemical treatments (Shafroth et al. 2005). Saltcedar vigorously sprouts after mechanical disturbance or fire, so removing remaining root and slash material, and/or application of herbicide, and several years of follow-up treatment is essential for control to be effective (Shafroth et al. 2005). Where saltcedar invasion is extensive and severe, i.e. stands are essentially monospecific, control methods include aerial herbicide application followed by burning, and mechanical clearance (bulldozing stands and removing rootstump), followed by burning of slash (McDaniel and Taylor 2003). These methods were found to be 93% and 97% effective (McDaniel and Taylor 2003), however, such intensive methods are very costly, and have tremendous impacts on ecosystem processes (Shafroth et al. 2005). Treatment must also be followed by revegetation and restoration (Shafroth et al. 2005). Where impacts to native species are a concern, and invasion is less extensive, treatment of individuals is the preferred method of control (Shafroth et al. 2005). Cutting of individuals with handsaws or chainsaws, followed by approved National Park Service Integrated Pest Management herbicides is recommended.

Additional community tables

Table 7. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Shrub/Vine					
1	**Shrubs**			168–616	
	western honey mesquite	PRGLT	*Prosopis glandulosa var. torreyana*	34–448	–
	cattle saltbush	ATPO	*Atriplex polycarpa*	11–101	–
	fourwing saltbush	ATCA2	*Atriplex canescens*	11–101	–
	burrobush	AMDU2	*Ambrosia dumosa*	0–89	–
	desertholly	ATHY	*Atriplex hymenelytra*	0–56	–
	creosote bush	LATR2	*Larrea tridentata*	0–56	–
Grass/Grasslike					
2	**Perennial Grasses**			6–28	
	saltgrass	DISP	*Distichlis spicata*	2–47	–
	big galleta	PLRI3	*Pleuraphis rigida*	2–47	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	2–47	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	6–17	–
3	**Annual grasses**			2–6	
	sixweeks grama	BOBA2	*Bouteloua barbata*	2–47	–
Forb					
4	**Subshrubs/Perennial Forbs**			22–163	
	Mojave seablite	SUMO	*Suaeda moquinii*	11–90	–
	California croton	CRCA5	*Croton californicus*	11–47	–
5	**Native annual forbs**			0–95	
	curvenut combseed	PERE	*Pectocarya recurvata*	0–67	–
	birdcage evening primrose	OEDE2	*Oenothera deltoides*	0–59	–
	bristly fiddleneck	AMTE3	*Amsinckia tessellata*	0–59	–
	cryptantha	CRYPT	*Cryptantha*	0–59	–
	desert calico	LOMA10	*Loeseliastrum matthewsii*	0–11	–
	desert Indianwheat	PLOV	*Plantago ovata*	0–1	–

Animal community

This site provides habitat for small mammals such as southern grasshopper mice, Merriam kangaroo rats and desert kangaroo rats. Coyotes and black-tailed jackrabbits also occur. Fourwing saltbush and western honey mesquite provide food and cover for rabbits and small mammals. Reptiles common to this site include Mojave fringe-toed lizards, western whiptails, side-blotched lizards and sidewinders. The sandy soil textures are a restrictive feature to burrowing reptiles. Birds common to this site include common ravens, loggerhead shrikes, mourning doves, Wilson and orange-crowned warblers, horned larks, blue-gray gnatcatchers, verdins and several species of sparrows. The seeds of fourwing saltbush and honey mesquite provide a food source for many species of birds.

Season of Use- Other Mgt. Considerations: Fourwing saltbush is considered valuable browse for domestic livestock and can withstand heavy grazing. Fourwing saltbush is rated fair to good forage value for domestic sheep and goats, and at least fair forage value for cattle. Western honey mesquite provides forage chiefly in its seedpods, which are high in sugar, protein and minerals. They are relished by cattle, sheep, goats, swine and horses. The twigs become green in the spring before the leaves appear and are readily grazed by livestock for a short period. The leaves are eaten only slightly when they first appear, except on overgrazed range or during prolonged drought.

Hydrological functions

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

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

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

Recreational uses

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

Wood products

The chief use of western honey mesquite wood is for firewood. Mesquite wood is easily sawed and split, is dry and heavy, ignites readily, and produces intense heat. Mesquite is also used for fenceposts, charcoal and lumber.

Other information

Military Operations - Management for this site would be to protect it from excessive disturbance and maintain existing plant cover. Land clearing or other disturbances that destroy the vegetation and soil structure can result in soil compaction, reduced infiltration rates, accelerated erosion, severe wind erosion and barren areas.

Inventory data references

This site is equivalent to and was copied from R030XD154CA after is was decided by the Regional Ecological Site Specialist that the default "XY" LRU should not be used.

Sampling technique

_2_ NV-ECS-1
___ SCS-Range 417
___ Other

CA794 Soil Survey Inventory Plots:

Other references

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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	
Approved by	
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:**