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Tamaulipan Floodplain

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Woody Wetland

Map Zones

36

Geographic Range

Floodplains and resacas on or adjacent to the Rio Grande and larger rivers of Northeastern Mexico. Resacas are restricted to the delta of the Rio Grande. In TX this occurs from western Hidalgo County to the coast.

Biophysical Site Description

Low topographic position generally with poorly drained clay soils. Seasonally wet depending on rainfall. This does not include the terrace or slope leading to terrace tops. Historically, this woodland along with riparian woodlands were very extensive occupying much of the area of the Rio Grande Delta.

Vegetation Description

Canopy dominated by sugarberry (*Celtis laevigata*), great leadtree (*Leucaena pulverulenta*), cedar elm (*Ulmus crassifolia*), honey mesquite (*Prosopis glandulosa*), and Jerusalem thorn (*Parkinsonia aculeata*). Shrub layer dominated by spiny hackberry (*Celtis pallida*) or sometimes black mimosa (*Mimosa pigra*). Understory may be dominated by bushy lippia (*Lippia alba*), blood sage (*Salvia coccinea*), Jack in the bush (*Chromolaena odorata*), Canada germander (*Teucrium canadense*) or knotweed (*Polygonum* spp.; usually *pennsylvanicum*). If one starts at Roma and heads eastward, tree species richness increases to about the Sabal Palm Sanctuary then decreases precipitously as one nears the Gulf coast. The non-natives Guinea grass (*Urochloa maxima*) and buffelgrass (*Pennisetum ciliare*) are dominant species in the ground layer.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
CELA	<i>Celtis laevigata</i>	Sugarberry
PAAC3	<i>Parkinsonia aculeata</i>	Jerusalem thorn
ACFA	<i>Acacia farnesiana</i>	Sweet acacia
MIPI	<i>Mimosa pigra</i>	Black mimosa
RIHU2	<i>Rivina humilis</i>	Rougeplant

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

Disturbance Description

Disturbance was primarily flooding and to a lesser extent fire may have occurred within these woodlands and forests. Occurrence of patches of reed (*Phragmites* spp.) may have provided adequate fuel to carry fire to the canopy. Floods may have been annual and were primarily depositional floods rather than scouring floods. Extreme floods may have occurred in association with hurricanes. Freezes would have had significant impacts on these largely tropical/subtropical species, though these impacts more directly affect riparian woodlands where tropical species are more common. Drought would also affect this system, and may provide the unusual opportunity for fire to carry in the system.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	57	42		
Moderate (Mixed)				
Low (Surface)	40	58		
All Fires	24	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 covering much of the lower Rio Grande occupying large patches on the delta.

Adjacency or Identification Concerns

Adjacent to Tamaulipan Riparian systems.

Issues or Problems

Long term succession would occur due to deposition and development of this BpS into more upland characteristics of another BpS. Dominance of the ground layer by non-native Guinea grass and buffelgrass.

Native Uncharacteristic Conditions

Comments

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	B	B	B	B	C	C	C	C	C	C
Tree	5-10	B	B	B	B	C	C	C	C	C	C

Tree	10-25	B	B	B	B	C	C	C	C	C	C
Tree	25-50	B	B	B	B	C	C	C	C	C	C
Tree	>50	B	B	B	B	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 13 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
CLDR	Clematis drummondii	Drummond's clematis	Upper
ECCRC2	Echinochloa crus-pavonis var. crus-pavonis	Gulf cockspur grass	Upper
ELEOC	Eleocharis	Spikerush	Upper
SIPI	Siphonoglossa pilosella	Hairy tubetongue	Upper

Description

Herbaceous cover following a scouring flood and replacement fire in class B. Herbaceous cover develops as sedimentation produces an adequate substrate not continually flooded to allow development of cover. Drummond's clematis (*Clematis drummondii*), diamondleaf fogfruit (*Phyla strigulosa*), Pennsylvania smartweed (*Polygonum pensylvanicum*), rougeplant (*Rivina humilis*), jointed flatsedge (*Cyperus articulatus*), gulf cockspur grass (*Echinochloa crus-pavonis*), spikerush (*Eleocharis* spp.), sturdy bulrush (*Schoenoplectus robustus*), Gregg's tubetongue (*Siphonoglossa pilosella*), amamastla (*Rumex chrysocarpus*) and green flatsedge (*Cyperus virens*) are common. Areas of *Phragmites* spp. may occur in areas where fires would have occurred.

Maximum Tree Size Class

None

Class B 13 Mid Development 1 - Open

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
MIPI	Mimosa pigra	Black mimosa	Upper
PAAC3	Parkinsonia aculeata	Jerusalem thorn	Upper
ACFA	Acacia farnesiana	Sweet acacia	Upper
SANI	Salix nigra	Black willow	Upper

Description

Low canopy cover of trees. Shrub layer well developed. Scouring floods associated with river channel migration on the delta is modeled. Jerusalem thorn, black mimosa, sweet acacia (*Acacia farnesiana*), black willow, spiny hackberry, and bushy lippia are common components of the shrub layer. Sugarberry is developing as a canopy but still occurs with low cover.

Maximum Tree Size Class

Pole 5-9" DBH

Class C	74	Late Development 1 - Closed
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
CELA	Celtis laevigata	Sugarberry	Upper
SANI	Salix nigra	Black willow	Middle
PAAC3	Parkinsonia aculeata	Jerusalem thorn	Middle
LIAl	Lippia alba	Bushy lippia	Low-Mid

Description

Dominated by sugarberry, with cedar elm, spiny hackberry, black mimosa, bushy lippia, and Brazilian bluewood (*Condalia hookeri*) in the midstory, and rougeflower and bushy lippia in the understory.

Maximum Tree Size Class

Medium 9-21"DBH

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:OPN	12
Mid1:OPN	13	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
Wind or Weather or Stress	Early1:ALL	Early1:ALL	0.001	1000	Yes	0
Replacement Fire	Early1:ALL	Early1:ALL	0.1	10	Yes	0
Wind or Weather or Stress	Mid1:OPN	Early1:ALL	0.001	1000	Yes	0
Replacement Fire	Mid1:OPN	Early1:ALL	0.033	30	Yes	0
Wind or Weather or	Late1:CLS	Early1:ALL	0.001	1000	Yes	0

Stress						
Wind or Weather or Stress	Late1:CLS	Mid1:OPN	0.02	50	Yes	0
Surface Fire	Late1:CLS	Late1:CLS	0.033	30	No	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.