

14610

Southern Coastal Plain Seepage Swamp and Baygall

BpS Model/Description Version: Aug. 2020

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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	<i>Magnolia virginiana</i>	Sweetbay
NYBI	<i>Nyssa biflora</i>	Swamp tupelo
PEPA37	<i>Persea palustris</i>	Swamp bay
CYRA	<i>Cyrilla racemiflora</i>	Swamp titi
CLMO2	<i>Cliftonia monophylla</i>	Buckwheat tree
PIEL	<i>Pinus elliotii</i>	Slash pine
PISE	<i>Pinus serotina</i>	Pond pine
GOLA	<i>Gordonia lasianthus</i>	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 Journey, 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

[illegible]

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

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	<i>Cyrilla racemiflora</i>	Swamp titi	Low-Mid
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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
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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
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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

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	Late1:OPN	Late1:CLS	1	1	Yes	50

Succession						
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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