11210

Apacherian-Chihuahuan Semi-Desert Grassland and Steppe

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Steppe/Savanna

Map Zone

24

Geographic Range

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

Biophysical Site Description

Gently sloping, on mesas, foothill slopes, and piedmonts. Elevations range from 1,100-1,800m.

Vegetation Description

Annual and perennial grasses and herbs with shrubs as the upper lifeform. In late-development conditions (Class D), shrubs are eliminating grasses. Grasses are diverse and include *Bouteloua eriopoda*, *Bouteloua hirsuta*, *Bouteloua rothrockii*, *Bouteloua curtipendula*, *Bouteloua gracilis*, *Eragrostis intermedia*, *Muhlenbergia porteri*, *Muhlenbergia setifolia*, *Pleuraphis jamesii*, *Pleuraphis mutica*, and *Sporobolus airoides*. Shrubs include species of *Prosopsis* and *Quercus*.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| BOER4 | *Bouteloua eriopoda* | Black grama |
| BOCU | *Bouteloua curtipendula* | Sideoats grama |
| BOGR2 | *Bouteloua gracilis* | Blue grama |
| ARIST | *Aristida* | Threeawn |
| GUSA2 | *Gutierrezia sarothrae* | Broom snakeweed |
| ISTE2 | *Isocoma tenuisecta* | Burroweed |
| CAER | *Calliandra eriophylla* | Fairyduster |
| ACACI | *Acacia* | Acacia |

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 to 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 | 81 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) | 42 | 19 |  |  |
| 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

100-1,000 of acres.

Adjacency or Identification Concerns

Issues or Problems

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

Native Uncharacteristic Conditions

Comments

Adapted from the FRCC Model DGRA3 (original modeler Wendel Hann, 25 September 2003). This model is based on grass shrub community and does not address large tree savanna community.

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 | 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** |
| BOER4 | Bouteloua eriopoda | Black grama | Lower |
| BOCU | Bouteloua curtipendula | Sideoats grama | Lower |
| BOGR2 | Bouteloua gracilis | Blue grama | Lower |
| GUSA2 | Gutierrezia sarothrae | Broom snakeweed | Low-Mid |

Description

Early succession post-fire perennial bunchgrasses, annual grass and herbaceous community, lasting approximately two years post-disturbance. Grasses dominate, with shrub cover <5%. Grasses will be 0-50% canopy cover and will generally be short (<0.5m tall).

*Maximum Tree Size Class*  
None

Class B 65 Mid Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| BOER4 | Bouteloua eriopoda | Black grama | Lower |
| ERIN | Eragrostis intermedia | Plains lovegrass | Lower |
| BOGR2 | Bouteloua gracilis | Blue grama | Lower |
| PLMU3 | Pleuraphis mutica | Tobosagrass | Lower |

Description

Perennial bunchgrasses regenerated, and young, low shrubs begin growing. Grasses dominate, with shrub cover <10%. Grasses will be 50-100% canopy cover and will generally be short (<0.5m tall).

*Maximum Tree Size Class*  
None

Class C 10 Mid Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| BOER4 | Bouteloua eriopoda | Black grama | Lower |
| ERIN | Eragrostis intermedia | Plains lovegrass | Lower |
| BOGR | Boerhavia gracillima | Slimstalk spiderling | Lower |
| PLMU3 | Pleuraphis mutica | Tobosagrass | Lower |

Description

Species are perennial bunchgrasses and shrubs. Shrubs continue to increase in size and/or number of individuals. Grasses dominate, with shrub cover <20%. Grasses will be 0-100% canopy cover and will generally be short (<0.5m tall).

*Maximum Tree Size Class*  
None

Class D 4 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| BOER4 | Bouteloua eriopoda | Black grama | Lower |
| ERIN | Eragrostis intermedia | Plains lovegrass | Lower |
| PROSO | Prosopis | Mesquite | Upper |
| QUERC | Quercus | Oak | 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. If fire occurs it reduces shrub cover and increases potential for perennial bunchgrasses.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:CLS | 2 |
| Mid1:CLS | 3 | Mid1:OPN | 14 |
| Mid1:OPN | 15 | Late1:OPN | 22 |
| Late1:OPN | 23 | 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** |
| Surface Fire | Mid1:OPN | Mid1:CLS | 0.06 | 17 | Yes | 0 |
| Replacement Fire | Mid1:OPN | Early1:ALL | 0.12 | 8 | Yes | 0 |
| Surface Fire | Mid1:CLS | Mid1:CLS | 0.02 | 50 | No | 0 |
| Replacement Fire | Mid1:CLS | Early1:ALL | 0.14 | 7 | Yes | 0 |
| Surface Fire | Late1:OPN | Mid1:OPN | 0.12 | 8 | Yes | 0 |

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