15250

Edwards Plateau Riparian

BpS Model/Description Version: Aug. 2020

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| **Modelers** |  | **Reviewers** |  |
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Vegetation Type

Woody Wetland

Map Zone

35

Geographic Range

Occurs in MZs 32 and 35, primarily ECOMAP (Cleland et al. 2007) Subsections 255Ba, 315Ed, 315Ec, 315Da, 255Ed. May extend into the western edges of MZs 32 and 36.

Biophysical Site Description

Occurs along medium to very small, intermittent to ephemeral drainages on the Edwards Plateau. Within southern portions of the Ft. Worth Prairie region, sites are generally on Cretaceous limestone substrates, often with high gradient. Soils are a less thick alluvium than in floodplain terraces.

Vegetation Description

Usually sparse to sometimes fairly dense woodlands that may be dominated by species such as sugarberry (*Celtis laevigata*), netleaf hackberry (*Celtis laevigata var. reticulata*), sycamore (*Platanus occidentalis*), little walnut (*Juglans microcarpa*), plateau oak (*Quercus fusiformis*), wingleaf soapberry (*Sapindus saponaria*), black willow (*Salix nigra*), and cedar elm (*Ulmus* *crassifiolia*) to 5m in height, but usually shorter. Pecan (*Carya illinoinensis*) may occur occasionally. Shrubby species may include little walnut, Mexican plum (*Prunus mexicana*), hoptree (*Ptelea trifoliata*), roughleaf dogwood (*Cornus* *drummondii*), and scattered buttonbush (*Cephalanthus* *occidentalis*). Herbaceous species can include bushy bluestem (*Andropogon* *glomeratus*), Jamaica swamp sawgrass (*Cladium* *mariscus* ssp. *Jamaicense*), switchgrass (*Panicum* *virgatum*), Indian woodoats (*Chasmanthium* *latifolium*), bluebill (*Clematis* *pitcheri*), wildrye (*Elymus* *virginicus*), and American water willow (*Justicia* *americana*). Herbaceous species may occur as clumps and usually do not occur as a continuous herbaceous layer, controlled by soil development. Some compositional differences are found between the Edwards Plateau and Ft. Worth Prairie regions, with the Edwards Plateau being the richer of the two.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| PLOC | *Platanus occidentalis* | American sycamore |
| CELA | *Celtis laevigata* | Sugarberry |
| CELAR | *Celtis laevigata var. reticulata* | Netleaf hackberry |
| ULCR | *Ulmus crassifolia* | Cedar elm |
| ANGL2 | *Andropogon glomeratus* | Bushy bluestem |
| PAVI2 | *Panicum virgatum* | Switchgrass |

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

Disturbance Description

These are “flashy” streams and flooding is the dominant process in this system. Fuels in this system are variable and fire return interval (FRI) is partially determined by mean FRI of surrounding system, where fuels are present.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 144 | 18 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) | 31 | 82 |  |  |
| All Fires | 25 | 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

Linear; up to hundreds of acres, but generally smaller.

Adjacency or Identification Concerns

Similar to Edwards Plateau Floodplain Terrace, but occurring on less well-developed alluvium. May be differentiated on the basis of flow regime of the stream layer with this system along intermittent to ephemeral drainages. Grades into North American Warm Desert Riparian Woodland and Shrubland to the southwest, but that system contains species more characteristic of Chihuahuan Desert, such as desert willow (*Chilopsis linearis*). It grades into Crosstimbers Riparian Forest and Woodland on the east.

Issues or Problems

Recreational uses may impact this system through use of four-wheel-drive vehicles. Chinaberry tree (*Melia azedarach*) occurs occasionally in canopy, but typically does not dominate. Sometimes giant reed (*Arundo donax*) can dominate these systems. Ash juniper (*Juniperus ashei*) may occur in this biophysical setting, invading due to protection from fire. Sub-division and development upstream and on channels has disrupted natural hydrology and has eliminated vegetation in some areas. Uncontrolled access by grazing animals is problematic in some areas.

Native Uncharacteristic Conditions

Comments

This model was developed for MZ35 by Lee Elliott and Charlotte Reemts.

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

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 35 Early Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PLOC | Platanus occidentalis | American sycamore | Upper |
| ULCR | Ulmus crassifolia | Cedar elm | Upper |
| PAVI2 | Panicum virgatum | Switchgrass | Lower |
| ANGL2 | Andropogon glomeratus | Bushy bluestem | Lower |

Description

Sparse woodland with some herbaceous cover, canopy low. Fire plays a minor role in this system because of the general lack of fine fuels and mesic conditions due to its topographic position. Flooding is the more prominent process and returns system to open. Replacement fire uncommon. Surface fire more common but does not set stage back.

*Maximum Tree Size Class*  
Sapling >4.5ft; <5" DBH

Class B 65 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PLOC | Platanus occidentalis | American sycamore | Upper |
| ULCR | Ulmus crassifolia | Cedar elm | Upper |
| PAVI2 | Panicum virgatum | Switchgrass | Lower |
| ANGL2 | Andropogon glomeratus | Bushy bluestem | Lower |

Description

Woodland developing with higher canopy and denser canopy, but still relatively open.

Class persists in the absence of disturbance. Replacement fire uncommon returning to Class A. Surface fire more common but not shifting state. Larger flood required to return to Class A.

*Maximum Tree Size Class*  
Medium 9-21" DBH

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:OPN | 0 | 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 | 0.007 | 143 | Yes | 0 |
| Wind or Weather or Stress | Early1:OPN | Early1:OPN | 0.033 | 30 | Yes | 0 |
| Surface Fire | Early1:OPN | Early1:OPN | 0.033 | 30 | No | 0 |
| Replacement Fire | Late1:CLS | Early1:OPN | 0.007 | 143 | Yes | 0 |
| Wind or Weather or Stress | Late1:CLS | Early1:OPN | 0.01 | 100 | Yes | 0 |
| Surface Fire | Late1:CLS | Late1:CLS | 0.033 | 30 | No | 0 |

References

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