11080

Sonora-Mojave Semi-Desert Chaparral

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
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Vegetation Type

Shrubland

Map Zone

17

Geographic Range

This ecological system is composed of evergreen shrublands on side slopes that transition from low-elevation desert landscapes up into woodlands of the western Mojave and Sonoran deserts. It extends from northeast Kern County, California, into Baja Norte.

Biophysical Site Description

This system includes chaparral on side slopes that transition from low-elevation desert landscapes up into pinyon-juniper and ponderosa pine woodlands of the western and central Great Basin, between 4,000ft and 7,000ft.

Vegetation Description

Associated species include *Quercus john-tuckeri*, *Quercus cornelius-mulleri*, *Quercus berberidifolia*, *Arctostaphylos patula*, *Arctostaphylos pungens*, *Arctostaphylos glauca*, *Rhus ovata*, *Juniperus californica*, *Cercocarpus montanus* var. *glaber* (=*Cercocarpus betuloides*), *Ceanothus greggii*, *Garrya flavescens*, and *Nolina parryi*.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| QUJO3 | *Quercus john-tuckeri* | Tucker oak |
| QUCO7 | *Quercus cornelius-mulleri* | Muller oak |
| QUBE5 | *Quercus berberidifolia* | Scrub oak |
| ARPA6 | *Arctostaphylos patula* | Greenleaf manzanita |
| ARPU5 | *Arctostaphylos pungens* | Pointleaf manzanita |
| ARGL4 | *Arctostaphylos glauca* | Bigberry manzanita |
| CEMOG | *Cercocarpus montanus var. glaber* | Birchleaf mountain-mahogany |
| GAFL2 | *Garrya flavescens* | Ashy silktassel |

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

Disturbance Description

Typical fire regime in these systems varies with the amount of organic accumulation. The only significant disturbance to the system is stand-replacing fire occurring every 50-100yrs on average. Shrubs resprout rapidly after fire, often making the vegetation impenetrable.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 50 | 100 | 10 | 90 |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 50 | 100 |  |  |

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

Vegetation found in small patches of 10ac to whole mountain slopes of 5,000ac.

Adjacency or Identification Concerns

Biophysical setting (BpS) 1108 is difficult to distinguish from BpS 1103 (Great Basin Semi-Desert Chaparral) and BpS 1104 (Mogollon Semi-Desert Chaparral).

Issues or Problems

None of the experts consulted were familiar with this chaparral.

Issues with selection of proper mean fire return interval: tested both 50yrs and 75yrs (retained).

Native Uncharacteristic Conditions

Comments

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 | A | A | A | A | A | A | A |
| Shrub | 0.5-1.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 1.0-3.0 | B | B | B | B | B | B | B | B | B | B |
| Shrub | >3.0 | B | B | B | B | B | B | B | B | B | B |
| Tree | 0-5 | B | B | B | B | B | UN | UN | UN | UN | UN |
| Tree | 5-10 | B | B | B | B | B | UN | UN | UN | UN | UN |
| Tree | 10-25 | B | B | B | B | B | UN | UN | UN | UN | UN |
| Tree | 25-50 | B | B | B | B | B | UN | UN | UN | UN | UN |
| Tree | >50 | B | B | B | B | B | 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 63 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ARPA6 | Arctostaphylos patula | Greenleaf manzanita | Upper |
| ARPU5 | Arctostaphylos pungens | Pointleaf manzanita | Upper |
| QUJO3 | Quercus john-tuckeri | Tucker oak | Upper |
| CEMOG | Cercocarpus montanus var. glaber | Birchleaf mountain-mahogany | Upper |

Description

After fire, shrubs resprout vigorously from roots or from the base of plants. Shrubs can cause stands to become impenetrable.

*Maximum Tree Size Class*  
None

Class B 37 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ARPA6 | Arctostaphylos patula | Greenleaf manzanita | Upper |
| ARPU5 | Arctostaphylos pungens | Pointleaf manzanita | Upper |
| QUJO3 | Quercus john-tuckeri | Tucker oak | Upper |
| CEMOG | Cercocarpus montanus var. glaber | Birchleaf mountain-mahogany | Upper |

Description

Dense shrubs, with grasses present in the few openings. Shrub composition same as in Class A. Canopy cover generally exceeds 50%.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 1 | Late1:CLS | 50 |
| Late1:CLS | 51 | Late1:CLS | 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** |
| Replacement Fire | Early1:ALL | Early1:ALL | 0.02 | 50 | Yes | 0 |
| Replacement Fire | Late1:CLS | Early1:ALL | 0.02 | 50 | Yes | 0 |

References

Barbour, M.G., and J. Major, editors. 1988. Terrestrial vegetation of California: New expanded edition. California Native Plant Society, Special Publication 9, Sacramento. 1030 pp.

Brown, D. E., editor. 1982. Biotic communities of the American Southwest-United States and Mexico. Desert Plants Special Issue 4(1-4): 1-342.

Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow and J. Teague. 2003. Ecological systems of the United States: A working classification of U.S. terrestrial systems. NatureServe, Arlington, VA.

Holland, V.L., and D.J. Keil. 1995. California vegetation. Kendall/Hunt Publishing Company, Dubuque, IA. 516 pp.

MacMahon, J. A. 1988. Warm deserts. Pages 232-264 in M. G. Barbour and W. D. Billings, editors. North American terrestrial vegetation. Cambridge University Press, New York.

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

Thomas, K., J. Franklin, T. Keeler-Wolf, and P. Stine. 2003a. Mojave Desert Ecosystem Program: Central Mojave Vegetation Mapping Project. USGS Open-file Report. In press.