10950

Apacherian-Chihuahuan Mesquite Upland Scrub

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
| Mike Babler | mbabler@tnc.org | None | None |
| None | None | None | None |
| None | None | None | None |

Vegetation Type

Shrubland

Map Zone

15

Geographic Range

Chihuahuan Desert extending into the Sky Island region to the west and the Edwards Plateau to the east.

Biophysical Site Description

Substrates are typically derived from alluvium, often gravelly without a well-developed argillic or calcic soil horizon that would limit infiltration and storage of winter precipitation in deeper soil layers. *Prosopis* spp. and other deep-rooted shrubs exploit this deep soil moisture that is unavailable to grasses and cacti.

Vegetation Description

Vegetation is typically dominated by *Prosopis glandulosa* or *Prosopis velutina* and succulents. Other desert scrub that may co-dominate or dominate includes *Acacia neovernicosa*, *Acacia constricta*, *Juniperus monosperma*, or *Juniperus coahuilensis*. Grass cover is typically low.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| BOUTE | *Bouteloua* | Grama |
| PLUM3 | *Pleuraphis mutica* | TobosagrassTobosagrass |
| ARIST | *Aristida* | Threeawn |
| MUPO2 | *Muhlenbergia porter* | Bush muhly |
| ISTE | *Isoetes tegetiformans* | Merlin's grass |
| PRJU3 | *Prosopis juliflora* | Prosopis juliflora |
| ACACI | *Acacia* | Acacia |

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

Disturbance Description

None

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 10 | 93 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) | 137 | 7 |  |  |
| All Fires | 9 | 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

None

Adjacency or Identification Concerns

Similar to Chihuahuan Mixed Desert and Thorn Scrub (CES302.734) but is generally found at higher elevations where *Larrea tridentata* and other desert scrub are not co-dominant. It is also similar to Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub (CES302.737) but does not occur on eolian-deposited substrates.

Issues or Problems

This is probably not a Biophysical Setting (BpS) but may be a class within semi-desert grassland (BpS 1121). During the last century, the area occupied by this system has increased through conversion of desert grasslands as a result of drought, overgrazing by livestock, and/or decreases in fire frequency. It is believed that this is a system that occurred in very minor amounts and has become widespread as a result of drought, heavy grazing, and other actions. In order to meet LANDFIRE standards, percentages of canopy cover were rounded up -- note the difference in Structural Data versus the Class Description.

Native Uncharacteristic Conditions

Comments

This model is based on information provided by Heather Schussman, hschussman@tnc.org. The VDDT model is the same as 151121. Review suggests that this BpS occupies <5% of semi-desert grassland (BpS 1121) and is not its own BpS.

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 | B | B | B | B | B |
| Herb | 0.5-1.0 | A | A | A | A | A | B | B | B | B | B |
| Herb | >1.0 | A | A | A | A | A | B | B | B | B | B |
| Shrub | 0-0.5 | B | C | D | D | D | D | D | D | D | D |
| Shrub | 0.5-1.0 | B | C | D | D | D | D | D | D | D | D |
| Shrub | 1.0-3.0 | B | C | D | D | D | D | D | D | D | D |
| Shrub | >3.0 | B | C | D | D | D | D | D | D | D | D |
| Tree | 0-5 | D | D | D | D | D | UN | UN | UN | UN | UN |
| Tree | 5-10 | D | D | D | D | D | UN | UN | UN | UN | UN |
| Tree | 10-25 | D | D | D | D | D | UN | UN | UN | UN | UN |
| Tree | 25-50 | D | D | D | D | D | UN | UN | UN | UN | UN |
| Tree | >50 | D | D | D | D | D | 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 20 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PRGL2 | Prosopis glandulosa | Honey mesquite | None |
| PRVE | Prosopis velutina | Velvet mesquite | None |

Description

Grass and herbs. Early succession post-fire grass and herb community. Perennial bunchgrasses, annual grass and herb community. Upper layer of shrubs, canopy cover typically <5%.

*Maximum Tree Size Class*  
No Data

Class B 65 Mid Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |

Description

Grass with some low shrubs. Perennial bunchgrasses regenerate, and young shrubs begin growing. Species are perennial bunchgrasses and shrubs. Canopy cover of upper layer is typically 5-10%.

*Maximum Tree Size Class*  
No data

Class C 9 Mid Development 2 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |

Description

Shrubs continue to increase in size and/or number of individuals. Species are perennial bunchgrasses and shrubs. Canopy cover of upper layer is 10-20%.

*Maximum Tree Size Class*  
No data

Class D 6 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |

Description

Shrubs with little to no perennial grass. Shrub cover is high enough to out-compete perennial grasses, resulting in low levels of fine fuels and increased erosion potential.

*Maximum Tree Size Class*  
No data

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:OPN | 2 |
| Mid1:OPN | 3 | Mid2:OPN | 14 |
| Mid2:OPN | 15 | Late1:OPN | 21 |
| Late1:OPN | 22 | 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** |
| Replacement Fire | Mid1:OPN | Early1:ALL | 0.14 | 7 | Yes | 0 |
| Replacement Fire | Mid2:OPN | Early1:ALL | 0.12 | 8 | Yes | 0 |
| Surface Fire | Late1:OPN | Mid1:OPN | 0.12 | 8 | Yes | 0 |

References

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