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Atlantic Coastal Plain Streamhead Seepage Swamp-Pocosin-Baygall

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
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Vegetation Type

Woody Wetland

Map Zones

46, 55, 58, 99

Geographic Range

This system encompasses seepage-fed wetlands in dissected Coastal Plain landscapes, from southeastern VA to northeastern FL. Primarily in the Fall-line Sandhills region of the Atlantic Coastal Plain; rarely in dissected terrain in the Outer Coastal Plain (NatureServe 2006).

Biophysical Site Description

This system occurs in dissected Coastal Plain terrain on sites saturated by seepage of shallow groundwater. Seasonal to permanent saturation combined with fire of only moderate to low frequency and woody vegetation are the unifying characteristics of this system. A stream is often present draining the site, but it is small, and overbank flooding is a negligible influence. Most examples are in bottoms of ravines, but some are on sideslopes or flats at the base of slopes. Most examples are in sandy areas where rapid soil drainage in the surrounding landscape supplies the seepage. Soils within the system itself are generally mucky sands or clay, or deeper organic soils (NatureServe 2006).

Vegetation Description

Vegetation is dominated by woody plants. An open to closed tree canopy is usually present, and consists of a mixture of acid-tolerant wetland trees such as *Nyssa biflora*, *Acer rubrum*, *Pinus serotina*, *Magnolia virginiana*, *Liriodendron tulipifera*, and *Chamaecyparis thyoides*. There is generally a dense shrub layer that is dominated by species shared with pocosins or baygalls, such as *Cyrilla racemiflora*, *Leucothoe axillaris*, *Lyonia lucida*, *Lyonia ligustrina*, *Clethra alnifolia*, *Ilex glabra*, and *Arundinaria gigantea* ssp. *tecta*, but includes some species of other saturated wetlands such as *Toxicodendron vernix*, *Morella caroliniensis*, and *Viburnum nudum*. *Smilax laurifolia* may be abundant. The herb layer, if well-developed at all, generally consists of large wetland ferns, such as *Osmunda cinnamomea*, *Osmunda regalis*, *Woodwardia virginica*, and *Woodwardia areolate*, and *Carex* spp. (NatureServe 2006).

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
PISE	<i>Pinus serotina</i>	Pond pine
NYBI	<i>Nyssa biflora</i>	Swamp tupelo
MAVI2	<i>Magnolia virginiana</i>	Sweetbay

CHTH2	<i>Chamaecyparis thyoides</i>	Atlantic white cedar
LYLU3	<i>Lyonia lucida</i>	Fetterbush lyonia
ARGIT8	<i>Arundinaria gigantea ssp. tecta</i>	Switchcane

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

Disturbance Description

Fire generally would spread into this BpS from adjacent more fire prone landscapes. These fires can ignite and burn the canopy, resulting in mixed or replacement fires and change of classes. Surface fires are generally more common, but do not cause change of class. This system occurs in landscapes that had frequent fire under natural conditions, but the wetness sometimes limited fire spread, creating a less frequent fire-return interval. Natural fire intensity varies among associations, with some readily producing intense fire when they burn, while others probably experience only low-intensity fires because of low flammability (NatureServe 2006).

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	58	14		
Moderate (Mixed)	23	35		
Low (Surface)	16	51		
All Fires	8	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 fires that burn through this habitat generally originate in adjacent upland (i.e., longleaf pine dominated) ecological systems and spread through this habitat. These fires may only burn patches <10ac in this riparian corridor, but will burn 100s-1000s of acres of uplands (in the pre-European settlement landscape).

Adjacency or Identification Concerns

Adjacent Ecological Systems:

- Atlantic Coastal Plain Blackwater Stream Floodplain Forest (CES203.247)
- Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254)
- Atlantic Coastal Plain Sandhill Seep (CES203.253)

Most frequently associated with Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254) in the northern part of the range. Potentially associated with a variety of upland systems in the southern part of the range. Many examples will grade downstream to small or large floodplain systems (NatureServe 2006).

Issues or Problems

This BpS or ecological system represents many different associations, with different dominant species.

Native Uncharacteristic Conditions

Comments

Suggested reviewers-Margit Bucher (TNC NCFO), Michael Schafale (NC NHP), Bruce Sorrie (NC NHP)

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	C	C	C	C	C	C	B	B	B	B
Tree	5-10	C	C	C	C	C	C	B	B	B	B
Tree	10-25	D	D	D	D	D	D	E	E	E	E
Tree	25-50	D	D	D	D	D	D	E	E	E	E
Tree	>50	D	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 14 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
LYLU3	<i>Lyonia lucida</i>	Fetterbush lyonia	Low-Mid
ARGIT8	<i>Arundinaria gigantea</i> ssp. <i>tracta</i>	Switchcane	Low-Mid
PISE	<i>Pinus serotina</i>	Pond pine	Low-Mid

Description

This is representative of tree dominated areas just burned in replacement fire or areas reburned in mixed fire.

Maximum Tree Size Class

Sapling >4.5ft; <5" DBH

Class B 25 Mid Development 1 - Closed

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PISE	<i>Pinus serotina</i>	Pond pine	Mid-Upper

MAVI2	<i>Magnolia virginiana</i>	Sweetbay	Mid-Upper
NYBI	<i>Nyssa biflora</i>	Swamp tupelo	Mid-Upper

Description

Medium to dense young stands which are successional after replacement fire. These stands may be dominated by pond pine (*Pinus serotina*) or by hardwoods such as swamp black gum (*Nyssa biflora*) or sweetbay magnolia (*Magnolia virginiana*).

Maximum Tree Size Class

Medium 9-21"DBH

Class C	17	Mid Development 1 - Open
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PISE	<i>Pinus serotina</i>	Pond pine	Mid-Upper
MAVI2	<i>Magnolia virginiana</i>	Sweetbay	Mid-Upper

Description

Open young stands which have been thinned by mixed fire. These stands can also result from rare wind/weather/stress of dense old stands.

Maximum Tree Size Class

Medium 9-21"DBH

Class D	32	Late Development 1 - Open
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PISE	<i>Pinus serotina</i>	Pond pine	Upper
MAVI2	<i>Magnolia virginiana</i>	Sweetbay	Upper

Description

Open older stands which have been thinned by mixed fire. Typically dominated by pond pine (*Pinus serotina*) which releases the seeds from its cones after high intensity fire (i.e., replacement or mixed fire with crown scorch).

Maximum Tree Size Class

Very Large >33" DBH

Class E	12	Late Development 1 - Closed
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
NYBI	Nyssa biflora	Swamp tupelo	Upper
MAVI2	Magnolia virginiana	Sweetbay	Upper

Description

Closed older stands which have not burned much, but may burn with surface fire and not change class. Rare wind/weather/stress of these dense old stands will open them up.

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	8
Mid1:OPN	9	Late1:OPN	34
Mid1:CLS	9	Late1:CLS	34
Late1:OPN	35	Late1:OPN	999
Late1:CLS	35	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	0.1	10	No	0
Replacement Fire	Mid1:OPN	Early1:ALL	0.02	50	Yes	0
Mixed Fire	Mid1:OPN	Mid1:OPN	0.04	25	No	0
Surface Fire	Mid1:OPN	Mid1:OPN	0.1	10	No	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.02	50	Yes	0
Mixed Fire	Mid1:CLS	Mid1:OPN	0.03	33	Yes	0
Surface Fire	Mid1:CLS	Mid1:CLS	0.04	25	No	0
Alternative Succession	Late1:OPN	Late1:CLS	1	1	Yes	25
Replacement Fire	Late1:OPN	Early1:ALL	0.02	50	Yes	0
Mixed Fire	Late1:OPN	Late1:OPN	0.04	25	No	0
Surface Fire	Late1:OPN	Late1:OPN	0.1	10	No	0
Wind or Weather or Stress	Late1:CLS	Mid1:OPN	0.007	143	Yes	0
Mixed Fire	Late1:CLS	Late1:OPN	0.02	50	Yes	0
Replacement Fire	Late1:CLS	Early1:ALL	0.02	50	Yes	0
Surface Fire	Late1:CLS	Late1:CLS	0.03	33	No	0

References

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