

13820

Southern Atlantic Coastal Plain Maritime Forest

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Modelers		Reviewers	
Zachary Prusak	zprusak@tnc.org	Chris Szell	cszell@tnc.org
None	None	None	None
None	None	None	None

Vegetation Type

Forest and Woodland

Map Zones

55, 58

Geographic Range

This system encompasses a range of woody vegetation present on stabilized upland dunes of barrier islands from central South Carolina (Cooper River) southward to Volusia County, Florida (ca. 28 degrees 30 minutes N latitude) (NatureServe 2006).

Biophysical Site Description

It includes vegetation whose structure and composition are influenced by salt spray, extreme disturbance events and the distinctive climate of the immediate coast. Examples are known from the barrier islands of Georgia and Florida, such as Big Talbot Island, Florida and probably Sapelo Island, Georgia.

Vegetation Description

Vegetation may include different woodland communities dominated by southern pine species. *Pinus palustris*, *Pinus serotina*, and *Pinus elliottii* var. *elliottii* are all important in documented examples, which have densely shrubby subcanopies and understories with species such as *Quercus virginiana*, *Quercus geminata*, *Quercus hemisphaerica*, *Quercus chapmanii*, *Quercus myrtifolia*, and *Magnolia grandiflora* (NatureServe 2006).

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
PIPA2	<i>Pinus palustris</i>	Longleaf pine
PIEL	<i>Pinus elliottii</i>	Slash pine
PISE	<i>Pinus serotina</i>	Pond pine
QUVI	<i>Quercus virginiana</i>	Live oak
QUGE2	<i>Quercus geminata</i>	Sand live oak
QUHE2	<i>Quercus hemisphaerica</i>	Quercus hemisphaerica
QUCH	<i>Quercus chapmanii</i>	Chapman oak
MAGR4	<i>Magnolia grandiflora</i>	Southern magnolia

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

Disturbance Description

While salt spray and hurricanes affect the fire frequency by increasing the amount of fine fuel on an intermittent basis, the natural fire frequency is probably 10-15yrs to maintain the mix of scattered pines and low oak species, since the primary carrier of fire is the needle layers and not herbaceous grassy fuel, which are patchy. A lack of fire leads to no regeneration of pines, and an increase in oak density and height, and eventually the oaks dominate (class E). Intense fires at any stage may remove the pines which are oak dominated but are lower, killing all pines.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	69	17		
Moderate (Mixed)	878	1		
Low (Surface)	14	82		
All Fires	12	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

Fire is probably patchy, beginning in needle litter and spreading out to receptive oak fuel and patch palmettos, relying on strong coastal winds to drive the fires.

Adjacency or Identification Concerns

As with many higher frequency fire systems, this system exists today in a state of fire exclusion in most natural areas, due to the presence of fire departments on the coast near houses which extinguish fires that start. If we identify the action as trying to drive many sites in class E condition back to class A, there must be a seed source of pines nearby to repopulate the system after a mechanical/fire blend of treatments.

Issues or Problems

It is not known how much has this system been influenced by human interaction, , and it has even been postulated that the presence of pines within this system is an artifact of increased human fire activity from coastal Indian populations.

Native Uncharacteristic Conditions

Lack of fire has led to very dense oak cover, excluding pines and herbaceous species.

Comments

Whereas the modeler has determined a 10-15yr fire frequency as noted in the disturbance description, NatureServe (2006) indicates that unlike maritime vegetation to the north, this system may be more heavily influenced by natural fire regimes that may help to explain the predominance of the fire-tolerant pine species. It has been postulated that the natural fire frequency is from 20-30yrs.

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	D	D	D	D	E	E
Shrub	0.5-1.0	A	A	A	A	D	D	D	D	E	E
Shrub	1.0-3.0	A	A	A	A	D	D	D	D	E	E
Shrub	>3.0	A	A	A	A	D	D	D	D	E	E
Tree	0-5	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf
Tree	0-5	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix
Tree	0-5	C con	C con	C con	C con	C con	C con	C con	C con	C con	C con
Tree	5-10	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix
Tree	5-10	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf
Tree	5-10	C con	C con	C con	C con	C con	C con	C con	C con	C con	C con
Tree	10-25	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf
Tree	10-25	C con	C con	C con	C con	C con	C con	C con	C con	C con	C con
Tree	10-25	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix
Tree	25-50	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix
Tree	25-50	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf
Tree	25-50	C con	C con	C con	C con	C con	C con	C con	C con	C con	C con
Tree	>50	C con	C con	C con	C con	C con	C con	C con	C con	C con	C con
Tree	>50	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf	B brdlf
Tree	>50	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix	B mix

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 22 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIPA2	<i>Pinus palustris</i>	Longleaf pine	Upper
PIEL	<i>Pinus elliottii</i>	Slash pine	Upper
QUVI	<i>Quercus virginiana</i>	Live oak	Lower
QUGE2	<i>Quercus geminata</i>	Sand live oak	Lower

Description

Early post-replacement. Open conditions following fire, pine seedlings recruited, mid-size pines present to provide fuel for future fires, herbaceous species present, oak species also present but in low levels (<1m), resprouting from roots. This class will generate enough fuel to burn occasionally. If no fire occurs in a few years, the oak layers begin to increase.

Mid-open. Mixed larger pines, with low oak levels and density. With regular fires, class C will remain stable, since larger pines provide the necessary needle litter for fuel. Fires are patchy, and spread from needles to palmettos and oaks present.

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:OPN	15

Mid1:OPN	16	Late1:OPN	60
Mid1:CLS	16	Late1:CLS	60
Late1:OPN	61	Late1:OPN	999
Late1:CLS	61	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
Alternative Succession	Early1:ALL	Mid1:CLS	1	1	Yes	14
Surface Fire	Early1:ALL	Early1:ALL	0.1	10	No	0
Alternative Succession	Mid1:OPN	Mid1:CLS	1	1	Yes	25
Replacement Fire	Mid1:OPN	Early1:ALL	0.02	50	Yes	0
Surface Fire	Mid1:OPN	Mid1:OPN	0.1	10	No	0
Mixed Fire	Mid1:CLS	Mid1:OPN	0.01	100	Yes	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.033	30	Yes	0
Alternative Succession	Late1:OPN	Late1:CLS	1	1	Yes	50
Replacement Fire	Late1:OPN	Early1:ALL	0.02	50	Yes	0
Surface Fire	Late1:OPN	Late1:OPN	0.1	10	No	0
Replacement Fire	Late1:CLS	Early1:ALL	0.005	200	Yes	0

References

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