10900

Sonoran Granite Outcrop Desert Scrub

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
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| None | None | None | None |

Vegetation Type

Shrubland

Map Zone

14

Geographic Range

This ecological system occurs in foothills and mountains of Sonora, Mexico, and extends north across the border into southern Arizona.

Biophysical Site Description

This ecological system is found on low- to mid-elevation granitic outcrops.

Vegetation Description

Tropical genera of *Jatropha* and *Bursera* become co-dominants in dense to sparse vegetation transitioning upslope from Sonoran Paloverde-Mixed Cacti Desert Scrub (CES302.761). Diagnostic species are *Bursera microphylla*, *Jatropha cuneata*, *Nolina bigelovii*, *Parkinsonia microphylla*, or *Rhus kearneyi*. *Jatropha cuneata* is locally abundant on gravelly plains and rocky slopes. *Bursera microphylla* is rare to locally common in washes, on gravelly plains, and on rocky limestone or igneous slopes. At the northern part of its range, it grows in warm microhabitats.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| BUMI | *Bursera microphylla* | Elephant tree |
| JACU | *Jatropha cuneata* | Physicnut |
| NOBI | *Nolina bigelovii* | Bigelow's nolina |
| PAMI5 | *Parkinsonia microphylla* | Yellow paloverde |
| RHKE | *Rhus kearneyi* | Kearney's sumac |
| AMDE4 | *Ambrosia deltoidea* | Triangle burr ragweed |

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

Disturbance Description

Fires are historically rare, dependent upon grasses and other fine fuels that are more productive in wet years. Freezing temperatures are another disturbance that limits distribution. Fuel model in Class A is uncertain, will depend on grass response to moisture events. Fuel is often discontinuous.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 509 | 100 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 509 | 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

Very patchy, forms large patches with sparse to clumped vegetation canopy.

Adjacency or Identification Concerns

Issues or Problems

Current fire frequency is increasing. Impacts of invasive annual grass red brome, has been the cause of many serious fires in the northern Sonoran Desert (Esque et al. 2004). Depending on fine fuel amounts and continuity, fire behavior fuel model may be 1.

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 | B | B | B | UN | UN | UN | UN | UN |
| Shrub | 1.0-3.0 | A | A | B | B | B | UN | UN | UN | UN | UN |
| Shrub | >3.0 | A | A | B | B | B | UN | UN | UN | UN | UN |
| 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 16 Early Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| BUMI | Bursera microphylla | Elephant tree | Upper |
| JACU | Jatropha cuneata | Physicnut | Upper |
| NOBI | Nolina bigelovii | Bigelow's nolina | Middle |
| PAMI5 | Parkinsonia microphylla | Yellow paloverde | Upper |

Description

Shrub seedling establishment following disturbance. *Bursera microphylla* seeds germinate readily but suffer high mortality at 10-40cm heights.

*Maximum Tree Size Class*  
None

Class B 84 Late Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| BUMI | Bursera microphylla | Elephant tree | Upper |
| JACU | Jatropha cuneata | Physicnut | Upper |
| NOBI | Nolina bigelovii | Bigelow's nolina | Middle |
| PAMI5 | Parkinsonia microphylla | Yellow paloverde | Upper |

Description

Young to mature community, with a mixture of sizes and classes. *Bursera microphylla* may get to 8m height. *Jatropha cuneata* reaches 2m and may start to die at ages >55yrs. Isolated clumps of vegetation may be >50% canopy cover.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:OPN | 0 | Late1:ALL | 20 |
| Late1:ALL | 21 | Late1:ALL | 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:OPN | Early1:OPN | 0.002 | 500 | Yes | 0 |
| Wind or Weather or Stress | Early1:OPN | Early1:OPN | 0.006 | 167 | Yes | 0 |
| Replacement Fire | Late1:ALL | Early1:OPN | 0.002 | 500 | Yes | 0 |
| Wind or Weather or Stress | Late1:ALL | Early1:OPN | 0.0066 | 152 | Yes | 0 |

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