

10880

Sonora-Mojave Mixed Salt Desert Scrub

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Shrubland

Map Zones

4, 5

Geographic Range

Closed basins in the Mojave and Sonoran Deserts associated with basin and range topography. Most typically found in the Mojave and in the Sonoran west of the Colorado River but also found in the southern San Joaquin valley (ecoregion subsections 262Av and 262Ay). Isolated patches of salt desert scrub occur in inland southern California (San Jacinto valley).

Biophysical Site Description

This system includes saline basins in the Mojave and Sonoran deserts and southern Central Valley, generally the areas around playas. Substrates are generally fine-textured, saline soils. Vegetation is typically composed of one or more *Atriplex* species and other halophytic plants. Graminoid species may be abundant in saturated soils.

This group lies in and adjacent to playas. It is bordered upslope by creosotebush (lower elevational range), greasewood, and sometimes sand dunes. In a few areas, mesquite bosques occur adjacently as linear features associated with drainages that have been truncated by roads or alluvial fans (e.g., Death Valley). Downslope from this community are barren playa bottoms with extremely high salt concentrations that become seasonally flooded after sustained winter precipitation.

Vegetation Description

This ecological system includes low (<3ft) shrubs found widely scattered (often 20-30ft apart) interspersed with low to mid-height salt-tolerant grasses. Common shrubs are shadscale, spinescale, budsage, hop-sage, horsebrush, ephedra, winterfat, and yellow rabbitbrush. Associated grasses include Indian ricegrass, needle-and-thread, purple threeawn, bottlebrush squirreltail, galleta grass, sand dropseed, alkali sacaton, and saltgrass. Grass density is highest where springs or shallow water table create continuously saturated soil conditions. Total vegetation cover generally is <10% but can exceed 10% in saturated soils.

This type roughly corresponds with shadscale series (Sawyer and Keeler-Wolf 1995) and saltbush scrub system (Thomas et al. 2004).

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
ATSP	<i>Atriplex spinifera</i>	Spinescale saltbush
ATCO	<i>Atriplex confertifolia</i>	Shadscale saltbush
ALOC2	<i>Allenrolfea occidentalis</i>	Iodinebush

Species names are from the NRCS PLANTS database. Check species codes at <http://plants.usda.gov>.

Disturbance Description

Disturbance is predictable, characterized by continuous seasonal flooding (weeks to months of inundation) during winter and early spring months and occasional storm-related ephemeral flooding (hours to days duration) associated with late-summer monsoonal storms. The monsoonal flooding is only a factor in the eastern Mojave and is generally not a factor in the western Mojave or Central Valley. Extended wet and dry cycles oscillate every two to three decades related to the Pacific Decadal Oscillation (PDO), but the influence of these longer-term patterns can be moderated by short-term variation associated with El Niño and La Niña patterns. During wet periods, spring flow increases and water tables rise to support more continuous vegetation in local areas.

Beyond individual plants torching due to direct lightning strikes, fire is not known to occur in this vegetation type due to the lack of fuel load and fuel continuity. The only areas with continuous fuels are in saturated soils and are generally too wet to burn.

Native American manipulation of Sonora-Mojave Mixed Salt Desert Shrub type is not known to have occurred.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement				
Moderate (Mixed)				
Low (Surface)				
All Fires				

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

Generally, this ecological system exists as a relatively narrow fringe around active playas but can be more extensive where playas have a steep gradient resulting in a large area that escapes continuous seasonal inundation or in small basins where playas are not fully formed.

Adjacency or Identification Concerns

This ecological system is similar to the Inter-Mountain Basins Mixed Salt Desert Scrub (BPS 1081) but can be distinguished by its consistent spatial relationship with playas.

This ecological system has been altered by invasive species, most frequently encountered in former agricultural sites and road margins. Most notable is the invasion of *Schismus* spp., *Bromus madritensis* ssp. *rubens*, *Bassia hyssopifolia*, *Sisymbrium irio*, and *Erodium cicutarium*. In years of abundant moisture, these non-native species could possibly create a fuel load that could carry fire for short distances under strong wind conditions.

Issues or Problems

There is not much information on this system.

Native Uncharacteristic Conditions

>30% cover of shrub is uncharacteristic.

Comments

Map zones 4 and 5 were combined during 2015 BpS Review. It was noted during the review that this model is duplicate with the 1088 model for MZs 12, 13, 14, and 25, but the descriptions were not combined because in those zones the model was lumped with BpS 1066.

Succession Classes

Mapping Rules

Upper Layer Lifeform	Height (m)	Canopy Cover (%)									
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Herb	0-0.5	A	A	A	A	A	A	A	A	A	A
Herb	0.5-1.0	A	A	A	A	A	A	A	A	A	A
Herb	>1.0	A	A	A	A	A	A	A	A	A	A
Shrub	0-0.5	A	A	A	UN	UN	UN	UN	UN	UN	UN
Shrub	0.5-1.0	B	B	B	UN	UN	UN	UN	UN	UN	UN
Shrub	1.0-3.0	B	B	B	UN	UN	UN	UN	UN	UN	UN
Shrub	>3.0	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	0-5	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	5-10	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	10-25	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	25-50	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	>50	B	B	B	UN	UN	UN	UN	UN	UN	UN

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leafform distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

Description

Class A	13	Early Development 1 - All Structures
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
ATSP	Atriplex spinifera	Spinescale saltbush	Upper
ATCO	Atriplex confertifolia	Shadscale saltbush	Upper
ALOC2	Allenrolfea occidentalis	Iodinebush	Upper

Description

Shrub seedlings establish following prolonged flooding events.

Maximum Tree Size Class

None

Class B 87 Late Development 1 - Open

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
ATSP	Atriplex spinifera	Spinescale saltbush	Upper
ATCO	Atriplex confertifolia	Shadscale saltbush	Upper
ALOC2	Allenrolfea occidentalis	Iodinebush	Upper

Description

Mature shrubs reaching a maximum of 25% canopy cover.

Maximum Tree Size Class

None

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Late1:OPN	4
Late1:OPN	5	Late1:OPN	999

Probabilistic Transitions

Disturbance Type	Disturbance occurs In	Moves vegetation to	Disturbance Probability	Return Interval (yrs)	Reset Age to New Class Start Age After Disturbance?	Years Since Last Disturbance
Wind or Weather or Stress	Early1:ALL	Early1:ALL	0.033	30	Yes	0
Wind or Weather or Stress	Late1:OPN	Early1:ALL	0.033	30	Yes	0

References

Hereford, R., R.H. Webb and C. I. Longpre. 2004. Precipitation History of the Mojave Desert Region, 1983-2001. USGS Fact Sheet 117-03.

NatureServe. 2007. International Ecological Classification Standard: Terrestrial Ecological Classifications. NatureServe Central Databases. Arlington, VA. Data current as of 10 February 2007.

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. Berkeley, CA: California Native Plant Society.

Thomas, K., T. Keeler-Wolf, J. Franklin and P. Stine. 2004. Mojave Desert Ecosystem Program: Central Mojave Vegetation Database. USGS. 251 pp.