

15250

Edwards Plateau Riparian

BpS Model/Description Version: Aug. 2020

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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 crassifolia*) to 5m in height, but usually shorter. Pecan (*Carya illinoensis*) 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	<i>Platanus occidentalis</i>	American sycamore
CELA	<i>Celtis laevigata</i>	Sugarberry
CELAR	<i>Celtis laevigata</i> var. <i>reticulata</i>	Netleaf hackberry

ULCR	<i>Ulmus crassifolia</i>	Cedar elm
ANGL2	<i>Andropogon glomeratus</i>	Bushy bluestem
PAVI2	<i>Panicum virgatum</i>	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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