11210

Apacherian-Chihuahuan Semi-Desert Grassland and Steppe

BpS Model/Description Version: Aug. 2020

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

Steppe/Savanna

Map Zone

14

Model Splits or Lumps

This Biophysical Setting (BpS) is lumped with 10950.

Geographic Range

Borderland of Arizona, New Mexico, Texas, and northern Mexico. Extends from Sonoran Desert to the Mogollon Rim and much of the Chihuahuan Desert.

Biophysical Site Description

Gently sloping, on mesas, foothill slopes. and piedmonts; 1,100-1,800m elevations.

Vegetation Description

Annual and perennial grasses; herbs with shrubs as the upper lifeform. In Class D, shrubs are eliminating grasses.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| BOUTE | *Bouteloua* | Grama |
| LATR2 | *Larrea tridentata* | Creosote bush |
| MUPO2 | *Muhlenbergia porteri* | Bush muhly |
| PLMU3 | *Pleuraphis mutica* | tobosagrass |
| ARIST | *Aristida* | Threeawn |
| ISTE2 | *Isocoma tenuisecta* | Burroweed |
| ACACI | *Acacia* | Acacia |
| OPUNT | *Opuntia* | Pricklypear |

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

Disturbance Description

Fire has a major impact in desert grasslands. Fire controls the abundance of woody plants and maintains desert grasslands. In the absence of fire, woody plants may dominate. Dry lightning accompanies the monsoons in late June and July. Pre-1882 fires were extensive, up to 100s of square miles.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 10 | 80 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) | 40 | 20 |  |  |
| All Fires | 8 | 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

1,000-100,000ha

Adjacency or Identification Concerns

NRCS Ecological Site Descriptions are gravelly, gravelly loam. Effects of dominance by Lehmann lovegrass and increased fuels need to be considered.

Issues or Problems

Moisture following fire has significant impact on plant response/recovery.

Native Uncharacteristic Conditions

Comments

LANDFIRE National reviewer of 141121 suggests that the effects of Lehman lovegrass and increased fuel loads should have more consideration in adjacency discussion. Further, the reviewer suggested that this model would include 141095. He stated that 141095 is a small part of 141121. Original modelers had difficulty with these two models, so they are lumped in map zone (MZ) 14. Original model reviewed and modified in Las Cruces, 29 June 2005, to reflect conditions in MZ15. Adapted from FRCC Model DGRA3, Hann, 25 September 2003. This model is based on grass shrub community and does not address large tree savanna community. Note that MZ13 split this BpS into 2 BpSs.

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 | B | B | B | UN | UN | UN | UN | UN |
| Herb | 0.5-1.0 | A | A | B | B | B | UN | UN | UN | UN | UN |
| Herb | >1.0 | A | A | B | B | B | UN | UN | UN | UN | UN |
| Shrub | 0-0.5 | C | C | D | D | D | UN | UN | UN | UN | UN |
| Shrub | 0.5-1.0 | C | C | D | D | D | UN | UN | UN | UN | UN |
| Shrub | 1.0-3.0 | C | C | D | D | D | UN | UN | UN | UN | UN |
| Shrub | >3.0 | C | C | D | D | D | UN | UN | UN | UN | UN |
| Tree | 0-5 | D | D | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 5-10 | D | D | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 10-25 | D | D | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 25-50 | D | D | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | >50 | D | D | UN | 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 21 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| BOUTE | Bouteloua | Grama | Upper |
| PLMU3 | Pleuraphis mutica | tobosagrass | Upper |
| ARIST | Aristida | Threeawn | Upper |

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 <5%.

*Maximum Tree Size Class*  
No Data

Class B 64 Mid Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| BOUTE | Bouteloua | Grama | Low-Mid |
| PLMU3 | Pleuraphis mutica | tobosagrass | Low-Mid |
| ARIST | Aristida | Threeawn | Low-Mid |
| LATR2 | Larrea tridentata | Creosote bush | Upper |

Description

Grass with some low shrubs. Herbaceous species (BOUTE) may dominate. Shrub cover can be 0-10% with height of 0-1m. Perennial bunchgrasses regenerate, and young shrubs begin growing. Species are perennial bunchgrasses and shrubs.

*Maximum Tree Size Class*  
No data

Class C 10 Mid Development 2 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| BOUTE | Bouteloua | Grama | Low-Mid |
| PLMU3 | Pleuraphis mutica | tobosagrass | Low-Mid |
| ARIST | Aristida | Threeawn | Low-Mid |
| LATR2 | Larrea tridentate | Creosote bush | Upper |

Description

Shrubs continue to increase in size and/or number of individuals. Species are perennial bunchgrasses and shrubs. Herbaceous species (BOUTE) may dominate. Shrub cover will be similar to species composition found in the Ecological System Apacherian-Chihuahuan Mesquite Upland Scrub.

*Maximum Tree Size Class*  
No data

Class D 5 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PRGL2 | Prosopis glandulosa | Honey mesquite | Upper |
| PLMU3 | Pleuraphis mutica | tobosagrass | Lower |
| ARIST | Aristida | Threeawn | Lower |
| LATR2 | Larrea tridentata | Creosote bush | Upper |

Description

Shrubs with little to no perennial grass. Shrub cover is high enough to out-compete perennial grasses resulting in low levels of fine fuel and increased erosion potential. Fires that do occur return the system to Class C. Shrub cover will be similar to species composition found in the Ecological System Apacherian-Chihuahuan Mesquite Upland Scrub.

*Maximum Tree Size Class*  
No data

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:ALL | 2 |
| Mid1:ALL | 3 | Mid2:ALL | 14 |
| Mid2:ALL | 15 | Late1:CLS | 21 |
| Late1:CLS | 22 | 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** |
| Surface Fire | Mid1:ALL | Mid1:ALL | 0.02 | 50 | No | 0 |
| Replacement Fire | Mid1:ALL | Early1:ALL | 0.14 | 7 | Yes | 0 |
| Surface Fire | Mid2:ALL | Mid1:ALL | 0.06 | 17 | Yes | 0 |
| Replacement Fire | Mid2:ALL | Early1:ALL | 0.12 | 8 | Yes | 0 |
| Surface Fire | Late1:CLS | Mid2:ALL | 0.12 | 8 | Yes | 0 |

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