



North American Land Trust

CONSERVATION MANAGEMENT PLAN



South Bay Cove

Horry County • South Carolina

South Bay Cove Conservation Area

Conservation Management Plan

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Date: January 15, 2016

South Bay Cove Preserve Conservation Management Plan

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I. Property Overview and Regional Context

The South Bay Cove property is located in North Myrtle Beach, Horry County South Carolina and consists of approximately 27 acres that will be protected by a perpetual conservation easement. This tract is located along Bourne Trail, a dirt road that parallels the new Highway 31. Although rural at one time, this area is slated for intensive development as the highway has made the area easily accessible. Some tracts along this road have already converted to single family residential development. It is likely the entire road will be paved in the future. Approximately 2/3rds of the property consists of a former pine plantation that is transitioning to a mesic hardwood forest. The remaining portion of the property was planted with sunflowers, most likely for recreational hunting purposes. Both of these habitats and NALT recommendations for them will be addressed further on in this plan.

This Conservation Management plan is being prepared for the conservation area. One of the primary conservation values from this property is simply that of removing the threat of conversion to residential development. The SC Department of Natural Resources in its State Wildlife Action Plan indicates that:

“Increased population growth accompanied by unplanned and uncontrolled industrial, residential, and commercial development is a serious threat to aquatic resources in the Pee Dee-Coastal Plain Ecobasin. The majority of the growth and the greatest threat to aquatic resources is expected to occur along the eastern portion of the ecobasin near the coast...Residential and resort communities along the 'Grand Strand' will strain the already significantly degraded aquatic habitats.” In this context, removal of future development is the best conservation tool for this tract.

In addition to this, the tract has numerous habitats and values from a conservation perspective. NALT is recommending specific conservation management objectives for this tract as follows:

NALT recommends the long term goals and objectives for South Bay Cove Preserve be:

- Water quality protection
- Preservation and enhancement of biodiversity
- Implementation of a conservation management strategy
- Create a functional access for future users
- Scenic viewshed protection/Aesthetics, particularly from public roads and the AIW

All plans should be adaptive, recognizing that factors may change over-time, and this plan should evolve accordingly. Listed below are practices that are recommendations by the North American Land Trust, to achieve the long term and short term goals of an integrated conservation management plan:

1. Transition planted Loblolly Pine stands with young successional growth into old growth forest (Mesic Hardwood Forest) using strategic timber thinning/chipping
2. Transition sunflower field into a native warm season grass meadow
3. Establishment of riparian protection and buffer strategies

4. Creation of trail network for management and access
5. Continue biological surveys of the property, adapting plan as necessary

By protecting the South Bay Cove Property, the owners have ensured that ecologically valuable lands will forever remain intact.

II. Management Goals and Objectives

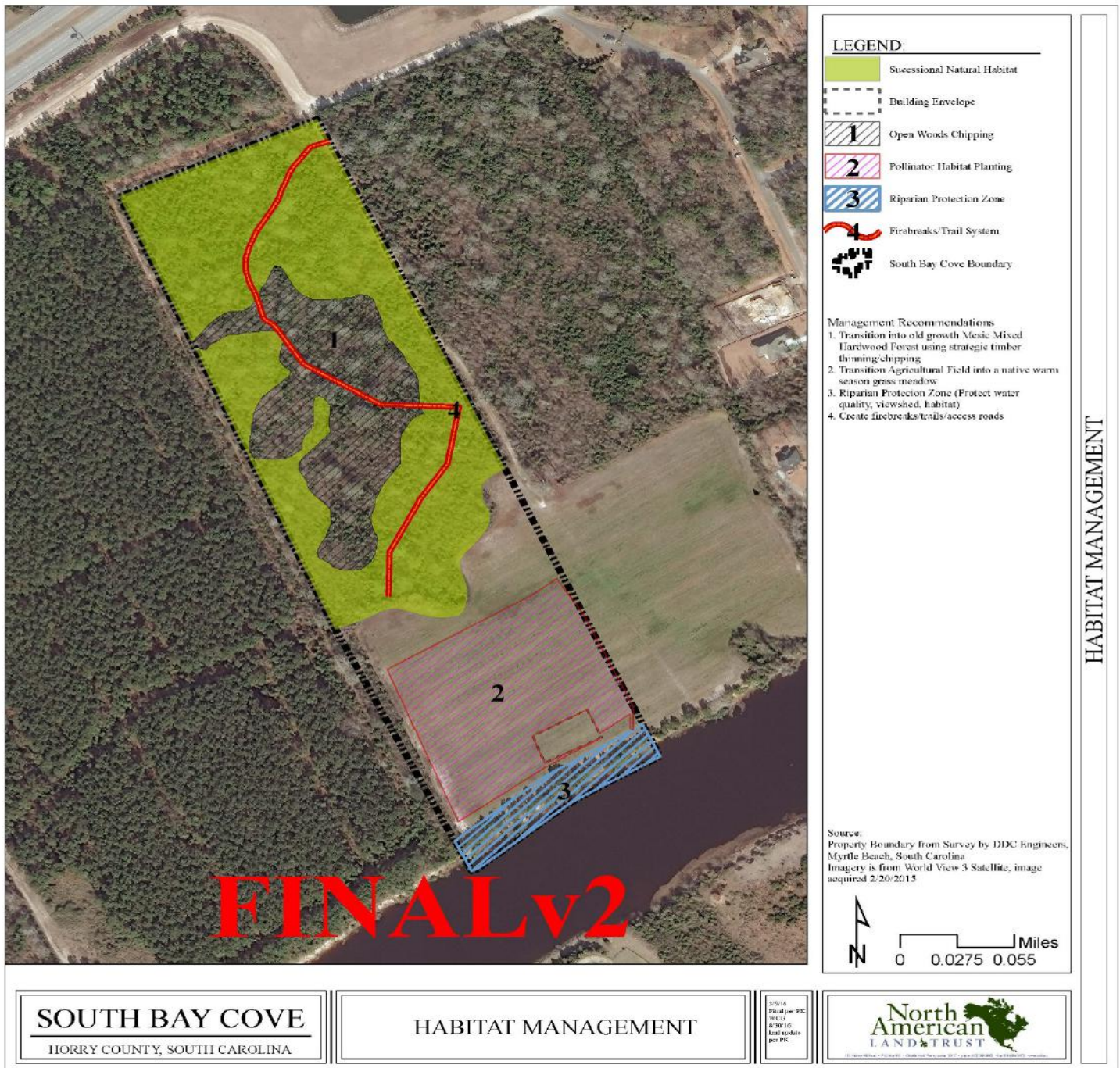
Although South Bay Cove is not a large site, two distinct habitats exist on the property including a transitioning pine forest, with low density mature pines and young successional mixed hardwood understory, and an agricultural field planted with sunflower to support recreational hunting. The property is directly adjacent to the Atlantic Intracoastal Waterway, a natural and recreational resource. The property is located in the Coastal Sampit watershed.

This variation in habitats allows for high biodiversity. Additionally, the proximity of the preserved area which is located in the Town of North Myrtle Beach, a highly developed and developing area makes the natural communities associated with this site even more important as refuge for a variety of wildlife species, as well as for water quality protection.

Management recommendations for the property include:

1. Establish a naturally vegetated river buffer to protect water quality.
2. Protect scenic values of the property.
3. Transition successional habitats areas into an old growth Mesic Hardwood Forest.
4. Transition dove field into a warm season grass meadow or pollinator habitat.
5. Establish and maintain trails/firebreaks for the property.
6. If desired long-term, consider wildlife openings planted with native warm season grasses.
7. Continue biological surveys and botanical inventories.

III. Management Recommendations



Management Recommendation #1: Water Quality Protection/River Buffers

South Bay Cove property sits along the bank of the Atlantic Intracoastal Waterway. The portion of this waterway is manmade; however it is an important natural and recreational resource. The waterway boasts a variety of aquatic and terrestrial wildlife.

Intracoastal Waterway (taken from the Horry County Comprehensive Plan)

The Intracoastal Waterway (ICW) is a 3,000 mile inland waterway that runs parallel to the Atlantic and Gulf coasts. Some sections of the waterway consist of natural inlets, saltwater rivers, bays and sounds, while others are artificial canals. While the Waccamaw River and Little River are natural portions of the ICW, the majority of the ICW in Horry County was constructed by the US Army Corps of Engineers (ACOE) in 1936. Over time, the waterway has become a part of the natural scenery. While the ICW in Horry County is tidally influenced, salt water only influences its northern reach in Little River. The remaining portion of the ICW in the Grand Strand is freshwater until it reaches Winyah Bay in Georgetown County. Along the freshwater portions of the ICW in Horry County, the artificial portion of the waterway mimics the blackwater rivers in the area.

Originally established to provide a safe transportation route and to protect commerce, the ICW now mainly serves as a route for transient boaters and other recreational users. Because the ICW is no longer primarily used for the transportation of goods, it is no longer regularly dredged to sustain its channel, potentially affecting its use for recreational boaters.

Management recommendations:

1. Reduce impervious surfaces. The conservation easement largely addresses this by removing development from the tract.
2. River buffers. One of the single most important tools for protection of waterways is a naturally vegetated buffer.
 - a) Maintain at least 100' natural vegetation.
 - b) South Bay Cove does have some vegetation along the bank of the river, but little on the upland. Allow natural regeneration to occur, or plant native species to create a natural wilderness buffer for the property.
 - c) Maintain waterway views with view "windows" trimming shrub level vegetation to 1' from ground, and/or "limbing up" removing view obstruction but leaving tree canopies. This leaves root structures for erosion and filtration.
 - d) If access is desired to waters/bank edge, consider clearing a "view corridor" only, leaving specimen trees, but removing shrub understory only for the 50-75' strip. Leave the remaining area wooded and natural. If sod is part of the corridor use a

drought tolerant species, such as carpet grass that is ideal for coastal climates and does not require fertilization or irrigation.

- e) Ensure shrub level materials, such as wax myrtles, are plentiful for native, seasonal and migrating songbirds such as Painted Buntings.
- f) Protect or promote mature specimen trees for nesting sites for Bald Eagles and Osprey, as well as other species that will utilize the waterway.

Management recommendation #2: Scenic view protection

Overview: Contrary to what many landowners might consider to be true, this management recommendation is to protect the scenic qualities currently existing on the South Bay Cove property for people viewing the property from waterways and roadways. This is particularly needed in the Myrtle Beach region, one of the most rapidly developing areas in South Carolina and the East Coast. This pressure is acute on beaches, creeks and waterways. With each high rise condominium, multi-family housing complex, commercial venture or even golf course, natural habitats are lost. First and foremost this impacts the flora and fauna of the area, but there is also a negative impact to residents and visitors to the area with the loss of natural landscapes to visually enjoy.

This property, conserved in a natural state without intense development, will benefit the larger public, residents and visitors alike.

Management recommendations:

1. The protection of this property with a conservation easement will largely protect this property as a scenic view from the waterway and adjacent upland.
2. Careful consideration should be given to any structures and their placement, orientation and size to minimize visual impact to the surrounding area.
3. Wherever possible create or maintain “nature curtains” or natural buffers of 30-100’ from roadways and/or waterways.
4. Consider natural solutions for erosion control or streambank stabilization in lieu of riprap or bulkheads. If these are necessary, native landscaping should be used to naturalize the site.
5. Avoid large scale clearings of forests in viewshed areas.
6. If exercising the reserved right for homesites, remove only vegetation required for the homesite, gradually increasing any further clearing to minimize disruption.



Management Recommendation #3: Forestry Management

The South Bay Cove property has a robust mesic forest, that was heavily thinned around 2005 and left to naturally regenerate. As a result, it is a mixture of specimen trees, both hardwoods and pine, and extremely thick successional cover. The successional habitat consists of shrubs level material, as well as young regenerating pines, hard and softwood trees.

This dense forest does provide cover for some wildlife species, however, the quantity of material eliminates foraging, access to specimen tree, or travel corridors for many species of wildlife.

The primary objective should be to allow for an old-growth forest with the notion of leaving/enhancing specimen trees. The forest stand transition could be enhanced by providing diversity in the forest canopy, and selectively opening understory areas to create opportunities for travel, foraging and “edge” diversity.

Management recommendations:

1. Selectively and randomly conduct understory chipping and/or control to open the canopy to the forest floor.
2. Leave specimen trees intact, however, target areas around these trees to open the understory to remove resource competition for the larger species, and provide wildlife access to these trees.
3. Do not remove all the thicket areas, to allow for cover or nesting for wildlife in hard to reach successional areas.
4. Consider altering understory control each year (or every couple of years) to have varying successional habitat to benefit different wildlife species.

Management Recommendation #4: Convert dove field to warm season grass meadow or pollinator habitat

Native grasslands are one of the most endangered ecosystem in the South. Historically, the region contained vast acreages of native grassland and savannas with scattered trees and shrub cover, which was maintained by fire. Today, that acreage has been replaced with non-native grasses (e.g., tall fescue, orchardgrass and bermudagrass), agricultural crops, forest cover and suburban development. As a result, several wildlife species dependent upon quality early successional habitat have experienced significant declines in population.

This region of SC would likely have contained many such grasslands, savannas, or native grass openings. Due to the construction of the AIW, and alteration of topography, restoring a true native landscape for this property is unlikely. However, restoring native habitats to the practicable extent should always be a goal.

One piece of this would be to establish openings/meadows that provide edge for wildlife. If planted and managed as wildlife habitat using native grasses, even without a natural fire regime, numerous species will benefit. NALT suggests the consideration of native grass mixes and species that include: switchgrass (*Panicum virgatum*), indiangrass (*Sorghastrum nutans*), eastern gamagrass (*Tripsacum dactyloides*), big bluestem (*Andropogon gerardii*), and little bluestem (*Schizachyrium scoparium*) for this site.

If warm season grasses are not feasible, planting a mix of native wildflowers would provide important pollinator habitat for numerous insects. Pollinators include birds, bees, butterflies, moths, flies, beetles, bats and some other mammals. In the United States, the pollinators which we depend on for the majority of our pollination services are bees, including the non-native European honeybee and over 4,000 species of native bees. Evidence of population declines of bees, not only in the United States, but around the world, has prompted scientists to encourage changes in ecosystem management. Pollinators are a reminder that of the 100 crop species providing 90 percent of the world's food, over 70 are pollinated by bees. Improving existing and providing new habitat for pollinators has become a major focus for many natural resource agencies.

Management recommendations:

For Grasses and Pollinator Seeds:

Native warm season grass may need special attention given for purchasing and planting seed, and for the management of established stands. The following features are important to note, as warm-season grass planting differs from other traditional plantings:

1. Purchasing Seed

- a. It is best to purchase certified seed of varieties adapted to the region of planting. Certified seed is guaranteed to be true to a variety, and use of certified seed may lead to a more reliable planting.
- b. It is best to order different species and varieties separately instead of pre-mixed because seeding and management specification will differ between species.

- c. Warm season grass species should be purchased on a pure live seed (PLS) basis. Do not confuse 12 lb PLS/acre with 12 bulk lb/acre.
- d. If you do purchase mixed seed consider using a short mixture of seeds and forbs that provide quality cover for ground-nesting and brood rearing birds.

2. Time Of Planting

- a. Plant seeds in March or early April at the latest.
- b. Irrigate if possible to help seed establishment.
- c. Use tilling or herbicide on undesired weed species.

3. Preparing to plant

- a. Conduct a soil test prior to planting (ideally in the fall). For native grasses the pH should be adjusted to a range of 5 - 6 if needed. Incorporate lime in the fall to allow it time to adjust pH before planting in the spring. Fertility up to medium levels for phosphorous (P), and potassium (K). Incorporate P and K into the soil at planting time. Do not apply nitrogen (N) at or before planting time.
- b. For native grasses the pH should be much lower.
- c. Seedbeds should be adequately plowed, disked and packed prior to planting. A cultipacker works well for firming the seedbed. If a prepared hard seedbed is rained on before planting, harrow and cultipack again before planting.
- d. Till soil to a depth of 3 inches prior to seeding. Follow the procedures described above for seedbed preparation.
- e. Pollinator seeds can be dispersed by hand, spread with a cultipacker, or planted using the equipment above.

4. Equipment Needed

- a. Ideally seed will be drilled into a prepared seedbed.
- b. Switchgrass may be planted with a conventional drill because it has a hard, smooth seed coat. Conventional drills equipped to seed alfalfa work well.
- c. Eastern gamagrass seed is about the size of corn seed and is best planted with a corn planter.
- d. Big and little bluestem and indiangrass seed have appendages with fine hair and will not pass through conventional equipment unless they can be ordered as "debearded" or brushed seed. Most likely a drill with a specialized seed box containing "picker wheels" is necessary or the fluffy seed of these grasses will lodge in the seed chute. These drills often are available for use through state wildlife agencies, soil conservation districts, the Natural Resources Conservation Service Seed drills advertised as "native grass drills", such as a Tye or Truax drill, have special boxes equipped with picker wheels and augers which help prevent seed from sticking together and move the seed to the drilling mechanism. Native seed drills have multiple boxes, which allow for the planting of both switchgrass and fluffy seeded species at the same time.
- e. Switchgrass, indiangrass, and big and little bluestem should be seeded at ¼ to ½ inch deep.
- f. If a seed drill is not available, seed may be broadcast over a site.

- g. Broadcast fluffy seed (bluestem and indiangrass) with a drop spreader or cyclone spreader and then drag to lightly cover seed.

5. After Planting the Meadow

- a. Ideally, native grasses meadows would be managed with prescribed burning to mimic natural processes. Size of the property and proximity to the airport makes this unlikely on this site. As a result routine mowing/bush-hogging will likely be the maintenance regime, with herbicide treatment for non-native competition.
- b. The best time of year to mow is during the fall through late winter.
- c. Mow on a three-year cycle where 1/3 of the area is mowed each year.
- d. Do not mow during the spring or summer months because of the nesting season.
- e. When mowing, cut grass no lower than 6 inches and allow stubble to remain until spring to help insulate plant roots and provide cover for wildlife.

6. Weed Control

- a. Post-planting weed control requires prompt attention especially during the establishment year. Inspect the planting every two to four weeks for weed pressure.
- b. A combined program of mowing and herbicides will likely be necessary to control weeds. Use a herbicides labeled for most native grass restoration plantings, such as Plateau™.

7. Long-term Management of Native Warm-Season Grass Fields

- a. Periodically disking (once every 2 years) should maintain open structure at ground level.

Management recommendation #5: Create Trail/firebreak Network

Wildfires are a serious threat in the North Myrtle Beach area. Given that, the fuel load for South Bay Cove is not problematic. Although NALT generally encourages the reintroduction of prescribed burning to any property to mimic natural conditions, and to reduce the threat of wildfire, that is unlikely on this property.

NALT does recommend that a naturalized trail network be established to serve multiple purposes: access for management activities, potential access for future homesites, passive recreational use for the property, and to act as a firebreak in the unlikely event that a wildfire were to occur.

Management recommendations:

1. Establish logical trail network as identified.
2. Roads should be cleared, stumped and graded, and average 8' widths.
3. Roads should be placed on a long-term maintenance rotation.



Management Recommendation #6: Eradicate Invasive Species

Invasive species are non-native plant, insect or animal species that have been introduced into an area outside of their original range and compete with native species for resources. Invasive species reproduce and spread rampantly because they have no natural enemies in their new homes. Invasive species are recognized as one of the leading threats to biodiversity and impose enormous costs to agriculture, forestry, fisheries, and other human enterprises, as well as to human health.

There is one notable non-native invasive species occupying the tract; Chinese privet (*Ligustrum sinense*) is common throughout the forested area and should be eradicated if possible.

Management recommendations:

1. Use a glyphosate product that contains a nonionic surfactant labeled for use in aquatic environments with at least 41 percent glyphosate. Do not use glyphosate formulations that are called “Ready to Use” because they generally do not contain enough glyphosate to be effective. Mix the herbicide with water, preparing a 3 to 5 percent solution (4 to 6 fluid ounces of herbicide product per gallon). If the label recommends additional surfactant, add a nonionic surfactant at 0.5 percent (0.6 fluid ounces per gallon).
2. Apply using a single nozzle backpack sprayer, spraying the foliage to wet, but not to the point of runoff.
3. Ensure Plan for at least two treatments per year in the first three years.
4. Ideally, the optimal timing for glyphosate treatment is late fall to early winter (November through early January) to minimize impact to other species. Spring and summer treatments tend not to be as effective and risk surrounding vegetation.
5. When applying glyphosate, volatility and soil activity are not a concern. Drift, however, can be a serious problem, especially on windy days. Be very careful where spray drift can damage or kill nearby desirable vegetation.

Management Recommendation #7: Continue Biological Surveys/Manage for Species of Concern (current/future)

Overview: NALT recommends that biological inventories and botanical surveys be continued each season, and management strategies refined accordingly. Whether hiring experts in a particular biological discipline, engaging with natural resource agencies, or partnering with universities and coalitions, NALT recommends continued documentation of this property. The priority species listed in the next section should be a starting point for inventories.

Any species identified should be input into a Priority Species Map when discovered. Overall management techniques should be adapted and refined as new priority species are discovered.

Identified Species of Concern:

1. LeConte's Thistle (see fact sheet below)

LeConte's Thistle (*Cirsium lecontei*)



Overview: *Cirsium lecontei* occurs on the sandy pinelands of southern coastal plain in damp soil (where co-occurring species include *Myrica*, *Cyrilla*, and *Ilex*), specifically in the states of Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina and South Carolina. They are also found in moist to wet grassy pine savannahs and pine barrens, bogs (other species present include pitcher plants, *Ilex*, sedges, grasses, and sphagnum), and roadside ditches.

Leconte's thistle is a perennial herb that dies back to its basal leaves in winter. The lower leaves are narrow - up to 12 inches long, but only about 1 inch wide. The young leaves are velvety in appearance with a dense matted covering of white hairs. The upper leaves are smaller than the basal ones, but are still long and narrow in appearance. Like other thistles, they are armed with stout spines along the leaf margins and stems.

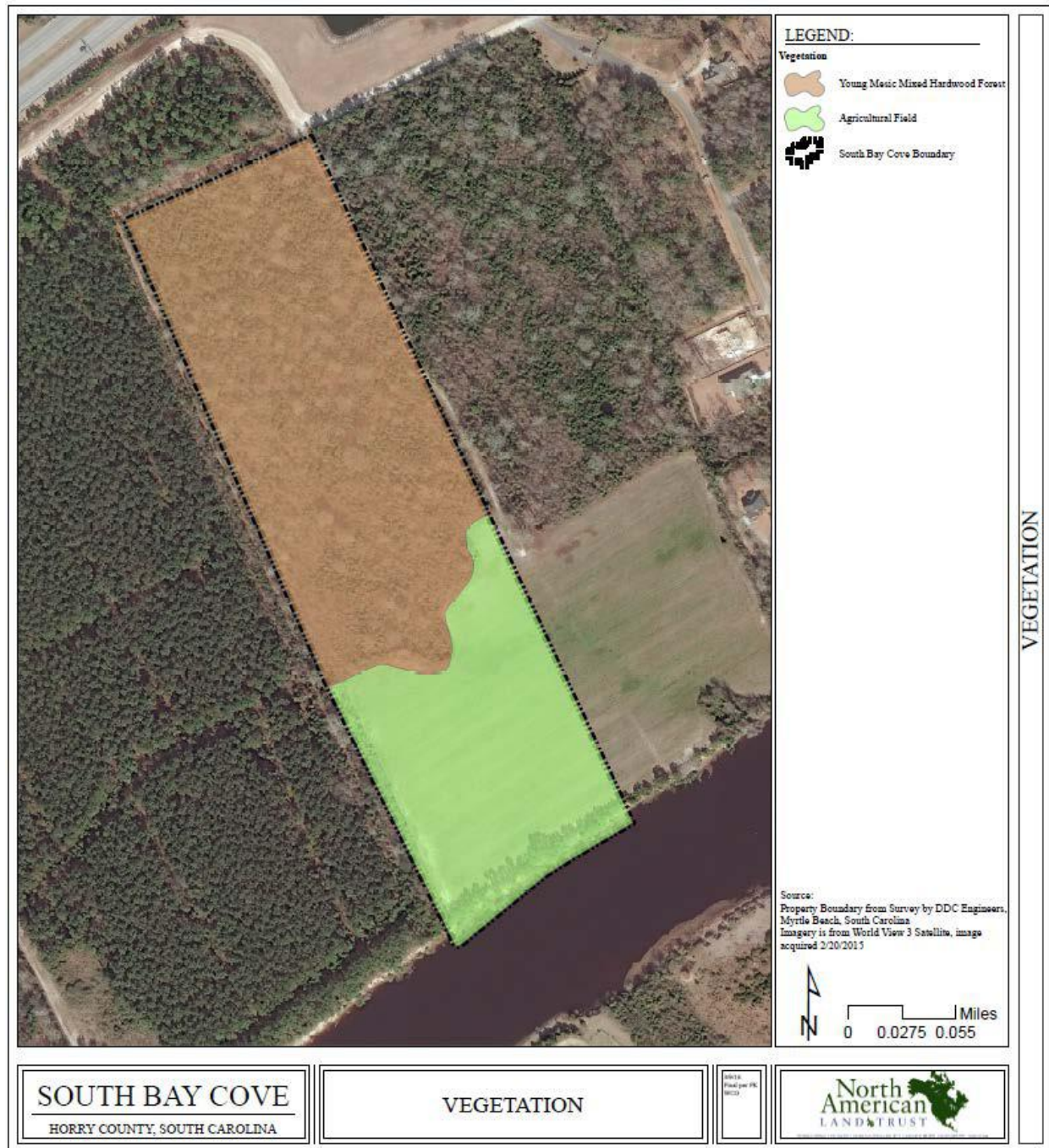
Flowering occurs in mid-summer to early fall. The leafless flower stalk reaches a mature height of 2-4 feet and the urn-shaped inflorescence is composed of light pink to pinkish purple flowers.

Importance: Thistles are important species for pollinating species of insects and wildlife.

Threats & Management: Identified along the forest edge, LeConte's Thistle is only known from six southeastern states, and is listed as rare in most states. The main threats this species faces are conversion of habitat to pine plantation, poor fire management, and commercial and residential development. Beneficial management practices include: 1. Prescribed burning, especially during growing season (May to June), and 2. Thinning of densely-stocked timber (during very dry periods and maintenance of open stands).



IV. Manage Existing Habitat to Maximize Biodiversity



Mesic Hardwood Forest

Habitat overview: This habitat is generally considered a broad transitional habitat between pine flatwoods and maritime forest. Canopy dominants include sweetgum (*Liquidambar styraciflua*), tulip poplar (*Liriodendron tulipifera*), and loblolly pine (*Pinus taeda*). Other canopy species supported include, but are not limited to, swamp chestnut oak (*Quercus michauxii*), water oak (*Q. nigra*), and laurel oak (*Q. laurifolia*). Typical subcanopy and shrub taxa include sweetbay (*Magnolia virginiana*), redbay (*Persea borbonia*), dwarf palmetto (*Sabal minor*), switch cane (*Arundinaria tecta*), wax myrtle (*Myrica cerifera*), red maple (*Acer rubrum*), and others.

Herbaceous taxa are primarily restricted to the forest edge and largely dominated by a variety of asters (*Symphyotricum* spp., *Solidago* spp.) and various graminoids.

This tract was most likely heavily thinned for timber in 2005. The site has been left to regenerate since that time. As a result, the emerging mesic forest is heavily stocked with regenerating hardwood species.

Management recommendations:

1. The long-term management objective is to create an old-growth mesic forest.
 - a. One strategy for this site is to do very little from a timber management perspective, allowing the subcanopy species to mature. The creation of firebreaks/trails to facilitate management will allow for wildlife travel corridors through this vegetation, until a closed canopy community evolves. This strategy would likely take 25+ years to achieve.
 - b. Another strategy is to selectively clear some of the existing understory vegetation to allow desired species to thrive.
 - i. Removing thickets of regenerating pines, sweetgums or other undesirable species.
 - ii. After the initial cutting of these specimens, chemical treatment of regrowth will be necessary.
 - iii. Additionally, taking a more aggressive approach and removing some desirable species of oak and hickory and even shrub species might be considered. Strategically, these can be allowed to regenerate (e.g. no chemical application) to create multiple age classifications of desired species.
2. Species to protect and/or promote include: oaks, hickories, tulip poplar, dogwood, American holly, red bay, swamp bay, dwarf palmetto, cane grass indicative of the understory.
3. This forest is critical to the scenic conservation purpose for South Bay Cove from the roadway (Management recommendation #2).

4. Avoid clearing or converting this area, although a small wildlife opening could be considered in the future if the field converts to another habitat.
5. Prescribed burning would be ideal but is unlikely on this site. Consideration should be given to mechanical understory control or selective thinning of undesirable species as necessary.
6. Continue biological surveys of this area (Management recommendation #6).
7. Establish naturally vegetated river buffer (Management recommendation #1)
8. Eradicate invasive species as identified (Management recommendation #4)
9. Establish firebreak/trail (Management recommendation #5)

Habitat Importance: Species of Concern associated with Coastal Plain Mesic Forest:

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	LEGAL STATUS	PRIORITY	SPECIFIC HABITAT REQUIREMENTS	
<u>MAMMALS</u>	-	-	-	-			
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	G3/G4	S2?	State Endangered	Highest	X	T-beam and I-beam bridges, abandoned buildings, old bunkers and tunnels, cavity trees, rock outcrops, mines, caves
<i>Eptesicus fuscus</i>	Big Brown Bat	G5	SNR		Highest	X	buildings, cavity trees, under bridges and in bat boxes; forage in open fields or forest gaps
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	G5	SNR		Highest	X	roosts include tree cavities, under loose bark, rock crevices, under tree foliage, and occasionally in buildings, stacks of firewood, and bird boxes; forage over water
<i>Lasiurus borealis</i>	Red Bat	G5	SNR		Highest	X	thinned stands; roost on smaller branches or twigs, often in the hardwood tree canopy; may roost in leaf litter
<i>Lasiurus cinereus</i>	Hoary Bat	G5	S?		Highest	X	tree cavities, trunks, tree foliage, squirrel nests, and Spanish moss
<i>Lasiurus intermedius</i>	Northern Yellow Bat	G4/G5	S?	Of concern, State	Highest	X	forage over open areas such as fields, pastures, golf courses, marshes, and along lake and forest edges; roost in clumps of Spanish moss or under old palm fronds
<i>Lasiurus seminolus</i>	Seminole Bat	G5	SNR		Highest	X	roost in large pines located near forested corridors; may roost in leaf litter
<i>Myotis austroriparius</i>	Southeastern Bat	G3/G4	S1	State Threatened	Highest	X	caves (including limestone sinks), mines, abandoned buildings, and large hollow trees; prefers to feed and roost over water
<i>Neotoma floridana</i>	Eastern Woodrat	G5	S3/S4	Of concern, State	Moderate	X	wide variety of habitats
<i>Perimyotis subflavus</i>	Tri-colored Bat	G5	SNR		Highest	X	abandoned mines and caves, bridges, buildings
<i>Ursus americanus</i>	Black Bear	G5	S3?	Of concern, State	Moderate	X	early successional habitat and forest interior; den sites
<u>REPTILES & AMPHIBIANS</u>	-	-	-	-	-	-	
<i>Ambystoma cingulatum</i>	Flatwoods Salamander (Frosted)	G2/G3	S1	Federal Threatened; State Endangered	Highest	X	isolated, temporary wetlands with no fish that have open canopy above and abundant grasses and sedges
<i>Ambystoma tigrinum</i>	Tiger Salamander	G5	S2/S3	Of Concern, State	Highest	X	isolated, temporary wetlands with no fish that have open canopy

							above and abundant grasses and sedges
<i>Crotalus adamanteus</i>	Eastern Diamondback Rattlesnake	G4	S3	Of Concern, State	High	X	underground refugia such as stump holes and rodent burrows
<i>Crotalus horridus</i>	Timber Rattlesnake	G4	SNR	Of Concern, State	High	X	dry, south-facing slopes at high elevations; rock outcrops or logs for den sites with south face exposed to sun
<i>Eurycea chamberlainii</i>	Chamberlain's Dwarf Salamander	G4	SNR		Highest	X	wetland types like seepages near small streams; leaf litter and small debris
<i>Micrurus fulvius</i>	Coral Snake (Harlequin)	G5	S2	Of Concern, State	Highest	X	underground refugia such as stump holes and rodent burrows; loose soil for burrowing
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	G5	S4		Moderate	X	underground refugia such as stump holes and rodent burrows; open canopied forests or fields
<i>Pituophis melanoleucus</i>	Pine Snake (Northern)	G4	S2/S3	Of Concern, State	Highest	X	pine sites with dry soils; underground refugia such as stump holes and rodent burrows
<i>Pituophis melanoleucus mugitus</i>	Pine Snake (Florida)	G4	S2	Of Concern, State	Highest	X	pine sites with well- drained soils; underground refugia such as stump holes and rodent burrows
<i>Pseudacris feriarum</i>	Upland Chorus Frog	G5	S3/S4	Of Concern, State	Moderate	X	isolated, temporary wetlands with no fish
<i>Rana capito capito</i>	Gopher Frog (Carolina)	G3/G4	S1	Federal Threatened; State Endangered	Highest	X	isolated, temporary to semi-permanent wetlands with no fish that have open canopy above and abundant grasses and sedges
<i>Rhadinea flavilata</i>	Pine Woods Snake	G4	SNR	Of Concern, State	High	X	moist pine flatwoods with many rotten logs; underground refugia such as stump holes and rodent burrows
<i>Terrapene carolina</i>	Eastern Box Turtle	G5	SNR		Moderate	X	moist woodlands; sandy or loamy soils in open for egg laying; loose soils and leaf litter for burrowing
<u>BIRDS</u>	-	-		-			
<i>Buteo lineatus</i>	Red-shouldered Hawk	G5	SNR		Moderate	X	wet or moist hardwood forests for nesting and foraging
<i>Caprimulgus carolinensis</i>	Chuck-will's- widow	G5	S4		High	X	openings for nocturnal feeding; mixed forests with light to moderate understory
<i>Caprimulgus vociferus</i>	Whip-poor-will	G5	S4		High	X	openings for nocturnal feeding; mixed forests with light to moderate understory
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	G5	S4		High	X	closed canopy deciduous forests with thick tangles
<i>Contopus virens</i>	Eastern Wood- Pewee	G5	S5		High	X	open forests with sparse midstory

<i>Dryocopus pileatus</i>	Pileated Woodpecker	G5	SNR		Moderate	X	extensive mature forests with dead snags for nest cavities; probably prefer riverbottom hardwoods
<i>Hylocichla mustelina</i>	Wood Thrush	G5	S3?		High	X	moist understory of shrubs or saplings in deciduous woodlands; leaf litter
<i>Limnothlypis swainsonii</i>	Swainson's Warbler	G4T4	S4		High	X	in mountains: deciduous or mixed forest ravines with thick understory of rhododendron or mountain laurel; at coast: cane stands in hardwoods
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	G5	SNR		Moderate	X	open, mature woods with dead snags for nest cavities; man-made poles with cavities
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	G5	SNR		Moderate	X	open, mature woods with dead snags for nest cavities; man-made poles with cavities
<i>Mniotilta varia</i>	Black-and-white Warbler	G5	SNRB,SNRN		High	X	mature hardwood forests; coves
<i>Oporornis formosus</i>	Kentucky Warbler	G5	S4		High	X	moist hardwood forests with rich understory
<i>Parula americana</i>	Northern Parula	G5	SNRB		Moderate	X	mature, moist forests; hemlock forests in mountains and swamps or bottomlands with Spanish moss near coast
<i>Picoides pubescens</i>	Downy Woodpecker	G5	SNR		Moderate	X	middle-aged to mature woodlands; prefer hardwoods; dead snags for nest cavities
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	G5	SNR		High	X	brushy areas; woodland margins and understory
<i>Piranga rubra</i>	Summer Tanager	G5	S?		Moderate	X	dry, mixed woodlands
<i>Poecile carolinensis</i>	Carolina Chickadee	G5	SNR		Moderate	X	mature woodlands with dead snags for nest cavities; will use bird boxes
<i>Protonotaria citrea</i>	Prothonotary Warbler	G5	S3B		Moderate	X	near standing water; open swamps with cavities for nesting; willow thickets near lakes and ponds; old stumps and other rotting logs
<i>Regulus satrapa</i>	Golden-crowned Kinglet	G5	S4		Moderate	X	winter in coniferous or mixed woodlands
<i>Seiurus motacilla</i>	Louisiana Waterthrush	G5	S4		High	X	deciduous or mixed forests with rocky streams
<i>Thryothorus ludovicianus</i>	Carolina Wren	G5	SNR		Moderate	X	woodland thickets; leaf litter; cavities or ledges for nesting; will use bird boxes and many other human material
<i>Toxostoma rufum</i>	Brown Thrasher	G5	SNR		High	X	moderate to dense brush and saplings
<i>Vireo flavifrons</i>	Yellow-throated Vireo	G5	S3?B		Moderate	X	open, moist, mature, deciduous woodlands

							with tall trees; near water
<i>Vireo griseus</i>	White-eyed Vireo	G5	S4?B		Moderate	X	dense, moist thickets
<i>Wilsonia citrina</i>	Hooded Warbler	G5	S4?B		Moderate	X	mature, moist deciduous forests; some mixed forests; rich understory layer
<u>INSECTS</u>							
<i>Acanthametropus pecatonica</i>	"A Mayfly"					X	mesic forests near water
<i>Dolania americana</i>	American Sand Burrowing Mayfly	G4	S3			X	mesic forests near water
<i>Homoeoneuria dolani</i>	"A Mayfly"					X	mesic forests near water
<i>Siphonurus decorus</i>	"A Mayfly"					X	mesic forests near water
<i>Somatochlora calverti</i>	Calvert's Emerald	G3	SNR			X	boggy forest seepages for breeding; forest openings for foraging
<i>Taeniopteryx robiniae</i>	Savannah Willowfly	G1	SNR			X	mesic forests near water
<i>Toxorhynchites rutilus rutilus</i>	"An Elephant (Tree Hole Mosquito)"					X	tree holes and artificial basins for breeding; nectar producing plants for foraging
<i>Toxorhynchites rutilus septentionalis</i>	"An Elephant (Tree Hole Mosquito)"					X	tree holes and artificial basins for breeding; nectar producing plants for foraging

Agricultural Fields/Sunflower Field

Habitat description: Although not a natural community per se, this field has biological importance. First, the field provides important “edge” habitat. In ecology, edge effects refer to the changes in populations or community structures that occur at the boundary of two habitats. Though the relationship can have both positive and negative outcomes, in this situation the field likely offers many opportunities for nesting, foraging, and bugging for many woodland species of wildlife. Additionally, the field has been planted in sunflowers to support and attract game birds. This benefits numerous species, creating and support the food web from insects, to birds, to mammals.

Management recommendation:

1. Convert this field into a native warm season grass meadow (Management recommendation #3)
2. Establish naturally vegetated river buffer (Management recommendation #1)
3. This meadow also is critical to the scenic conservation purpose for South Bay Cove from the Intracoastal Waterway (Management recommendation #2)
4. Continue biological surveys of this area (Management recommendation #6)

Species of concern associated with this habitat:

Early Seccesional Terrestrial Priority Species							
SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	LEGAL STATUS	PRIORITY		SPECIFIC HABITAT REQUIREMENTS
<u>MAMMALS</u>							
<i>Eptesicus fuscus</i>	Big Brown Bat	G5	SNR		Highest	X	buildings, cavity trees, under bridges and in bat boxes; forage in open fields or forest gaps
<i>Microtus pennsylvanicus</i>	Meadow Vole	G5	SNR	Of concern, State	High	X	tall grass prairie habitats
<i>Neotoma floridana</i>	Eastern Woodrat	G5	S3/S4	Of concern, State	Moderate	X	wide variety of habitats
<i>Ursus americanus</i>	Black Bear	G5	S3?	Of concern, State	Moderate	X	early successional habitat and forest interior; den sites
<u>REPTILES & AMPHIBIANS</u>							
<i>Crotalus horridus</i>	Timber Rattlesnake	G4	SNR	Of Concern, State	High	X	dry, south-facing slopes at high elevations; rock outcrops or logs for den sites with south face exposed to sun
<i>Heterodon simus</i>	Southern Hognose Snake	G2	SNR	Of Concern, State	Highest	X	friable soils; underground refugia such as stump holes and rodent burrows; abundance of toads
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	G5	S4		Moderate	X	underground refugia such as stump holes and rodent burrows; open canopied forests or fields
<i>Terrapene carolina</i>	Eastern Box Turtle	G5	SNR		Moderate	X	moist woodlands; sandy or loamy soils in open for egg laying; loose soils and leaf litter for burrowing

BIRDS							
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	G5	SNRB,SNRN		Highest	X	broomsedge fields and other openings
<i>Caprimulgus carolinensis</i>	Chuck-will's-widow	G5	S4		High	X	openings for nocturnal feeding; mixed forests with light to moderate understory
<i>Caprimulgus vociferus</i>	Whip-poor-will	G5	S4		High	X	openings for nocturnal feeding; mixed forests with light to moderate understory
<i>Chaetura pelagica</i>	Chimney Swift	G5	SNRB		High	X	open areas for foraging; cavity for nesting (often chimneys)
<i>Colinus virginianus</i>	Northern Bobwhite	G5	S4		Highest	X	brushy areas and grasslands, thickets, woodland margins
<i>Columbina passerine</i>	Common Ground-Dove	G5	SNR	State Threatened	Highest	X	shrubs near openings for nesting; sandy bare ground or short grass for foraging
<i>Dendroica discolor</i>	Prairie Warbler	G5	S4		High	X	open old fields with scattered saplings; open woodlands with shrub-scrub
<i>Elanoides forficatus</i>	Swallow-tailed Kite	G5	S2	State Endangered	Highest	X	open savannahs for foraging; mature trees for nesting near swamps and marshes
<i>Empidonax virescens</i>	Acadian Flycatcher	G5	S4B		High		Riverbanks, streams, banks, alder zones
<i>Falco sparverius paulus</i>	American Kestrel	G5	SNR		Highest	X	nest cavity in large open area; extensive open areas with high perches for foraging
<i>Gallinago gallinagodelicata</i>	Wilson's Snipe	G5	SNRN		High	X	boggy areas; wet meadows with short grass; along pond and marsh margins for probe foraging
<i>Icteria virens</i>	Yellow-breasted Chat	G5	S4B		High	X	old fields, briar thickets, dry woodland margins;
<i>Icterus spurius</i>	Orchard Oriole	G5	S5?B		Moderate	X	orchard-like sttings; woodland margins
<i>Junco hyemalis</i>	Dark-eyed Junco	G5	SNRB,SNRN		Moderate	X	short grass openings near conifer woodlands
<i>Lanius ludovicianus</i>	Loggerhead Shrike	G4	S3	Of Concern, State	Highest	X	open areas with perches
<i>Passerina caerulea</i>	Blue Grosbeak	G5	SNRB		Moderate	X	hardwood saplings or shrubs for nesting; open areas
<i>Passerina cyanea</i>	Indigo Bunting	G5	SNRB		Moderate	X	woodland margins; shrubby thickets in openings
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	G5	SNR		High	X	brushy areas; woodland margins and understory
<i>Progne subis</i>	Purple Martin	G5	SNRB		High	X	forage over open areas near or over water; nest in man-made houses or gourds
<i>Scolopax minor</i>	American Woodcock	G5	S4		Moderate	X	moist soils and leaf litter for probe foraging; woodlands for nesting; openings for mating displays
<i>Spiza americana</i>	Dickcissel	G5	SNRB		Moderate	X	open, grassy areas
<i>Spizella pusilla</i>	Field Sparrow	G5	S5?		High	X	saplings and shrubs in weedy thickets and woodland margins

<i>Sturnella magna</i>	Eastern Meadowlark	G5	SNR		High	X	short to medium-height grasses for nesting and foraging
<i>Toxostoma rufum</i>	Brown Thrasher	G5	SNR		High	X	moderate to dense brush and saplings
<i>Tyrannus tyrannus</i>	Eastern Kingbird	G5	SNRB		High	X	open areas with scattered trees and other perches
<i>Tyto alba</i>	Barn Owl	G5	S4	Of Concern, State	Moderate	X	grasslands or marshes for foraging; nest cavities; dense roosting cover
INSECTS							
<i>Atrytone arogos</i>	Arogos Skipper					X	specialist in seasonally wet to dry grassland and pine savannah habitats; regenerating burn sites; host plants: Little Bluestem, Pine Barrens Reed Grass, and Lopsided Indian Grass; nectar plants
<i>Dorymyrmex bureni</i>	"A Pyramid Ant"					X	prefer sandy soils in highly disturbed areas like pastures, open fields, open scrub, sandhills, dunes, lawns, and roadsides
<i>Dorymyrmex medeis</i>	"A Pyramid Ant"					X	prefer sandy soils in highly disturbed areas like pastures, open fields, open scrub, sandhills, dunes, lawns, and roadsides

VI. Mapping

- A. Aerial
- B. Soils
- C. Concept Plan



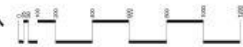
LEGEND



Subject Property

NOTES

1. Property boundaries from T3 Bingham Company, dated 6/22/2015
2. Aerial Photography from Mapbox, dated 2013
3. Topography from Wiggins, USGS Quadrangle sheet
4. Soils information from USGS, MPCS Soil Information System Database (NASIS)



SOUTH BAY COVE

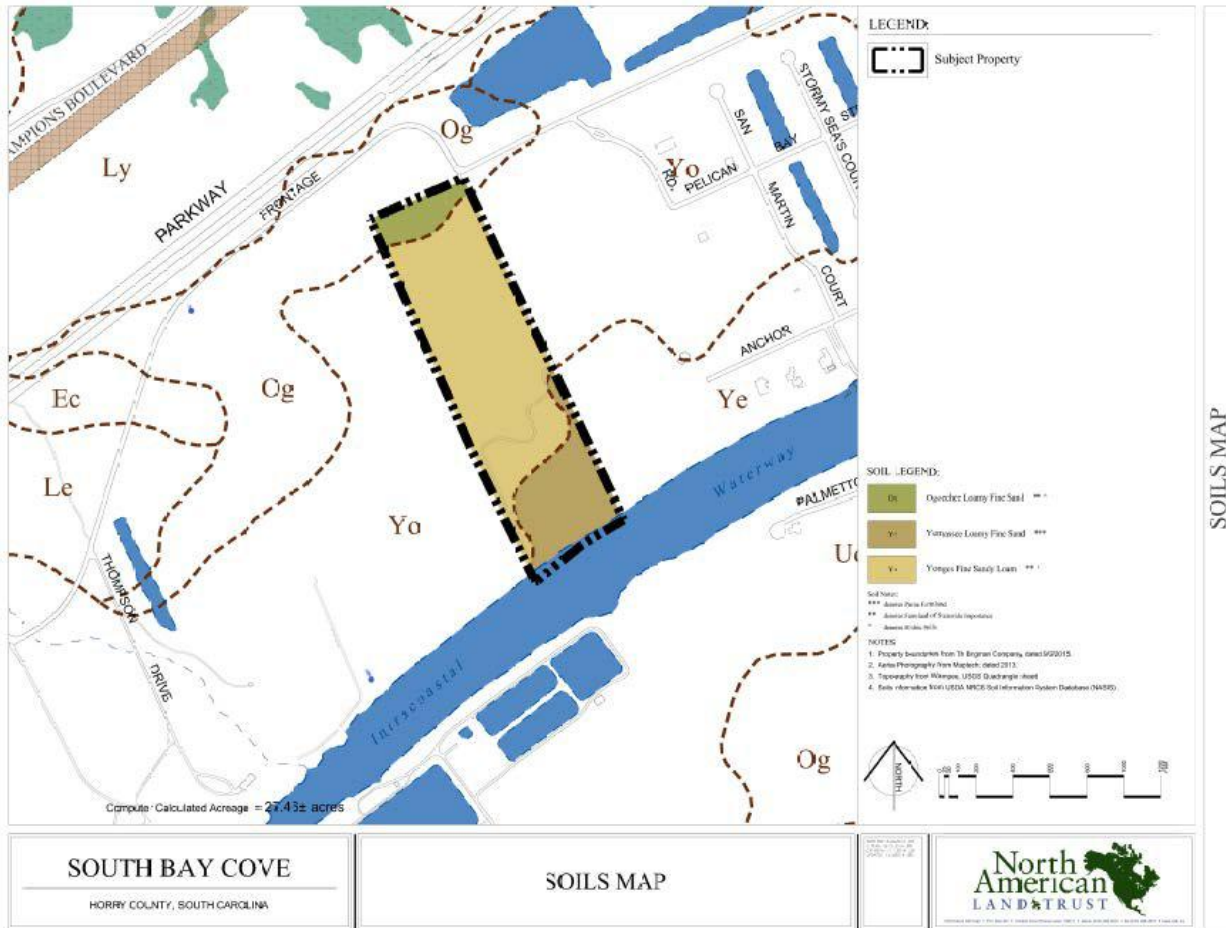
HORRY COUNTY, SOUTH CAROLINA

AERIAL PHOTOGRAPH

DATE OF PHOTO: 10/15/13
AERIAL PHOTOGRAPH
SCALE: 1" = 100'



AERIAL PHOTOGRAPH



Horry County, South Carolina



VI. Next Steps and Activity Timeline

NALT recommends the following tasks during the first year of operation:

1. Identify Conservation Management Team to include:
 - a. Forestry Management Contractor
 - b. Road maintenance contractor (general)
 - c. Site improvement/repair contractor (construction)
 - d. Biological expertise (as necessary)
 - e. Site security contractors (as necessary)
 - f. Natural resource agencies and partners
2. Develop a list of local partners/players to open dialogue as necessary:
 - a. Local government and planning departments
 - b. Academics or natural resource partners
 - c. Local NGO partners
3. Meet with contractors on CMP Plan components to obtain bids, determine timetable for implementation
4. Draft annual Management Budget for the property (begin 3-5 year projection)
5. Implement Conservation Management Plan components
6. Modify budget and timetables for the next five-year period.

VII. Sample Budget

Sample budget to be used for implementation				
Proposed 2015-2016 Budget				
	Proposed Cost	Committed	Discretionary	Notes
Site Maintenance				
Securing site gate, locks, fencing, etc.)				
Misc (signs, hardware, etc.)				
Routine mowing				
Preserve				
ROW				
Drainage pipes				
Road repair/maintenance				
Habitat Enhancement/Land Mngmt				
Prescribed burning				
New firebreaks/trails				
Burning (labor, equip, etc.)				
Timber thinnings				
Improvement cut/transition				
Removal of regeneration stands				
Invasive species treatments				
Lagoon Management				
Water quality monitoring/treatment				
Fish stocking				
Native Grass/Prairie Restoration				
Wildlife Management				
Nuisance control (hogs, beavers, etc.)				
Healthy herd management				
Biological surveys/enhancements				
Wetland enhancement/restoration/monitoring				
Biological surveys				
Site improvement				
Building envelope/view shed ex.				
New trails				
Capital Expenditure/Amenity/Improvements				
Fishing dock/pier				
Boardwalks				
Docks				
Site inspection and management				
Total				
Total Committed				
Total Discretionary				

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Native Florida Wildflowers, Craig N. Huegel, PhD
<http://hawthornhillwildflowers.blogspot.com/2015/08/lecontes-thistle-cirsium-lecontei.html>

Louisiana Department of Wildlife and Fisheries,
http://www.wlf.louisiana.gov/sites/default/files/pdf/fact_sheet_plant/31794-Cirsium%20lecontei/cirsium_lecontei.pdf

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http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_021520.pdf

Appendix 1: Conservation Easement and Baseline