14610

Southern Coastal Plain Seepage Swamp and Baygall

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
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Vegetation Type

Woody Wetland

Map Zones

46, 55, 56, 99

Geographic Range

East Gulf (primarily lower) Coastal plain; GA through MS, south to central FL.

Biophysical Site Description

Slope-based or other seepage-influenced sites. Acidic soils that range from normally saturated mineral soils to generally shallow Histosols. Although peat accumulations, where present, are most often thin, isolated pockets of deeper deposits may occur.

Vegetation Description

Usually closed-canopy, multi-layered, forest of tree species, with small tree/tall shrub species capable of capturing and occupying significant area under some conditions. Tree species are diverse, particularly near edges, and include sweet bay, swamp tupelo, swamp bay persea, swamp cyrilla, buckwheat tree, slash pine, pond pine, loblolly pine, baldcypress, pondcypress, blackgum and red maple. Shrub species include large gallberry, staggerbush and fetterbush lyonia, coast leucothoe, and sweet pepperbush. Early development openings and more frequently burned edges contain grasses (*Andropogon glomeratus*), sedges (*Carex* spp.) and other (frequently insectivorous) herbaceous species (*Sarracenia* spp. and *Drosera* spp.). Historically, these latter areas may have often been occupied by switch cane with an understory often including sphagnum moss and ferns.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| MAVI2 | *Magnolia virginiana* | Sweetbay |
| NYBI | *Nyssa biflora* | Swamp tupelo |
| PEPA37 | *Persea palustris* | Swamp bay |
| CYRA | *Cyrilla racemiflora* | Swamp titi |
| CLMO2 | *Cliftonia monophylla* | Buckwheat tree |
| PIEL | *Pinus elliottii* | Slash pine |
| PISE | *Pinus serotina* | Pond pine |
| GOLA | *Gordonia lasianthus* | Loblolly bay |

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

Disturbance Description

Not dependent on direct rainfall inputs, this habitat is normally protected from fire except during extreme droughts. Except for the earliest and most dense development classes, wind damage related primarily to hurricanes, is a somewhat more frequent disturbance than fire. Mean return frequency for all fire modeled here is near 160yrs; whereas, the return frequency for wind/weather/stress is about 130yrs. Dendrochronology data reported by Jurney, et al. (2004) reflect major droughts on an average of every 65yrs (range 20-170) with more moderate droughts about every 10yrs. National Hurricane Center records for the coast from GA through MS (northern FL only) indicate a major hurricane (category 3+) impact approximately every five years (1851-2004).

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 297 | 55 | 150 | 1000 |
| Moderate (Mixed) | 356 | 45 | 180 | 1400 |
| Low (Surface) |  |  |  |  |
| All Fires | 162 | 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

Because of the weather associated disturbance, the minimum scale necessary to capture this BpS mosaic may possibly encompass an entire mapzone.

Adjacency or Identification Concerns

Shares some attributes and many species with Carolina bays/pocosins.

Issues or Problems

Hurricane-related wind damage is a dominant disturbance in this BpS. As a result, the early development and open classes may tend to be concentrated in one part of the range at any point in time.

Native Uncharacteristic Conditions

Comments

This model was reviewed during a model review workshop held 09/19/2006 in Tallahassee, FL.

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 | A | C | C | C | C | C | B | B | B | B |
| Tree | 10-25 | A | C | C | C | C | C | B | B | B | B |
| Tree | 25-50 | A | D | D | D | D | D | E | E | E | E |
| Tree | >50 | A | D | D | D | D | D | E | E | E | E |

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

DBH

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| MAVI2 | Magnolia virginiana | Sweetbay | Upper |
| NYBI | Nyssa biflora | Swamp tupelo | Upper |
| PEPA37 | Persea palustris | Swamp bay | Upper |
| CYRA | Cyrilla racemiflora | Swamp titi | Upper |

Description

Early development following replacement fire or severe blowdown (perhaps also followed by fire). Historically, portions possibly dominated by cane brakes. Canopy closure highly variable by previous fire and weather history, and resultant conditions at replacement, as well as intensity of replacement fire, where applicable. Initially open stands, edges and replacements due to more intense fire display lower densities of trees with corresponding increases in shrub and herbaceous species. The exception is probably relative to pine species, where the more open conditions, along with seed source and subsequently suitable moisture conditions, facilitate seedling survival.

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

Class B 23 Mid Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| MAVI2 | Magnolia virginiana | Sweetbay | Upper |
| NYBI | Nyssa biflora | Swamp tupelo | Upper |
| PEPA37 | Persea palustris | Swamp bay | Upper |
| CYRA | Cyrilla racemiflora | Swamp titi | Low-Mid |

Description

Mid-development, post-replacement, without additional disturbance. Tall tree species form an upper canopy, with a midstory of small tree and shrub species also in place over much of the site.

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

Class C 3 Mid Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| MAVI2 | Magnolia virginiana | Sweetbay | Upper |
| NYBI | Nyssa biflora | Swamp tupelo | Upper |
| CYRA | Cyrilla racemiflora | Swamp titi | Low-Mid |
| CLMO2 | Cliftonia monophylla | Buckwheat tree | Low-Mid |

Description

Mid-development, post-replacement, but with intervening disturbance by mixed severity fire or wind damage which may create or maintain herb dominated openings Although some species qualify as trees (e.g., swamp cyrilla), the dominant lifeform in this class is the "midstory" which may be largely shrubs.

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

Class D 6 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| MAVI2 | Magnolia virginiana | Sweetbay | Upper |
| NYBI | Nyssa biflora | Swamp tupelo | Upper |
| CYRA | Cyrilla racemiflora | Swamp titi | Lower |
| CLMO2 | Cliftonia monophylla | Buckwheat tree | Lower |

Description

Late-development, created or maintained by mixed fire or wind. Dominant lifeform comprised of tall shrubs and small trees. Age/height of trees and shrubs allow only small, infrequent openings dominated by herbaceous species.

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

Class E 55 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| MAVI2 | Magnolia virginiana | Sweetbay | Upper |
| NYBI | Nyssa biflora | Swamp tupelo | Upper |
| PIEL | Pinus elliottii | Slash pine | Upper |
| PEPA37 | Persea palustris | Swamp bay | Upper |

Description

Late-development, and without transition for many years. Tall tree species form an upper canopy. Small tree and shrub species still create a midstory in some areas.

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

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:CLS | 15 |
| Mid1:OPN | 16 | Late1:OPN | 50 |
| Mid1:CLS | 16 | Late1:CLS | 50 |
| Late1:OPN | 51 | Late1:OPN | 999 |
| Late1:CLS | 51 | 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** |
| Mixed Fire | Early1:ALL | Early1:ALL | 0.002 | 500 | No | 0 |
| Replacement Fire | Early1:ALL | Early1:ALL | 0.007 | 143 | Yes | 0 |
| Mixed Fire | Mid1:OPN | Mid1:OPN | 0.003 | 333 | No | 0 |
| Replacement Fire | Mid1:OPN | Early1:ALL | 0.006 | 167 | Yes | 0 |
| Wind or Weather or Stress | Mid1:OPN | Early1:ALL | 0.008 | 125 | Yes | 0 |
| Wind or Weather or Stress | Mid1:CLS | Mid1:OPN | 0.002 | 500 | Yes | 0 |
| Wind or Weather or Stress | Mid1:CLS | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Mixed Fire | Mid1:CLS | Mid1:OPN | 0.003 | 333 | Yes | 0 |
| Replacement Fire | Mid1:CLS | Early1:ALL | 0.004 | 250 | Yes | 0 |
| Alternative Succession | Late1:OPN | Late1:CLS | 1 | 1 | Yes | 50 |
| Mixed Fire | Late1:OPN | Late1:OPN | 0.002 | 500 | No | 0 |
| Replacement Fire | Late1:OPN | Early1:ALL | 0.004 | 250 | Yes | 0 |
| Wind or Weather or Stress | Late1:OPN | Early1:ALL | 0.014 | 71 | Yes | 0 |
| Replacement Fire | Late1:CLS | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Wind or Weather or Stress | Late1:CLS | Late1:OPN | 0.003 | 333 | Yes | 0 |
| Mixed Fire | Late1:CLS | Late1:OPN | 0.003 | 333 | Yes | 0 |
| Wind or Weather or Stress | Late1:CLS | Early1:ALL | 0.007 | 143 | Yes | 0 |

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