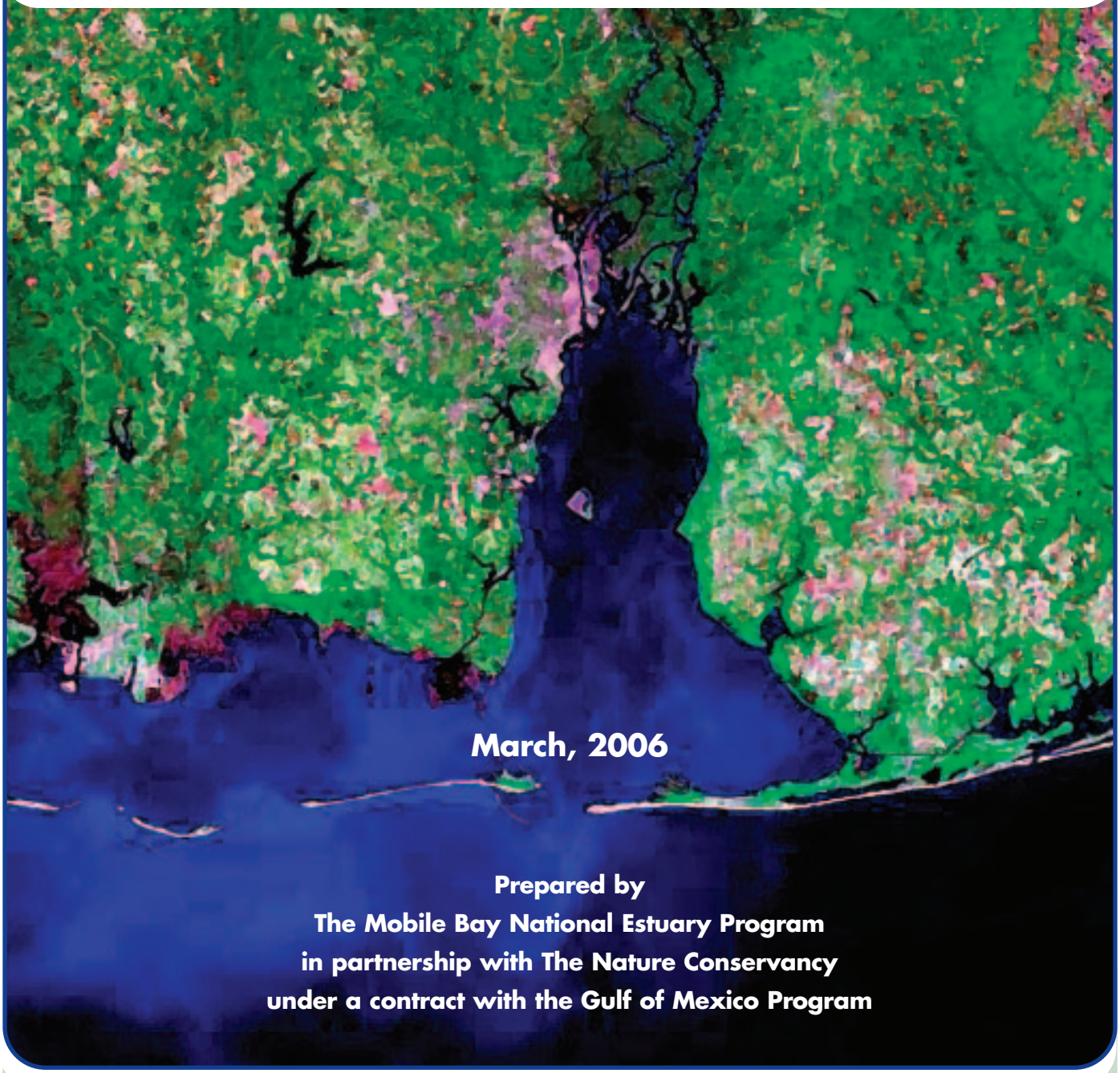
Conserving Alabama's Coastal Habitats:

Acquisition and Restoration Priorities of Mobile and Baldwin Counties



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Prepared by
The Mobile Bay National Estuary Program
in partnership with The Nature Conservancy
under a contract with the Gulf of Mexico Program

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Preface

The Mobile Bay National Estuary Program Management Conference, which generally represents all stakeholders of the estuary, established an objective in its Comprehensive Conservation Management Plan (CCMP) published in April 2002 to *"provide optimum fish and wildlife habitat in the Mobile Bay system by effectively preserving, restoring, and managing resources to maintain adequate extent, diversity, distribution, connectivity and natural functions of all habitat types."* The concern was that high quality coastal habitats within the Mobile Bay National Estuary Program target area were not protected from certain habitat threats loss or reduction of species with specific habitat requirements could result. Many of these habitat threats are associated with population growth and include: habitat destruction, degradation, fragmentation, water quantity and quality impacts, non-native species and the suppression of natural ecological processes such as periodic fire. Habitat destruction and change have also recently resulted from the impacts of two of the most destructive hurricanes to strike the U.S. (Ivan and Katrina.) Direct effects of these storms on sensitive habitat and the secondary impacts resulting from recovery and rebuild efforts must also be considered as we seek to maintain and preserve our sensitive coastal ecology. In response to this concern, the CCMP includes this Habitat Management Sub-objective:

> *Protect, enhance, restore and manage valuable public lands and work with private property owners to accomplish habitat protection goals on important, privately held lands, including the acquisition of 15 additional high priority sites by 2009 through purchase or through other instruments, such as easements.*

This sub-objective constitutes the foundation of the **Acquisition and Restoration Priorities of Mobile and Baldwin Counties**.

Introduction

In 2004 the Mobile Bay National Estuary Program (MBNEP) was awarded a grant by the EPA Gulf of Mexico Program to conduct a strategic assessment of habitats throughout Mobile and Baldwin Counties that would identify priority sites for acquisition and restoration. At the same time, The Nature Conservancy of Alabama (TNC) was going through an internal process to identify priority habitats through its *Conservation by Design* Effromyson Conservation Workshop methodology. This is a process that assesses habitats for conservation based on quality of or contributions to the ecosystem, stresses to those systems, sources of the stresses, strategies to abate those sources and success in terms of measuring biodiversity health and threat abatement with the goal of the long-term survival of all viable native species and communities. Recognizing their common objectives, MBNEP and TNC decided to partner and conduct a one-year conservation planning effort using this ecosystem based process to focus on the following conservation areas: Perdido River Corridor, the Gulf Islands, the Mobile Bay & Delta, and the Grand Bay.

This effort resulted in the identification of 17 priority acquisition sites (or other conservation options) and over 30 other sites/ habitat types where restoration and/or enhancement are considered viable and necessary. These sites have been put in this "Atlas" to be used by governments and other community organizations to more effectively guide resource management activities in coastal Alabama. Indeed, some state and local agencies and organizations have already acquired or are already working to acquire certain sites on the list. Similarly, restoration activities are underway or being planned in a number of the identified areas.

The need for such an assessment arose because of the many organizations, governments and agencies actively pursuing habitat acquisition, preservation restoration, and management activities in the Alabama coastal area. Often their efforts are ineffective in protecting and managing critical habitat because ways to prioritize activities and communicate what individual groups are doing to acquire, preserve, and restore habitat are lacking. The problem is exacerbated by individually applying for funding to various agencies and organizations. Through the strategic assessment process the contributions of existing preservation and management programs and the capabilities of all agencies and organizations involved in these programs are coordinated and maximized.

Other partners and participants in this strategic assessment covered a wide spectrum of public and private interests including: the U.S. Army Corps of Engineers, U.S Fish and Wildlife Service, U.S. Department of Agriculture's Natural Resources and Conservation Service, Mississippi-Alabama Sea Grant, Alabama Department of Conservation and Natural Resources State Lands Division, Alabama Forest Resources Council, Weeks Bay National Estuarine Research Reserve, Mobile and Baldwin County governments, Mobile Bay Audubon Society, Dauphin Island Bird Sanctuary, Alabama Coastal Foundation, Alabama Power Company and others such as local conservationists and realtors.

Although long–term success will be judged on the degree to which identified sites are protected or restored, short term results are promising. For example, sites and areas identified in the habitat strategic assessment have also been included as priorities for acquisition in recent state planning documents in response to the Coastal and Estuarine Land Protection Program (CELP). Further, efforts to create a data base for coastal habitat restoration are in progress. The Mississippi-Alabama Sea Grant Program initiated this data base and funded its development in response to the need to be able to track on-going restoration projects and the Mobile Bay National Estuary Program will be responsible for managing and maintaining it as part of its Data and Information Management System. Finally, a steering committee called the Coastal Habitats Coordinating Team (CHCT) has been created and left in place to promote a continuing focus on habitat needs in CHCT, the Mobile Bay National Estuary Program will work to develop the public-private partnerships necessary to effectively conserve critical habitats throughout coastal Alabama.

Habitat conservation, protection and restoration are very much community concerns in coastal Alabama. The development of effective partnerships and tools such as these, help us better utilize and target existing capabilities, resources, and funding for achieving habitat goals and assist in preventing and diffusing our individual efforts.

Conservation and Restoration Methods

The above properties identified for habitat conservation and restoration will require long-term site protection measures to ensure their conservation into perpetuity. There are many different ways to protect restoration sites, including land acquisition, conservation easements, and other land use controls. Efforts to protect restored sites long-term will require cooperation between landowners, governments and non-profit organizations committed to the protection of these resources.

Land Donation - A land owner may donate parcel amounts to a number of entities within the State of Alabama. These include state agencies, county or city municipalities, or non-governmental organizations such The Nature Conservancy, Forever Wild, or Alabama Land Trust to name a few. Tax benefits maybe available and easements can be developed in perpetuity.

Fee Simple Acquisition by a Conservation Agency - Fee-simple acquisition involves obtaining the full rights associated with a parcel. It may include or exclude rental rights when an outright purchase of property occurs.

Discount Acquisition by a Conservation Agency - The strict definition of discount acquisition is the difference between the amount of unpaid principal of a mortgage and the price paid for the mortgage in the secondary market. Acquiring property would be paying that unpaid difference.

Conservation Easements executed between a Conservation Agency and an existing land owner - A conservation easement is a voluntary agreement that willing landowners make to permanently restrict the type and amount of development that may take place on their property in the future. Landowners grant conservation easements to protect their land from inappropriate development while retaining the rights of private ownership. The conservation easement does not necessarily exclude all development, but restricts any development that would be harmful to the public benefits the easement seeks to protect.

With a conservation easement, the landowner continues to own the property and may sell it, live on it, use it, or leave it to heirs, but the agreed-upon restrictions remain with the land forever. Granting of a conservation easement does not mean that landowners must grant public access to their property.

Guiding Principles for Conservation Activities

The Priority Habitats Atlas of Mobile and Baldwin Counties (2005) is a document that prioritizes habitats for conservation based on its ecosystem value, its stressors, the sources of its stress, and the potential for successfully abating the threat and protecting its biodiversity. However, other guiding principles have been developed to help focus conservation efforts. These principles follow:

- Give priority to those parcels that are the most vulnerable to environmental pressures
- Give priority to those parcels that meet the greatest ecological need
- Leverage funds by using a small allocation to generate other private or public investment;
- Coordinate activities among public and private entities to accomplish objectives
- Seize opportunities as they arise

Overview of Four Target Areas

Grand Bay

The Grand Bay complex is located in southeastern Jackson County, Mississippi and southern Mobile County, Alabama. This conservation area extends over 150,000 acres of land and water. The project boundaries are delineated by the Escatawpa River and the Bangs Lake marsh on the west; Interstate 10 and the Fowl River on the North; Mobile Bay on the east and the near shore waters and marsh lands of the Mississippi Sound on the south.

Gulf Islands

The Gulf Islands conservation area spans the string of barrier islands that lie just off the coast of Alabama. This includes Dauphin Island, smaller islands in Mississippi Sound, the Fort Morgan Peninsula, Gulf Oak Ridge, East Ono Island, Wolf Bay, the Perdido Pass Islands, and the Soldier Creek basin. This area falls within the coastal Mobile and Baldwin Counties in Alabama, and is home to the highly developed resort towns of Gulf Shores and Orange beach, Alabama.

Mobile -Tensaw River Delta / Mobile Bay

The Mobile-Tensaw River Delta conservation area is located in southwest Alabama in the East Gulf Coastal Plain ecoregion in central Alabama and empties into Mobile Bay. The Mobile-Tensaw River Delta is defined as the area from the Alabama River cutoff southward to the upper end of Mobile Bay at U.S. Highway 90 within the ten foot contour interval. The Delta is approximately 45 miles long, averages 8 miles wide, and contains over 400 square miles of wetland and associated upland ecosystems. Mobile Bay itself is comprised of a variety of estuarine and other wetland habitat types. The Mobile basin's southern terminous is the Mobile-Tensaw DRiver Delta and Mobile Bay. This basin drains an area of about 44,000 square miles including 64% of Alabama and small portions of Georgia and Mississippi. The Delta and the adjacent Mobile Bay estuary compose one of the largest wetland ecosystems in the United States.

Perdido River

The Perdido River and Bay conservation area covers approximately 700,000 acres of land in Baldwin and Escambia Counties in Alabama and Escambia County, Florida. This watershed lies entirely within the East Gulf Coastal Plain of the southeastern United States. The Perdido River flows for approximately 60 miles with its headwaters between Bay Minette and Atmore, Alabama and eventually flows into the Gulf of Mexico at Perdido Bay. The Perdido River and Bay form the political boundary between Baldwin County, Alabama and Escambia County, Florida. The land use is mostly forested (85%) with agriculture (13%) also important. Urban/industrial areas make up less than 2% of the watershed but they are increasing. Much of the remaining long-leaf pine forest in Coastal Alabama is located in the Perdido River corridor.

Methodology

Through a series of workshops held by MBNEP and TNC, area conservation organizations and researchers worked to define conservation targets – the species, systems or natural communities that needed to be protected across landscapes. During the first planning workshop, held in December 2003, the group brainstormed a list of all possible targets, consolidated them into major groupings, identified species that did not fit into groupings and identified species or communities that required special management or conservation attention. This list was narrowed to 8 targets for each conservation area that best reflected the eco-regional conservation goals, represented the biodiversity of the site, and which were highly threatened.

This workshop was followed by a series of one day working sessions held in January 2004 to identify and prioritize threats facing the conservation targets in each area. In the Conservation by Design process, threats are determined first by developing a list of stresses. These are the altered ecological indicators that suggest that a conservation target is stressed (i.e. declining population size, altered fire regime, or altered structure/composition). Then, the sources of those alterations are identified (i.e. incompatible recreation, invasive species colonization, or a specific activity like dredging). These stresses and sources of stress combine to form a picture of the threats facing our conservation targets. For the four areas, each of these threats was ranked, based on their severity, scope, and likelihood of success for action to provide a sense of the highly ranked threats that needed immediate conservation action.

In March 2004, a workshop was held to brainstorm strategies by which highly ranked threats to the conservation targets could be abated. Such strategies can be roughly divided into two categories – threat abatement strategies which protect targets or restoration strategies that improve their viability. This workshop was followed in May 2004 by the first meeting of the MBNEP's Coastal Habitat Coordinating Team. This meeting was intended to bring together conservation organizations to brainstorm and priority sites for habitat acquisition and restoration in coastal Alabama, and to identify partnerships for achieving protection of these sites, based on the comprehensive list generated by the previous workshops.

Throughout this meeting the following objectives were considered when prioritizing tracts for acquisition and restoration:

- Maintain and/or improve beneficial wetland function within the Mobile Bay watershed by reducing loss in quality and quantity or restoring degraded marsh habitats and increase acreage by 5%
- Reduce the loss of beach and dune habitat
- Reduce the loss of bay/sound/bayou intertidal habitat due to bulkheading
- Prevent the loss of nesting habitat for colonial and migratory birds due to human disturbance and alteration
- Restore or protect Submerged aquatic vegetation habitat and increase acreage by 3% from 2001 levels

Also considered when selecting priority sites were the habitat goals of the EPA Gulf of Mexico Program which are to:

- Restore, enhance, or protect important coastal and marine habitats that are essential to the recreational and commercial fisheries of the Gulf, including the prevention and control of invasive species by 20,000 acres by 2009, and
- Restore, protect or enhance 2400 acres of coastal and marine habitat each year between 2002 and 2009.

Finally, The Nature Conservancy's mission and goals were also considered, focusing on the protection of biodiversity across the Grand Bay, Mobile Bay/Delta, Gulf Islands and Perdido River conservation areas, including the following species, systems and natural communities:

GRAND BAY	GULF ISLANDS	MOBILE BAY & DELTA	PERDIDO RIVER
Pine Savanna Matrix	Beach, dune, scrubland	Riverine Channel System	Seepage Slopes (A wet, nutrient poor area on the side of a hill where pitcher plants may be found) Depressional Wetlands
Coastal Marshes	Emergent wetlands/brackish marshes	Forest Matrix (Riparian hardwood to upland longleaf pine)	Longleaf Pine matrix
Maritime Forest System	SAV	Deltaic Meander Zone	Estuarine System (Perdido Bay)
Seepage-Fed Freshwater Wetlands	Oyster reefs	Delta Margin System	Pine Flatwoods matrix
Independent Streams	Maritime forests and pinelands	Bay-Tributary Tidal Stream Community	Floodplain Forest
Alabama Red-bellied Turtle	Lagoons	Open Water Estuarine System	Blackwater Rivers and streams
Open Estuarine System	Alabama beach mouse	Coastal Wetlands	Black bear
Rookeries	Sea turtles (Nesting Life Stage)	Alabama Red-Bellied Turtle	Sub-basin Estuarine System (Wolf Bay)

Priority Acquisition Sites

The first charge of the CHCT was to select 16 priority parcels for conservation and protection through purchase or other means. The following 17 parcels were discussed, and the group selected the top four to five in each coastal area as the 17 highest priority sites. The priority sites for acquisition were identified

REGION	SITE	INCLUDING
1. Grand Bay	Cat Island	
2. Grand Bay	East Grand Bay Coastal Parcels	Cuppersmith-Cedar Point Tract,
		Dezauch Tract,
		Tensaw Land and Timber Tract,
		Henderson Tract (Mon Luis Island),
		West Fowl River Tract/Chase Bank of Texas
3. Grand Bay	Grand Bay National Wildlife Refuge	Whitehead
		MC Davis Tracts
4. Grand Bay	West Grand Bay Coastal Parcels	Solet Tract
		Henderson Tracts
5. Gulf Islands	Dauphin Island Migratory Bird Stopover Habitats	Steiner Properties
		Tupelo Gum Swamp
		Gorgas Swamp
6. Gulf Islands	Peninsula Tract	
7. Gulf Islands	West End of Dauphin Island	
8. Gulf Islands	Gulf State Park In-Holdings	
9. Mobile Bay and Delta	Bayou Sara	
10. Mobile Bay and Delta	Coastal Land Trust (ALCO) Tract	
11. Mobile Bay and Delta	Hells Creek Swamp	
12. Mobile Bay and Delta	Live Oak Landing	
13. Mobile Bay and Delta	Weeks Bay In-holdings	
14. Perdido River	AIG Baker/Reeder Lake Tract	
15. Perdido River	IP Perdido River Tract	
16. Perdido River	Lillian Swamp Tracts	
17. Perdido River	Delta LLP Connector Tracts	

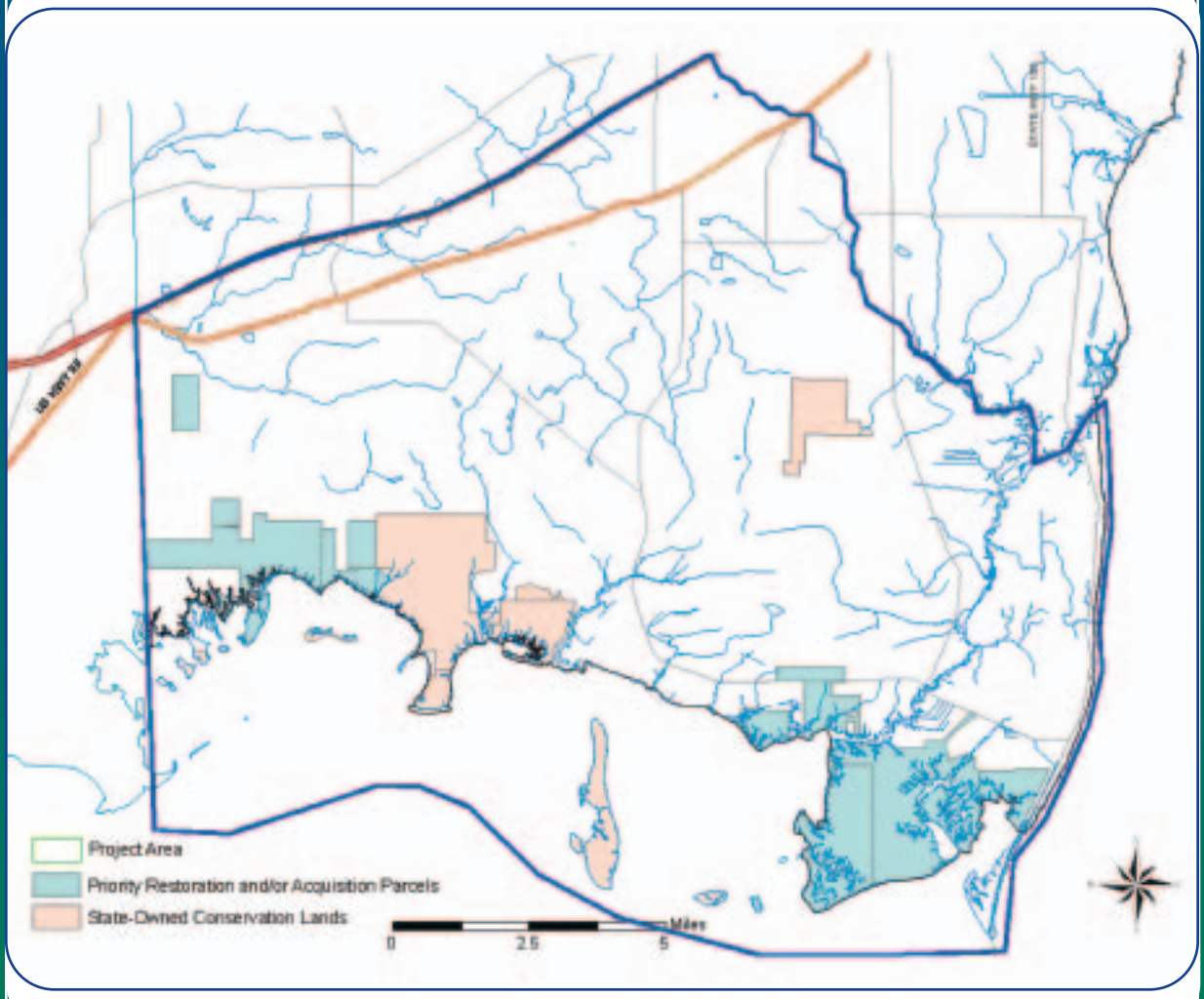
Overview Map of All Acquisition Sites

The map below is a graphical overview of the sites identified as part of the Conservation by Design process to provide the reader with a regional prospective of conservation priorities. The maps shown in this atlas are available in jpg format and as shape files on CD ROM from the MBNEP office.

The markers represent specific tracts of land considered for acquisition. They are not, however, the correct size or shape, and are only in approximate locations. Any lack or accuracy is allowed for increased quality of visualization.

Acquisition Priorities by Conservation Area

GRAND BAY



Grand Bay

The Grand Bay Savanna complex is located in southeastern Jackson County, Mississippi and southern Mobile County, Alabama. This conservation area extends over 150,000 acres of land and water. The target area boundaries are delineated by the Escatawpa River and the Bangs Lake marsh on the west; Interstate 10 and the Fowl River on the north; Mobile Bay on the east and the near shore waters and marsh islands of the Mississippi Sound on the south.

The only incorporated community within the conservation area is the coastal fishing city of Bayou La Batre, Alabama. Urban sprawl westward from Mobile, Alabama and eastward from Pascagoula, Mississippi will place development pressures on Grand Bay's remaining natural areas. Conservation lands within the Grand Bay Savanna include a National Wildlife Refuge and a National Estuarine Research Reserve. In addition, the Forever Wild Grand Bay Nature Preserve extends over 2,700 acres. The Nature Conservancy owns two tracts in the conservation area – 197 acres at Dennis Cove and an 80 acre tract along Mississippi Sound. There are four existing or proposed mitigation projects/banks within the conservation area.

Habitat Strengths/Importance

The Grand Bay Savanna is an intact landscape scale example of the mosaic of natural communities that once characterized the southern coastal plain. It is one of the largest unfragmented stretches of wet pine savanna in the southeast. Much of the diversity within the Grand Bay Savanna is concentrated in the botanically rich wet pine savanna habitats. However, significant rare species occur in its other component communities as well. Other dominant community types are various woodland/shrublands, including coastal maritime forests and near shore estuarine communities. The coastal woodland/shrubland community types represent a transition between the estuarine wetland communities and the more inland pine savannas. The woodland/shrublands are dominated by live oak and ti-ti.

The estuarine communities found at Grand Bay include tidal marsh, associated shrublands and saltflats, seagrass beds, mollusk reefs, soft bottom benthic communities and open waters (tidal creeks, near shore). The estuarine community and associated coastline is one of the least developed along the Mississippi and Alabama coast. The biological productivity of these habitats is among the highest in the country with an overall biomass supporting one of the nation's largest fisheries.

Wet pine savannas are not associated with riverine floodplains, but are found on broad coastal flats and sloping plains that annually receive over 60 inches of rainfall and remain saturated for long periods during the growing season. Seepage zones are commonly observed along lower slopes. This coastal region receives ample growing season rainfall from frequent convective thunderstorms, resulting in the surface horizon remaining saturated for extended periods because of the slow permeability of subsoils.

The herbaceous ground cover of wet savannas is exceptionally diverse in stands that are in good condition. Ample sunlight and rainfall create ideal growing conditions, but a lack of soil nutrients prevents any one species or suite of species from dominating. Of more than 200 understory plants, two thirds are graminoids and one-third consists of forbs and ferns. Prominent groups of herbs include grasses, asters, sedges, pipeworts, pitcherplants and lilies. Common grasses include beaksedge, toothache grass, switchgrass and three-awn. Forbs include rayless goldenrod, one flowered honeycomb head, sunflowers, pitcher plants, meadow beauties, sundews and orchids.
(Source: http://www.mdwfp.com/Level2/cwcs/Final/Chapter%204.%20Habitat%20Type%206.pdf)

These open pine woodlands occupy sandy flatlands principally in the Gulf Coast flatwoods of the southeastern plains. Pine flatwoods also may be found in portions of the Southern Pine Plains and Hills and the Dougherty Plain subdivisions, where they may be a component of a landscape matrix of several other habitats including xeric pine and floodplain forest. Even though this habitat is subject to seasonally high water tables, fire frequency is high. Over story vegetation is characterized by longleaf pine and to a lesser degree by slash pine. The understory ranges from dense shrubs to open and herbaceous-dominated, and is heavily influenced by fire history. This habitat shares many wildlife species with dry longleaf pine forest, but the flatwoods salamander is found only in this habitat. Representative high-quality sites include Grand Bay (Mobile County), Splinter Hill Bog (Baldwin County) and Conecuh National Forest (Escambia and Covington counties).
(Source: http://www.outdooralabama.com/research-mgmt/cwcs/Chapter4.pdf)

Habitat Opportunities

There are many opportunities to conserve and restore habitat in the Grand Bay area. These opportunities include: sea grass restoration, habitat improvement, fire restoration, control of invasive/exotic species, hydrologic restoration, creation of wood duck nesting boxes, shoreline restoration, and opportunity to mitigate the effects of county dirt road maintenance.

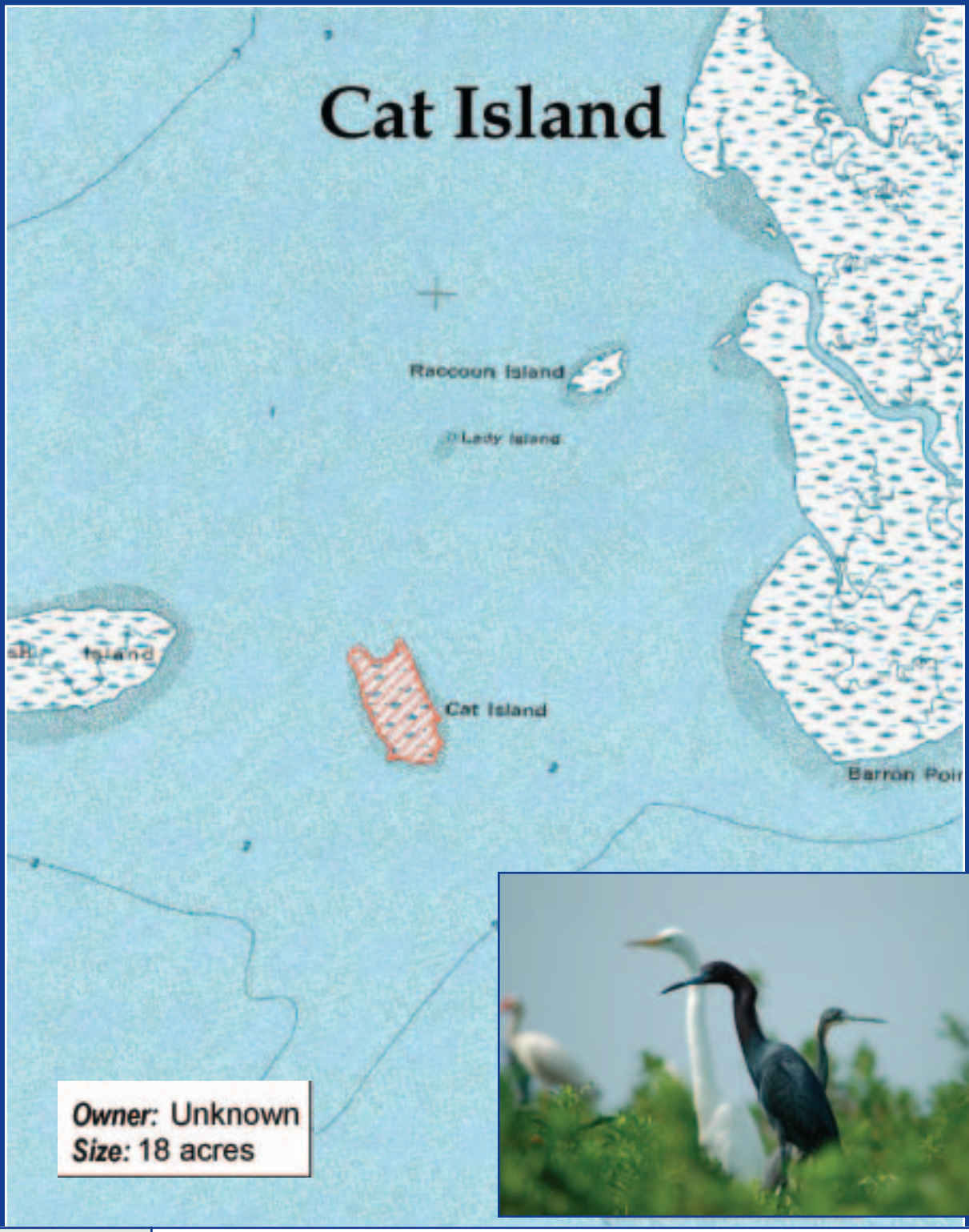
Habitat Threats

The biological diversity and complex of natural community assemblages represented at Grand Bay are among the Nation's finest, although the future of these resources is not secure. Not unlike many of North America's finest natural areas, Grand Bay is besieged by a variety of environmental stresses, many related to the continued population growth in coastal Alabama and Mississippi. While outright habitat destruction is usually quite obvious, alteration and degradation of sensitive habitats can be more subtle. Often occurring over long periods of time, habitat degradation lacks the dramatic impact of outright habitat destruction. While habitat destruction is a key threat to Grand Bay, impacts from habitat degradation seem to be currently more impending. Degradations occurring due to habitat fragmentation caused by roads and utility corridors, the results of population growth; changes in water quality; spread of non-native species and the elimination of key natural ecological processes. The majority of upland habitats at Grand Bay have been converted to agriculture, forestry or residential. The biodiversity at Grand Bay is generally concentrated in wetland communities.

Primary Ecological Function

The biological significance of Grand Bay lies in the mosaic natural community occurrences and the ecological processes that maintain them, specifically through fire. At least 20 natural community types and 31 rare and imperiled species are found at Grand Bay, including 21 plant species, 4 crayfish species, and 4 turtle species. The wet pine savanna ecosystems of the southeastern United States are among the most diverse of all terrestrial communities found in North America. More plant species per square meter occur in some savanna types than in any other habitat.

1a. Map: Cat Island

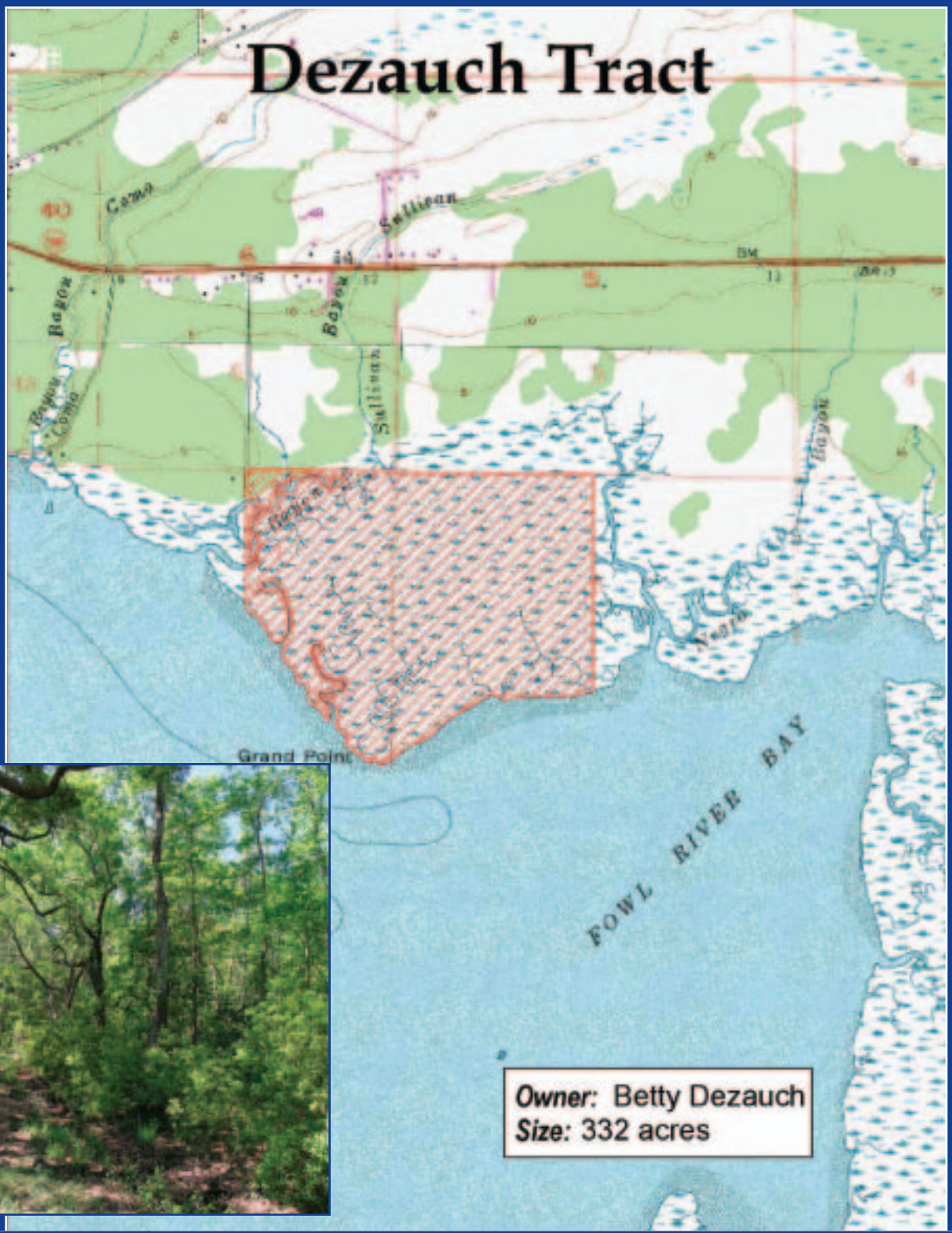


# Acres:	18 acres
Description:	Coastal Barrier Island, Heron Rookery
Potential Partners:	Mobile Bay Audubon Society, DISL, DIBS, ACOE, ADCNR, Alabama Ornithological Society, MBNEP
Potential Funding:	ACOE Continuing Authorities Program, MBNEP, ADCNR
Conservation Status:	Previous restoration efforts by DISL not currently in progress; suffered major damage during Hurricane Katrina; periodic efforts to acquire the site have met with no success due to private ownership of riparian oyster reef.

2a. Map: Cuppersmith-Cedar Point

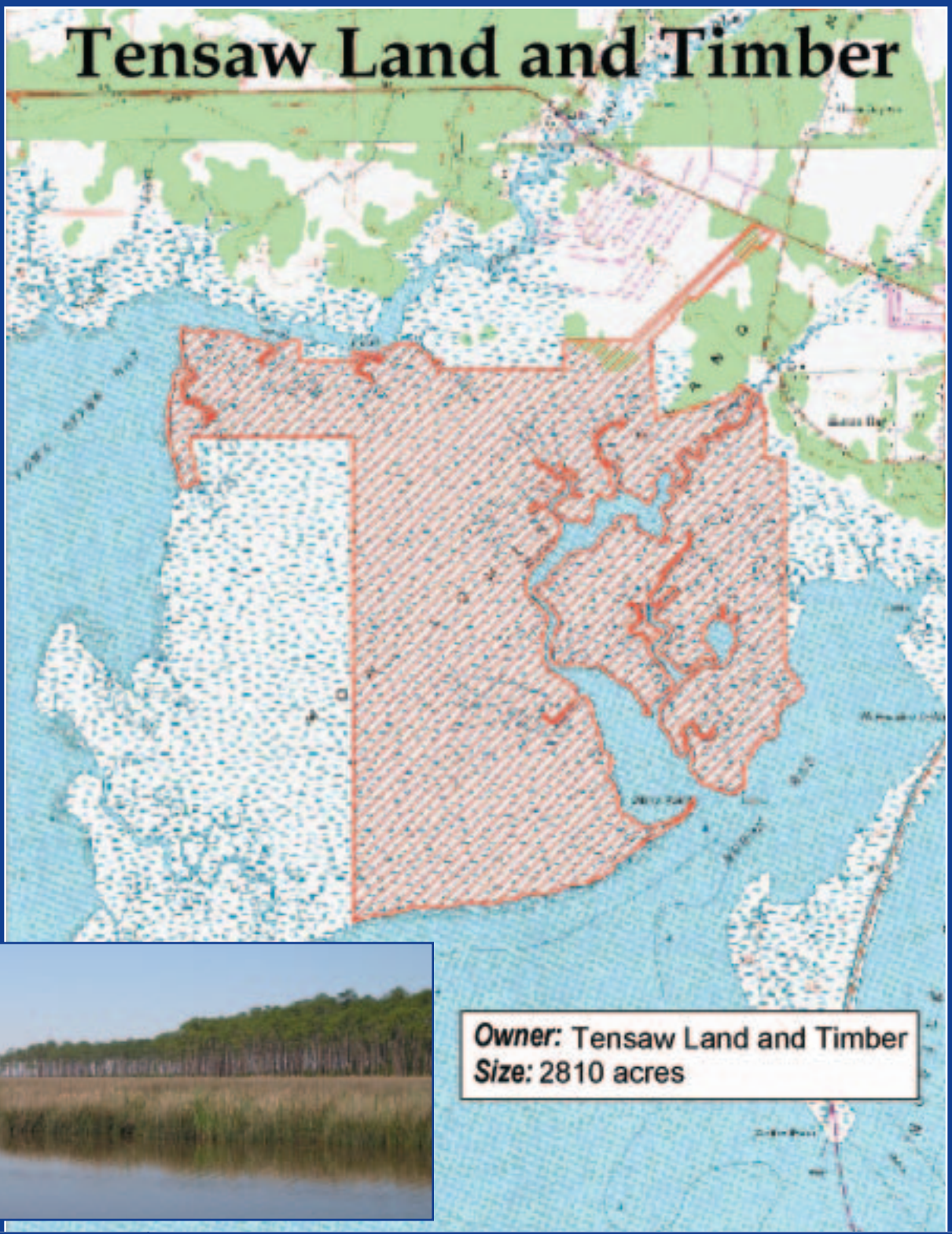
# Acres:	470 acres
Description:	various wetland habitats tidal marsh
Potential Partners:	Porterville Bay Revival Group, GBNERR, TNC, ADCNR, AL Forest Legacy, Mobile County, USFWS
Potential Funding:	Forever Wild, National Fish and Wildlife Foundation, NAWCA,
Conservation Status:	Not in Progress

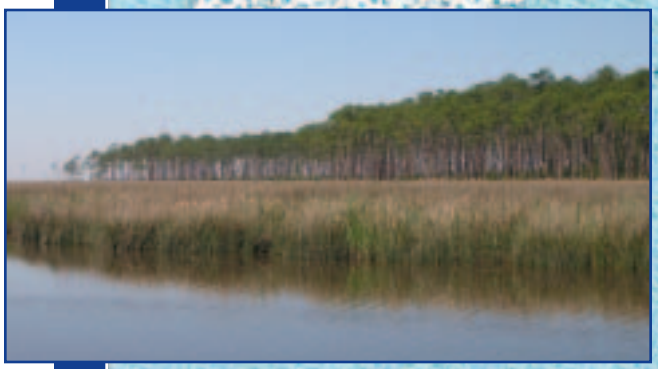
2b. Map: Dezauch Tract



# Acres:	332 acres
Description:	various wetland habitats, coastal marsh, pine flatwoods
Potential Partners:	Grand Bay NERR, ADCNR, MS/AL Sea Grant, MBNEP
Potential Funding:	USFWS, NCWP, NOAA, SHELL Oil Habitat Program
Conservation Status:	Not in Progress

2c. Map: Tensaw Land and Timber





# Acres:	2810 acres
Description:	tidal marsh, private oyster leases, pine savanna
Potential Partners:	ADCNR, MBNEP, ACF, TNC, Mobile County
Potential Funding:	Forever Wild, NCWP, CIAP, TNC, USFWS
Conservation Status:	Not in Progress

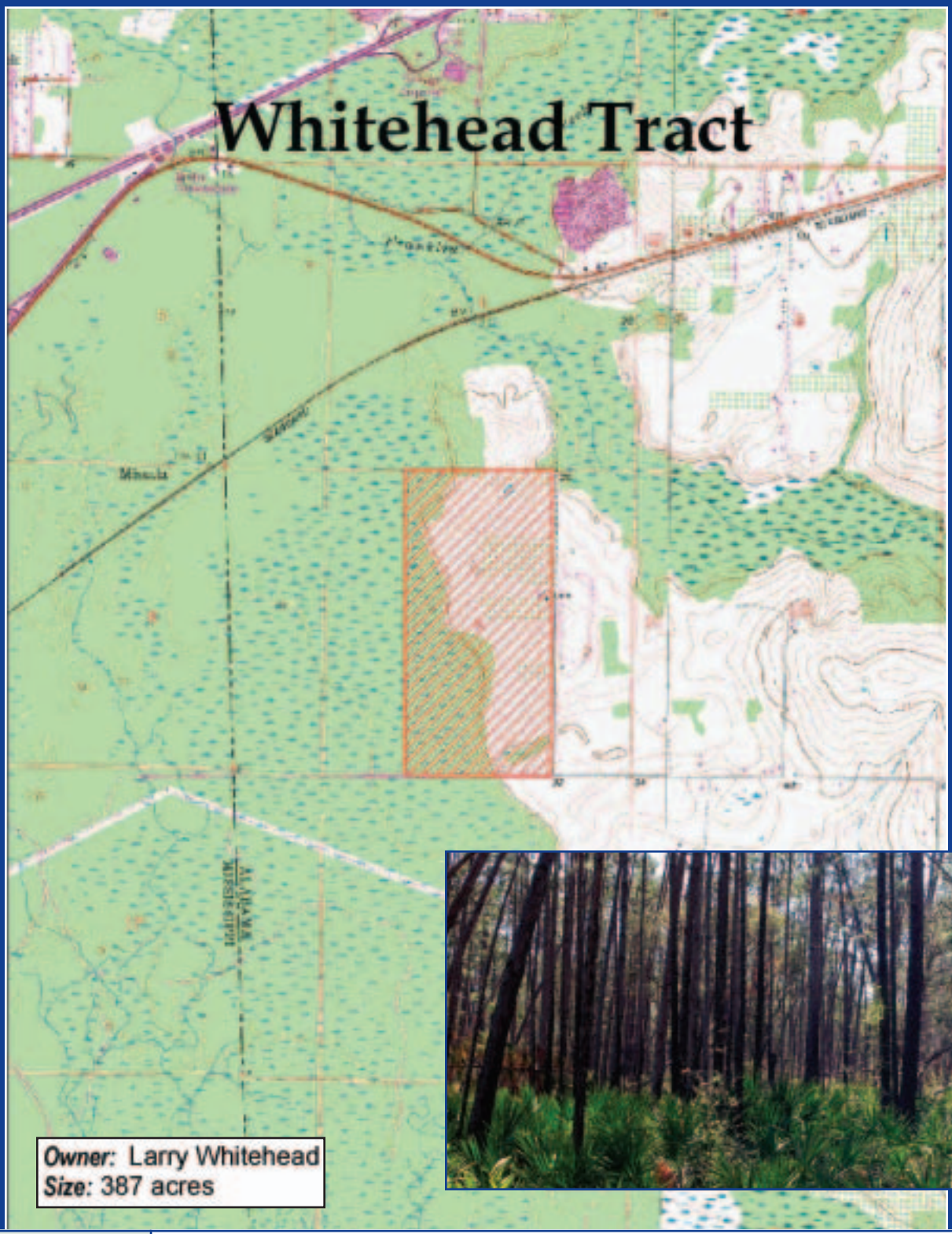
2d. Map: Henderson Tract - East Grand Bay

# Acres:	1665 acres
Description:	various wetland habitats, tidal marsh, pine savanna
Potential Partners:	ADCNR, MBNEP, ACF, TNC, Mobile County
Potential Funding:	Forever Wild, NCWP, TNC, USFWS
Conservation Status:	Not in Progress

2e. Map: West Fowl River Tract

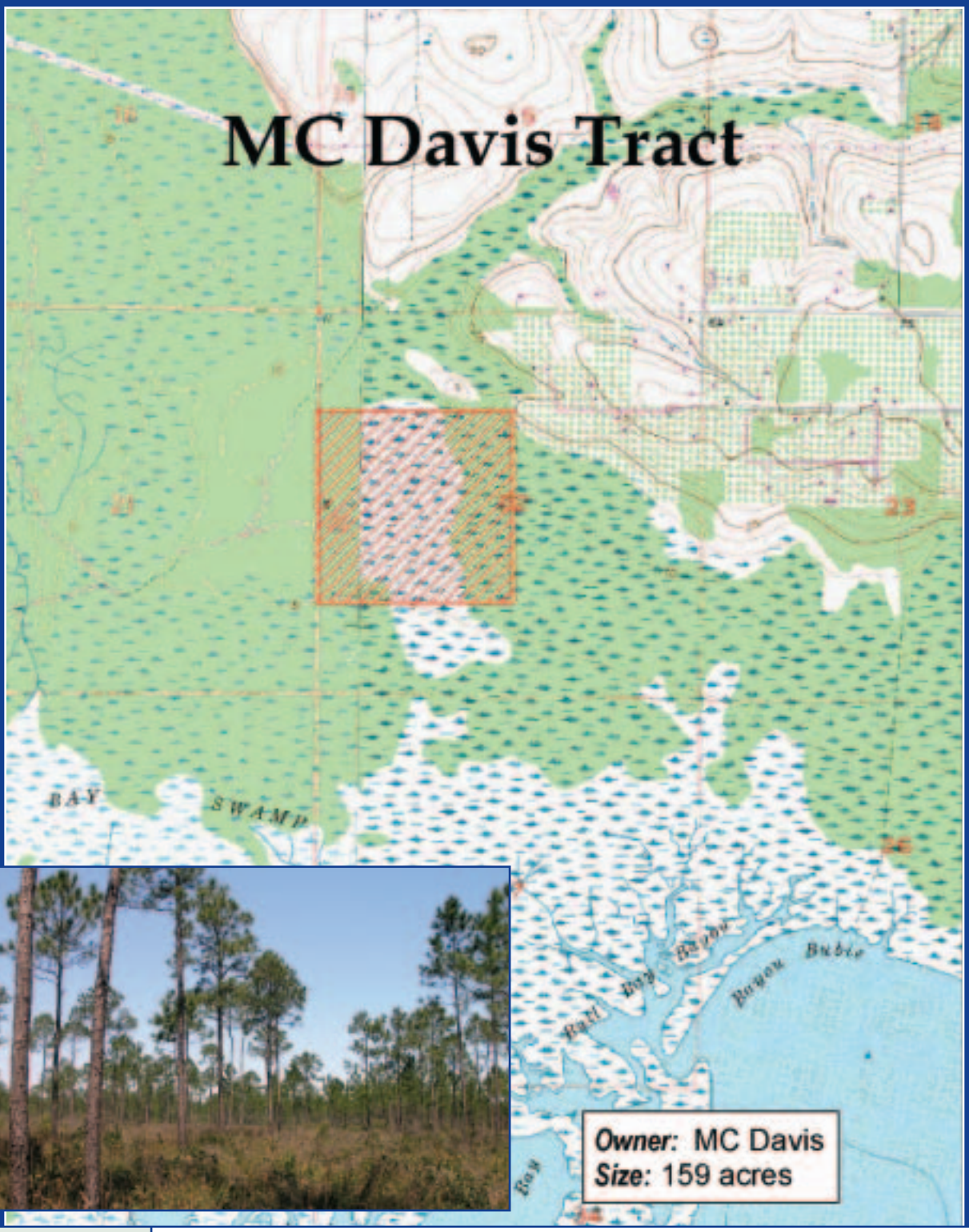
# Acres:	900 acres
Description:	various wetlands, pine savanna and pine flatwoods
Potential Partners:	Mobile County ADCNT, ACF, TNC, MBNEP
Potential Funding:	NCWP, TNC, Forever Wild, USFWS, CIAP
Conservation Status:	Not in Progress

3a. Map: Whitehead Tract



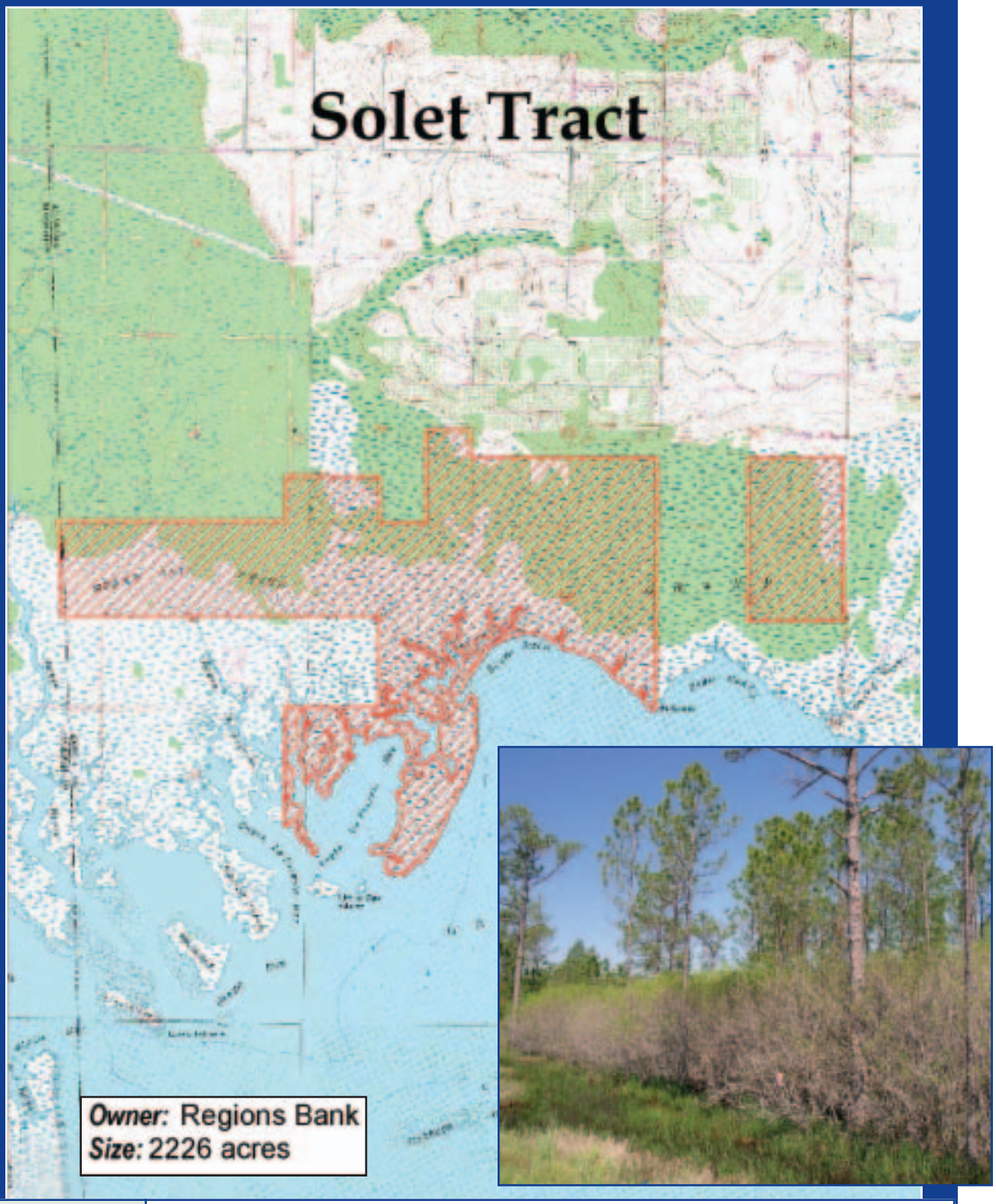
# Acres:	387 acres
Description:	pine savanna, coastal marsh, pine flatwoods
Potential Partners:	Grand Bay NERR, ADCNR, TNC, Mobile County
Potential Funding:	CIAP, NCWP, USFWS, Forever Wild
Conservation Status:	Not in progress

3b. Map: MC Davis Tract



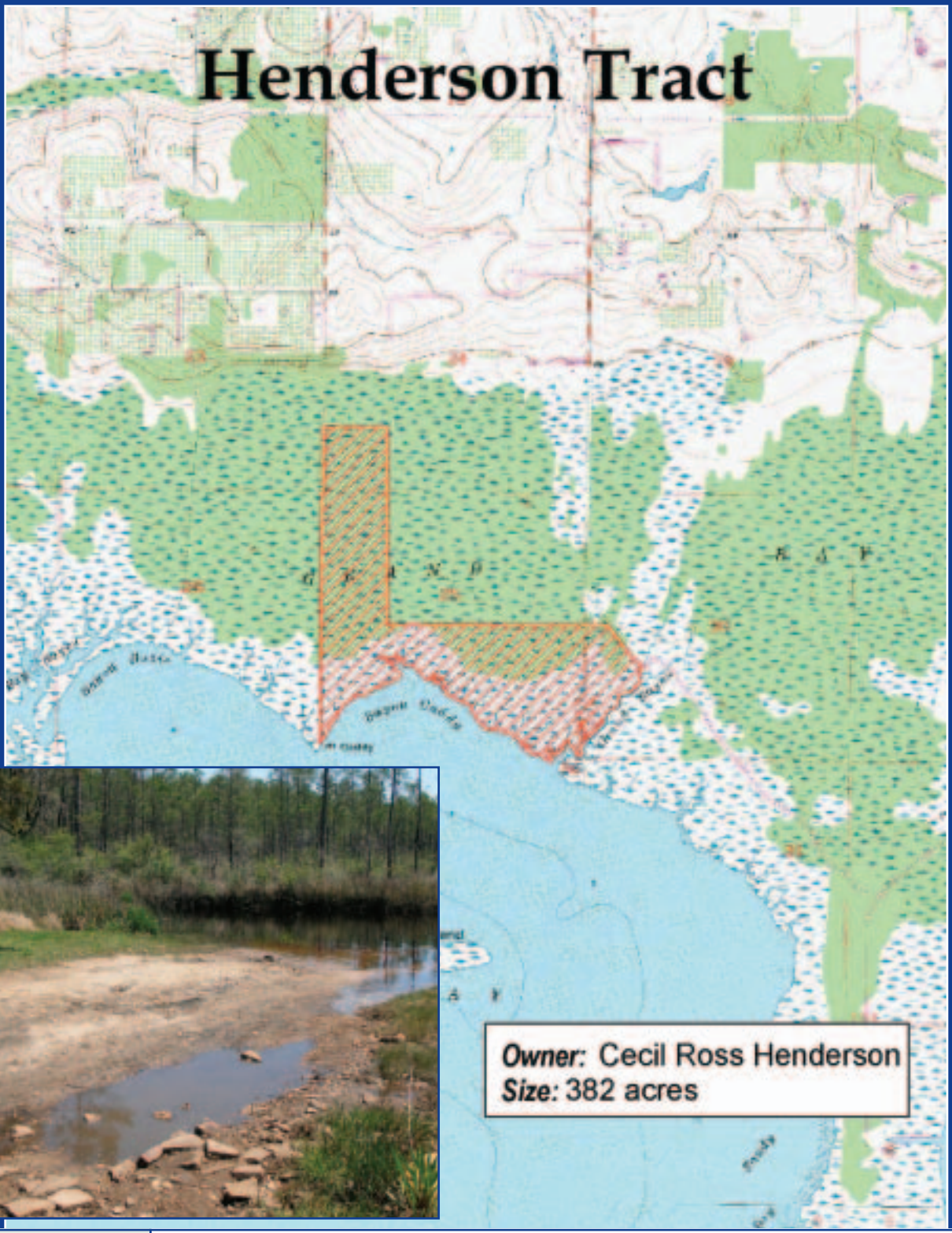
# Acres:	159 acres
Description:	various wetland habitats and pine flatwoods
Potential Partners:	GBNERR, ADCNR, USFWS
Potential Funding:	TNC received this as a charitable donation during strategic assessment
Conservation Status:	Owned by TNC; TNC would like to donate this land to USFWS or The State of Alabama. Used as partial matching contribution for Giddens tract.

4a. Map: Solet Tract



# Acres:	2226 acres
Description:	various wetlands, pine savanna and pine flatwoods
Potential Partners:	ADCNR, Forever Wild, TNC, Grand Bay NERR, USFWS, Mobile County
Potential Funding:	NAWCA, NCWP, USFWS, TNC, NFWF, Forever Wild
Conservation Status:	Subject of a submission by ADCNR in 2004; Grand Bay Giddens Tract nearby is under negotiation currently.

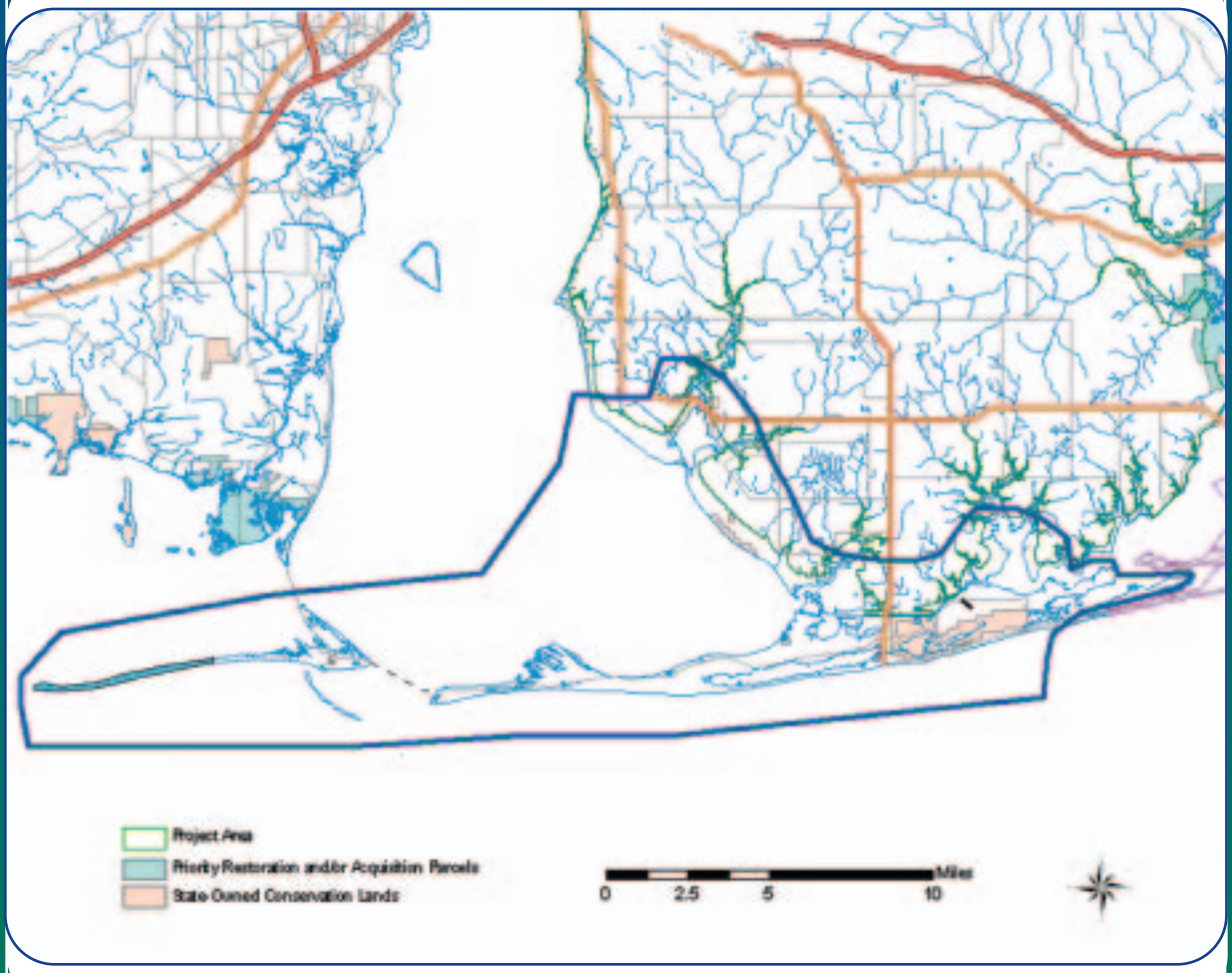
4b. Map: Henderson Tract



# Acres:	382 Acres
Description:	pine savanna, various wetlands
Potential Partners:	Mobile County, ADCNR, TNC
Potential Funding:	NAWCA, NCWP, CIAP, Forever Wild
Conservation Status:	Not in progress

Acquisition Priorities by Conservation Area

GULF ISLANDS



Gulf Islands

The Gulf Islands conservation area spans the string of barrier islands that lie just off the coast of Alabama, extending along the coast of Florida to the east and Mississippi to the west. This includes Dauphin Island, the Fort Morgan peninsula, Gulf Oak Ridge, East Ono Island, Wolf Bay, the Perdido Pass Islands, and Soldier Creek basin. This areas falls within coastal Mobile and Baldwin Counties in Alabama, and is home to the highly developed resort towns of Gulf Shores and Orange Beach, Alabama.

Habitat Strengths/Importance

The Fort Morgan Peninsula houses Bon Secour National Wildlife Refuge, which contains over 4,000 acres of coastal barrier island habitat. The site supports one of the finest examples of globally imperiled coastal scrub remaining in Alabama. The Nature Conservancy has an ongoing land protection partnership with the United States Fish and Wildlife Service at the Bon Secour NWR. Gulf Oak Ridge extends over 589 acres, and contains the only remaining Gulf Coastal Plain maritime live oak forest in Alabama.

The Perdido Pass Islands include four small, low islands which lie scattered in shoal waters just inside Perdido Pass. Robinson, Walker, and Rabbit Island are natural, and are in relatively undisturbed condition. The fourth island is man-made, the result of spoil accretion from emptying coffer dams during the constructions of the first bridge over Perdido Pass. The Soldier Creek basin stretches 9 miles, and is adjacent to Perdido Bay. The lower 2.5 miles are broad and embayed, above which the creek narrows and becomes winding. The upper 1.5 miles are intermittent. This blackwater stream supports four distinct vegetation types: marsh, hardwood swamps, moist pinelands, and upland pine oak forest. The lower section of this river has been subdivided and developed.

The near shore environment is generally defined as the area encompassing the transition from subtidal marine habitats to associated upland systems. Williams and Thom (2001) define this in practical terms as the zone where direct functional interactions occur between upland and marine habitats. near shore ecosystems such as seagrass meadows, shellfish reefs, and coastal marshes supply many vital ecological services in coastal waters, including shoreline protection, commercial and sport fisheries, and nutrient cycling. Most notably, these ecosystems provide food and refuge that supports a great abundance and diversity of fish as well as shrimp, oysters, crabs, and other invertebrates. (Source: http://www.esa.org/science/Issues/TextIssues/issue11.php)

Restricted to Alabama's coastal counties, this habitat includes salt and brackish tidal marshes and adjacent shallow marine waters, including seagrass beds. Salt marshes and adjacent shallow waters support many fish species of commercial interest, and are important to a number of other terrestrial and aquatic wildlife species. These habitats are typically associated with mud-bottomed bays behind barrier islands. Some of Alabama's most extensive brackish needlerush marshes are associated with lower Mon Louis Island, Dauphin Island, and Mississippi Sound. Seagrass meadows are among the most productive habitats in estuarine waters of the Gulf Coast. Seagrasses provide food for wintering waterfowl and important spawning and foraging habitat for commercially important finfish and shellfish. Seagrass communities also support endangered and threatened species, including sea turtles and manatees. Submerged seagrass beds are found in a patchy distribution behind protective barrier islands and in near-shore areas. Beds occur in greater numbers in Perdido Bay, Wolf Bay, and Mississippi Sound, but have become scarce in Mobile Bay, where salinity is relatively low and water quality has declined more markedly. Wigeon grass (Ruppia maritima) is tolerant of freshwater and consequently is an important component of this habitat. American wild celery (Vallisneria americana) is also a component. Other species such as shoal grass (Halodule wrightii), southern naiad (Najas guadalupenis) and slender pondweed (Potamogeton pusillus) may be present, usually in small beds. Representative high-quality estuarine sites include Weeks Bay NERR (Baldwin County), Bon Secour NWR (Mobile County), W.L. Holland WMA (Baldwin County). (Source: http://www.outdooralabama.com/research-mgmt/cwcs/Chapter4.pdf)

Southeastern maritime communities can be divided into discrete conservation planning units (modified from Slater and Odum 1993, Gosselink et al., 1979, Sandifer et al., 1980) including the Central Gulf Barrier Islands and Coastline (Horseshoe Point, Florida to Cat Island, Mississippi. Historical maritime communities, comprising about 640,000 ha (1,600,000 acres) in the Southeast, have undergone dramatic changes since European/African colonization. Maritime communities are driven by natural disturbances including periodic catastrophic storms (e.g., hurricanes) and dominant plants are variously tolerant of salt-spray, drought conditions, and warm-season fire.

Today, natural succession and recovery processes are forever interrupted by widespread human alterations occurring in all maritime communities within all conservation planning units identified in this report. The extent and the rate of recovery for maritime communities from natural disturbances is of course dependent upon the human history (both Native and European/African) in the area, the effects of often distant dredge and fill operations on beach and dune erosion and accretion rates, and continuing direct pressures to develop upon or manipulate these communities. Maritime communities are interconnected complexes of dunes and beaches, scrub-shrub, woodlands, estuaries, and open ocean. Along the coastal areas of the East Gulf Coastal Plain, as of the late 1970's, less than 10% of maritime land cover was in forest, about 15% in beaches in dunes, about 54% in wetlands, 1% was in rangeland, less than 1% in agriculture, and about 10% in urban or beach resort (Slater and Odum 1993).

Each maritime community provides habitats for different subsets of vulnerable species. Maritime forests usually form on the leeward side of shrub-scrub thickets or on the bay side of islands. These habitats are relatively tolerant of salt spray, bright sunshine, wind shear, droughty conditions, periodic catastrophic storms (e.g. hurricanes) and nutrient poor soils. Dominant species include oaks, pines, red bay, and numerous understory species and can be referred to as coastal hammocks or part of southern mixed hardwood forest types (Platt and Schwartz 1990, Ware et al. 1993). The presence or dominance of laurel oak, as well as loblolly or slash pine is indicative of younger succession stands. Successional scrub-shrub habitats are usually dominated by saw palmetto, yaupon holly, and wax myrtle. (Source: http://www.blm.gov/wildlife/plan/pl_04_10.pdf)

This mosaic of woody vegetation, often dominated by live oak, is present on barrier islands and near-coastal strands. Such areas include relatively stabilized coastal dunes, sometimes with a substantial shell component. Vegetation structure and composition are influenced by salt spray, coastal winds, and extreme disturbance events, especially hurricanes. The most heavily salt influenced examples may appear pruned or sculpted. Fire is infrequent. Although spring migrant birds typically expend energy to fly farther inland before making first landfall, these coastal forests are of critical importance to bird survival during so-called "fallout" conditions—when weather is inclement and birds are near exhaustion. In Alabama, this habitat is primarily found south of the Intracoastal Waterway from Perdido Bay to Fort Morgan in Baldwin County, and along Mobile Bay and on Dauphin Island in Mobile County. Representative high-quality sites include portions of Bon Secour NWR and the inland portion of Gulf State Park east of the golf course (Baldwin County). (Source: http://www.outdooralabama.com/research-mgmt/cwcs/Chapter4.pdf)

The coastal scrub community occurs on areas of deep, well-washed, sterile sands. It is an xeric community, temperate or subtropical. Xeric oak scrub is hardwood community typically consisting of clumped patches of low growing oaks interspersed with bare areas of white sand. The xeric oak scrub community is dominated by myrtle oak, Chapman's oak, sand-live oak, scrub holly, scrub plum, scrub hickory, rosemary, and saw palmetto. Sand pine scrub occurs on extremely well drained, sorted, sterile sands deposited along former shorelines and islands of ancient seas. This xeric plant community is dominated by an overstory of sand pine and has an understory of myrtle oak, Chapman's oak, sand-live oak, and scrub holly. Ground cover is usually sparse to absent, especially in mature stands, and rosemary and lichens occur in some open areas.
(Source: http://myfwc.com/wildlifelegacy/pdf/ HabitatCategories.pdf)

Habitat Opportunities
Opportunities for bird habitat improvement and restoration, beach restoration via near shore dumping of dredge material, native plant restoration, fire restoration, control of invasive/exotic species, living reef restoration, wetlands restoration, and SAV restoration are all present throughout the Gulf Islands.

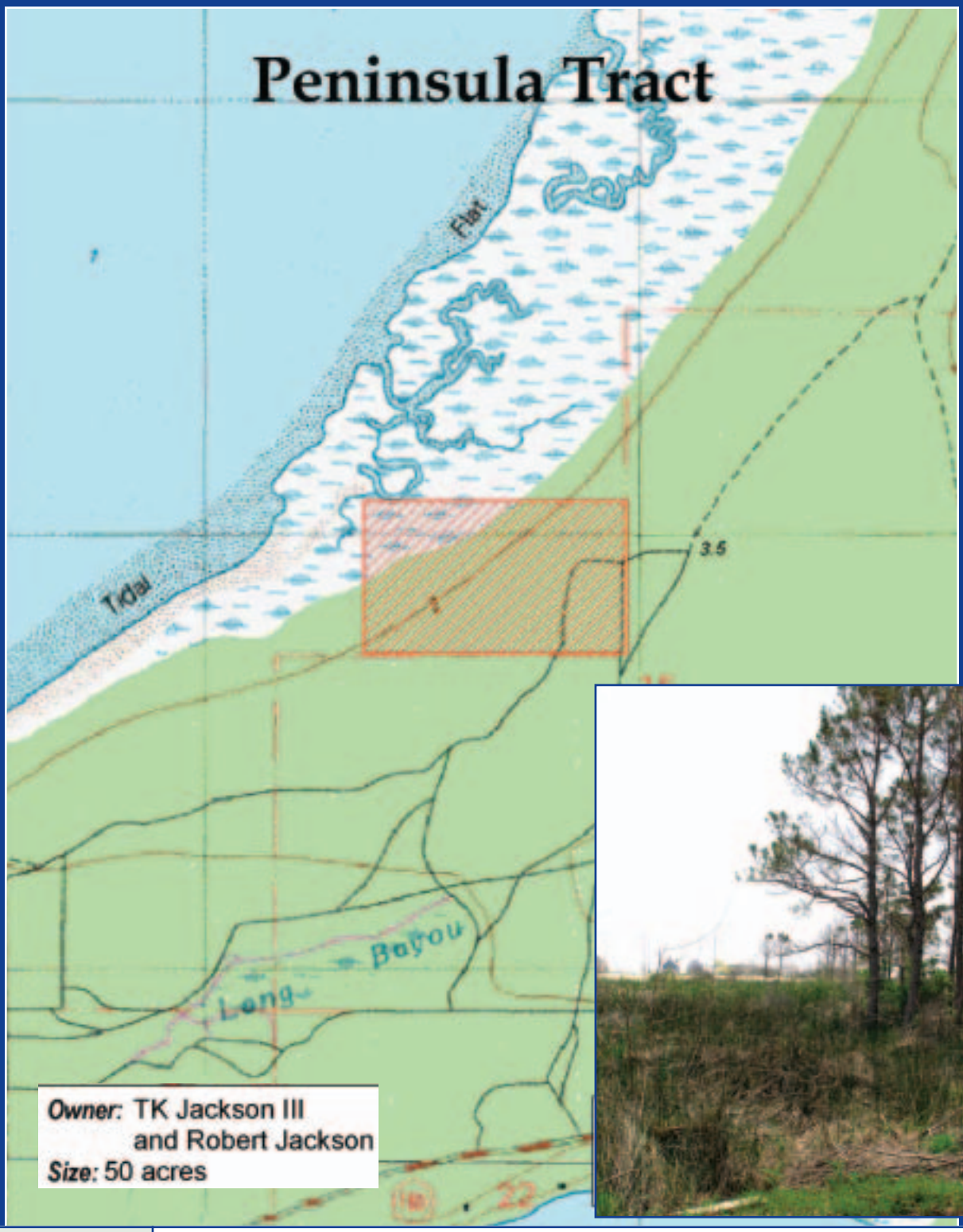
Habitat Threats
The Gulf Islands are faced with rapid development that is unparalleled in the state of Alabama. The entire Gulf Coast is rapidly being developed for recreational and residential purposes. Virtually all of Alabama's entire coastal habitat has been severely impacted.

Primary Ecological Function
This chain of islands provides critical habitat to a variety of migratory and shorebirds. The Gulf Islands stretch of sand dunes, mud flats and marsh are a last stronghold for many species requiring undisturbed nesting and feeding areas. It is critical as a wintering area for several species of migratory

5. Map: Dauphin Island Migratory Bird Stopover Tracts

# Acres:	32 acres
Description:	Migratory Bird Habitat that includes brackish ponds that become rich sand flats during low tide; rich interior wetlands; maritime forest
Potential Partners:	DIBS, Town of Dauphin Island, ADCNR, TNC, MBNEP
Potential Funding:	Private fundraising; conservation easements; funding received from Coastal AL Birdfest in 2004, 2005
Conservation Status:	In progress

6. Map: Peninsula Tract



# Acres:	50 acres
Description:	Coastal Beach and Dune, Fort Morgan Peninsula maritime forest; least tern habitat
Potential Partners:	MS/AL Sea Grant, Gulf of Mexico Foundation
Potential Funding:	NOAA Community Restoration Program; private incentive programs for improvements to bird habitats via native plant restoration.
Conservation Status:	Not in progress

7. Map: West End of Dauphin Island

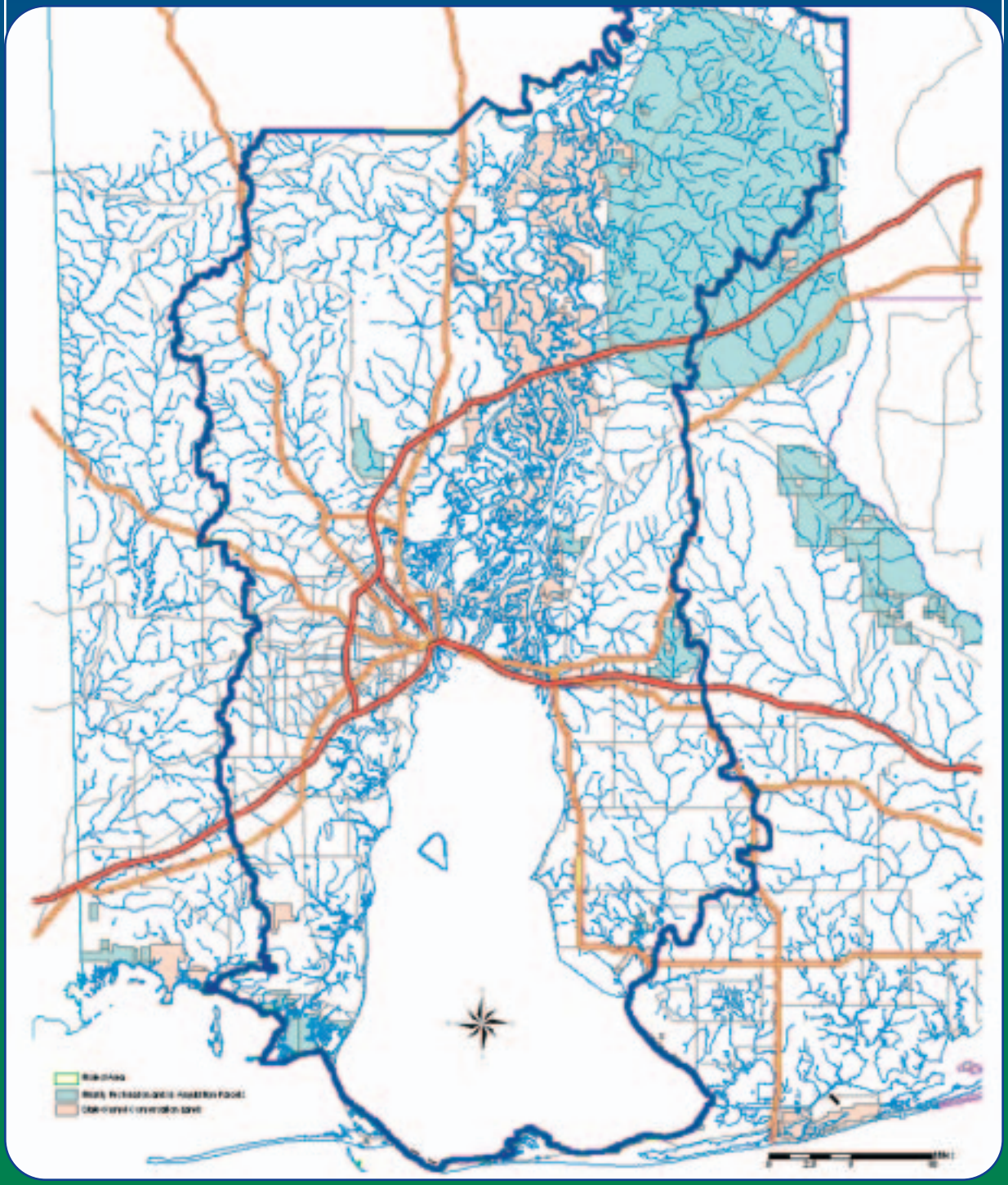
# Acres:	1107 acres
Description:	Stopover point for neo-tropical migratory birds and a critical wintering area for several species of migratory
Potential Partners:	DIBS, ADCNR, US Department of Interior, CIAP, CELP
Potential Funding:	NFWF, Forever Wild, ADCNR
Conservation Status:	Not in Progress.

8. Map: Gulf State Park In-Holdings

# Acres:	60 acres
Description:	Maritime forest, beach and dunes (Baldwin County)
Potential Partners:	ADCNR, Bon Secour National Wildlife Refuge
Potential Funding:	NFWF, Forever Wild, CELP, TNC
Conservation Status:	Not in progress

Acquisition Priorities by Conservation Area

MOBILE DELTA



Mobile Delta

The Mobile-Tensaw Delta conservation area, located in southwest Alabama, is part of the East Gulf Coastal Plain ecoregion and empties into Mobile Bay. The Tensaw Delta is defined as the area from the Alabama River cutoff southward to the upper end of Mobile Bay at U.S. Highway 90 within the ten foot contour interval. The Delta is approximately 45 miles long, averages 8 miles wide, and contains 400 square miles of wetland and aquatic ecosystems. It drains an area of about 44, 000 square miles including 64% of Alabama and small portions of Georgia and Mississippi. The Delta and the adjacent Mobile Bay estuary compose one of the largest wetland ecosystems in the United States.

The Delta comprises an extensive wetland ecosystem dominated by deeply flooded swamp forests, seasonally flooded bottomland hardwoods, freshwater marshes and various aquatic communities. It is characterized by a large number of distributary rivers, streams, bayous and creeks which form a maze of waterways.

Habitat Strengths/Importance

An area of 190,000 acres of the Delta was designated as a National Natural Landmark in 1974, and four sites within the Delta are also listed on the National Register of Historic Places. The Mobile-Tensaw River Delta has recently been identified by Natural Heritage Program as one of the top priority sites for protection within the East Gulf Coastal Plain (EGCP) Ecoregion. As such it is deemed to be of irreplaceable value in protecting the full range of biodiversity of the EGCP which stretches from eastern Louisiana across coastal Mississippi and Alabama to southwest Georgia and the Florida panhandle.

According to the Forever Wild ranking system, the Mobile-Tensaw Delta has been identified as one of their top priorities for protection. The ADCNR Game & Fish Division has also listed the Mobile-Tensaw Delta as one of their highest priorities for inclusion into the state Wildlife Management Area System. Furthermore, the Mobile-Tensaw Delta has been identified in a recent nationwide study to be one of the 15% of small watershed areas in the U.S. recognized as being critical to conserve the nation's at-risk fish and mussel species (Master et al, 1998). As such, the Mobile-Tensaw Delta is one of 327 watersheds (of the 2,100 in the U.S.) to be deemed as being of irreplaceable value to conserving populations of all freshwater fish and mussel species at risk in the United States.

The Bottomland hardwood forests within the Delta are wetland forests that are composed of a diverse assortment of hydric hardwoods which occur on the rich alluvial soils of silt and clay deposited along several Panhandle rivers including the Apalachicola, Choctawhatchee, and Escambia. These communities are characterized by an overstory that includes water hickory, overcup oak, swamp chestnut oak, river birch, American sycamore, red maple, Florida elm, bald cypress, blue beech, and swamp ash. (Source: http://myfwc.com/wildlifelegacy/pdf/Habitat Categories.pdf)

The Tensaw Delta's freshwater marshes are wetland communities dominated by a wide assortment of herbaceous plant species growing on sand, clay, marl, and organic soils in areas of variable water depths and inundation regimes. Generally, freshwater marshes occur in deeper, more strongly inundated situations and are characterized by tall emergents and floating-leaved species. Freshwater marshes occur within flatwoods depressions, along broad, shallow lake and river shorelines, and scattered in open areas within hardwood and cypress swamps. Also, other portions of freshwater lakes, rivers, and canals that are dominated by floating-leaved plants such as lotus, spatterdock, duck weed, and water hyacinths are included in this category. Freshwater marshes are common features of many river deltas, such as the Escambia, Apalachicola and Choctawhatchee, where these rivers discharge into estuaries.

Wet prairies commonly occur in shallow, periodically inundated areas and are usually dominated by aquatic grasses, sedges, and their associates. Wet prairies occur as scattered, shallow depressions within dry prairie areas and on marl prairie areas in south Florida. Also included in this category are areas in Southwest Florida with scattered dwarf cypress having less than 20 percent canopy coverage, and a dense ground cover of freshwater marsh plants. Various combinations of pickerel weed, sawgrass, maidencane, arrowhead, fire flag, cattail, spike rush, bullrush, white water lily, water shield. (Source: http://myfwc.com/wildlifelegacy/pdf/HabitatCategories.pdf)

The Tensaw Delta's hardwood swamps are regularly flooded forested areas dominated to varying degrees and composition by cypress, tupelo, and wetland oaks, often with substantial shrub or herbaceous vegetation. Many swamps develop in stream floodplains, where there is considerable overlap in this habitat and Floodplain Forests, but large peat-bottomed "bay" swamps of the Southeastern Plains are not associated with streams, and do not receive over-bank flooding. Floodplain swamps are often created by beaver dams. Coastal tidal-influenced swamps may be flooded twice daily. "Baygall" swamps are mostly evergreen forests generally found at the base of slopes or other habitats where seepage flow is concentrated. Swamps are prone to long-duration standing water, and are normally protected from fire except during extreme droughty periods. Representative high-quality sites include the Mobile-Tensaw river delta (Mobile, Baldwin counties), Sipsey River Tract (Tuscaloosa County), Wheeler NWR (Morgan County), and Conecuh National Forest (Covington, Escambia counties).
(Source: http://www.outdooralabama.com/ research-mgmt /cwcs/Chapter4.pdf)

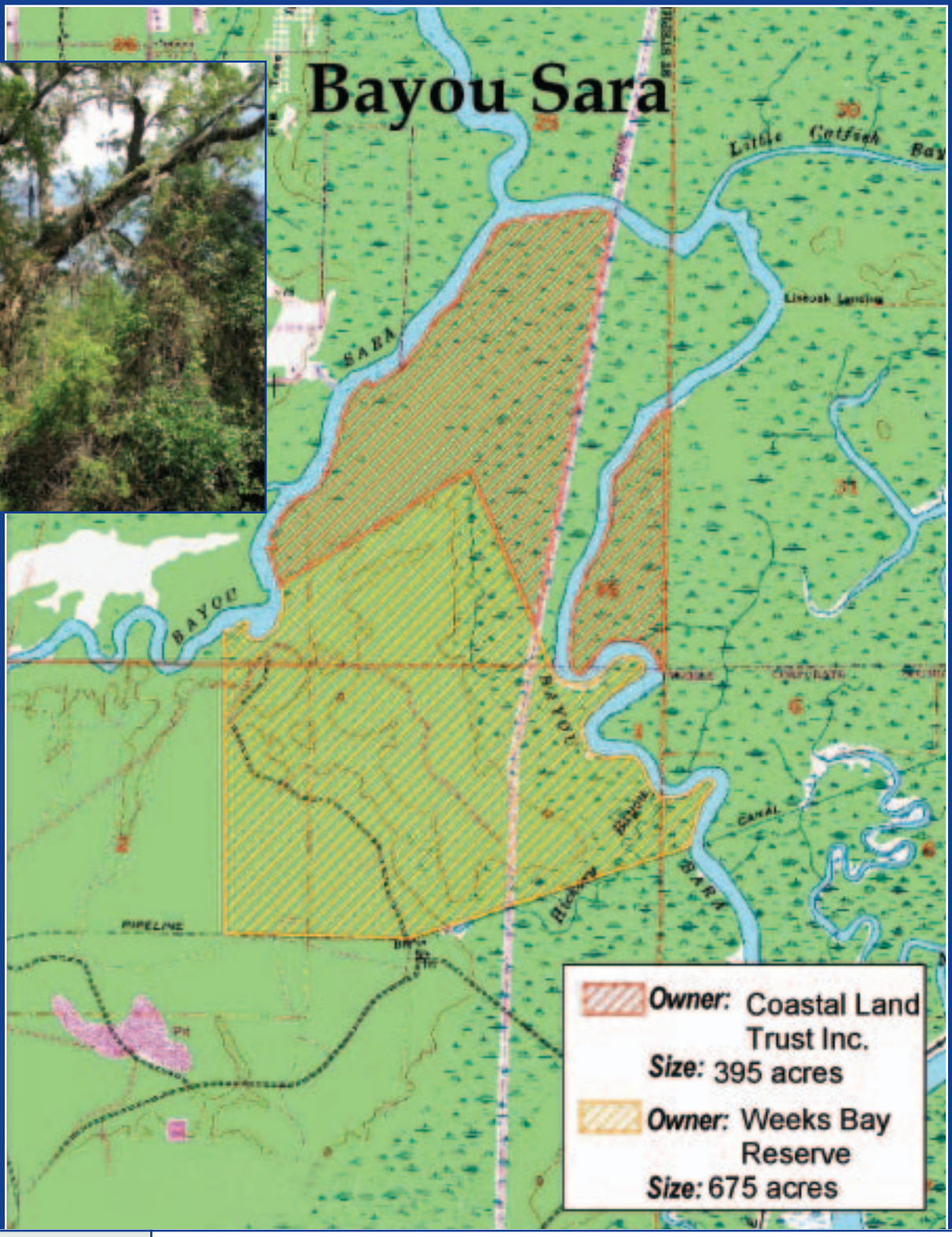
Habitat Opportunities
The Mobile-Tensaw Delta presents many opportunities for restoration of emergent marsh, control of exotic/ invasive species, restoration of wetlands, restoration of long leaf pine, and fire restoration.

Habitat Threats
Potential threats to the Mobile-Tensaw Delta include decline in water quality, altered hydrological regime, habitat loss and fragmentation and exotic species.

Primary Ecological Function
The Mobile-Tensaw Delta and Mobile Bay are inextricably linked by freshwater flow-through to create a complex aquatic-palustrine-estuarine ecosystem. The ecological integrity of the Mobile Bay estuary is totally dependent on the existence and ecological health of the mosaic of coastal wetland habitats immediately upstream. Hydrology is the most critical ecosystem process to maintain in this conservation area.

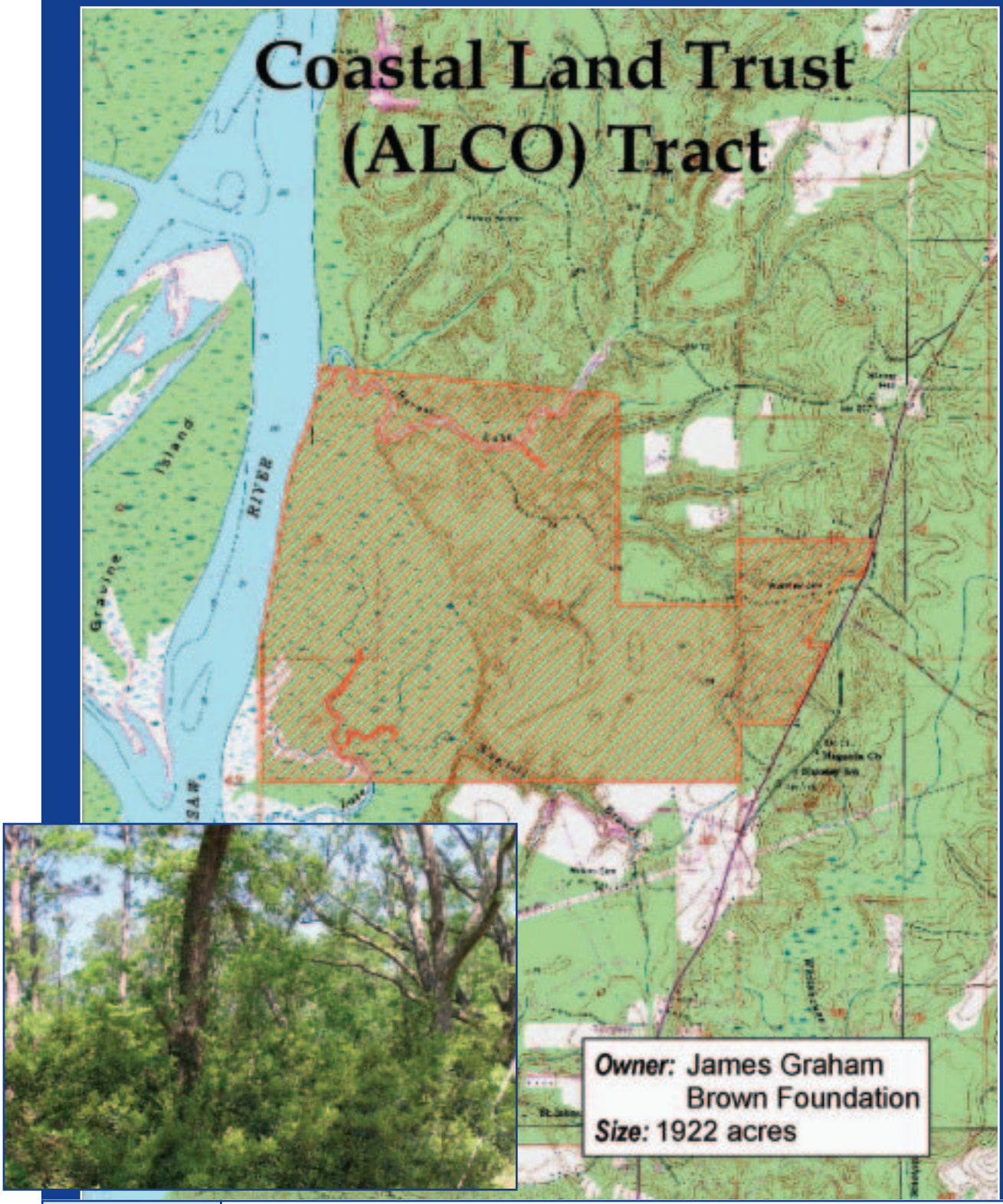
One of the primary ecological functions of the Mobile-Tensaw Delta is its representation as an aquatic palustrine estuarine ecosystem. Palustrine" comes from the Latin word "palus" or marsh. Wetlands within this category include inland marshes and swamps as well as bogs, fens, tundra and floodplains. Palustrine systems include any inland wetland which lacks flowing water and contains ocean derived salts in concentrations of less than .05%. (Source: http://agen521.www.ecn.purdue.edu/AGEN521/epadir/wetlands/palustrine_wl.html)

9. Map: Bayou Sara Tracts



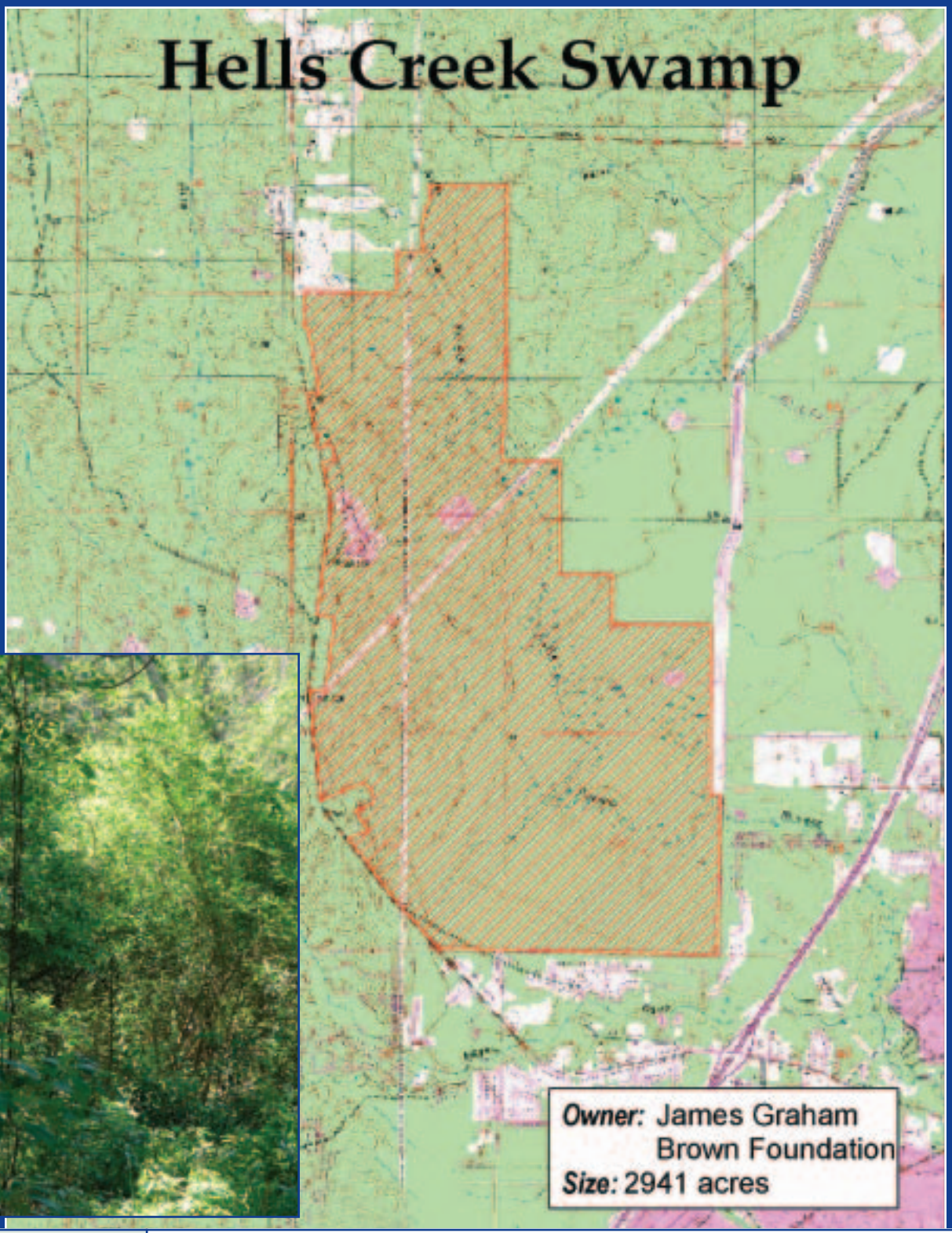
# Acres:	675 and 395 acres
Description:	various wetlands, bottomland hardwoods
Potential Partners:	Mobile County, WBNERR, Coastal Land Trust
Potential Funding:	Forever Wild, US Forest Service Forest Legacy, NAWCA
Conservation Status:	Now owned by Forever Wild/ADCNR as a result of Forest Legacy and NAWCA funding

10. Map: Coastal Land Trust (ALCO) Tract



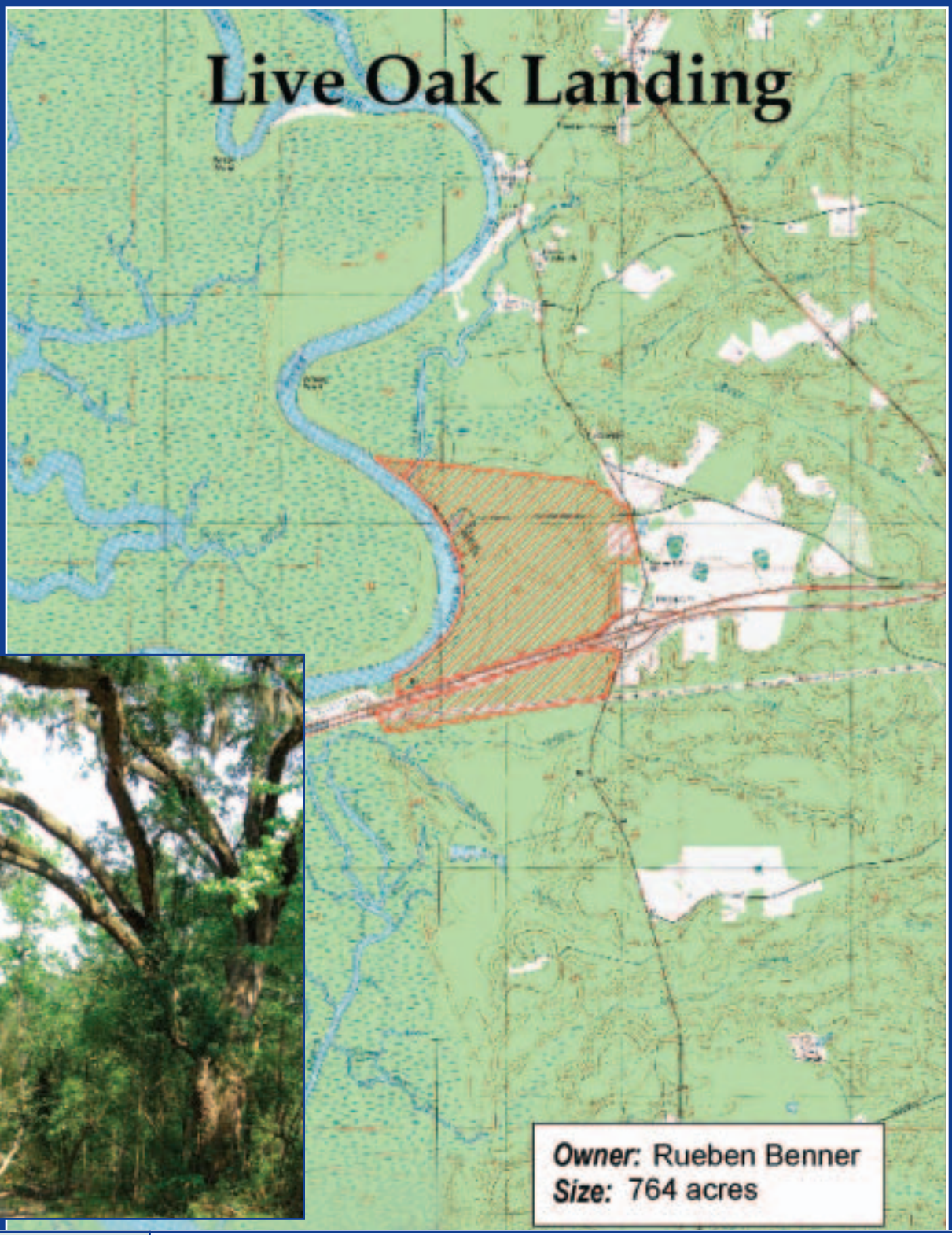
# Acres:	1922 acres
Description:	various wetland habitats, bottomland hardwoods, upland pine
Potential Partners:	Baldwin County, ADCNR, Forever Wild, MBNEP, Coastal Land Trust, TNC
Potential Funding:	NAWCA, NCWP, US Forest Service Forest Legacy, CIAP
Conservation Status:	Not in Progress.

11. Map: Hells Creek Swamp



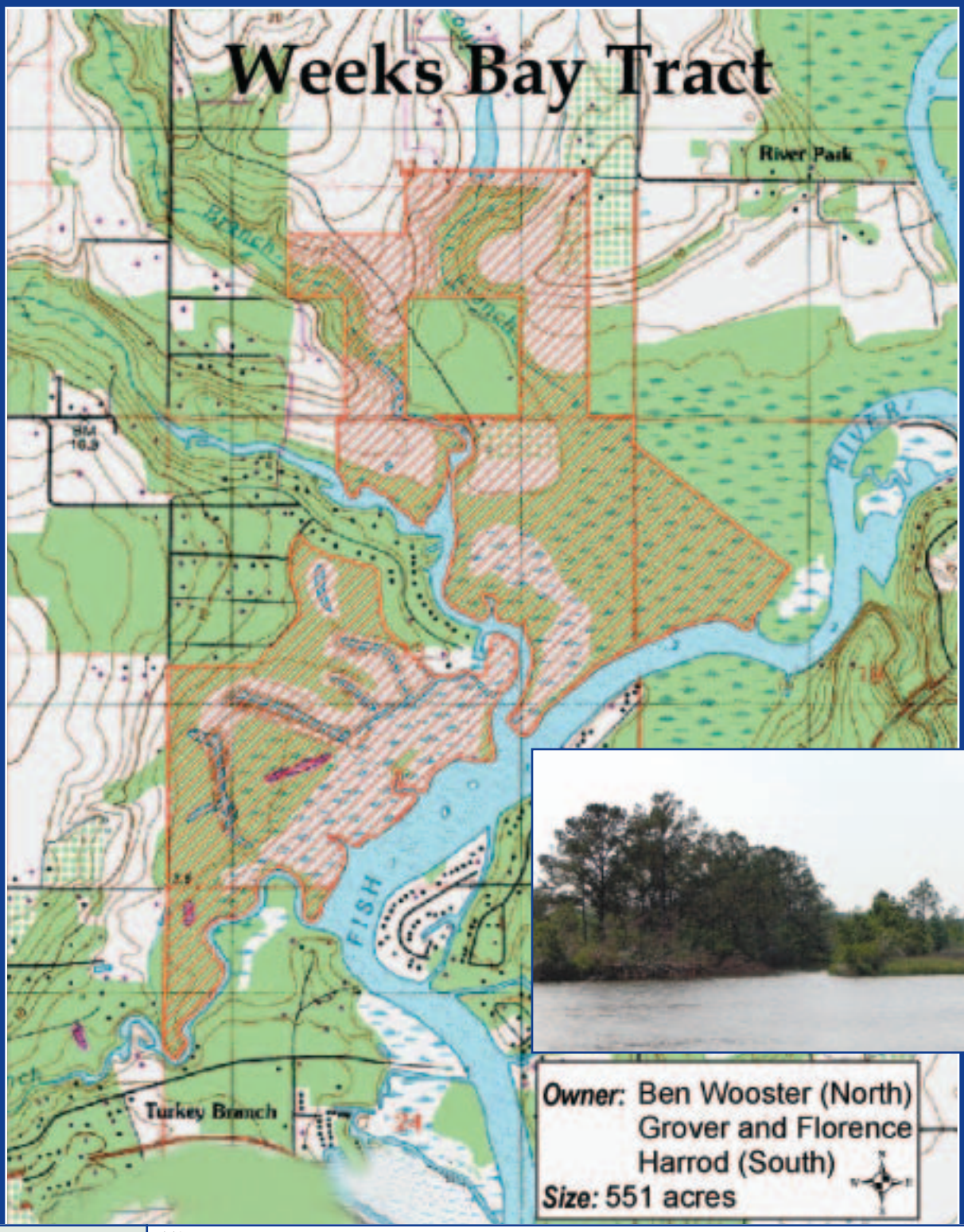
# Acres:	2941 acres
Description:	various wetlands and upland habitats, bottomland hardwoods
Potential Partners:	ADCNR, Baldwin County, Forever Wild, TNC
Potential Funding:	NAWCA, NCWP, US Forest Service Forest Legacy, CIAP
Conservation Status:	Not in Progress.

12. Map: Live Oak Landing



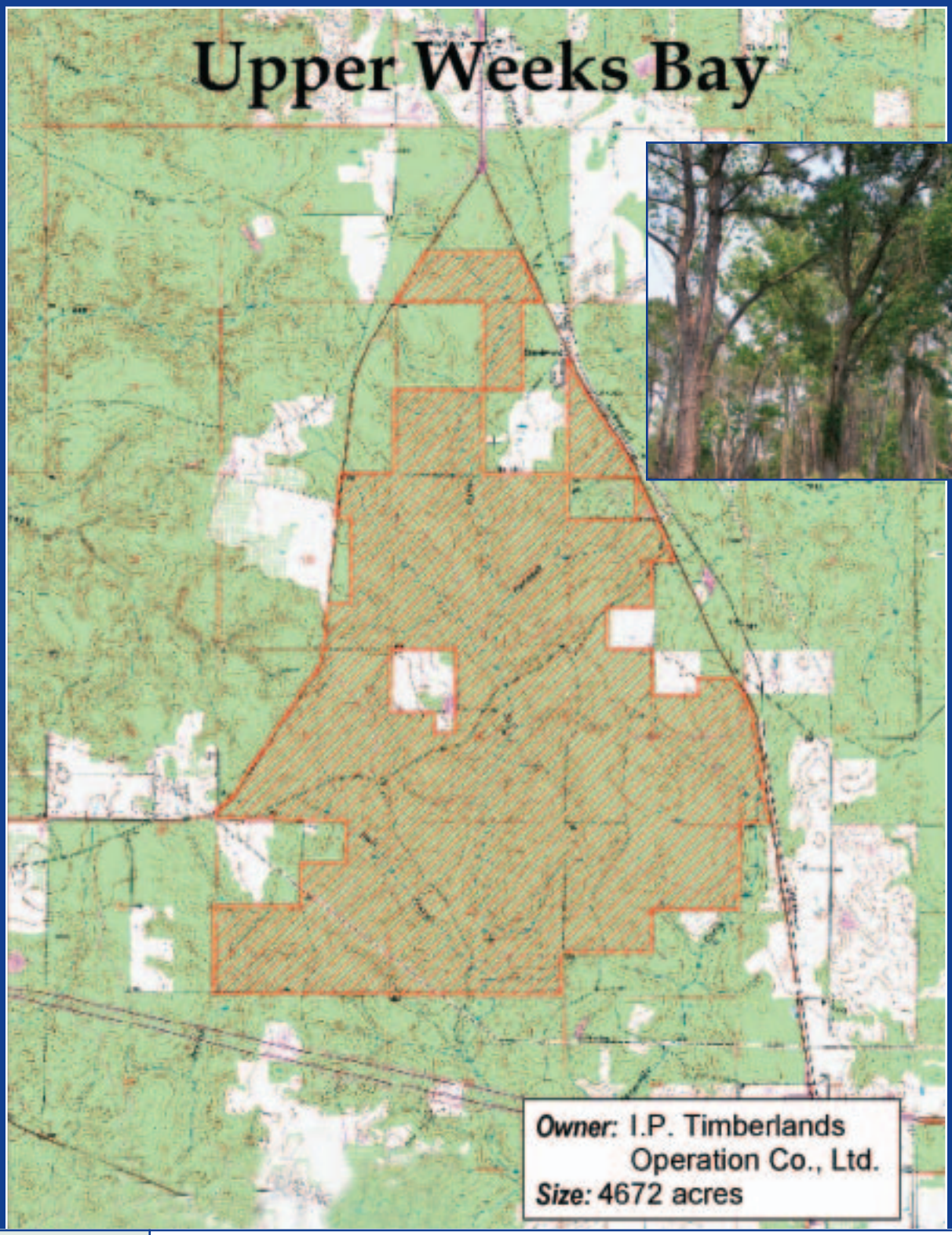
# Acres:	764 acres
Description:	various wetland and upland habitats, bottomland hardwood, pine uplands
Potential Partners:	ADCNR, Baldwin County, TNc, Forever Wild, MBNEP
Potential Funding:	US Forest Service Forest Legacy, NCWP, CIAP
Conservation Status:	Not in Progress.

13a. Map: Weeks Bay Tract



# Acres:	551 acres
Description:	various wetlands and upland pine habitats
Potential Partners:	Weeks Bay Foundation, ADCNR-MRD, MS/AL Sea Grant, TNC, MBNEP, Weeks Bay NERR, ACOE
Potential Funding:	NOAA-Community Restoration Partnership, EPA Gulf of Mexico Program, NFWF Shell Marine Habitat, Us Forest Service Forest Legacy, NCWP, CIAP
Conservation Status:	Not in Progress.

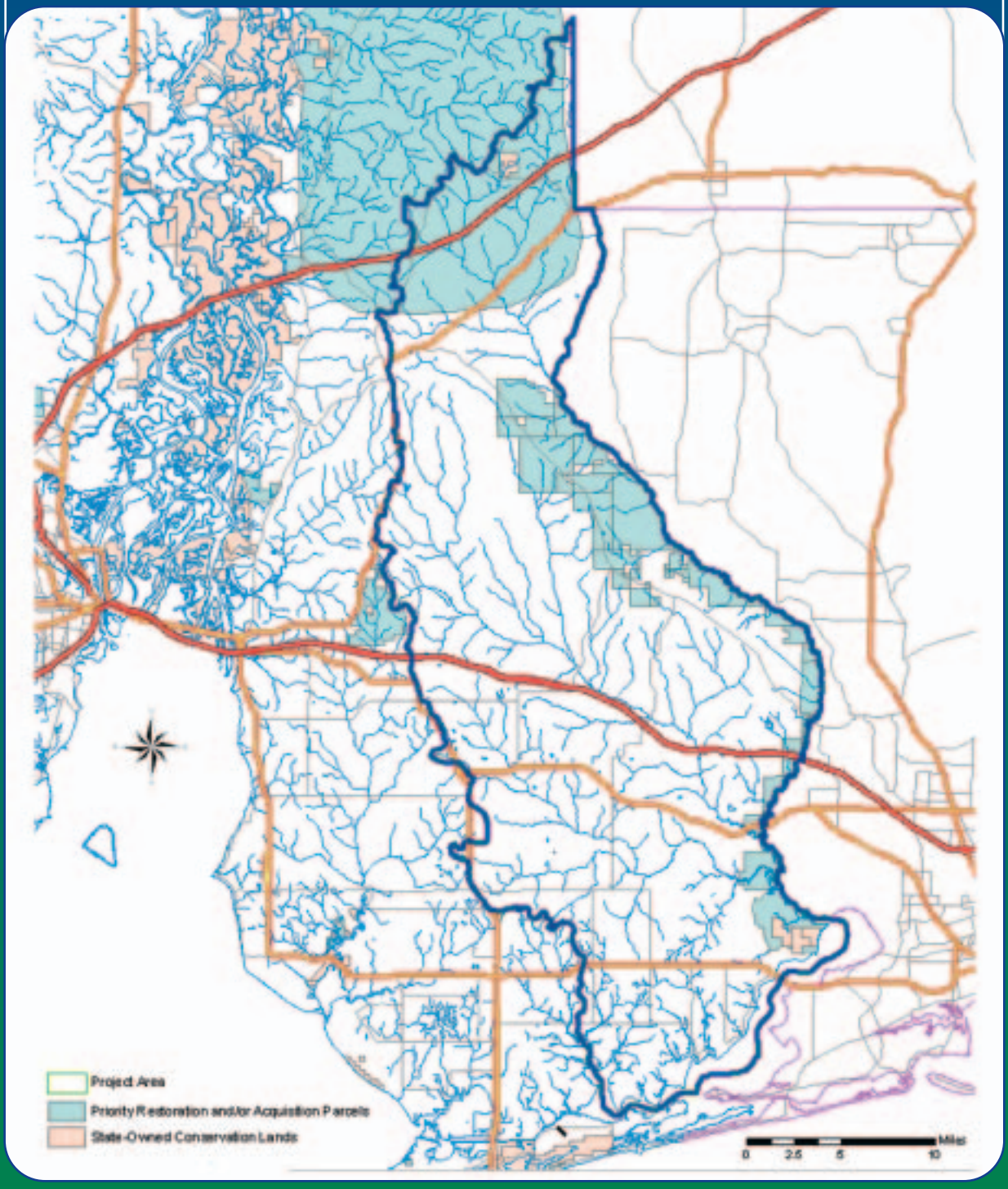
13b. Map: Upper Weeks Bay



# Acres:	4672 acres
Description:	long leaf pine
Potential Partners:	ADCNR, WBNERR, Baldwin County, MBENP
Potential Funding:	US Forest Service Forest Legacy, NCWP, CIAP
Conservation Status:	Not in Progress.

Acquisition Priorities by Conservation Area

PERDIDO RIVER



Perdido River

The Perdido River and Bay conservation area covers approximately 700,000 acres of land in Baldwin and Escambia Counties in Alabama and Escambia County, Florida. This watershed lies entirely within the East gulf coastal Plain of the southeastern United States. The Perdido River flows for approximately 60 miles with its headwaters between Bay Minette and Atmore, Alabama and eventually flows into the Gulf of Mexico at Perdido Bay. The Perdido River and Bay forms the political boundary between Baldwin County, Alabama and Escambia County, Florida. The land use is mostly forested (85%) with agriculture (13%) also important. Urban/industrial areas make up less than 2 % of the watershed but they are increasing.

The Perdido River is a free-flowing coastal blackwater river. Its watershed is home to extensive longleaf pine forests and American white cedar swamps, which are inhabited by several globally imperiled plant species. In addition, Perdido Bay provides important habitat for several important species, including the dwarf seahorse, dolphin and bald eagle.

This conservation area contains Lillian Swamp, located two miles north of the town of Lillian, AL on the west bank of the Perdido River. Lillian Swamp is bounded to the west by developed land. Lillian Swamp was once home to healthy moist pine forests, longleaf and slash pine savannas and associated pitcher plant bogs, bay/tupelo/cypress swamps, as well as freshwater marshes. The moist pine savannas that are found in the Perdido River floodplain are home to numerous endangered and threatened plants. Timber harvesting, fire exclusion, and the urbanization of the surrounding land have led to the degradation of the original habitat.

This conservation area also includes Splinter Hill Bog, located near the town of Rabun in northern Baldwin County, AL. Splinter Hill Boy spans portions of the headwaters of Dyas and Bushy Creeks, both tributaries of the Perdido River, and contains an extensive longleaf pin savanna/seepage bog complex with interspersed sandhill habitats. These seepage slopes harbor a very high floral diversity, including grasses, sedges, orchids, yellow-eyed grasses, bog buttons, meadow butterflies, pitcher plants and daisies.

Habitat Strengths/Importance

The Perdido River corridor contains the largest population of the imperiled panhandle lily in the world, and the only population in Alabama of the American chaffseed (listed as threatened under US Endangered Species Act). Splinter Hill Bog has been identified a priority site by the Nature Conservancy because at least 14 rare plant species occur there, including high quality occurrences of 8 East Gulf Coastal Plain conservation targets. The site contains large expanses of intact longleaf pine savanna, herbaceous bog, and associated natural communities, including longleaf pine sandhills, shrub bog and small stream swamp forest. The only examples of seepage slopes currently afforded some protection occur in Blackwater River State Forest and Eglin Air Force Base, and are not nearly as extensive as those at Splinter Hill.

Slash Pine savannas are limited to moist, poorly drained sites, which occasionally occur on ridge crest depressions, but more commonly, along lower slopes and broad flats, at the headwaters of streams, on wet peaty soils and on low terraces of major streams. Moisture determines the dominant pine species with slash replacing longleaf on wetter sites. Scattered loblolly pine may also be present in the canopy. In many instances the soils are nutrient poor and wet. On wetter situations, the pines are stunted and stressed by the wet conditions. Soils of pine flatwoods have restricted permeability in their subsurface horizons, causing long periods of saturation. Red maple, sweet bay and tulip tree, common as low shrubs and trees in the sub-canopy, occasionally attain a height that reaches into the canopy. If fire is not frequently prescribed, the shrub layer can become dense and impenetrable, with titi, buckwheat tree, gallberries and bayberries. Pitcher plants, St. John's-wort and numerous grasses often occur on exposed, open patches where water pools or recent burns have killed shrubs. Frequency of fire determines the height and density of the shrub layer while soil type appears to influence the presence of buckwheat tree.

Associated with the Atmore soil series, the buckwheat tree dominates the understory and in some instances reaches diameters of over six inches and heights of over 25 feet. If fire is excluded, the open, herbaceous character of the pitcher plant flat is lost and titi thickets, consisting of evergreen shrubs, become dominant.

Titi thickets are most prevalent on sandy soil in draws and flats along drainage ways and creeks of the lower coastal plain. They are situated in seepage zones on lower slopes of sandy uplands and along creek channels with high water tables. The shrubs aggressively encroach into moist uplands if fire is suppressed. Swamp titi and buckwheat tree are the most common shrubs. Other common shrubs are fetterbush, large gallberry and bayberry. Shrubby swamp trees, including sweet bay, black gum and slash pine, are often sprinkled throughout the thickets. Ground surfaces are fully shaded and usually exhibit an accumulation of litter. Large amounts of leaf litter often become trapped in branches and build up on the ground. These conditions limit the presence of herbs. Titi thickets are an association of shrubs, vines and small trees that persist until being felled by logging or consumed by fire. Stands often become an impenetrable mass of thorny vines (mostly catbrier) woven throughout the dense shrubbery. Thickets can be virtually inaccessible by humans until plants become older, taller and more widely spaced. Shrubs become trees with large trunk dimensions and heights over 25 to 40 feet.
(Source: http://www.mdwfp. com/Level2/cwcs/Final/Chapter%204.%20Habitat%20Type%206.pdf)

The longleaf pine savanna (a.k.a. “sandhills”, “high pine” and “longleaf pine flatwoods”) is an ecological community that depends on naturally occurring fires for its existence. In the past, lightning ignited ground fires swept across the landscape every year or two. The flammable wiregrass, which carried the fire, grew back within days after a burn. Mature longleaf pines have thick bark that insulates from ground fires, and they grew far enough apart that fire couldn’t spread between their crowns.

Young longleafs are vulnerable to fire only during the brief period between the grass stage (when the vulnerable growing tip is protected inside a tuft of needles) and the sapling stage, when the growing tip is above the flames. Without frequent fires, other plant species that are not tolerant of fire (e.g., turkey oak, laurel oak, live oak (Q. virginiana), water oak (Q. nigra), red maple (Acer rubrum), and slash pine) invade the pine savanna community and out compete the longleafs and the wiregrass. When the frequency of natural fires was reduced by European settlers who created fireproof barriers like roads, fields, and settlements that stopped the progression of natural fires, and by outright fire suppression, these and other fire intolerant plants invaded the longleaf pine savanna. Today, remnants of the original fire-maintained ecosystem persists only in conservation areas such as state and national parks and forests, and Nature Conservancy preserves. (Source:http://www.floridata.com/ref/p/pinu_pal. cfm)

Longleaf pine forests were historically widespread in Alabama, occurring above the Fall Line in the Ridge and Valley and Piedmont and below the Fall Line in the Southeastern Plains. Longleaf pine habitats range from moist to very well drained sites, including mesic pine flatwoods, pine/scrub oak (Quercus spp.) sandhill, and xeric sandhill scrub. “Mountain” longleaf communities occur on rugged ridges north of the Fall Line, including some of Alabama’s highest elevations. Frequent fire maintains a canopy dominated by longleaf pine, with wiregrass (Aristda beyrichiana) or other grass/herb ground cover. When fire is infrequent, scrub oaks, other hardwoods, and shrubs become common in the midstory and shade out native grasses and forbs. Embedded within longleaf pine habitats are fire-dependent herbaceous bogs and isolated wetlands that contribute much of the biodiversity of the region.

The top 10 counties in total natural and planted longleaf acreage include seven in the Southeastern Plains: Escambia (213,600 acres), Baldwin (172,000), Mobile (180,500), Covington (133,000), Washington (82,300), Monroe (22,400), and Houston (22,100) and three mostly or entirely above the Fall Line: Bibb (27,100) Shelby (24,200) and Talladega (22,700) (Hartsell and Brown 2002). Representative high-quality sites include Conecuh National Forest (Covington, Escambia counties), Mountain Longleaf NWR (Cleburne County), Talladega National Forest (Clay, Cleburne, Bibb, Hale, Tuscaloosa counties). (Source: http://www.outdooralabama.com/research-mgmt/cwcs/Chapter4.pdf)

Sandhill communities occur in areas of rolling terrain on deep, well-drained, white to yellow, sterile sands. This xeric community is dominated by an overstory of scattered longleaf pine, along with an understory of turkey oak and bluejack oak. The park-like ground cover consists of various grasses and herbs, including wiregrass, partridge pea, beggars tick, milk pea, queen's delight, and others. (Source: http://myfwc.com/wildlifelegacy/pdf/Habitat Categories.pdf)

Herbaceous bogs are nutrient-poor, precipitation-fed, acidic wetland formed over an accumulation of peat with no inflow or outflow and characterized by a distinctive plant community of peat mosses, shrubs, sedges, orchids, pitcher plants, sundews and coniferous trees. (Source: http://www.iwla.org/sos/awm/kit_defn.html)

Habitat Opportunities

The main opportunities for restoration along the Perdido River and Bay include fire restoration, control or removal of exotic/invasive species, potential dirt road mitigation, and SAV restoration. In addition, a need has been identified for terrestrial and aquatic inventory work on both the Perdido River and its tributary, the Styx River. The Styx River has been documented to support a concentration of aquatic species, but further inventory will likely increase its biodiversity ranking. There are several species that have been documented along or near the Perdido River.

Habitat Threats

Some potential stresses on this conservation area are altered hydrologic regime and degraded water quality, altered fire regime, incompatible forestry practices and urbanization/development.

14. Map: AIG/Baker/Reeder Lake Tract

# Acres:	2124 acres
Description:	long leaf pine flatwoods, various wetlands and forested wetlands
Potential Partners:	AIG Baker, Baldwin County, ADCNR, USFWS
Potential Funding:	None known
Conservation Status:	Scheduled for development by AIG Baker

15. Map: IP Perdido River Tracts

# Acres:	Approx. 30,000 acres
Description:	long leaf pine
Potential Partners:	ADCNR, Baldwin County Commission
Potential Funding:	ADCNR, Baldwin County Commission
Conservation Status:	In progress- 20,000 acres currently protected as result of 2006 purchase by TNC and Forever Wild

16. Map: Lillian Swamp

# Acres:	Unknown acres
Description:	pine savanna wetlands
Potential Partners:	ADCNR, TNC, Baldwin County
Potential Funding:	CIAP, NCWP, US Forest Service Forest Legacy, Forever Wild
Conservation Status:	In progress - 288 acre portion acquired in 2003; remainder not in progress.

17. Map: Perdido River Delta LLP Connector

# Acres:	various
Description:	long leaf pine, upland hardwood forest
Potential Partners:	ADCNR, AL Black Bear Alliance, USFWS, Baldwin County
Potential Funding:	CIAP, NFWF, US Forest Service Forest Legacy, TNC, Forever Wild
Conservation Status:	Not in Progress.

Restoration Priorities Detail by Conservation Area

Priority Areas for Restoration

The second charge of the CHCT was to prioritize restoration opportunities in the four key coastal conservation areas of Grand Bay, Mobile Bay and Delta, Gulf Islands and Perdido River. For each restoration opportunity, the group was asked to identify conservation partners, potential sources of funding, and briefly discuss any progress made to date. The priority sites for restoration were identified as follows:

REGION	LOCATION
Grand Bay	Cedar Point Sea Grasses
Grand Bay	East MS Sound Islands
Grand Bay Upland	Forever Wild Property- Upland and near shore
Grand Bay Upland	Henderson Camp Road Boat Launch
Grand Bay Upland	National Wildlife Refuge
Grand Bay Upland	Pine Savanna
Grand Bay Upland	School Board Section 16
Gulf Islands	Alonzo Landing (Billy Goat Hole Project)
Gulf Islands	Bon Secour NWR Turtle Nesting Habitat
Gulf Islands	Dauphin Island East end erosion
Gulf Islands	Fort Morgan native plants at Pilot Town
Gulf Islands	Least Tern Nesting habitat, DI, Sand Island
Gulf Islands	Migratory Stopover Habitat- Steiner Property
Gulf Islands	Robinson Island rip rap removal, native plants
Gulf Islands	Sand Island erosion/cut
Mobile Bay and Delta	Artificial Reefs
Mobile Bay and Delta	Cypress tree planting
Mobile Bay and Delta	Dauphin Island Causeway/near shore
Mobile Bay and Delta	D'Olive Creek
Mobile Bay and Delta	emergent marsh restoration
Mobile Bay and Delta	Invasive species/control
Mobile Bay and Delta	Mon Luis Island Pine Savannas
Mobile Bay and Delta	SAV restoration
Mobile Bay and Delta	Sea Walls
Mobile Bay and Delta	shoreline restoration
Mobile Bay and Delta	Weeks Bay Fire Restoration
Mobile Bay and Delta	Weeks Bay Oyster Restoration
Mobile Tensaw	Delta North/South Causeway Emergent marsh
Mobile Tensaw	Delta State Lands Wetlands
Mobile Tensaw	Longleaf Pine
Mobile Tensaw	Lower Delta Emergent Marshes Aquatic Invasives Control
Perdido River	AIG Baker/Reeder Lake Tract
Perdido River	IP perdido Properties
Perdido River	Lillian Swamp fire
Perdido River	Perdido Bay SAV
Perdido River	Splinter Hill Bog Tracts- LL pine replanting
Perdido River	Wolf Bay

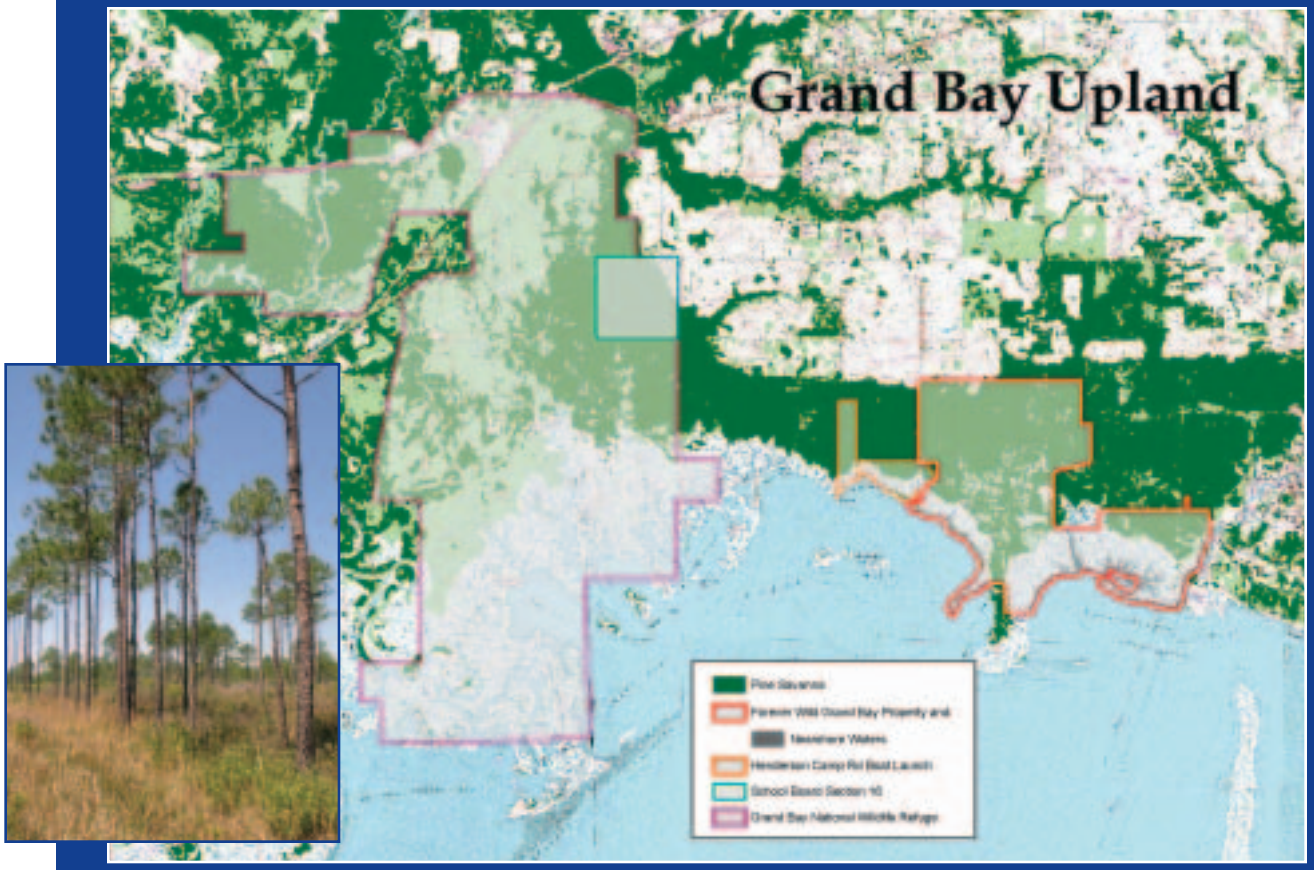
1. East Mississippi Sound Restoration Sites

General sound-wide restoration needs include sea grass restoration at as-of-yet determined sites around East Mississippi Sound where trawling or propeller scarring has damaged existing beds. Site-specific restoration opportunities include:

East MS Sound Islands
Description: Opportunity for habitat improvement on Dog Island, Isle Aux Herbes, and Cat Island for rookeries, and the creation of nesting sites for Mississippi Diamondback Terrapin. These projects may involve the beneficial use of dredge spoil.
Potential Partners: DISL, DIBS, ACOE, ADCNR, MBNEP
Potential Funding: ACOE, MBNEP , ADCNR
Status: Not in progress.

West Cedar Point Sea Grass Restoration
Description: Opportunity for sea grass restoration around Cedar Point, at the confluence of the Mississippi Sound and Mobile Bay.
Potential Partners: TNC, GCRL, MS/AL Sea Grant, MBNEP, DISL, ACOE
Potential Funding: NOAA Community-based Restoration Program, EPA Gulf of Mexico Program, ACOE Continuing Authorities Program, North American Wetlands Conservation Act Grants Program, NFWF Shell Marine Habitat
Status: Planning Stage.

2. Grand Bay Upland Restoration Sites



General Grand Bay-wide restoration needs were discussed prior to site-specific opportunities, including the expansion of bird nesting habitat restoration efforts that have been successful in other areas of coastal Alabama. This would include the creation of osprey nesting sites, eagle hacking platforms, and wood duck nesting boxes. Site-specific restoration opportunities include:

Grand Bay Pine Savanna

Description: Opportunity for restoration of fire and control of invasive/exotic species across the pine savannas of Grand Bay, specifically on state-owned Forever Wild lands, refuge lands, and other lands in conservation ownership.
Potential Partners: ADCNR, TNC-AL, USFWS (Grand Bay National Wildlife Refuge), Alabama Forestry Commission, South Alabama Regional Planning Commission (SARPC).
Potential Funding: Forever Wild Program Stewardship Funds, Federal Appropriations to Refuge, Private donations.
Status: In progress on state lands and refuge lands.

Grand Bay National Wildlife Refuge

Description: Opportunity for restoration of gopher tortoise habitat at several sites within the Grand Bay National Wildlife Refuge, including the Whitehead in-holding.
Potential Partners: USFWS (Grand Bay National Wildlife Refuge), Whitehead
Potential Funding: USFWS Partners
Status: Not in progress.

Grand Bay Forever Wild Property – Upland and near shore

Description: Opportunity for restoration on the Grand Bay Forever Wild property, including: hydrologic restoration between the uplands and marshes through the removal of a roadway blockage, control of feral hog populations creation of wood duck nesting boxes. In addition, there are opportunities for shoreline restoration offshore at the Grand Bay Forever Wild property, fronting Little Bay. This project would involve the beneficial use of dredge spoil.
Potential Partners: ADCNR, ACOE, Mobile County Commission, MBNEP, USFWS (wood ducks), Alabama Department of Wildlife & Freshwater Fisheries (feral hog control)
Potential Funding: Unknown, with the possibility of Forever Wild Stewardship funds and USFWS Partners funds; ACOE Continuing Authorities Program (S204 Dredge Activity or S206 Aquatic Restoration)
Status: In discussion

School Board Section 16

Description: Opportunity for longleaf pine and gopher tortoise habitat restoration on a Mobile County Public School Board Section 16 property, managed by Mobile County. This would involve the removal of existing loblolly pine trees and long-term leasing of the property by a conservation organization.
Potential Partners: Mobile County, NRCS, USFWS, Alabama Forestry Commission
Potential Funding: NRCS EQUIP/WHIP, USFWS Partners
Status: Not in progress, but county has expressed interest in conservation organization leasing land.

Henderson Camp Road Boat Launch

Description: Opportunity to mitigate the effects of county dirt road maintenance at the end of Henderson Camp Road, where sedimentation has filled in the area around the boat launch.
Potential Partners: ADCNR Marine Resources Department, Private Property Owners
Potential Funding: None identified

3. Gulf Island Restoration Sites

Several restoration possibilities were discussed that extended across Dauphin Island and the Fort Morgan Peninsula, including private as well as public incentives for bird habitat restoration such as:

Dauphin Island
Description: Improvement of bird habitat at Isle Dauphine Golf Course and several privately owned stopover habitat sites via private incentives.
Potential Partners: DIBS, MBNEP, MS/AL Sea Grant
Potential Funding: NFWF Links Program, NFWF Power of Flight
Status: Not in progress

Fort Morgan Peninsula
Description: Private incentive program for improvements to bird habitat via native plant restoration at sites like Pilot Town.
Potential Partners: Sea Grant/Gulf of Mexico Foundation
Potential Funding: NOAA CRP
Status: In progress

Least Tern Nesting Habitat Restoration
Description: Restoration of least tern nesting habitat across DI, Bon Secour NWR, Sand Island
Potential Partners: Bon Secour NWR, DIBS
Potential Funding: NFWF Power of Flight
Status: Not in progress

Other site-based restoration opportunities were identified, including:

Dauphin Island - Sand Budget Restoration
Description: The dredging of the Mobile Shipping Channel and dumping offshore has changed the natural sand budget of Dauphin Island. Restoration via near shore dumping is under study and current ACOE practices are under lawsuit.
Potential Partners: Town of Dauphin Island, DI Property Owners Association, ACOE
Potential Funding: None identified
Status: Under study, under lawsuit.

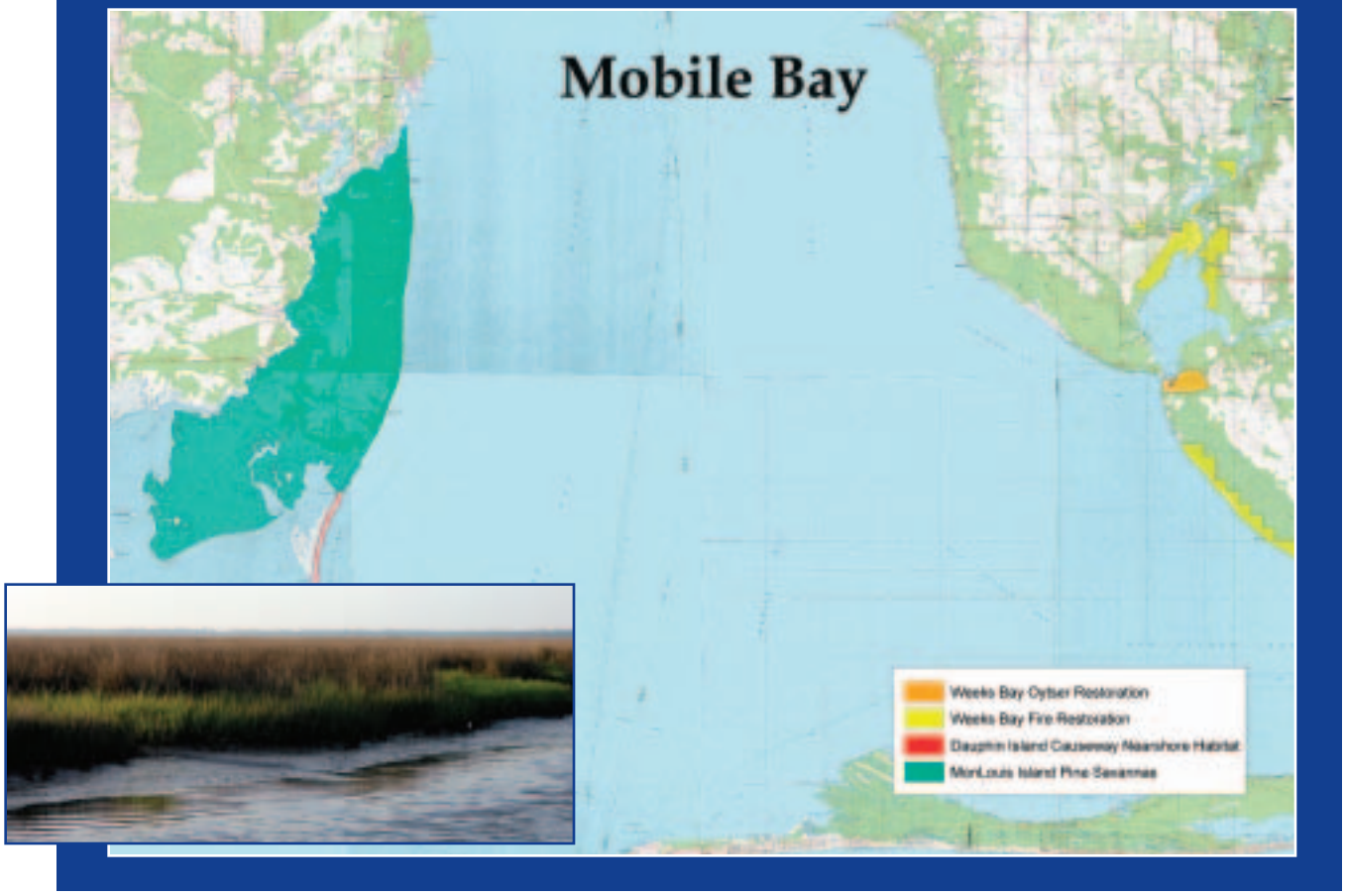
Dauphin Island - Alonzo Landing Emergent Marsh Restoration
Description: Construction of a breakwater and restoration of emergent marsh behind it.
Potential Partners: MS/AL Sea Grant, Gulf of Mexico Foundation, Town of Dauphin Island
Potential Funding: NOAA Community Restoration Partnership, Private Funds
Status: Complete

Sand Island Stabilization
Description: Stabilization of Sand Island.
Potential Partners: City of Dauphin Island, Alabama Lighthouse Association, Historic Preservation Associations, ACOE
Potential Funding: $ have not been identified
Status: In discussion.

Bon Secour NWR - Turtle Nesting Habitat Protection
Description: Protection of turtle nesting sites throughout Bon Secour NWR.
Potential Partners: Bon Secour NWR, USFWS, Volunteers, ACOE
Potential Funding: USFWS, Private Funds, ACOE
Status: In progress on public lands, are there private opportunities?

Robinson Island & Adjacent Perdido Pass Islands
Description: Native Plant Restoration and Rip/Rap Removal at Robinson Island and adjacent Perdido Pass Islands.
Potential Partners: City of Orange Beach, NEP, DISL, Weeks Bay Protective Assoc.
Potential Funding: Private Matching Funds, NOAA, EPA GoMP, NFWF Shell Marine Habitat and Five Star
Status: Property in the process of being purchased.

4. Mobile Bay/Delta Restoration Sites



There were several general bay-wide restoration needs discussed prior to site-specific opportunities, including: mitigation of sea wall impacts, shoreline restoration, invasive/Exotic species control; SAV restoration; emergent marsh restoration; the expansion of the successful cypress tree planting efforts; and the expansion of in-shore artificial reefs.

Several restoration needs were recognized across all of the sub-watersheds of Mobile Bay (ex. Weeks Bay, Fish River, Bon Secour River, etc.), including the expansion of the successful osprey nesting habitat restoration efforts in Fish River, Fowl River and Weeks Bay and stream bank restoration and marsh reestablishment on the Fowl River and D'Olive Creek. These activities should be expanded throughout the sub-watersheds. In addition, bay-wide needs include the creation of turtle nesting sites and restoration of the hydrology of grady ponds. Site-specific restoration opportunities included:

Weeks Bay Fire Restoration
Description: Opportunity for restoration of fire on several sites within the Weeks Bay National Estuarine Research Reserve.
Potential Partners: ADCNR
Potential Funding: NERR budget, Coastal Zone Management funds.
Status: In progress.

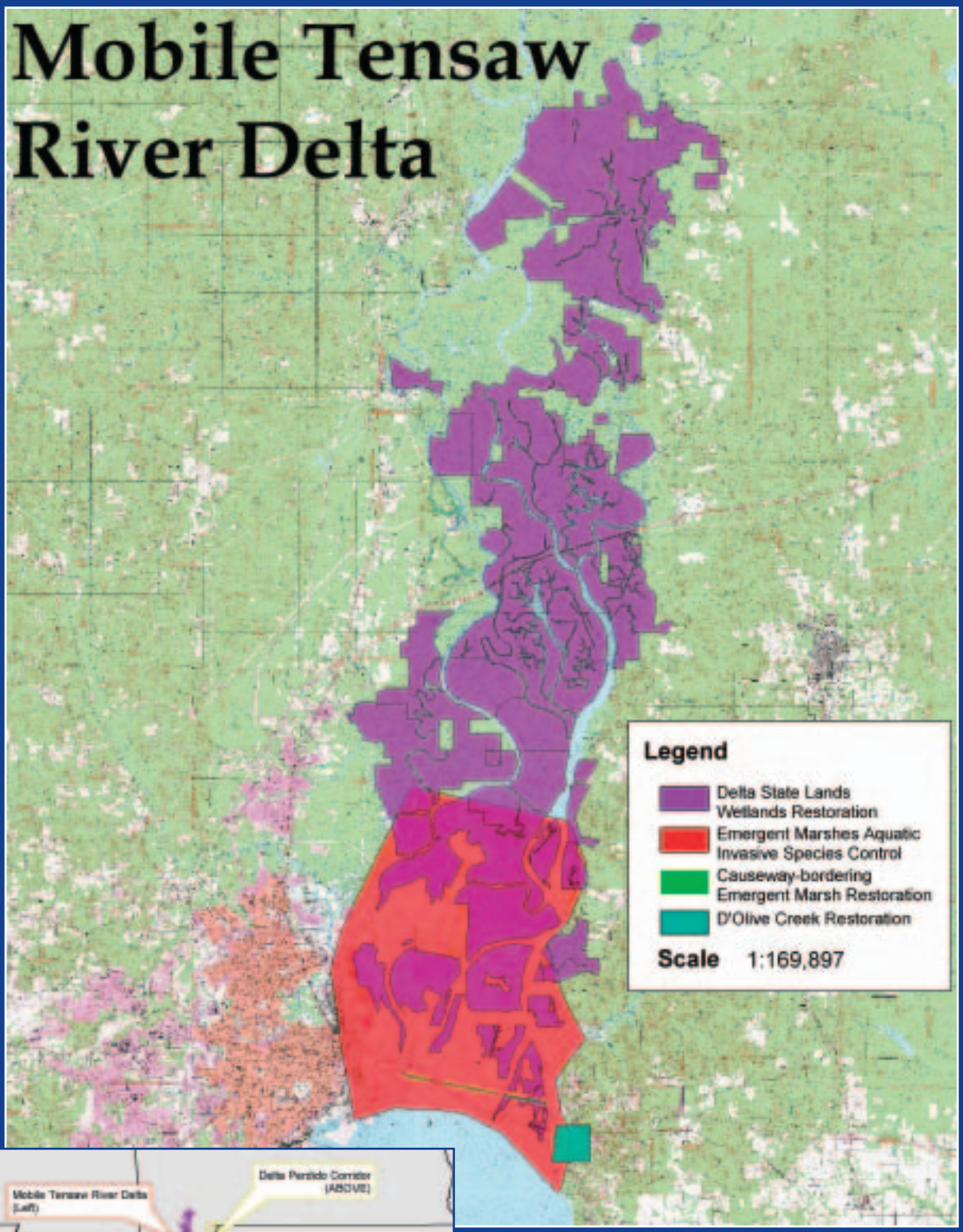
Weeks Bay Oyster Restoration
Description: Restoration of Existing Reef/Establishment of Reef – adjacent to Williams Tract
Potential Partners: Weeks Bay Foundation, MRD, Sea Grant, TNC, NEP, Weeks Bay NERR, ACOE
Potential Funding: NOAA-CRP, EPA GoMP, NFWF Shell Marine Habitat
Status: Early planning stage. Not classified, so would have to be monitored. No funding for monitoring by ADEM.

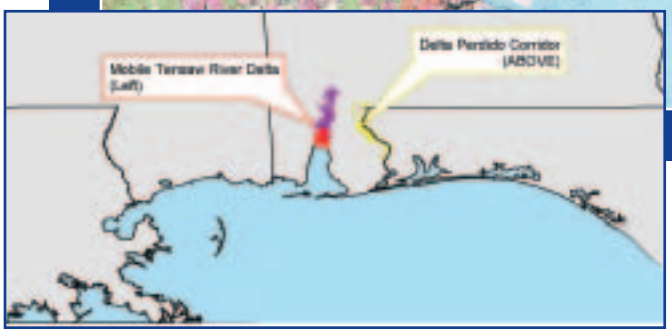
D'Olive Creek Restoration
Description: Opportunity for stream bank and in-stream hydrologic restoration in D'Olive Creek, with an emphasis on protection of the Rusty Gravedigger crawfish.
Potential Partners: NEP, Baldwin County, City of Daphne, Lake Forest Property Owners, ADOT, Federal Highway Administration, ACOE
Potential Funding: ACOE, ADOT TEA-23, EPA, State & Local Match
Status: In discussion.

Mon Louis Island Pine Savannas
Description: Opportunity for replanting, invasive species control, and fire restoration.
Potential Partners: Private Landowners (Milton Brown), Shell, Exxon-Mobile, Mobile County Wildlife, No lead conservation organization.
Potential Funding: Gulf of Mexico Foundation, USFWS Partners possibility, no other identified sources.
Status: Stalled, no lead organization.

Dauphin Island Causeway near shore Habitat
Description: The establishment of a breakwater several hundred yards off shore, which would be seeded with oysters, and the reestablishment of submerged aquatic vegetation and emergent marshes behind it.
Potential Partners: Sea Grant, NEP, ACOE, ADCNR, TNC
Potential Funding: ACOE, NOAA-CRP, EPA GoMP
Status: Under study by ACOE.

5a. Mobile Tensaw River Delta Restoration Sites





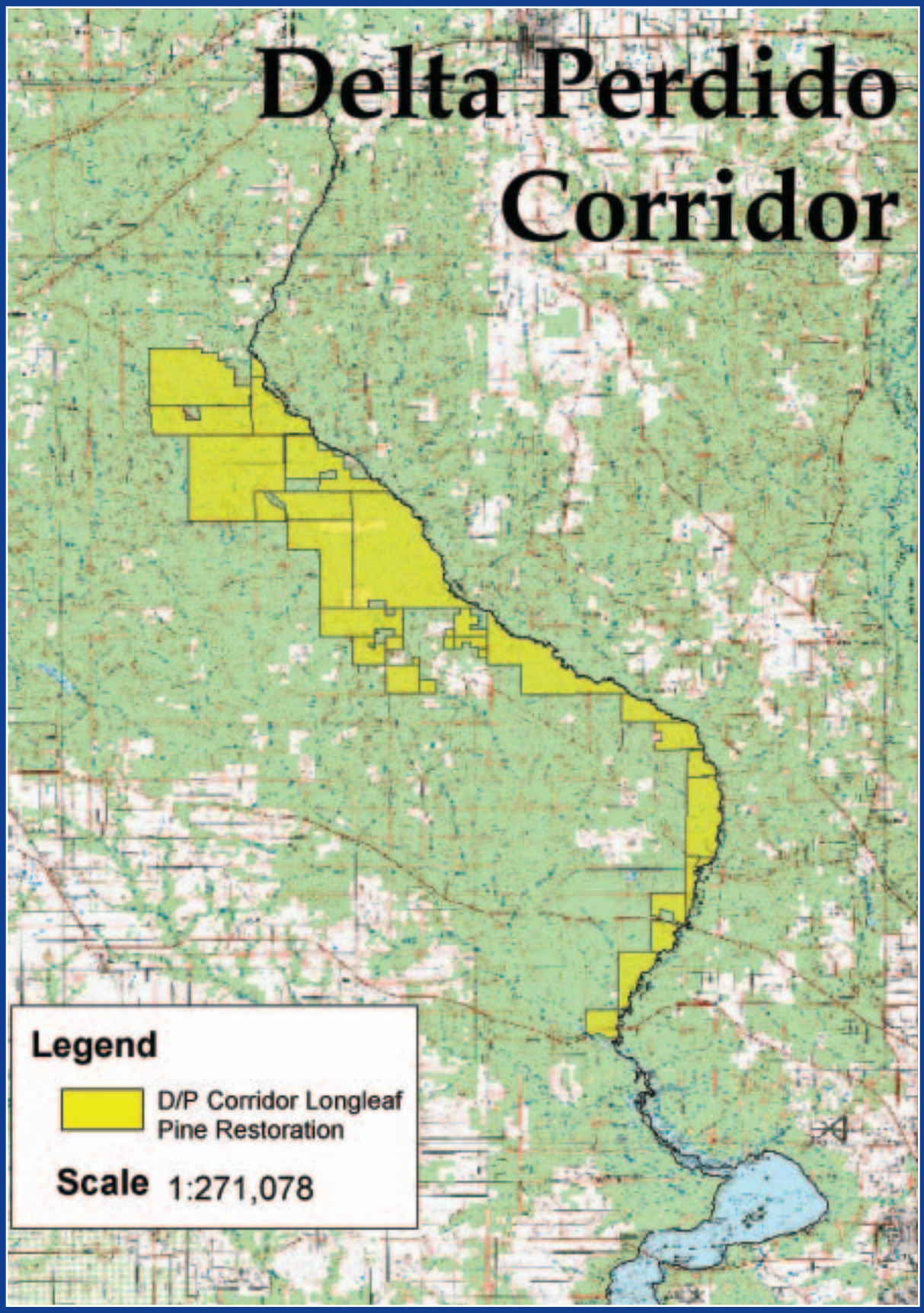
Several possibilities exist along the Mobile River Tensaw Delta and the Delta Perdido Corridor including opportunities for wetlands, emergent marsh and long leaf pine restoration and aquatic Invasive species control. These include:

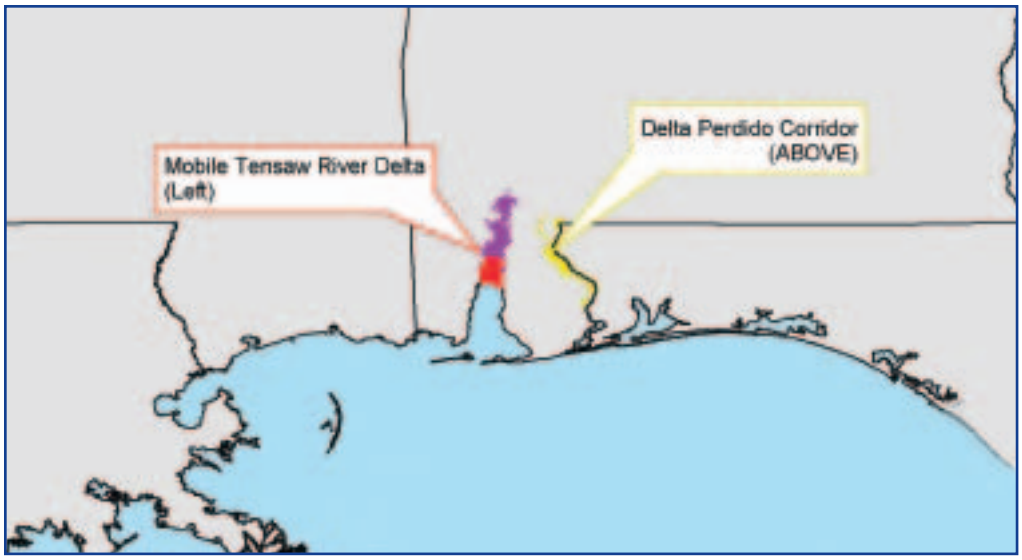
Delta North/South of Causeway Emergent Marsh Restoration
Description: The restoration of emergent marsh communities just north and south of the Causeway.
Potential Partners: Mobile County Wildlife, ACOE, DU, AWF ADCNR, USFWS, NEP, Baldwin County School System (growing and planting)
Potential Funding: NAWCA, NEP Habitat Restoration, Private NGO contributions, NFWF Shell Marine Habitat
Status: In discussion.

Lower Delta Emergent Marshes Aquatic Invasive Species Control
Description: Control of aquatic invasive species such as Giant Salvinia and Eurasian Milfoil.
Potential Partners: Wildlife & Freshwater Fisheries
Potential Funding: Dingle Johnston Federal Aid
Status: In study.

Delta State Lands Wetlands Restoration
Description: Restoration of wetlands across DCNR-owned lands in the Delta, including: Terrestrial Invasive Species Control (Ex: Popcorn Tree removal in Helen Woods, Cogon Grass control on Pineta Island, Hydrologic restoration via the filling of pull ditches in the Upper Delta
Potential Partners: ADCNR, ADEM
Potential Funding: EPA Region 4, NFWF Shell Marine, NOAA
Status: Underway

5b. Delta Perdido Corridor Restoration Site





Delta-Perdido Corridor Longleaf Pine Restoration

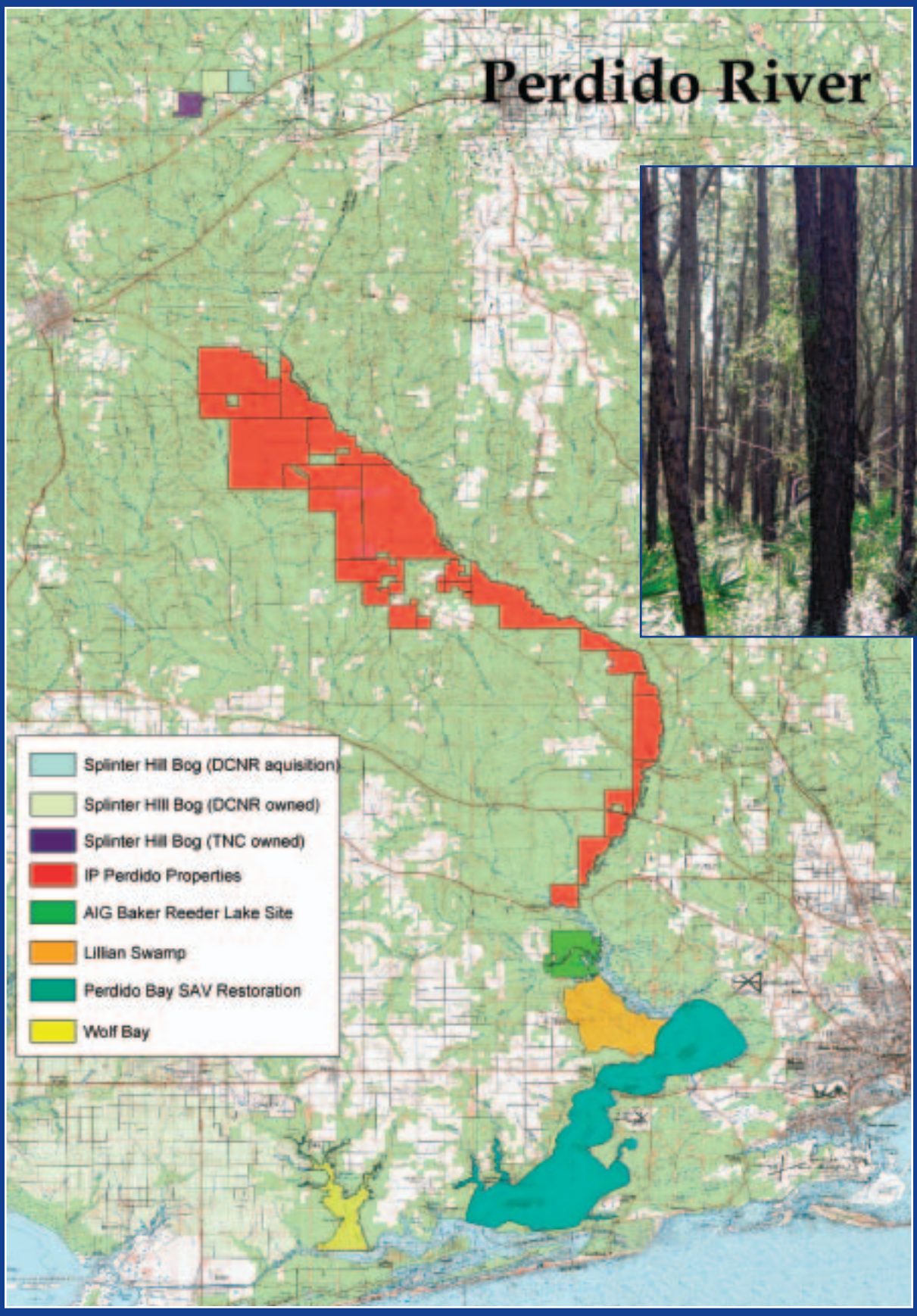
Description: Restoration of longleaf pine between the Delta and the Perdido River, including invasive species control and fire restoration via working forest easements and other methods.

Potential Partners: TNC, NRCS, Longleaf Alliance

Potential Funding: NFWF Longleaf Legacy, USFWS Partners

Status: Planning stage. NRCS already working there.

6. Perdido River Restoration Sites



Lillian Swamp
Description: Fire restoration, plugging ditches and control of invasive/exotic species throughout Lillian Swamp.
Potential Partners: ADCNR, DOT
Potential Funding: EPA, NOAA, Forever Wild Stewardship Funds, NFWF Bring Back the Natives
Status: In progress on Forever Wild Property. More opportunities as more parcels acquired.

AIG Baker Reeder Lake Site
Description: This property is slated for residential development. If developed it will be critical to influence plans for development to minimize environmental impact. Developer is open to feedback prior to permitting approval. If this property were protected, there is a need for fire restoration and removal of invasive Ti-Ti.
Potential Partners: AIG Baker, Baldwin County Planning & Zoning, Baldwin County EAB, ACOE, USFWS
Potential Funding: None known
Status: Action needed, not yet taken.

Splinter Hill Bog
Description: Fire Restoration, Invasive Species Control, LLP Re-planting, American Chaffseed direct management
Potential Partners: ADCNR, TNC, Baldwin County Commission
Potential Funding: NFWF Longleaf Legacy, USFWS Partners, EPA GoMP, Neotropical Migratory Bird Conservation Fund
Status: In progress

IP Perdido Properties
Description: Loblolly removal, LLP Replanting, Fire Restoration, Potential Dirt Road mitigation.
Potential Partners: ADCNR, Baldwin County Commission
Potential Funding: NFWF Longleaf Legacy, EPA GoMP,
Status: In progress

Wolf Bay
Description: Living Reef Restoration in estuary, and wetlands restoration in east Wolf Bay.
Potential Partners: ACF, TAI Inc.
Potential Funding: NOAA CRP
Status: In progress

Perdido Bay SAV Restoration
Description: SAV Restoration at appropriate sites throughout the Perdido Bay estuary.
Potential Partners: DISL, Gulf Shore High School, NEP,
Potential Funding: EPA GoMP
Status: Underway

Conservation Organizations

Organization	Initials
ADCNR - Marine Resources Division	ADCNR-MRD
ADCNR - State Lands Division Coastal Section	ADCNR
ADEM-Coastal Section	ADEM
Alabama Coastal Foundation	ACF
Alabama Forest Resource Center	AFRC
Alabama Gulf Coast Convention and Visitors Bureau	AGCCVB
Alabama Port Mitigation Bank	APMB
Alabama Power Company	APC
Bon Secour National Wildlife Refuge	BSNWR
Coastal and Estuarine Land Protection Program	CELP
Coastal Land Trust, Inc.	CLT
Dauphin Island Bird Sanctuaries, Inc.	DIBS
EPA Gulf of Mexico Program	GOMP
Mississippi Alabama Sea Grant Consortium	MASGC
Mobile Bay Sierra Club	MBSC
Mobile Baywatch/Baykeeper	MBB
Mobile County Commission	MCC
National Coastal Wetlands Program	NCWP
Natural Resource Conservation Service	NRCS
North American Wetlands Conservation Act	NAWCA
Partners for Environmental Progress	PEP
South Alabama Regional Planning Commission	SARPC
Southeastern Natural Resources Incorporated	SNRI
The Nature Conservancy	TNCAL
Trust for Public Land	TPL
US Fish and Wildlife Service	USFWS
Weeks Bay Foundation	WBF
Weeks Bay National Estuarine Research Reserve	WBNERR
Grand Bay National Estuarine Research Reserve	GBNERR
National Fish and Wildlife Foundation	NFWF
U.S. Army Corp of Engineers	ACOE

Mobile Bay National Estuary Program
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251.431.6409

www.mobilebaynep.com

The Nature Conservancy of Alabama
Coastal Program Office
251.379.0544

www.nature.org/alabama