11220

Chihuahuan Gypsophilous Grassland and Steppe

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Steppe/Savanna

Map Zone

25

Geographic Range

Found in southern New Mexico (White Sands, Roswell area, pockets in Arizona?).

Biophysical Site Description

High sand content, gypsum outcrops. This ecological system is restricted to gypsum outcrops, steep slopes, and ridges in the Chihuahuan Desert. Elevation range is from 1,100-2,000m.

Vegetation Description

Vegetation includes *Atriplex*, *Achnatherum hymenoides*, *Bouteloua eriopoda*, *Bouteloua hirsuta*, *Hesperostipa neomexicana*, *Pleuraphis jamesii*, *Sporobulus cryptandrus*, *Sporobolus airoides*, *Sporobolus flexuosus*, *Ephedra torreyana*, *Ephedra trifurca*, *Fallugia paradoxa*, *Prosopis glandulosa*, *Yucca elata*, *Yucca torreyi*, *Tiquilia hispidissima*, *Atriplex canescens*, *Calylophus hartwegii*, *Selinocarpus lanceolatus*, *Sporobolus nealleyi*, *Sporobolus airoides*, and *Sartwellia flaveriae.*

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| BOER4 | *Bouteloua eriopoda* | Black grama |
| SPAI | *Sporobolus airoides* | Alkali sacaton |
| BOBR | *Bouteloua breviseta* | Gypsum grama |
| ATCA2 | *Atriplex canescens* | Fourwing saltbush |
| SPNE | *Sporobolus nealleyi* | Gyp dropseed |
| ATOB | *Atriplex obovata* | Mound saltbush |
| FOSP2 | *Fouquieria splendens* | Ocotillo |

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

Disturbance Description

Fire is not an issue except in reference sites. Human disturbance can be a factor. Alkali sacaton can support fire.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 64 | 100 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 64 | 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

Highly infrequent patches, 5,000ac.

Adjacency or Identification Concerns

Antelope grazing.

Issues or Problems

Possible military use. Introduced oryx and buffalo.

Native Uncharacteristic Conditions

Comments

Possible reviewers: David Anderson -- White Sands; George Chavez -- NRCS; Jornada group; and Sheila Richmond -- BLM Socorro. Christiansen provided additional review after model was developed.

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 | B | B | B | B | B |
| Herb | 0.5-1.0 | A | A | B | B | B | B | B | B | B | B |
| Herb | >1.0 | A | A | B | B | B | B | B | B | B | B |
| Shrub | 0-0.5 | B | B | UN | UN | UN | UN | UN | UN | UN | UN |
| Shrub | 0.5-1.0 | B | B | UN | UN | UN | UN | UN | UN | UN | UN |
| Shrub | 1.0-3.0 | B | B | UN | UN | UN | UN | UN | UN | UN | UN |
| Shrub | >3.0 | B | B | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 0-5 | B | B | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 5-10 | B | B | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 10-25 | B | B | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 25-50 | B | B | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | >50 | B | B | 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 23 Early Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| SPAI | Sporobolus airoides | Alkali sacaton | Low-Mid |
| BOER4 | Bouteloua eriopoda | Black grama | Upper |
| BOGR2 | Bouteloua gracilis | Blue grama | None |
| BOBR | Bouteloua breviseta | Gypsum grama | None |

Description

Post-replacement community after natural fire has scattered shrubs such as Morman tea, saltbush, coldenia, and honey mesquite. Shrubs will generally be <0-5% cover. This class lasts about a decade under normal weather conditions but about 50yrs under drought conditions.

*Maximum Tree Size Class*  
None

Class B 77 Mid Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| SPAI | Sporobolus airoides | Alkali sacaton | Low-Mid |
| BOER4 | Bouteloua eriopoda | Black grama | None |
| BOGR2 | Bouteloua gracilis | Blue grama | None |
| BOBR | Bouteloua breviseta | Gypsum grama | None |

Description

Same species as listed in A but with shrubs up to 10% canopy cover.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:OPN | 0 | Mid1:ALL | 15 |
| Mid1:ALL | 16 | Mid1: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** |
| Wind or Weather or Stress | Early1:OPN | Early1:OPN | 0.02 | 50 | No | 0 |
| Replacement Fire | Mid1:ALL | Early1:OPN | 0.02 | 50 | Yes | 0 |

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