14800

Gulf and Atlantic Coastal Plain Swamp Systems

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
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|  |  |  |  |

Vegetation Type

Woody Wetland

Map Zones

36, 37, 44

Geographic Range

This BpS occurs from east TX to VA within the Coastal Plain and lower Piedmont and up the Mississippi River basin to southern Illinois. Widespread throughout MZ37, associated with river and creek systems.

Biophysical Site Description

The landscape includes sloughs and abandoned channels which are flooded most or all of a given year as well as backswamps and depressions within the flood plain which are frequently flooded and where soils remain saturated or with water table close to the surface much of the year.

Vegetation Description

The canopy is dominated by cypress and tupelo. The overstory can vary from closed to open dependent upon the dominant species (i.e. tupelo - closed and cypress - relatively open), and water levels. Common associates in drier portions of the system and around the fringes include buttonbush and planer tree.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| TADI2 | *Taxodium distichum* | Bald cypress |
| TAAS | *Taxodium ascendens* | Pond cypress |
| NYAQ2 | *Nyssa aquatica* | Water tupelo |
| PLAQ | *Planera aquatica* | Planertree |
| CEOC2 | *Cephalanthus occidentalis* | Common buttonbush |

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

Disturbance Description

Weather, primarily wind and flooding, is the dominant disturbance agent in this type and includes wind damage from hurricanes and tornadoes as well as scouring, changing stream courses, and inundated young stands. Because of its moisture regime, fire is rare, occurring only during extreme drought conditions. In addition, replacement fire requires not only extended drought but accumulated fuel by drift or deep "duff" development (may be normally submerged). Insect outbreaks would occur infrequently in closed canopy states.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 1034 | 40 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) | 694 | 60 |  |  |
| All Fires | 415 | 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

The landscape has adequate coverage to encompass natural variation. At either end of the spectrum, large swamps may cover millions of acres (Atchafalaya) while individual oxbows may be less than one hundred.

Adjacency or Identification Concerns

This BpS is adjacent to Gulf and Atlantic Floodplain Systems (CES203.629).

Issues or Problems

Contains long-lived species with very long fire return interval and, often, uncommon conditions required to complete life history.

Native Uncharacteristic Conditions

Drainage projects have changed the hydrology which has in turn has negatively-impacted and changed the species composition in many areas. Conversely, water storage projects that prevent periodic exposure of the substrate preclude regeneration and eventually convert forest stands to open water.

Comments

For MZ37 this description was slightly modified from the MZ45 description for the same BpS (modeled by Douglas Zollner, dzollner@tnc.org) which was adapted from the Rapid Assessment model - R5SOFPrf (Southern Floodplain - Rare Fire).

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

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 8 Early Development 1 - All Structures

DBH

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| TADI2 | Taxodium distichum | Bald cypress | Upper |
| NYAQ2 | Nyssa aquatica | Water tupelo | Upper |
| PLAQ | Planera aquatica | Planertree | Upper |
| CEOC2 | Cephalanthus occidentalis | Common buttonbush | Upper |

Description

Seedlings, saplings and some sprouts on drier sites, in openings created by flood scouring, changed stream courses, wind damage, or, infrequently, fire. Primarily composed of major overstory species with transient herbaceous plants and shrubs, small trees and woody vines; the latter, woody group occurring more often on drier sites.

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

Class B 29 Mid Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| TADI2 | Taxodium distichum | Bald cypress | Upper |
| NYAQ2 | Nyssa aquatica | Water tupelo | Upper |
| PLAQ | Planera aquatica | Planertree | Middle |
| CEOC2 | Cephalanthus occidentalis | Common buttonbush | Lower |

Description

The class is dominated by young to early mature canopy species with a few obligate midstory species on less frequently flooded sites. Longer hydroperiod sites at least seasonally flooded and typically display a single, closed canopy layer.

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

Class C 19 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| TADI2 | Taxodium distichum | Bald cypress | Upper |
| NYAQ2 | Nyssa aquatica | Water tupelo | Upper |

Description

Early to, more often, late mature open canopy in long-term flooded conditions. Created during wet periods that prevent replacement of mortality.

*Maximum Tree Size Class*  
Very Large >33" DBH

Class D 44 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| TADI2 | Taxodium distichum | Bald cypress | Upper |
| NYAQ2 | Nyssa aquatica | Water tupelo | Upper |

Description

Early to late mature closed canopy generally occurring as a single overstory layer, particularly on wetter sites. Drier sites will contain some midstory and young overstory species.

*Maximum Tree Size Class*  
Very Large >33" DBH

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:CLS | 19 |
| Mid1:CLS | 20 | Late1:CLS | 99 |
| Late1:OPN | 100 | Late1:OPN | 999 |
| Late1:CLS | 100 | 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 | 0.001 | 1000 | Yes | 0 |
| Replacement Fire | Mid1:CLS | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Insects or Disease | Mid1:CLS | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Surface Fire | Mid1:CLS | Mid1:CLS | 0.002 | 500 | No | 0 |
| Wind or Weather or Stress | Mid1:CLS | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Replacement Fire | Late1:OPN | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Insects or Disease | Late1:OPN | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Wind or Weather or Stress | Late1:OPN | Early1:ALL | 0.005 | 200 | Yes | 0 |
| Replacement Fire | Late1:CLS | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Insects or Disease | Late1:CLS | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Surface Fire | Late1:CLS | Late1:CLS | 0.002 | 500 | No | 0 |
| Wind or Weather or Stress | Late1:CLS | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Wind or Weather or Stress | Late1:CLS | Late1:OPN | 0.003 | 333 | Yes | 0 |

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