13900

Tamaulipan Mixed Deciduous Thornscrub

BpS Model/Description Version: Aug. 2020

Update: 4/17/2018

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| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
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| None | None | None | None |

Vegetation Type

Shrubland

Map Zones

35, 36

Model Splits or Lumps

This BpS is lumped with 1391

Geographic Range

Cameron and Hidalgo Counties on the delta of the Rio Grande, and elsewhere on the Rio Grande plains on deeper soils. (Texas)

Biophysical Site Description

Found on upland sites on tight soils deposited through alluvial processes associated with the Rio Grande, also occurs on uplands away from the delta on deeper soils.

Vegetation Description

This system tends to be a woodland with mesquite (*Prosopis glandulosa*) as an emergent canopy over a tall shrubland, with some shrubs reaching 4m but dense at 2m in height. The shrub layer is composed of a diverse array of shrub species, including lime prickly ash (*Zanthoxylum fagara*), spiny hackberry (*Celtis pallida*), lotebush (*Ziziphus obtusifolia*), coyotillo (*Karwinskia humboldtiana*), cactus apple (*Opuntia engelmannii*), saffron plum (*Sideroxylon celastrinum*) and Brazilian bluewood (*Condalia hookeri*). The herbaceous layer is not well-developed but multiflower false Rhodes grass (*Trichloris pluriflora*), bristelgrass (*Setaria* spp.) and wild crapemyrtle (*Malpighia glabra*) (subshrub or ground cover) are present.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| PRGL2 | *Prosopis glandulosa* | Honey mesquite |
| ZAFA | *Zanthoxylum fagara* | Lime pricklyash |
| CEPA8 | *Celtis pallida* | Spiny hackberry |
| ZIOB | *Ziziphus obtusifolia* | Lotebush |

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

Disturbance Description

Fire does play a role in this system, occurring in situations adjacent to grasslands during dry conditions when fire would jump to the canopy and carry during wind events. Drought would influence fire occurring in the woodland and shrubland classes.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 15 | 100 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 15 | 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

Large patch to matrix occupying 10s of 1000s of acres of uplands historically.

Adjacency or Identification Concerns

Tall woodlands and shrublands away from the delta may resemble this system, but species diversity is higher on the delta and soil development allows for more significant development of overstory canopy and shrub canopy cover. Shrub and understory diversity would be greater on the calcareous shrubland. Blackbrush acacia (*Acacia rigidula*) occurs in this system but is more common in the calcareous shrubland.

Issues or Problems

Currently the non-native grasses buffelgrass (*Pennisetum ciliare*) and guineagrass (*Urochloa maxima*) can serve as ladder fuel to increase the potential for fire in this system.

Native Uncharacteristic Conditions

Comments

This model was created for map zone (MZ)36. Suggested reviewers for MZ36: Chris Best (USFWS), David Riskind (TPWD), Lisa Williams, Max Pons and Tim Fulbright (TAMU-Kingsville).

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 | B | B | B | B | B | B | B | B | B | B |
| Shrub | 0.5-1.0 | B | B | B | B | B | B | B | B | B | B |
| Shrub | 1.0-3.0 | B | B | B | B | B | B | B | B | B | B |
| Shrub | >3.0 | B | B | B | B | B | B | B | B | B | B |
| Tree | 0-5 | C | C | C | C | C | C | C | C | C | C |
| Tree | 5-10 | C | C | C | C | C | C | C | C | C | C |
| Tree | 10-25 | C | C | C | C | C | C | C | C | C | C |
| Tree | 25-50 | C | C | C | C | C | C | C | C | C | C |
| Tree | >50 | C | C | C | C | C | C | C | C | C | C |

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 26 Early Development 1 - Open

Upper Layer Lifeform: Herb

Upper Layer Canopy Cover: 0 - 70%

Upper Layer Canopy Height: Herb 0m - Herb 0.5m

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| CHPL2 | Chloris pluriflora | Multiflower false rhodes grass | Upper |
| BOBA3 | Bothriochloa barbinodis | Cane bluestem | Upper |
| HIBE | Hilaria belangeri | Curly-mesquite | Upper |

Description

Grassland situations may be dominated by species such as multiflower false rhodes grass, silver beardgrass (*Bothriochloa laguroides*), longspike beardgrass (*B. longipaniculata*), curly-mesquite (*Hilaria belangeri*), Arizona cottontop (*Digitaria californica*), purple threeawn (*Aristida purpurea*) and buffalograss (*Buchloe dactyloides*). This class was maintained on higher topographic positions somewhat longer because of slower shrub growth in more xeric situations. Frequent replacement fire is the dominant disturbance type in this class.

*Maximum Tree Size Class*  
None

Class B 32 Mid Development 1 - Closed

Upper Layer Lifeform: Shrub

Upper Layer Canopy Cover: 41 - 80%

Upper Layer Canopy Height: Shrub 0m - Shrub 3.0m

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PRGL2 | Prosopis glandulosa | Honey mesquite | Upper |
| ZAFA | Zanthoxylum fagara | Lime pricklyash | Upper |
| CEPA8 | Celtis pallida | Spiny hackberry | Upper |
| ZIOB | Ziziphus obtusifolia | Lotebush | Upper |

Description

Shrubs dominate this class with mesquite growing during this stage. In this class, mesquite is a component of the shrub layer along with the other shrub components mentioned in the description. Drought is incorporated into the mean fire return interval in that dry conditions would be required for fire to be carried in the canopy. Replacement fire is the dominant disturbance type in this class.

*Maximum Tree Size Class*  
None

Class C 42 Late Development 1 - Closed

Upper Layer Lifeform: Tree

Upper Layer Canopy Cover: 31 - 60%

Upper Layer Canopy Height: Tree 5.1m - Tree 10m

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PRGL2 | Prosopis glandulosa | Honey mesquite | Upper |
| ZAFA | Zanthoxylum fagara | Lime pricklyash | Middle |
| CEPA8 | Celtis pallida | Spiny hackberry | Middle |
| ZIOB | Ziziphus obtusifolia | Lotebush | Middle |

Description

Mesquite canopy is well-developed in this class. Shrub layer development is extensive forming an almost continuous layer. Replacement fire is the dominant disturbance type in this class.

Upper Layer Lifeform is not the dominant lifeform. Shrub layer at a height of 2-4m and 70-100%

*Maximum Tree Size Class*  
Large 21-33"DBH

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:OPN | 0 | Mid1:CLS | 5 |
| Mid1:CLS | 6 | Late1:CLS | 20 |
| Late1:CLS | 21 | 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** |
| Replacement Fire | Early1:OPN | Early1:OPN | 0.15 | 7 | Yes | 0 |
| Replacement Fire | Mid1:CLS | Early1:OPN | 0.05 | 20 | Yes | 0 |
| Replacement Fire | Late1:CLS | Early1:OPN | 0.033 | 30 | Yes | 0 |

References

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