# BIG TALBOT ISLAND STATE PARK

# LITTLE TALBOT ISLAND STATE PARK

Park Chapter

ATLANTIC COAST REGION

# BIG TALBOT ISLAND STATE PARK

## DUVAL COUNTY, FLORIDA

0 1,000 2,000 Feet

N W E S

Sawpit Creek
Sawpit Creek Boat Ramp
Restroom
COASTAL GRASSLAND
COASTAL STRAND
A1A
MARITIME HAMMOCK
DRIFTWOOD BEACH
BLUFFS PICNIC AREA
Pavilion
Pavilion
Honor Box
Atlantic Ocean
AREA SUBJECT TO CHANGE
BIRD ISLANDS
AREA SUBJECT TO CHANGE
SCRUBBY FLATWOODS
Timucuan Trail
BLACKROCK BEACH
DEPRESSION MARSHES
WET FLATWOODS
SALT MARSH
PARK BOUNDARY
MARITIME HAMMOCK
Blackrock Beach Parking Area
Blackrock Trail
Old Kings Highway Trail
SCRUBBY FLATWOODS
SANDY BEACH
COASTAL STRAND
SALT MARSH
Intracoastal Waterway
SALT MARSH
HAMMOCK
Jones Cut Trail
MARSH
FLATWOODS
WET
MARITIME HAMMOCK
SCRUBBY FLATWOODS
HALF MOON BLUFF
Simpson Creek
Primitive Campsites
SHELL MOUND
Myrtle Creek
LITTLE TALBOT ISLAND
LONG ISLAND
HAMMOCK
Big Pine Trail
SHELL MOUND
SHELL MOUND
SALT MARSH
MARITIME
PARK BOUNDARY (BIG TALBOT ISLAND, SP)
LITTLE TALBOT ISLAND STATE PARK
Pier
Paddlecraft Concessions Building
Boat Ramp
A1A
LITTLE TALBOT ISLAND STATE PARK CAMPGROUND
Broward Creek
Mud River
HOUSTON AVE
MARITIME HAMMOCK
Simpson Creek
Garage
Staff Residence
Staff Residence
Pier Remnants
Fort George River
Clapboard Creek
LITTLE TALBOT ISLAND STATE PARK SUPPORT AREA

SURROUNDING LAND COVER
- Salt Marsh
- Forests

PARK FEATURES
- Park Boundary
- Structures
- Walkways
- Trails
- Paved Park Roads
- Stabilized Unpaved Park Roads
- Unstabilized Unpaved Park Roads
- Campsites

# LITTLE TALBOT ISLAND STATE PARK

## DUVAL COUNTY, FLORIDA

0 1,000 2,000 Feet

N W E S

BIG TALBOT ISLAND

PARK BOUNDARY (Subject to Change)

AREA SUBJECT TO CHANGE

Simpson Creek

Myrtle Creek

LONG ISLAND

HAMMOCK

MARITIME

DUNES

COASTAL STRAND

COASTAL INTERDUNAL SWALE

COASTAL GRASSLAND

BIG TALBOT ISLAND STATE PARK

PARK BOUNDARY

A1A

Storage

Office

Entrance Station

Restroom

Restroom

Info Center

Storage

Pavilions

Bath House

Staff Residence

Atlantic Ocean

STAFF RESIDENCES

Equipment Shop

Staff Residence

Storage

BEACH

LITTLE TALBOT ISLAND

Fort George River

FORT GEORGE ISLAND

MT CORNELIA

FORT GEORGE ISLAND CULTURAL STATE PARK

RIBAULT CLUB

Pavilion

Pavilions

Pavilions

Fort George Inlet

SURROUNDING LAND COVER

- Forests
- Salt Marsh

PARK FEATURES

- Park Boundary
- Paved Park Roads
- Stabilized Park Roads
- Unstabilized Park Roads
- Walkways
- Trails
- Structures
- Campsites

# INTRODUCTION

## LOCATION AND ACQUISITION HISTORY

Little Talbot Island State Park and Big Talbot Island State Park are both located in Duval County (see Vicinity Map). Access to both parks is from State Road A1A, also known as Heckscher Drive. The Vicinity Map also reflects significant land and water resources existing near the parks.

Little Talbot Island State Park was initially acquired in 1950 from Rollins College, and on June 5, 1951, by donation, from the Florida Department of Transportation. Currently, the park comprises 1,531.38 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on Jan. 23, 1968, the Trustees leased (Lease No. 3632) the property to the Division of Recreation and Parks (DRP) under a 99-year lease. The current lease will expire on Jan. 22, 2067.

Big Talbot Island State Park was initially acquired on Aug. 20, 1982, with funds from the Land Acquisition Trust Fund (LATF). Currently, the park comprises 1,679.82 acres. The Trustees hold fee simple title to the park and on May 31, 1983, the Trustees leased (Lease No. 3283) the property to DRP under a 50-year lease. The current lease will expire on May 30, 2033.

Both parks are designated single-use to provide public outdoor recreation and conservation. There are no legislative or executive directives that constrain the use of these properties (see the Appendix). A legal description of the park properties can be made available upon request to the Florida Department of Environmental Protection (DEP).

## SECONDARY AND INCOMPATIBLE USES

In accordance with 253.034(5) F.S., the potential of the parks to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of DRP's statutory responsibilities and resource values. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation, and visitor experiences. It was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation.

DRP has determined that uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those management activities specifically identified in this plan) would not be consistent with the management purposes of the parks.

In accordance with 253.034(5) F.S., the potential for generating revenue to enhance management was also analyzed. Visitor fees and charges are the principal source of revenue generated by the parks. It was determined that multiple-use management activities would not be appropriate as a means of generating revenues for land management. Instead, techniques such as entrance fees, concessions and similar measures will be employed on a case-by-case basis as a means of supplementing park management funding. Generating revenue from consumptive uses or from activities that are not expressly related to resource management and conservation is not under consideration.

## PURPOSE AND SIGNIFICANCE OF THE PARK

### Park Purpose

**Little Talbot Island State Park** was acquired to protect one of the last remaining undeveloped barrier islands along the Atlantic Coast of Florida, ensuring a sanctuary for wildlife, an intact ecosystem and resource-based recreation for visitors to learn about and appreciate remote coastal features.

**Big Talbot Island State Park** was established to preserve a critical coastal barrier island from development and provide both habitat for wildlife and access to resource-based coastal recreation.

### Central Park Theme

Coastal dunes, maritime forests and salt marshes flourish at **Little Talbot Island State Park**, an untamed barrier island that is home to many imperiled species.

Salt-washed skeletons of giant trees line the black rock beaches of **Big Talbot Island State Park**, a stunning sea island shaped by ancient peoples and extreme natural forces.

### Little Talbot Island State Park Significance

- Designated for critical wildlife protection onshore and offshore, Little Talbot Island's 13 natural communities protects more than 30 migratory and threatened species, including sea turtles. Nearly 50 migratory shorebird species have been recorded using the island for resting, nesting, or foraging.
- Little Talbot Island is one of the few places in northeast Florida where over-wintering piping plovers (*Charadrius melodus*) occur.
- Dynamic beach dunes and shorelines showcase an example of how sea islands are formed and affected by external perturbations through long-term erosion and accretion over geologic time, and more recent influences including jetties and climate change.
- A segment of the longest biking and walking route in the nation, the East Coast Greenway, is provided within Little Talbot Island State Park alongside the A1A Scenic and Historic Coastal Byway through the park's coastal communities.

### Big Talbot Island State Park Significance

- The park immerses visitors in one of the last undeveloped barrier islands in Florida and showcases unique natural features like sun-bleached tree skeletons and ancient "black rock" formations.
- Big Talbot Island protects the "black rocks," rock-like hardpan soil deposits exposed subsurface formations which are remnants of spodic horizons from long ago and hold geologic significance.
- Historic and archaeological resources found at the Talbot islands reveal intermittent occupation over thousands of years. Recorded shell rings and middens from the Timucuans and colonial plantation remnants reveal this island's complex history.

- The Grand Site shell ring, a probable ceremonial site, was the first named cultural site of Duval County in the Florida Master Site File and is on the National Register of Historic Places.

- Previously altered for prehistoric and historic use, Big Talbot Island's maritime hammock has remained resilient against past natural and cultural disturbances. This barrier island provides excellent examples of ecological succession in the immediate maritime environment.

- A segment of the longest multi-use trail in the United States, the East Coast Greenway, is provided within Big Talbot Island alongside the A1A Scenic and Historic Coastal Byway. Big Talbot Island also provides convenient access to traverse the longest designated national recreation trail in the country, the 1,515-mile Circumnavigational Saltwater Paddling Trail, which boasts every Florida coastal habitat type.

Little Talbot Island State Park and Big Talbot Island State Park are classified as state parks in the DRP unit classification system. In the management of a state park, a balance is sought between the goals of maintaining and enhancing natural conditions and providing various recreational opportunities. Natural resource management activities are aimed at management of natural systems. Development in the park is directed toward providing public access to and within the park, and to providing recreational facilities in a reasonable balance that are both convenient and safe. Program emphasis is on interpretation of the natural, aesthetic, and educational attributes of the parks.

## OTHER DESIGNATIONS

These units are not within an Area of Critical State Concern as defined in section 380.05; Florida Statutes and are not presently under study for such designation. The parks are a component of the Florida Greenways and Trails System, administered by the DEP Office of Greenways and Trails.

Portions of Little Talbot Island were designated as a Colonial Nesting Bird Site in 1981 and then as a Critical Wildlife Area in 1982 by the Florida Fish and Wildlife Conservation Commission (FWC). The entirety of Little Talbot Island is currently designated U.S. Fish and Wildlife Service (USFWS) Critical Habitat for piping plover. Little Talbot Island is currently designated as an Important Bird Areas (IBA) by the National Audubon Society. Little Talbot Island contains sites along the Great Florida Birding Trail designated by FWC. Waters offshore Little Talbot Island State Park are designated Critical Habitat Area for the Northern Right Whale by USFWS.

Portions of Big Talbot Island are currently designated USFWS Critical Piping Plover Habitat. Big Talbot Island is currently designated as an Important Bird Area (IBA) by the National Audubon Society. Big Talbot Island contains sites along the Great Florida Birding Trail designated by FWC. Waters offshore Big Talbot Island State Park are designated Critical Habitat Area for the Northern Right Whale by USFWS.

All waters within the parks have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302, Florida Administrative Code. Surface waters in these parks are also classified as Class II waters (shellfish propagation and harvesting area) or Class III waters (suitable for fish consumption and recreation) by DEP. The parks are adjacent to the Nassau River-St. Johns River Marshes Aquatic Preserve as designated under the Florida Aquatic Preserve Act of 1975 (section 258.35, Florida Statutes).

## PARK ACCOMPLISHMENTS

### Little Talbot Island State Park

- Added 20 interpretive, informational, or educational programs since 2021.
- Partnered with Audubon and FWC to increase protection of newly designated Critical Wildlife Area through interpretation and predator management. Efforts resulted in successful fledging of black skimmer and gull billed terns. Both species had not been successful in more than a decade.
- Partnered with the U.S. Army Corps of Engineers to complete a study of the erosion on the south end of the island and determine the best course of action to reverse damage due to the installation of the St. John's River jetty.
- Completed 100% goal for invasive plant treatment (0.72 acres) in 2018 and 125% (0.56 acres) in 2019.

### Big Talbot Island State Park

- Implemented Statewide Nesting Beach Survey (SNBS) monitoring for sea turtle nesting activity.
- Completed 300 acres of understory mechanical fuel reduction and prescribed fire.
- Completed 100 acres of understory mechanical fuel reduction.
- Conducted archaeological monitoring and documentation of eroding shoreline cultural sites using University of North Florida summer field school and supported by the Friends of Talbot Islands.
- Completed 130% goal for invasive plant treatment (0.27 acres) in 2018 and 85% (0.2 acres) in 2019.
- In partnership with the North Florida Land Trust, designed and completed the Grand Site interpretive trail and trailhead.
- Installed interpretive panels along trails to educate the public about prescribed fire.

# RESOURCE MANAGEMENT COMPONENT

| Big Talbot Island State Park Management Zones | | |
|---|---|---|
| **Management Zones** | **Acreage** | **Managed with Prescribed Fire** |
| BT-01An | 15.08 | Y |
| BT-01As | 36.70 | Y |
| BT-01Bn | 34.36 | Y |
| BT-01Bs | 6.01 | N |
| BT-02A | 11.67 | Y |
| BT-02B | 232.19 | Y |
| BT-03 | 186.47 | Y |
| BT-04A | 154.93 | Y |
| BT-04B | 76.83 | N |
| BT-04C | 2.71 | N |
| BT-05 | 95.36 | Y |
| BT-06A | 14.27 | N |
| BT-06B | 173.55 | N |
| BT-06C | 7.76 | N |
| BT-07A | 3.05 | N |
| BT-07B | 11.83 | N |
| BT-07C | 8.36 | N |
| BT-07D | 14.98 | N |
| BT-07E | 11.33 | N |
| BT-07F | 7.23 | N |
| BT-08 | 44.82 | |
| BT-09 | 109.93 | |
| BT-10A | 171.65 | Y |

| | | |
|---|---|---|
| BT-10B | 63.54 | N |
| BT-11A | 163.22 | N |
| BT-11B | 22.02 | N |

| Little Talbot Island State Park Management Zones | | |
|---|---|---|
| **Management Zones** | **Acreage** | **Managed with Prescribed Fire** |
| LT-01 | 233.01 | N |
| LT-02 | 329.81 | N |
| LT-03 | 284.07 | N |
| LT-04 | 132.81 | N |
| LT-05 | 162.94 | N |
| LT-06 | 230.27 | N |
| LT-07 | 64.43 | N |
| LT-08 | 98.72 | N |

## TOPOGRAPHY

Amelia and the Talbot Islands are in the coastal lowlands physiographic zone, specifically in the Atlantic Coastal Lowlands, Atlantic Coastal Ridge, Lagoons and Barrier Island Chain (Puri and Vernon 1959). The islands are at the southern end of a long string of barrier islands that extends from the Santee River in South Carolina to the St. John's River in Florida. These are "Sea Islands", formed through submergence of the mainland and the subsequent accumulation of younger unconsolidated sediments along the barrier beach (Godfrey 1976). Sea Islands characteristically are short, curved barrier islands, separated from each other by river entrances or sounds and from the mainland by well-developed marshes or estuaries (Raichle et al. 1997).

As with all barrier islands, Amelia and the Talbot Islands consist of parallel dune ridges and swales covered with predictable coastal vegetation. Ponds and marshes have developed in many of the swales that lie among the dune ridges. These features comprise the primary topographical relief of the islands. Topographic elevations on Big Talbot Island range from sea level at the beach to 20 feet at "The Bluffs" on the northeastern side of the island, and 20 feet at "Half Moon Bluff" on the central-eastern side. The highest elevations on Little Talbot Island reach 40 feet in the sand dunes at the north end of the island. The maximum elevation on Long Island is 30 feet at the north end.

The natural topography of Amelia and the Talbot Islands has been altered significantly over time by the construction of a major roadway and associated drainage features, construction of several mosquito

control ditches, and perhaps most notably by coastal erosion. The Florida Department of Transportation (FDOT) altered the topography of the islands during construction of A1A, the state road that bisects the islands.

Construction activities included excavation of roadside swales and associated drainage ditches, raising of some sections of roadbed, and creation of soil abutments for bridges across tidal creeks.

In addition to the construction of State Road A1A, construction of mosquito control ditches has also altered the natural topography and surface drainage of the islands. Between 1953 and 1960, ditches were constructed throughout the area in an effort to eradicate mosquito larvae which developed in the low, wet swale areas between the dunes. These ditches connected the swales and drained to adjacent estuarine tidal marsh areas. The leveling of dunes to fill low areas and the piling of spoil from the ditches combined to alter natural elevations throughout the dune systems. During ditch construction, heavy machinery damaged plant life adjacent to and along the routes of the ditches. Impacts to natural communities along the routes of the ditches are still evident throughout the parks.

One very old ditch located on Big Talbot Island, apparently dating from the 1800s, runs west from Half Moon Bluff. Appropriately named "Old Ditch" on early survey maps, this ditch is considered an historic feature of the island. Its historic significance must be weighed against any negative impacts the ditch may have on the island's natural hydrology.

Perhaps the most dramatic topographic changes apparent on Talbot Islands State Parks are the result of coastal erosion and accretion. The shoreline from mid-Georgia south to Little Talbot Island, Florida has changed significantly in position and volume over the past 150 years, primarily as a result of the building of jetties at the mouths of the St. Marys River and St. Johns River in the late 1800s. While the jetties themselves were localized, they caused significant changes in sand erosion and accretion on islands both to the south and the north. Ongoing regional beach renourishment projects, which place additional sand in littoral drift and shoreline armoring, complicate the already dynamic erosion and accretion patterns of the barrier islands.

Until 1985, Nassau Sound to the north of Big Talbot Island was one of the last two unaltered, natural inlets on the eastern coast of Florida. Subsequent sediment removal from the western side of the Nassau Sound Bridge between Amelia Island and Sawpit Island at the junction of the Amelia and Nassau Rivers has changed that situation. According to the U.S. Army Corps of Engineers, the south end of Amelia Island served as the original deposition site for the sediments. Trucks subsequently hauled the dredged materials to the middle shoreline of Amelia Island to correct beach erosion problems. This beach nourishment appears to have placed tons of sand in littoral drift. Substantial changes in the shoals offshore of Big Talbot Island have occurred since that project began. The northward movement of Nassau Sound and the southward migration of Bird Island have resulted in the fusion of the southernmost Bird Island with Little Talbot Island, as predicted by Raichle (1993).

In 1994, because existing upland development was threatened by erosion, local interests arranged a 2.6 million cubic yard beach fill along 18,000 feet of the southern Amelia Island shoreline. This project extended the mean high water line as much as 350 feet seaward of the pre-project location. In response to significant erosional stresses at the southern end of the renourishment area, a temporary, terminal groin field was constructed in 1995 to limit losses of fill material to Nassau Sound. This groin field

directly impacted the northern portion of the park where two of the groins were located. Subsequent beach renourishment along the southern part of Amelia Island was conducted in 1997; some of the beach fill material was deposited past the groin field well into the park. The temporary groinfield eventually failed, and in 2004, a permanent terminal groin structure and offshore breakwaters were constructed at the south tip of Amelia Island.

Big and Little Talbot Islands are also subject to beach erosion, although the scouring of the high escarpment at "the Bluffs" on Big Talbot is primarily due to the natural process of island migration. Outside perturbations that disrupt the natural littoral drift of sand may influence the rate of erosion. The northeast shoreline of Big Talbot Island is considered a naturally receding shoreline. The dramatic effects of beach recession on the adjacent coastal strand and maritime hammock on Big Talbot Island, and the retreat of the southern tip of Little Talbot Island, are of great interpretive value.

Between 1871 and 1933, the shoreline of Little Talbot Island expanded three miles southward and 2,200 feet seaward. This accretion coincided with the construction of the jetties at the mouth of the St. Johns River, which began in 1881. Since 1938, the southern end of Little Talbot Island has been retreating due to the capping of the St. Johns River north jetty in 1934. The southern tip of the island has receded over 4000 feet since that time (Raichle 1993).

The sand spit on the northeastern tip of Little Talbot Island has been accreting, creating a large area of sand flats and intertidal salt marsh. Between 1974 and 1990 the northern end of the island expanded 1,000 feet to the north. Much of the sand accretion was probably attributable to erosion along the mile of shoreline just south of the spit on Little Talbot Island, which has been steadily receding during the same period of time (Raichle 1993). More recent sand accumulation at the northeastern tip of the island is probably the result of southward drift of the Bird Island shoals. The northwestern tip of Little Talbot Island is eroding, producing truncated dune ridges in this area, lowering dune elevations, and impacting adjacent maritime hammock.

The middle section of Little Talbot Island consists of north-south oriented dune ridges with distinct interdunal swales or low areas between them. The shoreline in this section of the island has been accreting consistently, expanding over 2,600 feet seaward between 1871 and 1990. The southern part of Little Talbot Island also contains multiple dune ridges, which are arc-shaped on the western side of the island. Here, although the southernmost shoreline has been receding landward since 1933 (Raichle 1993), some of the arc-shaped ridges remain. The northward migration of the Fort George Inlet and the resultant scouring action at the southern end of the island have truncated many of these beach ridges, however. The dramatic recession of the southern end of the island has also caused loss of park facilities there, including the fishing pier, associated parking lot, and restroom drain field. The Division has relocated the elevated restroom to the Nassau Sound Fishing Bridge. The erosive force of the migrating inlet continues to threaten the southern end of Little Talbot Island; however, the recent, slightly southward, natural relocation of the primary inlet has modestly alleviated the situation.

## SOILS

Fifteen soil types occur within Big and Little Talbot Islands State Parks (see Soils Map). While some of the soil types are common to the Talbot Islands, they may be named and numerically coded differently by their respective county soil surveys. See the Appendix for a complete listing and detailed descriptions of the soils identified in each park. Sandy, well-drained soils occur along the beaches and in the rolling

upland ridges. Poorly drained, mucky, organic, sulfur-smelling, lowland soils occur in the estuarine marshes. The soils inland of the beaches tend to be distributed in elongated, well drained, rolling dune ridges or in more poorly drained swales paralleling the ridges (Watts 1991).

Spodosols account for 90 percent of all Big Talbot Island soils. This soil family is the most common in the state, identified by a hardpan or red spodic layer. The hardpan is composed of organic matter, iron, and sometimes aluminum. Layers of the spodic hardpan are visible in long horizontal stripes in the eroded bluffs at Big Talbot Island.

Although Spodosols are very common in Florida, the particular suborder of the soil series Cornelia found on Big Talbot Island is a spodosol with a thick hardpan and is one of the rarer soils in the United States. These particular soils commonly occur in areas dominated by scrub oaks, and characteristically have a very thick accumulation of organic carbon in the spodic layer. The "Black Rocks" on the east shoreline of Big Talbot Island are undoubtedly remnants of spodic horizons from an earlier age and are of unique geologic importance. Mount Cornelia, consisting of dome-shaped knolls on Fort George Island, is also composed of the Cornelia soil series. Most of these soil types formed in the late Pleistocene or Holocene.

On Little Talbot Island, the upland soils are excessively drained sands, with no diagnostic horizons. The dark red, spodic layer found in the Cornelia soil series of Fort George and Big Talbot Islands does not occur on Little Talbot Island. The north end of Little Talbot Island has soils of brown fine sand that contain bands of heavy minerals, mostly rutile and ilmenite. Shell and rock fragments are common. Soil erosion within Amelia and the Talbot Islands is associated with either erosion of the coastal margins of the islands or destabilization of older dune ridges within the interiors of the islands. Erosional forces acting on the inlets and coastlines of the islands are difficult to mitigate, and in fact may serve a purpose in illustrating the pitfalls of placing structures on barrier islands. Staff often resort to temporary measures, i.e., fabric mats or sandbags, to slow the erosion in areas such as the stairway located at the “Bluffs” on Big Talbot Island. Erosion of stabilized dunes within the interior of the islands is often a result of foot traffic trampling the vegetation. Once an area destabilizes, gravity and wind combine to create blowouts or slumping of the dune slopes. Foot traffic is restricted in these sensitive areas. Pedestrian and equestrian trails in the coastal zone are monitored periodically to check for significant impacts on resources. Management activities will follow generally accepted best management practices.


# BIG TALBOT ISLAND STATE PARK
## Management Zones

N

0 0.5 1 Mile

This graphical representation is provided for informational purposes and should not be considered authoritative for navigational, engineering, legal, and other uses.


# LITTLE TALBOT ISLAND STATE PARK
## Management Zones

N

0 1,500 3,000 Feet

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# BIG TALBOT ISLAND STATE PARK
## Topography

N

0 0.5 1 Mile

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LITTLE TALBOT ISLAND STATE PARK
Topography

N

0 1,500 3,000 Feet

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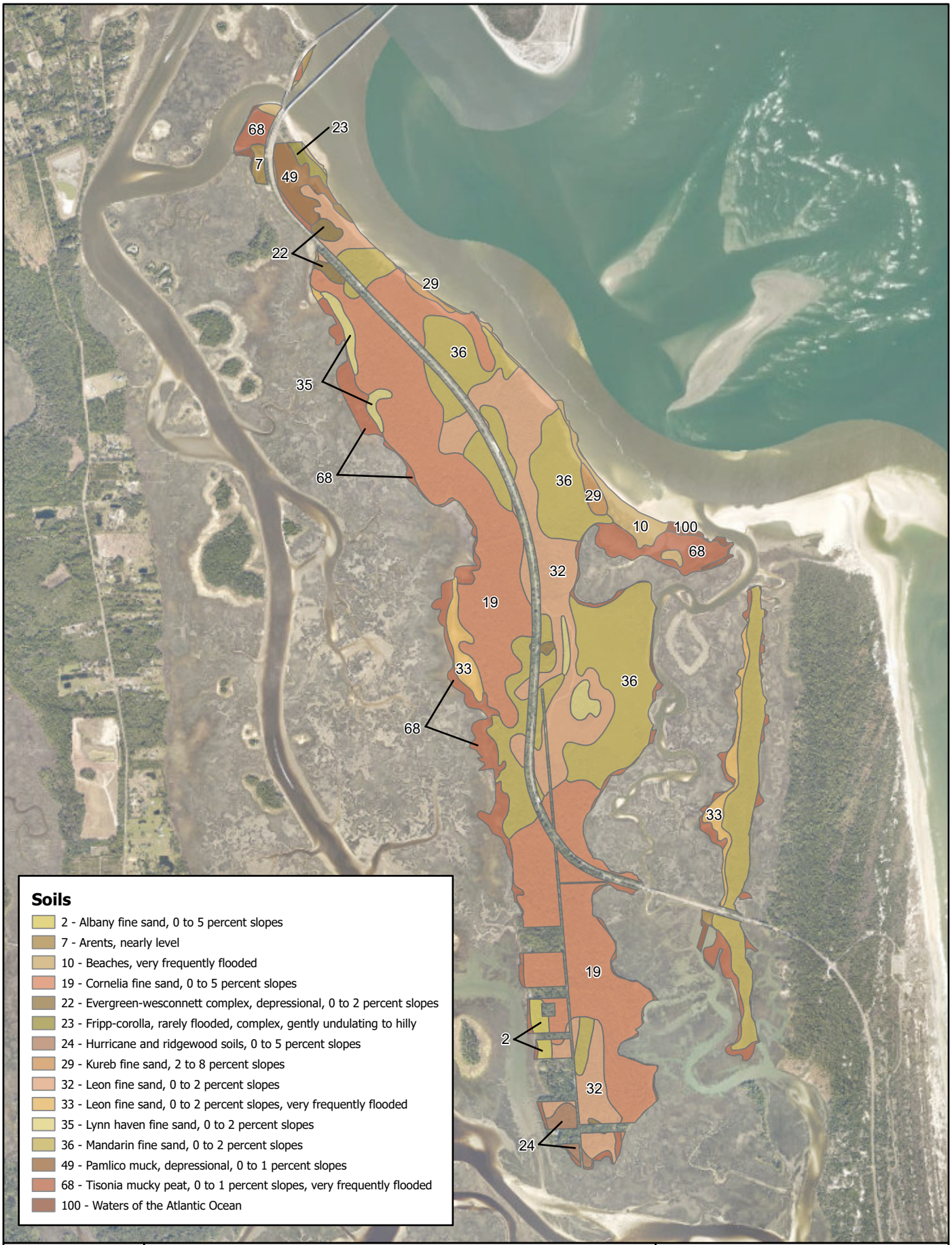


# BIG TALBOT ISLAND STATE PARK
## Soils

N

0 0.5 1 Mile

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# LITTLE TALBOT ISLAND STATE PARK
## Soils

N

0 1,500 3,000 Feet

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## HYDROLOGY

Big and Little Talbot islands are uniquely located on the northeast coast of Florida as part of two major freshwater/estuarine river basins (Nassau and lower St. Johns) and within two distinct sub-basin drainages (Nassau Sound and Fort George River) (DEP 2023a). The downstream reaches of the coastal rivers in this region reverse flow twice daily because of ocean tides (Coffin and Hampson 1992). Historically, the coastal estuaries of northeastern Florida have experienced routine coastal flushing because of this daily flow reversal (Anderson et. Al., 2005).

High tidal flushing is especially important given the increased surface water eutrophication in the northeast region of Florida and harmful algal bloom (HAB) outbreaks that are occurring in the state and globally within many coastal regions (Li et al., 2011; Holdren 2016). Increased global HABs are directly linked to impaired water quality (Michalak 2016).

Big and Little Talbot islands are located immediately south of Amelia Island and are bound by Nassau River/Sound on the north, Sawpit and Mud tidal creeks (i.e., Gunnison Cut) on the west, and the Fort George River on the south.

Also within park boundaries are sections of estuary that encompass two additional tidal creeks and associated salt marsh that are sandwiched between Big and Little Talbot (Simpson Creek and Myrtle Creek). The Atlantic Ocean flanks the eastern shorelines of Big and Little Talbot islands.

The Nassau, St. Johns and Fort George rivers are each important drivers of sediment transport in the region (Adamus et al. 1997; Browder and Hobensach 2003). In Florida, these watersheds and the Atlantic Ocean have strongly influenced geologic processes in the dynamic formation of the Talbots, Fort George, and Amelia islands (Raichle 1993; Adamus et al. 1997, Anderson et al. 2005).

The Talbot islands are located at the southern end of the Sea Island Coastal Region, a chain of coastal barrier islands that extends between the Santee River in South Carolina and the St. Johns River in Florida as detailed under the *Regional Hydrology* section of this plan (Mathews et al., 1980; Foyle et al., 2004; Andersen et al., 2005).

Both barrier islands contain very few freshwater wetlands, but those represented at the park do include depression marshes, wet flatwoods and coastal interdunal swales. Estuarine wetlands in the park include portions of coastal salt marsh and tidal creeks.

These two barrier island state parks share a common estuarine boundary with portions of the Nassau River-St. Johns River Marshes Aquatic Preserve and Timucuan Ecological and Historical Preserve. Additionally, all waters within and surrounding the park boundary are designated as Outstanding Florida Waters (OFW).

The main hydrological issues that influence the park water resources are 1) regional groundwater depletion and saltwater intrusion, 2) increased estuarine water quality degradation and 3) erosion and sedimentation along the shoreline of the Nassau Sound, Fort George Inlet and Atlantic beaches (further discussed in the *Regional Hydrology* section).

## Water Quantity

As the name implies, barrier islands like the Talbots are isolated from the mainland and thus by their very nature have limited surface water and groundwater availability (Tarbox and Hutchings 2003).

There are three fresh groundwater reserves within the coastal barrier island region of Nassau and Duval counties, including the surficial, intermediate and Floridan aquifers (Brown 1984; Toth 1990; NPS 1996; Anderson et al., 2005).

The surficial aquifer in this region is located at or near the land surface and is recommended only for limited utility purposes because of various contamination levels, potentially high salt intrusion and limited yields (Frazee and McClaughtery 1979). The surficial is approximately 150 feet in depth and has been described as sometimes having an upper and lower zone (intermediate aquifer) when low permeable material is present and that can act as a semi-confining layer (Frazee and McClaughtery 1979; Anderson et al., 2005). Underlying the surficial is a nearly 300-feet thick confining layer called the Hawthorn formation that separates it from the Upper Floridan aquifer, the most important source of freshwater in the region and most of Florida (Toth 1990).

The groundwater aquifers beneath the park and barrier island are primarily recharged by local rainfall but are significantly influenced by short/long-term trends in groundwater consumption, including public supply and industry (St. Johns River Water Management District 2017). Regional groundwater withdrawals, specifically at major pumping centers like Jacksonville and Fernandina Beach, have historically resulted in significant impacts, cones of depression and saltwater intrusions into freshwater aquifers (Brown 1984; Peck et al., 2005; St. Johns River and Suwannee River water management districts 2015; SJRWMD 2017). Historic surficial test wells located at Little Talbot Island have demonstrated that the coastal freshwater aquifers are high in chlorides that have resulted from salt intrusion (Anderson et al., 2005; SJRWMD 2023). Coastal Nassau and Duval counties, including the Talbots, fall within an area of critical concern for lateral salt intrusion of the Floridan aquifer, a significant water quality threat to the freshwater reserves of northeast Florida (Frazee and McClaughtery 1979; Spechler 2001; SJRWMD 2017).

As detailed in the *Regional Hydrology* section, given the significant water supply issues and unacceptable groundwater and surface water impacts within the SJRWMD and SRWMD, the Talbot islands are now part of a Water Resource Caution Area (SJRWMD 2017).

## Water Quality

Water scientists have sampled groundwater levels and quality in coastal areas of northeast Florida since at least the 1930s (Frazee and McClaugherty, 1979; Brown 1984; Spechler 2001; Peck et al. 2005). Surface water quality continues to be monitored throughout the northeast region waterbodies by numerous entities, including the SJRWMD, NPS, DEP and the U.S. Environmental Protection Agency (EPA) (Hynds and Starkey 2019; Allen et al., 2022; Pinto et al., 2022; DEP 2023; EPA 2023a). The Amelia River has over 100 stations that are also being monitored as part of EPA Clean Waters Act Section 303 (d) impaired waters rule (EPA 2023a). Additionally, more than 50 stations are scattered across the estuarine waters throughout the Timucuan and Aquatic preserves, and thousands more within the lower St. Johns River basin (Anderson et al. 2005; DEP Map Direct). Unfortunately, there is virtually no data for surface water quality within the boundaries of the Talbot islands, primarily due to the lack of freshwater resources.

There are numerous pollutant sources that have contributed to lower surface water quality of estuarine waters adjacent to the park, including delinquent septic tanks, lawn and golf courses overfertilization, offshore ship, and industrial wastewater effluent releases (Hynds and Starkey 2019; Allen et al., 2022; Pinto et al., 2022; EPA 2023).

Water quality in several tidal creek estuaries surrounding the Talbot islands is being compromised by long-permitted effluent discharge from multiple industrial sources such as paper/pulp mills, power plants, chemical plants and manufacturing plants. For example, one of the largest single contributors of nutrient loading to the lower St. Johns River in this region has a National Pollutant Discharge Elimination System (NPDES) permit to discharge over 800 million gallons per day of wastewater effluent (DEP 2023 Map Direct). This is only one of numerous similar NPDES permits routinely issued throughout the greater Jacksonville region.

Strong routine tidal flushing is an extremely important factor to estuary health because of the known surface water degradation within the regional freshwater and estuarine river basins. Without consistent tidal flushing, contaminants and nutrients that are trapped in the system will remain for even longer extended time periods (Pinto et al., 2022). The tidal flushing in certain tidal creek estuaries surrounding The Talbot islands is slowing down so much that a full exchange of water can periodically be on the order of months. This is largely attributed to the "sanding in" of the Fort George Inlet and corresponding reduction in saltwater exchange.

Over the past several years, multiple stakeholders have been analyzing and summarizing the status and trends of the health of the lower St. Johns River basin. Every year since 2019, a "State of the River" report has been published annually to update the status of up to 44 health indicators within four major categories (aquatic life, contaminants, fisheries and water quality) for this regional waterbody (Pinto et al., 2022). From that work reported in 2022, nearly half of the indicators within all four categories revealed unsatisfactory or worsening trends for this waterbody. Of the most concerning and noteworthy declines (i.e., unsatisfactory, or worsening indictors) were five of seven sediment or water contaminants (e.g., metals= copper, cadmium, lead, nickel) and eight of 13 water quality conditions (e.g., fecal bacteria, dissolved oxygen).

In the two most recent National Park Service (NPS) water quality assessments for the Nassau River, some sampled parameters were stable with no trends. However, during both periods water clarity was in poor condition and nutrient pollutant levels (phosphorus in particular) were rising (Hynds and Starkey 2019; Allen et al., 2022).

The overall trend for surface water quality throughout the northeast region estuarine waterbodies has generally been decreasing and increasingly salty and eutrophic (Williams and Kimbell 2013; Pinto et al., 2022).

**Hydroperiod Alterations and Coastal Erosion/Sedimentation**

Within the region from mid-Georgia south to Little Talbot Island, Florida, the coastal shoreline has changed naturally and anthropogenically in position and volume over the past 150 years (Byrnes and Hiland 1995). The most significant and continuing anthropogenic impact was triggered in the early 1880s when the U. S. Army Corps of Engineers (USACE) constructed artificial jetties at the mouths of the St. Marys River and St. Johns River (Kojima and Hunt 1980; McLemore et al. 1981; Marino, et al., 1990.;

Byrnes and Hiland 1995). Artificial coastal shoreline hardening can function as a complete littoral barrier to the natural alongshore sediment transport (Howard and Olsen 2004). The hydraulic and sediment dynamics of the Atlantic Ocean, Nassau Sound and Fort George Inlet drives changes within the adjacent barrier islands (Dean and O'Brien 1987; Byrnes and Hiland 1995). In reference to the Talbot islands, these changes have impacted southward movement of shoreline sediments from Amelia Island's southern tip, erosion at the "bluffs" at Big Talbot Island, accretion on the northern/middle portions of Little Talbot Island and northward erosion of Little Talbot's southern tip (Raichle 1993; Olsen Associates Incorporated 1999). Estimates of sand transport southward along the Atlantic Ocean shoreline occurs at a rate of $1.48x10^5$ cubic yards per year (Kojima and Hunt 1980).

Nassau Sound and Fort George Inlet are among the last remaining natural inlets on the east coast of Florida that are mostly unaltered by anthropogenic sand moving activities. Both remain unstabilized inlets with very little navigational dredge operations having ever occurred (Olsen and Associates Incorporated 1999; Olsen Associates Incorporated 2006). With the natural alongshore transport that moves sediments from north to south within this western Atlantic region, the St. Mary's Inlet jetty has significantly influenced patterns of erosion at Amelia Island's southern tip. Significant sand pumping renourishment and artificial breakwater construction has been completed at Amelia Island State Park to stabilize this artificially influenced erosion (Olsen Associates Incorporated 2006).

The same artificial influences affecting erosion at Amelia Island's southern tip, as well as the natural barrier island processes lending to migration, have contributed to the scouring of the high "bluffs" shoreline escarpment on Big Talbot Island (Raichle 1993). Over many years, Big Talbot's northeast shoreline has significantly eroded from east to west. DRP staff have modified public access to this area as the shoreline sluffs into the Nassau Sound.

Within the Nassau Sound, a series of sediment shoals known as the Bird Islands are closely associated with sediment transport from Amelia Island. The Bird Island shoals can vary in size/location depending on natural sand migration within the inlet and formation and movement are closely intertwined with complex shoal development processes within the Nassau Sound (Creed and Olsen 1999, Browder and Hobensack 2003).

Like the above-mentioned St. Mary's Inlet hardening, the lower St. Johns River north jetty has also heavily influenced southward migration of coastal sediment (i.e., accretion of Wards Bank= Huguenot Park) posing dire consequences for an eroding southern tip of Little Talbot Island (Olsen Associates Incorporated 1999b). If Wards Bank continues its current trend of growing northward, Fort George Inlet may eventually close. If that should happen, the potential negative ecological health consequences within Fort George Island and the Talbots (i.e., Federal Timucuan and State Aquatic Preserves) surrounding estuarine salt marsh communities could be severe. Of the three primary tidal flushing sources (Nassau, St. Johns and Fort George rivers), Fort George Inlet supplies nearly 60% of the marsh system's water. If inlet closure occurred, marsh waterbodies surrounding Fort George Island and the Talbot islands, including OFWs of the Timucuan and Aquatic preserves, could be further subjected to higher eutrophication levels from both the Nassau and St. Johns rivers as their primary sources (Anderson et al. 2005; DiDonato et al. 2005; Erik Olsen personal communication).

Despite the anthropogenic influences of artificial coastal jetties, the Talbot islands mostly remain protected active examples of barrier islands, highlighting the dynamic geologic processes of sea island evolution.

Artificial ditches have negatively affected the hydrology of several freshwater wetlands of the Talbot islands. There are several historic ditches on Big and Little Talbot islands that were constructed for stormwater drainage along State Road A1A, however no mosquito control ditches are known from these two parks. The issue with artificial ditches is they redirect standing water into deep channels that quickly move it away from historic wetlands instead of allowing the runoff to naturally sheetflow and spread laterally across the topographic landscape. The outcome of the channelized water on the Talbots is that there has been a decrease of overall wetland size, an increase in erosion/sedimentation, and a direct conduit to estuarine communities.

The loss of freshwater wetland acreage on a barrier island, whose presence is already limited, can be dramatic. There is also a concern for lowered water quality from sediment and contaminant-laden runoff into the adjacent estuary. The corresponding saltwater intrusion into freshwater wetlands from tidal flushing can drastically alter both ecosystems. Additionally, ditch elevations can drop nearly five to 15 feet below the surface, and therefore can have a direct interface to the surficial groundwater when present.

Three topographic ditch scars that can be easily seen on digital elevation model (DEM), light detection and ranging (LIDAR) maps are known from northern Big Talbot Island. The two northernmost ditches on Big Talbot Island have culvert connection underneath State Road A1A. This system of ditches served to drain and alter a former string of freshwater depression marshes that have since succeeded to what is now best described as wet flatwoods. A few small, scattered depression marshes still exist just east and north of A1A above the ditches. Priority wetland restoration at Big Talbot Island State Park should focus on the two northernmost ditches (WilsonMiller 2004).

There is also an “old ditch” system that lies just south of these two ditches and appears on DEM LIDAR maps to extend the entire width of the barrier island. This ditch may be an important cultural site for interpretation.

Little Talbot Island has a series of five similar ditch scars that run perpendicular and extend westward from State Road A1A to the adjacent estuarine community. Nearly all of these ditches were constructed in the 1940s to prevent the flooding of A1A (WilsonMiller 2004). All five of the ditches on Little Talbot Island will continue to be assessed for potential restoration, but the priority at this park should focus on the northernmost ditch that can clearly be seen running southwest of A1A on DEM LIDAR maps. This ditch drains a major centrally located coastal interdunal swale freshwater wetland that extends north and south of both A1A and the state park entrance drive just west of the ranger station. Historic placement of both A1A and the park drive has physically impounded and disrupted drainage as well as hydrologic function of this wetland (WilsonMiller 2004).

Additionally, an unusual 3-acre spoil area found on a section of scrubby flatwoods at the northwestern tip of Big Talbot Island may impede hydrological sheetflow.

***Objective A:*** Assess hydrological restoration needs.

- Action 1 - Continue to cooperate with state and federal agencies and researchers regarding hydrological research and monitoring programs within the parks, particularly related to freshwater wetlands, groundwater levels and surface water quality of associated estuarine water bodies.

- Action 2 - Continue to monitor, review and comment on proposed land-use/zoning changes within lands bordering the parks.
- Action 3 - Assess and evaluate hydrological impacts in the parks, especially ditching within coastal interdunal swales, where natural sheetflow has been disrupted. Initiate corrective actions as appropriate.

The most significant hydrological features in these parks include the Atlantic Ocean, Nassau River, Fort George River and coastal interdunal swale wetlands. Control of erosion and sedimentation within all these hydrologic features, as well as preservation of surface water and groundwater quality for all adjacent park water bodies, will remain top priorities for DRP. The following are hydrological assessment actions recommended for the park.

Since the 1940s, regional over-consumption of groundwater has exacerbated the level of saltwater intrusion and created a significant cone of depression near Amelia Island and the Talbot islands. The effects of this significant groundwater depletion on the freshwater wetlands of the parks is unknown. For water managers to be able to protect water quality and potentially restore groundwater to its historic levels, they will need to track the extent of the drawdown. Additionally, regulatory agencies have determined that the surface waters surrounding these parks are impaired because of high levels of several harmful contaminants, including fecal coliforms and mercury. Shellfish harvesting in water bodies throughout the Nassau River basin is currently “unclassified.” Although these water quantity/quality issues are complex, genuine improvements are still achievable. To facilitate that process, DRP will continue its tradition of close cooperation with state and federal agencies and independent researchers engaged in hydrological research and monitoring in the parks, and it will encourage and facilitate additional research in those areas.

DRP will rely upon agencies such as the SJRWMD, U.S. Geological Survey (USGS), National Park Service, and DEP to keep it apprised of any declines in surface water quality or any additional suspected contamination of groundwater in the region. Additional cooperative efforts may include facilitating the review and approval of research permits and providing researchers with assistance in the field, including orientation to park resources. Recommendations derived from these monitoring and research activities will be essential to the decision-making process during management planning. One activity worthy of DRP support is the continued groundwater monitoring of all wells and water bodies under these parks’ jurisdictions.

DRP will continue to monitor land-use or zoning changes within lands bordering the park. Major ground disturbances on neighboring properties or inadequate treatment of runoff into local streams could ultimately cause significant degradation of park resources. When appropriate, DRP staff will provide comments to other agencies regarding proposed changes in land use or zoning that may affect the park.

DRP will also continue to monitor Environmental Resource Permit and large Consumptive Use Permit or any mining operations requests in the St. Marys and Nassau River basins for significant changes that may adversely affect park resources to provide timely and constructive comments that promote protection of the park’s water resources. DRP will continue to work closely with the SJRWMD to ensure that consumptive use permits for the region are responsibly issued and that current groundwater levels are protected and consciously restored to historic conditions.

***Objective B:*** Restore or improve hydrological conditions to approximately 254 acres.

- Action 1 - Conduct an assessment and evaluate the feasibility of implementing restoration within the parks' interdunal swale wetlands and wet flatwoods.
- Action 2 – Conduct an assessment and determine feasibility of backfilling ditches and/or installing ditch blocks within the parks.

The development of State Road A1A, historic roadways, mosquito ditches and over 50 years of significant groundwater demand in the region has had an accumulative impact on previously functioning interdunal swale wetlands at Little Talbot Island State Park. Mosquito ditches and roadways have bisected a variety of upland (e.g., maritime hammock) and wetland (e.g. interdunal swales) natural communities. Visible impacts of these anthropogenic changes at a minimum include fragmentation and an interruption of natural surface water sheetflow within freshwater wetlands. The following hydrological restoration actions are recommended for the park.

DRP will evaluate the condition of all interdunal swale wetlands at these parks by reconnaissance, mapping and determination of current ecological status. DRP will determine if it is possible to restore these wetland communities, specifically those that are bisected by historic mosquito ditches or any that may contribute stormwater to the estuary. If it is determined that restoration is possible, alternatives should include provision for backfilling to restore historic grade, and/or the installation of ditch blocks. DRP will comply with best management practices to maintain the existing water quality onsite and will take appropriate action to prevent soil erosion or other impacts to water resources.

DRP will evaluate other alterations in the park that may have negatively affected natural hydrology. For example, if any historic ditches are contributing excess surface water runoff with potential contaminants into adjacent waterbodies, DRP will determine best management options for remediation and restoration.

***Objective C:*** Evaluate and mitigate the impacts of soil erosion in the park.

- Action 1 - Assess impacts to park resources from coastal erosion and surface water runoff, and implement corrective measures as needed.
- Action 2 - Investigate best management options for erosion mitigation in public access areas, especially Talbot Bluffs.

Several areas in the parks continue to have erosion issues despite past corrective measures. The following are erosion control actions recommended for the park.

DRP will continue its tradition of close cooperation with state and federal agencies engaged in park shoreline protection strategies such as the U.S. Army Corps of Engineers, DEP, FDOT, and the South Amelia Island Shore Stabilization Association (SAISSA) associated with the A1A, Nassau Sound and Fort George River Inlet. DRP will continue to work with all stakeholders to keep apprised of new alternatives that will further stabilize shoreline erosion rates and preserve the historic structural integrity of the Talbot islands.

DRP will regularly monitor areas of the parks that are prone to erosion, especially high-erosion areas such as the Big Talbot Island bluffs and the southern tip of Little Talbot Island. Wherever necessary, DRP will adopt corrective measures to reduce the impacts of soil erosion on water resources.

Big and Little Talbot islands collectively include approximately 8.1 miles of beach along the Atlantic Ocean, all of which are considered among the most critically eroded beaches in Florida. DRP will be engaged in the planning, design, and implementation of multi-agency coastal abatement projects to ensure that park resources and recreational use are adequately considered and protected. Several imperiled species depend on the park's beaches for nesting sites, including three species of marine turtles, as well as least terns and Wilson's plovers. Other imperiled shorebird species, notably the federally threatened piping plover and red knot, use the park's beaches as resting and feeding sites during migration or over winter.

***Objective D:*** Continue to assist federal, state, and local agencies with active monitoring of erosion and accretion cycles and assessment of beach and shoreline conditions following natural disasters.

- Action 1 - Continue to cooperate with federal, state, and local agencies and researchers regarding monitoring and assessment of beach erosion within the parks, particularly related to the Nassau Sound and Little Talbot Island's southeastern tip at Fort George Inlet.

***Objective E:*** Continue to partner with federal, state, and local agencies to fund, design, permit, improve and maintain coastal and beach management programs consistent with the mission of DRP.

- Action 1 - Continue to cooperate with federal, state and local agencies and researchers regarding monitoring and assessment of beach erosion within the parks, particularly related to the Nassau Sound and Little Talbot Island's southeastern tip at Fort George Inlet.
- Action 2 - Continue to review, comment, and establish effective protocols for monitoring imperiled species potentially affected by coastal projects in the immediate vicinity.

The Talbot islands have been a state-designated marine turtle Index Nesting Beach since 1989, and DRP has played an active role in this program monitoring marine turtle reproduction at the park. The parks are also a significant shorebird nesting, migration and over-wintering locations and are monitored year-round for several imperiled species. If sand bypassing or nourishment operations are planned to overlap with marine turtle or shorebird nesting seasons, the USACE and DRP are required to develop and implement a plan to mitigate for potential impacts, including monitoring protocols. For this reason, when DRP is approached for sand bypassing operations on park lands, its partners are always encouraged to conduct construction activities outside the marine turtle and shorebird nesting seasons.

## NATURAL COMMUNITIES

Beach Dune

Beach dunes are typically wind-deposited and are sparsely to densely vegetated with salt-tolerant pioneer species. Though adapted to a harsh environment, dune plants are very vulnerable to human disturbance. The beach dune is usually a very dynamic community due to the unstable nature of active dune fields. Once pioneer vegetation stabilizes a beach dune community, succession to more enduring communities may occur, particularly in areas with long-term shoreline accretion.

Beach dunes are found primarily on Little Talbot Island. The beach dune community is highly variable, which is partly a function of the amount of exposure to prevailing winds and waves. The northeast corner of the park along the Atlantic shoreline is dominated by higher dunes that rise abruptly from the beach. These large, well-developed dunes shelter adjacent maritime hammock from the relatively high energy wave action of the Atlantic Ocean. Disturbance of these large dunes can negatively affect the

mature maritime hammock which is located on the leeward side of the dunes. The shoreline in this area of the park is generally receding, which causes destabilization of the large dunes. Once destabilized, these dunes migrate westward with the prevailing wind and begin to overrun the maritime hammock.

The dune systems at the southern end of Little Talbot Island reach a relatively low height of 10 feet. The primary dune line in this area was dramatically flattened during Hurricane Matthew in 2016. Approximately 3,200 feet of the southern end of the primary dune was flattened by the wave action and storm surge, spreading the sand across the beachfront. The central and northern dunes were already critically eroding prior to Hurricane Matthew, and significant areas of beach dune have been lost in the past decade. Hurricane Matthew's primary impact in these areas was severe overwashing into the coastal interdunal swales, which were exposed and open to the beach due to persistent erosion. At the northern tip of Little Talbot Island, Hurricane Matthew cut a channel between the northern tip of the island and the main island. This northern tip was formed when the former Big Bird Island accreted onto Little Talbot Island in the late 1990s. Over time, the northern tip has reattached to the main portion of Little Talbot Island.

The beach dune community on Little Talbot Island has been affected by foot traffic in the past. Boardwalks through dune systems in visitor-use areas of Little Talbot Island provide the public with convenient access to the beaches, greatly reducing the inclination to create unauthorized footpaths through the dunes.

Chronic erosion along the southeastern corner of Little Talbot Island near the Fort George Inlet has caused significant loss of beach dunes and adjacent natural communities, even prior to Hurricane Matthew. The erosion escalated in the late 1990s, and, since 1998, inlet currents have devoured park facilities such as a fishing pier, associated parking lots, a septic drain field, boardwalks and a well system. Even State Road A1A is threatened. After a period of relative stability, a period of rapid erosion commenced again in 2017 as the Fort George Inlet shifted northward. By 2022, the northern inlet channel had closed off and the beach dunes began a recovery period. Additional information on the recent shoreline changes can be found in the *Atlantic Regional* section.

The beach dune community is in fair to excellent condition. While most of the disturbances in this dynamic community are of natural origins, the erosional forces that drive these disturbances are often accelerated by anthropogenic forces outside the park boundary such as the St. Johns River jetties.

Management of beach dunes usually centers on protection from human disturbance since the adjacent beaches are typically the focal point of recreational activities in coastal parks. Interpretive signs are generally effective in advising park visitors of the need to stay off the beach dunes. Boardwalks leading to dune crossovers provide easy access to shorelines and discourage walking in the beach dunes. Periodic surveys for invasive plant infestations are also important in catching new infestations early. Hand collection of sea oat seeds may be permitted under certain circumstances.

DRP will also continue to coordinate with the U.S. Army Corps of Engineers and other federal and state agencies on the management of the Nassau Sound and Fort George Inlet since these inlets influence the shorelines of the Talbot Islands State Parks. DRP will also monitor beach renourishment activities that affect the parks.

Coastal Grassland

Coastal grasslands occur primarily on Little Talbot Island, typically appearing on the more recently deposited sediments on the leeward side of beach dunes. Embedded within the coastal grassland on Little Talbot Island are freshwater wetlands mapped as coastal interdunal swales. Big Talbot Island, geologically much older than Little Talbot Island, naturally has a very limited area of coastal grasslands which occur at the northern end of the island. Little Talbot Island has extensive areas of coastal grasslands on the southern half of the island. Grasslands also occupy a narrow zone behind the beach dunes at the northern end of the island.

On Big Talbot Island, the small patch of coastal grassland is relatively undisturbed except for erosional effects from shoreline recession. On Little Talbot Island, the development of park facilities such as parking lots, picnic shelters and bathhouses has had some impact on the coastal grasslands. Additional disturbance in the form of drainage ditching has also occurred within the grasslands on the western side of the island. Additional information on these areas is included in the description of altered landcover types below. The coastal grasslands are generally in excellent condition on Big and Little Talbot islands.

Coastal grasslands are an inherently dynamic environment maintained by periodic saltwater overwash and intermittent blowouts and wind erosion. The vegetation is adapted to colonize recent disturbances. Minimizing unnatural disturbances from vehicle, pedestrian, and bicycle traffic is a primary management measure. Coastal grasslands should also be monitored for invasive plant species, including beach vitex (*Vitex rotundifolia*), which is an emerging invasive species in Florida coastal zones.

Coastal Strand

Coastal strand communities typically form a transition zone between younger beach dune and coastal grassland communities and older maritime hammocks. On Big Talbot Island, coastal strand occurs where recession of the Atlantic shoreline has exposed the maritime hammock community to increased incidence of salt spray. On the southern half of Little Talbot Island, as the process of succession proceeds, pockets of coastal strand are forming where shrubs have colonized portions of the coastal grasslands.

Typically, coastal strand develops in relatively stable and sheltered areas within the coastal grassland or beach dune communities. Coastal strand is a shrub-dominated community usually maintained by wind-driven salt spray. Periodic fire may also be a factor in maintaining this community and preventing its succession to maritime hammock. Along the northeast coast of Florida, in areas protected from salt spray, coastal strand may undergo succession to maritime hammock.

Succession of this type has occurred on Big Talbot as the island has expanded eastward and as the influence of salt spray in the interior has diminished. This is especially true for the lower part of Big Talbot Island, which is buffered from extreme events by the presence of Long Island and Little Talbot Island to the east. With the dramatic recession of the Big Talbot Island shoreline over the past several decades, however, wind-driven salt spray now assaults the seaward edges of the maritime hammock and scrubby flatwoods, sculpting trees and shrubs into the dwarfed, pruned stands that typify coastal strand. The relatively narrow band of coastal strand that occurs along the northeast shoreline of Big Talbot Island is an example of this reversed succession. The coastal strand here is dynamic in the sense that, as wave action undercuts the shoreline, trees and shrubs fall onto the beach, exposing additional areas to the effects of the wind and salt spray. The coastal strand community is in good to excellent condition.

Unlike better developed coastal strands that occur further south along the Atlantic coast, and which share affinities with scrub vegetation, the coastal strand at Little Talbot Island developed recently as a result of the rapid accretion of sand after the construction of the St. Johns River jetties. Fire does not appear to play a significant role in these young coastal strands that quickly succeed toward maritime hammock as the shoreline expands and reduces the effects of salt pruning. Older coastal strands that occur on stable shorelines are maintained in an early successional stage by constant salt spray and may be more pyrogenic as they mature and develop extensive stands of saw palmetto and pyrogenic oaks. The coastal strand at Little Talbot Island is not considered a fire-maintained natural community. The coastal strand should also be monitored for the presence of the exotic cactus moth since prickly pear cactus may also occur here.

Maritime Hammock

Maritime hammock dominates the southern and western portions of Big Talbot Island, while on Little Talbot Island it is restricted to the northwestern quadrant. Live oak (*Quercus virginiana*) dominates the tree canopy in undisturbed areas, and laurel oak (*Quercus laurifolia*) is found in old road scars and other disturbed areas. Redbay, southern magnolia (*Magnolia grandiflora*), American holly (*Ilex opaca*), hackberry (*Celtis laevigata*) and cabbage palm (*Sabal palmetto*) are common in the subcanopy, and remnant red cedars occur throughout the area. Within the hammock, the undulating dune topography incorporates high ridges and low interdunal troughs. The latter features are sheltered, moist habitats filled with wax myrtle (*Myrica cerifera*), grape (*Vitis* spp.), peppervine (*Ampelopsis arborea*) and occasionally cinnamon fern (*Osmunda cinnamomea*).

The maritime hammock on Little Talbot and Long islands occupies relatively steep, stabilized dunes, and appears to have been less affected by human occupation. These areas, however, are naturally more vulnerable to erosion from foot traffic. Unauthorized foot traffic within the maritime hammock around the Little Talbot Island campground has caused erosion on several large dunes.

The maritime hammock on Big Talbot Island occurs on older sediments. There is little topographic relief compared to the steep slopes of the younger stabilized dunes found on Little Talbot and Long islands. Human activities over the last few thousand years have had a significant impact on the maritime hammock of Big Talbot Island, perhaps due to the flat terrain of the island and its relatively sheltered location. The community has displayed some resilience, however. The maritime hammock has reclaimed aboriginal clearings and shell middens, as well as 18$^{th}$- and 19$^{th}$-century plantations, thereby showing some ability to recover from the massive natural and cultural disturbances of the past. Although most if not all the maritime hammock on the island is second growth, it now appears relatively undisturbed except where modern development has occurred.

Traces of several abandoned roads are still detectable in the maritime hammock of the parks. Where present, these old roads follow the troughs which run parallel to the dune ridges. Where the roads cross from one trough to another, the dune ridges have been flattened. Portions of these roads run alongside the interdunal wetlands within the maritime hammock, but other sections pass through closed canopy hammock. Roads may severely disturb maritime hammock, especially when the canopy is broken to the extent that salt-laden onshore winds can penetrate the vegetative cover (Bellis and Keough 1995).

Fortunately, the tree canopy within the park's maritime hammock has recovered remarkably and achieved almost complete closure over the abandoned roads. Researchers have found that footpaths and hiking trails have little effect on the vegetation of the maritime hammock as long as the canopy is kept intact, although there are impacts on wildlife, particularly reptiles and amphibians (Gaddy and

Kohlsaat 1987). Roads and trails within maritime hammock can alter drainage patterns when oriented perpendicular to the parallel dunes (Gaddy and Kohlsaat 1987). Although the old roads of the park may be serviceable as trails, any removal of the tree canopy to "improve" them could severely impact the adjacent tree canopy on the downwind side of the disturbance.

Receding shorelines along the Atlantic coasts of Big Talbot and Little Talbot islands are impacting several areas of maritime hammock. Erosion in these areas is causing large oaks to topple onto the beaches at Big Talbot and Little Talbot islands and is encouraging active dunes to smother maritime hammock on Little Talbot Island. As trees along the immediate shoreline die or fall onto the beach, increasing the exposure of vegetation further inland to the influences of wind and salt spray, the ecological succession that typically operates on accreting barrier islands is effectively reversed.

The maritime hammocks of the coastal barrier islands are important habitat for wildlife of all kinds, but they additionally serve as important refugia for migrating songbirds. Loss of maritime hammock to development along the Atlantic coast has reduced this once continuous forest to isolated patches. Preservation of these remaining patches is a top priority. The maritime hammocks in the Talbot Islands State Parks are in good to excellent condition.

Management of maritime hammock primarily focuses on preventing disturbances. While erosional processes in coastal areas can be difficult to control, other disturbances such as roads and canopy clearing can be minimized. Routine monitoring for invasive plants is also a priority management measure.

Scrubby Flatwoods

This natural community covers much of the eastern half of Big Talbot Island. Although scrubby flatwoods and true scrub have a similar appearance and the communities share many species, the soil characteristics of the Big Talbot Island scrub support its classification as scrubby flatwoods. In fact, Myers (1990) states that true scrub does not extend north of St. Johns County. MacLaren (1991) identified the Big Talbot Island scrub as coastal scrub, a Florida Natural Areas Inventory (FNAI) synonym of coastal strand. That community, however, typically is under the direct influence of salt spray (FNAI 1990). The scrub forest on Big Talbot Island is much broader and extends further inland than does typical coastal strand. Sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*) and occasionally Chapman's oak (*Quercus chapmanii*) are the principal tree species within the Big Talbot Island scrub, with staggerbush (*Lyonia spp.*), wild olive (*Osmanthus americanus*), and sparkleberry (*Vaccineum arboreum*) scattered throughout.

The physical appearance of the scrubby flatwoods community on Big Talbot Island varies considerably. In some areas, the scrub oaks are well developed but maintain a low stature, while in other areas the scrub appears on the verge of succession to xeric hammock, with the oaks often reaching tree height. The incidence of fire, and perhaps of other natural disturbances, appears to have played a major role in determining the current condition of the scrubby flatwoods. Fire suppression or exclusion had been the general rule in this area for many years until the park initiated its prescribed fire program in March 1990. In 1990 and 1991, approximately 440 acres of scrubby flatwoods were burned on Big Talbot Island. The presence of State Road A1A, which passes through the scrubby flatwoods, made prescribed fires very difficult and dangerous due to concerns over impacts on high-speed traffic. In 2017, a mowing project was completed to manage the fuels on 250 acres of the scrubby flatwoods. The following year, in 2018, 314 acres of scrubby flatwoods were treated with prescribed fire. The majority of the scrubby

flatwoods are in good to excellent condition, but some areas still require mechanical treatment and fire and are in fair condition.

The Big Talbot Island scrubby flatwoods grades into maritime hammock to the west and coastal strand to the east. The coastal strand overlaps in species composition with the scrubby flatwoods community, but it differs in being under the direct influence of coastal winds and salt spray. Since the Big Talbot Island shoreline is receding in this area and constantly exposing new areas of vegetation to salt spray, it is likely that today's coastal strand may well have once been scrubby flatwoods.

The scrubby flatwoods community contains a variety of wildlife species, although the ranges of many of the species endemic to scrub and scrubby flatwoods do not extend this far north. The gopher tortoise is a resident of the scrubby flatwoods and the adjacent coastal strand.

Management of the scrubby flatwoods will entail additional mowing in areas that require fuel management followed by prescribed fire. Areas that were burned in 2018 should be burned within the recommended fire return interval and should not require additional mechanical treatment. Routine monitoring for invasive exotic plant species will also be continued.

Shell Mound

Several small shell mounds occur within tidal marsh areas adjacent to Big Talbot Island and Long Island. Big Talbot Island is the location of 8DU1, which is known as the Grand Site, and which contains a shell ring in addition to other archaeological resources. In addition, the Rollins Bird and Plant Sanctuary on Fort George Island contain a remarkable example of shell mound. Shell deposits here are particularly deep and relatively undisturbed.

The shell mound natural community commonly supports plant species such as tiny-leaved buckthorn (*Sageretia minutiflora*) that are climatically out of their normal range in north Florida. The Grand Site on Big Talbot Island is particularly notable for its assemblage of tiny-leaved buckthorn, tropical sage (*Salvia coccinea*), soapberry (*Sapindus saponaria*) and other distinctive plant species. Southern red cedar (*Juniperus silicicola*) is often an indicator plant in the more exposed portions of shell mounds, and roots of red cedar and live oak often spread across the tops of midden piles. The shell mound community at the Rollins Sanctuary, although similar in appearance to maritime hammock, harbors several calcium-loving species such as tiny-leaved buckthorn and Godfrey's privet (*Forestiera godfreyi*) that are not found in the hammock. Two plant species that are at the northernmost limits of their range, low peperomia (*Peperomia humilis*) and wild coffee (*Psychotria nervosa*), also thrive there.

Maritime hammock may sometimes supplant a shell mound community. Such has likely happened at midden sites on Long Island and along Houston Road on Big Talbot Island. Shell even underlies surface soils within the scrub community at Half Moon Bluff on Big Talbot Island. Conceivably, early plantations used Timucuan shell middens extensively in agricultural activities, causing a gradual intermingling of shell and natural soils throughout the island. In general, the shell mounds are in fair to good condition.

Shell mounds are often threatened by erosion since they are usually near water. Monitoring of shell mounds for erosion and human disturbances or digging is essential for protection. Routine monitoring for invasive plant species is also an important management measure. In some cases, vegetation management is necessary to prevent impacts to archaeological resources from root damage, particularly from young, fast growing tree species. In some cases, removal of established trees may be necessary to prevent damage from tree tip-ups.

Wet Flatwoods

The wet flatwoods community, with its characteristic pond pines (*Pinus serotina*), occurs on Big Talbot Island only. There the wet flatwoods tend to occupy areas of lower elevation where the water table lies much closer to the surface than in the surrounding scrubby flatwoods and maritime hammock communities. Such conditions exist in a long narrow swale that stretches in a north-south direction for over a mile through the center of the island. Within this relict swale, wet flatwoods are interspersed with grassy depression marshes.

At one stage in the formation of the island, this interior strand of wetlands may have been an interdunal swale similar to the younger versions that exist on Little Talbot Island today. With the gradual natural eastward expansion of Big Talbot Island, this swale became increasingly isolated from the influence of saltwater. As succession progressed, wet flatwoods species such as pond pine and slash pine eventually invaded the wet swale. This intrusion by woody species probably has accelerated since 1960 because of hydrological changes attributable to drainage ditches excavated by the Florida Department of Transportation during construction of State Road A1A. Hydrological fluctuation is the dominant agent in maintaining the natural state of the wet flatwoods, but some degree of restoration of this community may be possible through the periodic application of prescribed fire. Unfortunately, fire exclusion has been the standard practice on Big Talbot Island over the past half-century. The first recorded prescribed fire of the Big Talbot Island wet flatwoods took place in March 1990. Application of prescribed fire in the wet flatwoods on Big Talbot Island is very difficult due to the heavy fuel loading and proximity of A1A.

Prescribed fire should be the primary management tool in the wet flatwoods, but the difficulty of burning these areas due to smoke management concerns may require additional management techniques. Consideration will be given to mechanical reduction of fuels in the wet flatwoods, if that is possible without severe disturbance to the wet soils. Routine monitoring for invasive exotic plants will also be an important management measure.

Coastal Interdunal Swale

The coastal interdunal swales that occur on Little Talbot Island are typical examples of this community type. The swales run generally north-south in the low areas between older dune ridges within coastal grassland and coastal strand. Shrubby vegetation gradually becomes established within swales over time. Periodic inundation with saltwater during storm surges associated with extreme high tides or tropical cyclones often resets succession and causes woody vegetation to die back. With the exception of swales that were impacted by the drainage swales along the park drive and State Road A1A, the coastal interdunal swales are in excellent condition.

Routine monitoring for invasive exotic plants species will continue in the coastal interdunal swales. Swales should also be protected from foot traffic through the judicious use of boardwalks or bridging.

Depression Marsh

Depression marsh communities are found on Big Talbot Island. With a couple exceptions, the depression marshes on Big Talbot Island are concentrated within areas of wet flatwoods. Ditches and impoundments have disrupted the hydrology of the depression marshes. On Big Talbot Island, roadside ditches associated with State Road A1A have altered the natural hydroperiod of depression marshes situated in a long swale that runs through the middle of the island. The ditches accelerate the drainage of freshwater.

A freshwater cattail marsh known as Spoonbill Pond once existed at the north end of Big Talbot Island east of A1A. The marsh actually developed within an impoundment created by the construction of A1A and the deposition of dredge spoil derived from the Intracoastal Waterway. Aerial photographs taken in 1943, before construction of the state road, clearly show that this marsh was continuous with salt marsh northwest of Big Talbot Island. During the period when a freshwater regime dominated the system, it was appropriate to classify it as a depression marsh. Winter storm events, however, have created breaches in the dredge spoil piles, reintroducing saltwater and tidal influences to this system. This area is now mapped as estuarine composite substrate.

The depression marshes on Big Talbot Island will be monitored for invasive plants and will be allowed to burn with the surrounding wet flatwoods. If mechanical treatment of the fuels is necessary in the wet flatwoods, consideration will be given to treating hardwoods and pines within the depression marshes to maintain a more natural open area.

Salt Marsh

Extensive salt marshes surround Long Island and border Big Talbot Island and Little Talbot Island. The largest section of salt marsh actually managed by DRP lies within the boundaries of the Rollins Bird and Plant Sanctuary on Fort George Island. This marsh is a low marsh dominated by saltmarsh cordgrass (*Spartina alterniflora*) with small clumps of black needle rush (*Juncus roemerianus*) interspersed. The salt marshes at Big Talbot Island are relatively pristine except for a few spoil islands created during dredging of the Intracoastal Waterway. Big Talbot Island State Park is one of the very few coastal parks in Florida where no ditching for mosquito control has occurred.

The most unusual of the estuarine communities is an inlet that lies north of Half Moon Bluff. Historical 1873 maps show that a meander of Simpson's Creek bowed into this area, scouring the base of the bluff. The creek has changed course significantly during the past 100 years, however, shifting to the south. The salt marsh that now occupies the inlet is isolated and pristine. A fringe of needle rush follows the periphery of the inlet, while a large salt pan is located on the northern edge.

The salt marsh community probably contains the highest diversity of animal species of all the natural communities on or around the Talbot islands. Invertebrates are abundant and include mud snails, salt marsh periwinkles, ribbed mussels, blue crabs, fiddler crabs, shrimp and polychaete worms. Many wading birds such as herons and egrets frequent the tidal marshes year-round. Seasonal visitors include the wood stork (*Mycteria americana*) and white ibis (*Eudocimus albus*). Many varieties of ducks also stop over during migration.

Unfortunately, many of these species are sensitive to disturbance from human intrusion. Recent increases in foot traffic within the marshes has led to increased disturbance of wildlife as well as some habitat damage and erosion along the unauthorized foot paths. The use of motorized vessels, particularly personal watercraft, within the narrower tidal creeks has also caused an increase in wildlife disturbance and has accelerated erosion within the salt marsh.

Most of the salt marsh areas surrounding the Talbot Islands are privately held, with only limited areas within the park boundary. Pedestrian access to the salt marsh within the park should be limited to prevent damage to the salt marsh vegetation. Landings of boats and paddle craft should also be discouraged except at designated launch sites to protect salt marsh vegetation along the parks' shorelines.

Estuarine Composite Substrate

Estuarine composite substrate is a broad community designation encompassing a number of mineral and faunal-based estuarine communities that exist in a given area, but in quantities too small to delineate separately. The estuarine composite substrate identified within the Talbot Islands State Parks includes communities such as estuarine mollusk reef and estuarine unconsolidated substrate. Individually mapping these intermingled subtidal and intertidal natural communities is very difficult, so together they receive a classification as estuarine composite substrate. Protection of the estuarine communities from outside impacts and contamination is the primary management action.

Estuarine Mollusk Reef

Estuarine mollusk reefs are found within tidal creeks that weave through the marshes adjacent to Big and Little Talbot islands, but the reefs are too scattered or diffuse to map accurately. As described above, acreage for mollusk reefs is included within the total acreage for estuarine composite substrate.

The eastern oyster (*Crassostrea virginica*) is the dominant species in the estuarine mollusk reef, although other mollusk species also inhabit the reef. Mollusk reefs are vulnerable to impacts from degradation of water quality. The mollusk reefs at the Talbot islands are situated within Class II waters, but shellfish harvesting is now locally prohibited due to water quality concerns.

Protection of water quality and quantity is the primary management measure for estuarine communities but is often contingent on activities well outside the park boundaries.

Estuarine Unconsolidated Substrate

Specific examples of estuarine unconsolidated substrate within the Talbot islands include tidal creeks and tidal flats or salt pans. For mapping purposes, as with mollusk reef, this community is lumped under the category, estuarine composite substrate. As described above, acreage for estuarine unconsolidated substrate is included within the total acreage for estuarine composite substrate.

Numerous tidal creeks, both large and small, lie within the salt marshes of the Talbot islands. These creeks provide critical habitat for many fish species. Diamondback terrapins (*Malaclemys terrapin centrata*) range within the creeks and nest on adjoining sandy shorelines. West Indian manatees (*Trichechus manatus*) visit the tidal creeks seasonally, particularly during spring and fall migration.

Salt pans, occurring in the upper intertidal zone, function as ecotones in association with the salt marshes that fringe Big Talbot Island, Long Island and Little Talbot Island. These flats are barren and sandy, with a soil salinity reaching 200 parts per thousand in the dry season. Algae and insects flourish in the pans during the wet season, and in the dry season insects and other arthropods frequent complex underground labyrinths. Certain organisms in the salt pans are used as fish bait, and at one time fishermen had despoiled the pans by digging and driving, especially on the northwestern side of Long Island. Now the pans are relatively intact and are some of the last in the state unspoiled by ditching.

Fiddler crabs, marsh crabs and other crustaceans and mollusks constitute a vital link in the food chain for the incredible number of fish species that feed and spawn in the tidal creeks of the area. At low tide, exposed tidal flats provide critical feeding areas for many types of shorebirds and wading birds. Boat traffic in the creeks and foot traffic on the flats may each create a high potential for wildlife disturbance. Protection of the estuarine communities from outside impacts and contamination is the primary management action.

Marine Unconsolidated Substrate

This natural community is the beach that rims the eastern side of the Talbot islands. On Big Talbot Island, this community is relatively narrow. Dead trees that have fallen from the eroding bluffs are strewn along the beach. The receding contour of Nassau Sound provides the Big Talbot Island shoreline with relative protection from the pounding of the Atlantic Ocean, but not the powerful ebb and flood tides from the Nassau River.

Little Talbot Island has a more typical beach since it has a more exposed and much higher energy shoreline. The broad tidal flat at the northeastern end of Little Talbot Island that formed when Big Bird Island fused to the end of the island in the late 1990s has eroded significantly in the past decade. Hurricane Matthew in 2016 reopened a channel through this area. Since that time, the channel has slowly been filling in and reconnecting to the northern tip of the island. At the southern end of Little Talbot Island, currents associated with the St. Johns River jetty and the Fort George Inlet have scoured away much of the southeastern tip. Tides have washed away a fishing pier, an associated parking lot, and a septic drain field. The south tip of Little Talbot Island is armored with concrete riprap to protect the State Road A1A right-of-way and the Fort George Inlet bridge.

This natural community has been affected more than any other by the drastic changes in littoral drift processes along this coastline. Recent recession and accretion patterns are discussed in the *Topography* section.

Wildlife species that frequent the Talbot islands beaches include various species of raptors, terns, gulls and shorebirds, several of which nest on the higher portions of the beaches. Most of these species use the beaches as resting and feeding areas, and many do not tolerate disturbance. Included among these species are some that are listed as threatened or endangered and others that have declined markedly in North America over the past several decades. The beaches on Little Talbot Island also provide nesting sites for marine turtles, primarily the Atlantic loggerhead (*Caretta caretta caretta*). Beach renourishment activities, including pipelines on the beach and direct placement of dredge spoil, can have direct impacts on nesting female turtles, nests and hatchlings.

Ghost crabs frequent the upper areas of the beaches, while coquina clams and hausteriid amphipods live within the intertidal sands. Numerous marine mollusks occur within the subtidal zone of the beaches, along with many species of marine fish.

By their very nature, marine unconsolidated substrates are very resilient and can recover from severe disturbances. Renourished areas quickly take on the characteristics of a natural beach, assuming that the proper type of spoil was used for renourishment. However, the imperiled species that use these habitats are not nearly so resilient. Protection of shorebirds from human and canine disturbances is a priority management measure for the shorelines at Amelia and the Talbot islands. Strategically placed signage, temporary closure of limited areas and diplomatic enforcement of the park rules are usually sufficient to protect shorebirds. Renourishment activities that involve laying pipelines within the park or the placement of sand within the park should be restricted to the fall and winter months to avoid impacting marine turtle and shorebird nesting areas. After renourishment activities, the park is responsible for monitoring the condition of the beach to prevent escarpments or sand compaction from affecting subsequent nesting by marine turtles.

Artificial Pond

Two stormwater retention ponds were constructed by FDOT in 2003 at the southern end of Little Talbot Island in association with the Fort George Inlet parking area. Two smaller retention ponds were built around 1999 at the north end of Big Talbot Island in association with the boat ramp parking area.

Canal/Ditch

Several ditches occur on Big Talbot and Little Talbot islands. Some were likely dug to increase drainage in existing wetlands, while others were dug within uplands to apparently provide drainage for State Road A1A. At least three east-west oriented ditches occur on Big Talbot Island. One, the "Old Ditch," runs from the vicinity of A1A east to Simpson Creek and may have historical significance. At least two other ditches extend from A1A west to the edge of the salt marsh along the Intracoastal Waterway. These ditches probably drain stormwater that accumulates in the roadside swales of A1A. The ditches located west of A1A on Little Talbot Island also apparently provide drainage for the state road. The long-term desired future condition for these drainage ditches is to gradually restore the original natural community types which include maritime hammock, coastal strand, coastal grassland and coastal interdunal swale.

Developed

Developed areas consist of natural communities that have been replaced or nearly replaced by structures or permanently cleared areas. Developed areas range from minimally developed visitor access areas such as the bluffs on Big Talbot Island to the large, paved parking lots on Little Talbot Island. At Big and Little Talbot islands, these areas include roads, a boat ramp and restroom, the Timucuan Trail, the shop complex, residence areas, Little Talbot Island State Park ranger station, bathhouses, family campground, parking lots, and picnic pavilions. Long Island includes a kayak launch and dock and a visitor service provider facility for kayak rentals. The developed areas within the park will be managed to minimize the effect of the developed areas on adjacent natural areas. Priority invasive plant species (Florida Invasive Species Council Category I and II species) will be removed from all developed areas. Other management measures include proper stormwater management and development guidelines that are compatible with prescribed fire management in adjacent natural areas.

The long history of human occupation Big Talbot Island has left some areas that were once cleared, but which have recovered to the extent that it is now difficult to discern the previous disturbances. Clearing for agriculture at one time probably removed much of the forest on Big Talbot Island, but maritime hammock has reclaimed these areas.

Spoil Area

Limited areas within the park are mapped as spoil areas. Although not mapped separately in most cases, there are eroded spoil ridges and piles associated with some of the drainage ditches on Big and Little Talbot islands that are mapped as canal/ditch within the park. These spoil areas will be left in place in most cases since they have been colonized by native vegetation or mimic the natural topography of the coastal grasslands. A U-shaped spoil bank of unknown origin or purpose is located at the north end of Big Talbot Island west of State Road A1A. It appears to be associated with vegetation clearing prior to 1960.

Large areas of spoil from channel dredging in the mid-1900s were disposed of on the north end of Big Talbot Island. These spoil islands have been colonized by native vegetation and are mapped as coastal strand in most cases.

***Objective A:*** Maintain 250 acres within the optimum fire return interval.

- Action 1 - Develop/update annual prescribed fire plan.
- Action 2 - Conduct prescribed fire on between 36-111 acres annually.

Although fires occur naturally on barrier islands, the natural communities on Little Talbot Island do not appear to be fire-dependent. If lightning-set fires do occur on Little Talbot Island, they are likely to be very small in scope and should not trigger large-scale suppression responses. Staff should monitor such fires and extinguish them immediately if they threaten visitors or facilities, or if smoke becomes a hazard to State Road A1A. According to park staff, lightning-set fires on the island usually die out naturally without need for any suppression. Prescribed fires on Little Talbot Island could be used to maintain the coastal interdunal swales and coastal grasslands, but periodic flooding and saltwater overwash events seem to be the dominant forces that reset succession in these community types on Little Talbot Island.

In contrast, Big Talbot Island contains over 500 acres of fire-maintained habitat, in natural communities such as wet flatwoods, scrubby flatwoods, and depression marsh. Due to the proximity of the fire-type communities to the ocean and the presence of A1A in the center of the island, the prescribed fire program at Big Talbot Island State Park demands careful attention to detail. DRP staff revises the prescribed fire plan for Big Talbot Island State Park annually. The plan provides detailed descriptions of the prescribed burns planned for each upcoming year.

The fire-return interval recommended by FNAI for scrubby flatwoods is 5-15 years, while that for wet flatwoods varies from 1-3 years to 5-10 years depending on pine species and location. Due to the mosaic-like distribution of these two communities on parts of Big Talbot Island and the difficulty in isolating burns within one community type, a fire-return interval of 3-10 years for the flatwoods in general is recommended. In 1990 and 1991, approximately 440 acres of scrubby flatwoods were burned on Big Talbot Island. The presence of A1A, which passes through the scrubby flatwoods, made prescribed fires very difficult and dangerous due to concerns over impacts on high-speed road traffic. In 2017, a mowing project was completed to manage the fuels on 250 acres of scrubby flatwoods. The following year, in 2018, 314 acres of scrubby flatwoods were prescribe burned.

The Timucuan Trail runs east of and roughly parallel to State Road A1A. This paved trail serves as an additional firebreak on the island. The trail will separate some of the roadside depression marshes from the flatwoods to the east and should enhance the ability of staff to manage the amount of smoke drifting onto A1A during prescribed fires.

The prescribed fire program at Big Talbot Island State Park follows these general guidelines:

1. To the extent possible, firebreaks on Big Talbot Island will follow existing roads or other disturbances. One factor that complicates prescribed burning on Big Talbot Island is the presence of numerous cultural sites, some of which could incur damage during the preparation of firebreaks or during the actual prescribed fires. Staff will exercise due caution when maintaining firebreaks located on historic roads. Staff will prevent or minimize ground disturbance in vicinity of cultural sites or historic roads and use soft firebreaks as an alternative to hard breaks where practical. Soft breaks may include mowed lines that are wet down or covered with foam.

2. Emphasis will be placed on avoidance of undue stress to slash pines and pond pines in areas of the wet flatwoods where fire suppression or hydrological alterations have promoted abnormal increases in fuel loading. Where feasible, staff will try to burn pine-dominated areas under milder conditions to reduce fuel loads before attempting prescribed fires in adjacent scrubby flatwoods. Ignition of prescribed fire in the scrubby flatwoods requires relatively severe fire-weather conditions, and fires are usually very intense with a rapid rate of spread. These factors combine to produce fires that can be very destructive to pines in adjacent wet flatwoods, especially those that possess unnaturally high fuel loads.

3. Smoke management will be a primary concern when planning prescribed fires at Big Talbot Island State Park. The location of State Road A1A on the leeward side of the great majority of the Big Talbot Island burn habitat creates a major predicament in smoke management. During most of the year, the prevailing winds are easterly sea breezes that will direct smoke toward the state road during prescribed fires. When burning in zones located east of A1A, staff will take extra precautions to reduce smoke hazards on the state road. Staff will consult with the Jacksonville District of the Florida Forest Service in developing the best prescribed fire strategies available to accomplish burn goals while keeping State Road A1A safe. Staff will also coordinate closely with law enforcement agencies to develop effective procedures for maintaining safe traffic flow during times when smoke drifts across the state road during prescribed burns on Big Talbot Island. These procedures will include the posting of smoke warning signs during all prescribed fires and the use of law enforcement officers, as necessary, to convoy private vehicles safely through smoke-obscured areas. In the development of fire prescriptions for Big Talbot Island State Park, staff will also take into consideration other nearby smoke sensitive areas, including private residences on Big Talbot Island and the Mayport Naval Station with its associated infrastructure and airstrips.

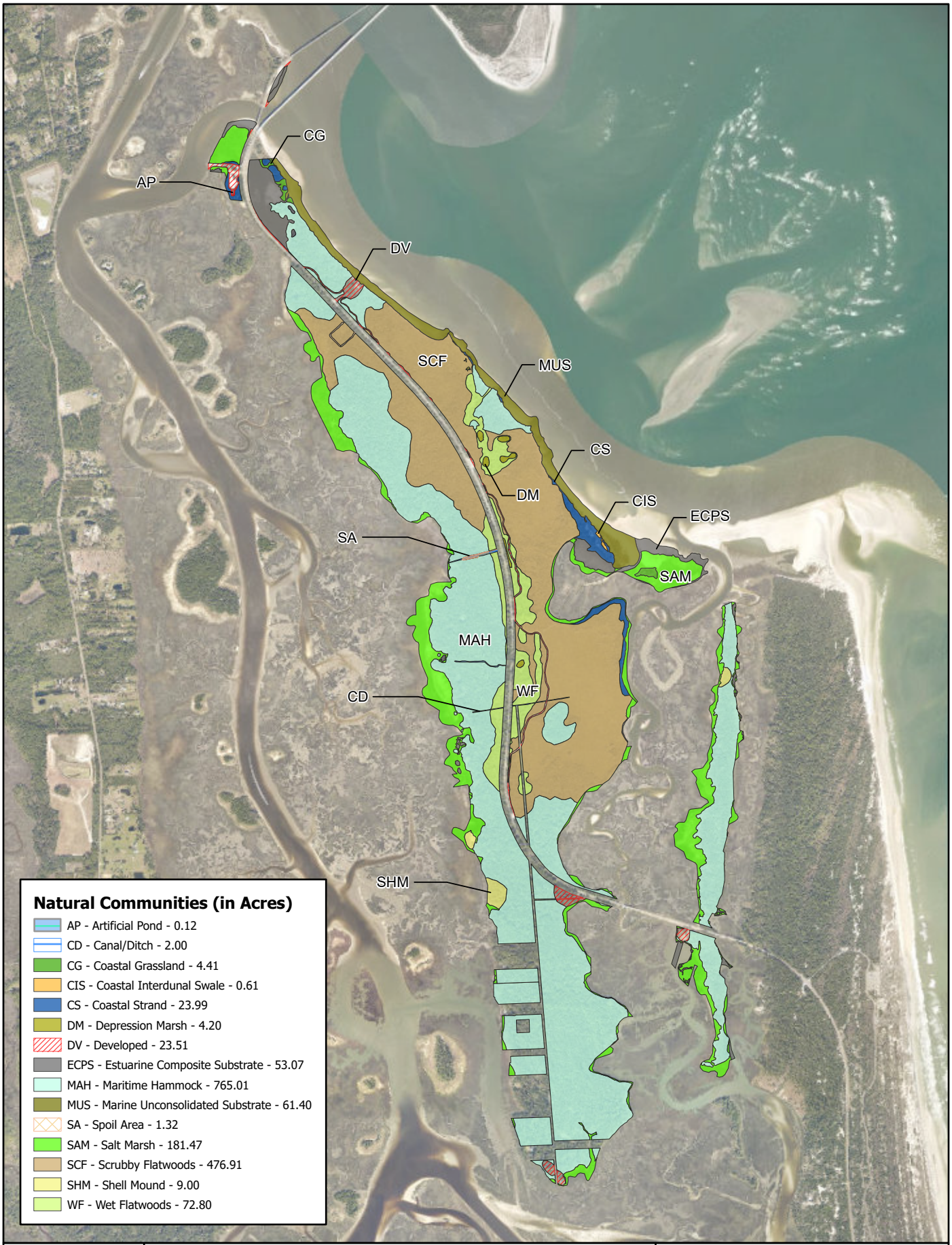
The table below contains a list of all fire-dependent natural communities found within the park, their associated acreage and optimal fire return interval, and the annual average target for acres to be burned.

| **Big Talbot Island State Park Prescribed Fire Management** | | |
|---|---|---|
| **Natural Community** | **Acres** | **Optimal Fire Return Interval (Years)** |
| Scrubby Flatwoods | 476.9 | 5-15 |
| Wet Flatwoods | 72.8 | 3-10 |
| | | |
| Annual Target Acreage | 39-120 | |

***Objective B:*** Conduct natural community improvement activities on approximately 400 acres of scrubby flatwoods and 72 acres of wet flatwoods at Big Talbot Island State Park.

- Action 1 - Establish a cyclical multi-component approach to understory fuels management for areas of fire-excluded scrubby flatwoods and wet flatwoods both east and west of State Road A1A.
    - Identify and implement acceptable methods for mechanical fuel reduction.
    - Identify acceptable herbicides, percentages, and timing of applications to effectively reduce the height and volume of dense understory woody vegetation.
    - Identify acceptable conditions under which prescribed fire can safely and effectively be applied.

Decades of fire exclusion or fire infrequency have resulted in a dense understory of live woody fuels and duff accumulation within the scrubby flatwoods and wet flatwoods of Big Talbot Island. Prescribed fire, alone, can no longer be expected to restore natural balance regarding fuel loading and species proportions without significant impacts to overstory health and desired understory composition, as well as undue risk to public safety. Fuel reduction and/or fuel manipulation measures such as the use of (low ground pressure) shredding machines and herbicides, are precursory steps that are necessary to mitigate fire intensity while facilitating quick and thorough ignition of resulting cured fuels. If properly timed and employed, these augmentative measures can be implemented cyclically and help compensate for the infrequency of prescribed fire by maintaining a more natural understory structure in which sunlight can reach the ground. Maintaining such conditions between infrequent prescribed fires is essential in order to continue the net oxidation of duff and improve the quality and effectiveness of subsequent burns.

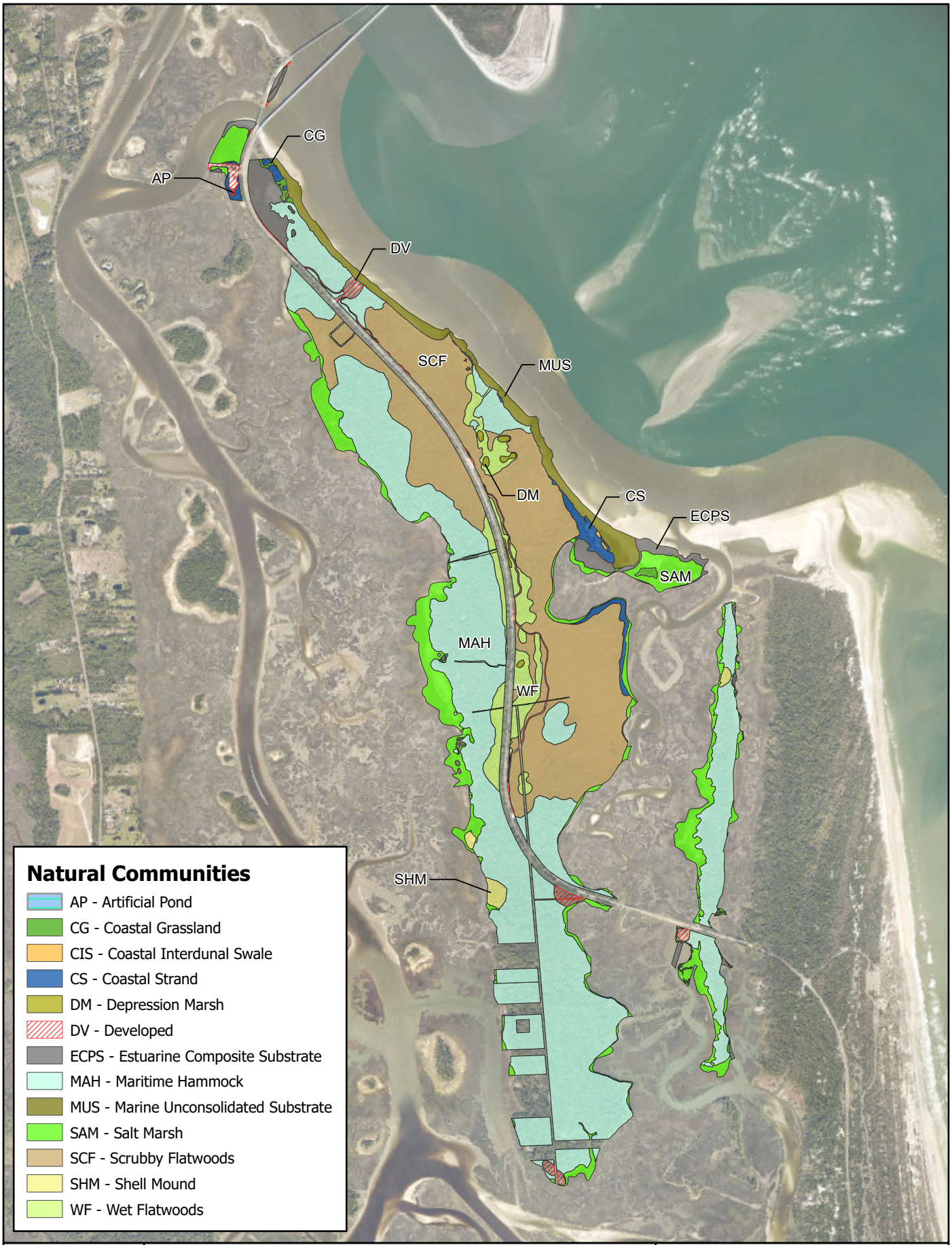



# BIG TALBOT ISLAND STATE PARK
## Natural Communities - Existing Conditions

N

0 0.5 1 Mile

This graphical representation is provided for informational purposes and should not be considered authoritative for navigational, engineering, legal, and other uses.




# BIG TALBOT ISLAND STATE PARK
## Natural Communities - Desired Future Conditions

N

0 0.5 1 Mile

This graphical representation is provided for informational purposes and should not be considered authoritative for navigational, engineering, legal, and other uses.


Natural Communities (in Acres)

- AP - Artificial Pond - 1.42
- BD - Beach Dune - 128.87
- CD - Canal/ditch - 5.60
- CG - Coastal Grassland - 486.81
- CIS - Coastal Interdunal Swale - 172.68
- CS - Coastal Strand - 167.70
- DV - Developed - 50.75
- MAH - Maritime Hammock - 324.51
- MUS - Marine Unconsolidated Substrate - 128.07
- SAM - Salt Marsh - 60.51

# LITTLE TALBOT ISLAND STATE PARK
## Natural Communities - Existing Conditions

N

0 1,500 3,000 Feet

This graphical representation is provided for informational purposes and should not be considered authoritative for navigational, engineering, legal, and other uses.

## IMPERILED SPECIES

Many imperiled species have been identified on or adjacent to the Talbot Islands State Parks. Although the impetus of natural systems management as practiced by DRP is management of natural communities and not individual species, certain species are of particular concern and importance and merit special management attention. Within the Talbot Islands State Parks, these species include multiple marine turtle species and a number of imperiled shorebird species.

The marine turtle species that occur in the near-shore areas of the Talbot Islands State Parks include the loggerhead (*Caretta caretta*), green (*Chelonia mydas*), Kemp's ridley (*Lepidochelys kempi*), leatherback (*Dermochelys coriacea*) and hawksbill (*Eretmochelys imbricata*). The vast majority of marine turtle nests in the parks are loggerheads, but all of the others have been documented nesting in the Talbot Islands State Parks, with the exception of the hawksbill.

Little Talbot Island State Park participates in the Marine Turtle Index Nesting Beach Survey and provide daily logs of the nesting activity of marine turtles to the FWC Fish and Wildlife Research Institute (FWRI) from May 1 through Aug. 31. The parks also provide a yearly nesting summary to FWC through the coordinator for the DRP marine turtle program. The FWRI issues a permit for all marine turtle activities conducted by the parks. The permit allows staff to conduct nesting surveys, conduct stranding and salvage activities, relocate nests and maintain and display preserved specimens. The parks try to avoid relocating nests unless there is no alternative. Protective caging of nests is permitted and used where nest predation is an issue. In most cases, staff members only disturb the nests when truly necessary. The Marine Turtle Conservation Handbook (FWC 2016) provides direction for all marine turtle protection activities in the parks.

In addition to monitoring and protecting marine turtle nests, the parks must take measures to prevent disruptions to marine turtle nesting cycles. Any future development at the parks must implement proper lighting fixtures which do not deter marine turtle nesting or cause hatchling disorientation. Information on appropriate lighting for areas near beaches can be found in Witherington and Martin (1996).

Diamondback terrapins occur in the marshes and tidal creeks of the Nassau Sound and Fort George Inlet. This species is declining and is considered a species of greatest conservation need by FWC.

Several imperiled shorebird species use the Talbot Islands for feeding and resting sites, but least terns, Wilson's plovers, gull-billed terns, black skimmers, and American oystercatchers use the park beaches as nesting sites. Most nesting activity has traditionally centered on the north end of Little Talbot Island. These species are colonial and solitary ground-nesters that prefer open areas of beach where they are highly vulnerable to predation, storms and human disturbance.

The Talbot Islands are among the few places in northeast Florida where over-wintering piping plovers (*Charadrius melodus*) occur. The USFWS designated critical habitat for the wintering piping plovers on Little and Big Talbot islands. The Little Talbot Island and the Nassau and Fort George inlets are also important feeding areas for the federally threatened red knot (*Calidris canutus rufa*) during migration. A significant number of imperiled wading bird species use the marshes and beaches of Amelia and the Talbot islands for resting and feeding habitat. These species also tend to be vulnerable to human disturbance.

In 2002, the DRP began formal implementation of shorebird and seabird surveys on Little Talbot Island and the Bird Islands in the Nassau Sound to document the breeding success or failure of nesting colonies. Currently all nesting data are entered into the Florida Shorebird Database that is maintained by FWC. During the pre-nesting season, park staff posts boundaries around the areas where the colonial least terns and black skimmers traditionally congregate and display their pre-nesting behavior. Nesting success of least tern colonies on Little Talbot Island has been relatively low in some years due to overwash during extreme high tides and disturbance from human visitors and their pets.

Erosion dynamics of Nassau Sound, and their potential effects on habitat availability for nesting shorebirds, emphasizes the critical need to also preserve the northern end of Little Talbot Island and adjacent Nassau Sound shoals as potential colony sites for colonial seabirds. In 2017, FWC re-established the Bird Islands CWA as Nassau Sound Islands CWA and expanded the boundary to include current and future islands within the Sound. The CWA includes the northern tip of Little Talbot Island, which was formerly Big Bird Island.

Exclusion of humans and their pets from least tern and black skimmer colonies during the pre-nesting and nesting seasons is essential for successful nesting. Solitary nesters like the American oystercatcher and Wilson's plover are also vulnerable to disturbance during pre-nesting. Disturbances during the pre-nesting period are more likely to cause least terns to abandon an area than disturbances that occur after egg laying or hatching (H. Smith personal communication). Staff will continue to follow the guidelines and recommendations provided in the DRP Resource Management Standard, "Shorebird and Seabird Management," for the protection and management of least terns and other imperiled shorebird, seabird and wading bird species. Staff will adopt setback distances for protection of colonial breeding birds as recommended in "Shorebird and Seabird Management," and in Rogers and Smith (1995).

Despite the posting of signs prohibiting entry into the colonies, human intrusion during the nesting season commonly occurs as evidenced by footprints in the sand. Furthermore, many park visitors access the north tip of Little Talbot Island and the Nassau Sound islands by boat and allow dogs to run on the beaches. Park management prohibits domestic dogs and cats on park beaches and dunes in order to protect nesting and resting shorebirds and marine turtles. Dogs are perhaps the most destructive and disturbing influence possible on ground-nesting colonial birds. Unfortunately, the remote location of the least tern colonies on Little Talbot and the Nassau Sound islands sometimes prevents staff from maintaining a meaningful presence in the area. Staff will pursue legal and interpretive strategies to prevent or minimize disturbances of the least tern colonies and other breeding shorebirds on the islands. Staff will coordinate enforcement of regulations with the FWC Division of Law Enforcement and will continue to work with partners in FWC, Audubon, and other members of the Timucuan Shorebird Partnership to protect shorebirds and seabirds.

Other imperiled shorebird and wading bird species also utilize the parks for resting and feeding activities. There is a high potential for wildlife disturbance where these species interact with humans, particularly in the wetland marshes and beach areas of the parks. These species would benefit from an active environmental education program aimed at informing park visitors about the impacts of disturbance on wildlife. Repeated disturbances by park visitors (and their pets) walking along the shoreline can, over time, be detrimental to imperiled species such as the black skimmer, least tern, Caspian tern (*Sterna caspia*), royal tern, and sandwich tern (H. Smith personal communication). Smith suggests that tangential approaches to bird colonies or flocks of resting shorebirds may be less disturbing than direct approaches. DRP staff will continue to work on educating the public about successful coexistence with colonial nesting species and will continue to participate in the regional Timucuan Shorebird Partnership.

Worthington's marsh wren (*Cistothorus palustris griseus*), a FWC Species of Special Concern, breeds in the salt marshes of the Talbot islands. FNAI staff have conducted surveys and documented Worthington's marsh wren and Macgillivray's seaside sparrow (*Ammospiza maritimus macgillivraii*) within the parks' salt marshes (NeSmith and Jue 2003). FWC (Schwarzer 2013) proposed further surveys of Worthington's marsh wren in the region and conducted surveys in 2014-15, followed by nest monitoring in 2015-17. Both species tend to prefer taller spartina stands further from upland edges (Schwarzer et al 2018).

The painted bunting (*Passerina ciris*), a species that nests at the Talbot Islands State Parks, has been declining in the southeastern United States over the past several decades according to Breeding Bird Survey data (Sauer et al. 2012; Delany et al 2013). Scientists now consider the eastern population of painted bunting at risk due to a number of factors, including loss of optimum breeding habitat and fragmentation of habitat in general (Sykes and Holzman 2005). The U.S. Geological Survey determined annual survival rates of the painted bunting at various locations in the southeastern Atlantic coastal states, including Little Talbot Island State Park (Sykes 2004). FWC conducted surveys of singing males at the park between 2008-10 to estimate population densities. Their study confirmed that populations have declined (Delany et al 2013). FWC continued population studies of painted buntings in northeast Florida during 2014, including Little and Big Talbot Island state parks (Ragheb 2016). The parks play an important regional role in the preservation of this species. Coastal strand, and to a slightly lesser extent maritime hammock, are the most important breeding habitats for painted buntings in the southeastern United States (Meyers 2011). In recognition of the vulnerability of the species, extra precautions should be taken when planning and implementing new development in the park, and when planning and siting visitor-use activities.

Maritime hammock and coastal frontage areas are important migratory stopovers for many bird species. The park is cooperating with the Smithsonian Conservation Biology Institute in assisting with operation of an automated radio telemetry station on Little Talbot Island to detect flyovers of migratory species. Although the project was initiated to monitor radio-tagged Kirkland's warblers (*Dendroica kirtlandii*) (which have been detected in flight), the array detects any compatible radio tag. Other imperiled species detected moving through the park include red knots and snowy plovers (*Charadrius nivosus*).

Gopher tortoises are particularly abundant in certain coastal areas of the islands. Park visitors may encounter tortoises or their burrows along roads and trails or in other open spaces. Interpretive programs at the Talbot Islands State Parks inform visitors about the importance of protecting this "keystone" species. Gopher tortoise burrows are known to provide shelter, escape, feeding or reproductive sites to dozens of invertebrates, as well as frogs, toads, lizards, snakes, birds, and mammals (Jackson and Milstrey 1989). The ongoing restoration of the scrubby flatwoods on Big Talbot Island through prescribed fire will further enhance the prospects of gopher tortoises in the islands. In 2014, the park was included in an FWC-funded gopher tortoise population study using Line Transect Distance Sampling (LTDS) techniques conducted by staff of the Jones Ecological Center (Smith et al 2009). The LTDS technique provides more accurate and statistically valid estimates of gopher tortoise populations. Over 22 kilometers of transects were walked in the park. The estimated density of 4.36 tortoises per hectare was the highest recorded in the study, which included 26 state-managed public lands. The park is estimated to have 754 gopher tortoises with lower and upper confidence limits of 657 and 865 tortoises. The burrows had an occupancy rate of 69%. The study also included vegetation monitoring as part of a habitat suitability ranking. Little Talbot Island was ranked as a high-quality site with a viable tortoise population in suitable habitat (Smith and Howze 2016).

The waters offshore of the Talbot islands are winter calving grounds for the endangered northern right whale (*Eubalaena glacialis*) from Dec. 1 through March 31. The National Marine Fisheries Service has designated the south Georgia and north Florida region as Critical Habitat for the northern right whale. The boundaries of this area extend from the shoreline to 15 miles offshore (Raichle et al 1997).

The West Indian manatee has also been documented in the estuarine areas around the Talbot islands. A growing concern in the salt marshes and tidal creeks adjacent to the Talbot islands is the disturbance of imperiled bird species and the threatened West Indian manatee by motorized vessels and personal watercraft or jet skis. The noise and wave action generated by boat engines can have serious impacts on the feeding and breeding success of certain wildlife species in these areas. Motorized watercraft are also a serious threat to the West Indian manatee. Collisions with motorized watercraft may seriously injure or kill manatees. The limited water depth and reduced visibility in the narrow, winding tidal creeks may make such collisions more likely. Staff will investigate legal and interpretive approaches to restricting these disturbances from sensitive areas and educating the user groups on how to avoid impacts to natural resources in estuarine areas. Staff will post manatee protection zone signs at boat ramps and canoe launches within the park. Staff will also consider approaching the proper authorities to establish idle speed zones within the narrower tidal creeks.

Imperiled species protection should include continuation of monitoring programs such as road kill surveys that can be accomplished as part of routine patrols by park staff. Data from these surveys can indicate the presence of otherwise unrecorded species or areas of particular concentrations of wildlife requiring special protection measures.

Several imperiled plant species have been recorded within the Talbot Islands State Parks. Protection of imperiled plant species means protecting suitable habitat from disturbance. At the Grand Site on Big Talbot Island State Park, careful planning and monitoring is necessary due to the local presence of angularfruit milkvine (*Gonolobus suberosus*) on the shell mound natural community. Populations of such sensitive plants could incur harm from trampling by visitors or the creation of artificial openings in the canopy. The endangered Atlantic Coast Florida lantana (*Lantana depressa* var. *floridana*) was recorded on Little Talbot Island in 1990. This represents a northern limit of its range, and although the specimen was vouchered and confirmed by the University of Florida Herbarium, it may actually be an escaped cultivar of *Lantana depressa* (Hattaway 1995). A similar specimen was collected on Fort George Island in 1984 and is also vouchered in the UF Herbarium. It is possible that this species also occurs on Big Talbot Island within the maritime hammock. A population of the state threatened shell-mound prickly pear, *Opuntia stricta*, occurs in the parks. Recently, the invasive exotic pest of the cactus, *Cactoblastis cactorum*, was also found in the park. Because of the arrival of this pest the park should monitor its populations of *Opuntia stricta* for *Cactoblastis cactorum* and remove the egg sticks of this exotic moth as needed.

The table below contains a list of all known imperiled species within the park and identifies their status as defined by various entities. It also identifies the types of management actions that are currently being taken by DRP staff or others, and identifies the current level of monitoring effort. The codes used under the column headings for management actions and monitoring level are defined following the table. Explanations for federal and state status as well as FNAI global and state rank are provided in the appendix.

| Imperiled Species Inventory | | | | | | |
|---|---|---|---|---|---|---|
| **Common and Scientific Name** | **Imperiled Species Status** | | **Management Actions** | | | **Monitoring Level** |
| | **FWC** | **USFWS** | **FDACS** | **FNAI** | | |
| **PLANTS** | | | | | | |
| Angularfruit milkvine *Gonolobus suberosus* | | | T | | 2,10 | Tier 2 |
| Spiked crested coralroot *Hexalectris spicata* | | | E | | 9,10 | Tier 1 |
| Atlantic Coast Florida lantana (*Lantana depressa* var. *floridana* | | | E | G2T1,S1 | 10 | Tier 1 |
| Shell-mound pricklypear *Opuntia stricta* | | | T | | 8,9 | Tier 2 |
| Moundlily yucca *Yucca gloriosa* | | | E | | 9,10 | Tier 1 |
| **REPTILES** | | | | | | |
| American alligator *Alligator mississippiensis* | FT(S/A) | FT(S/A) | | G5,S4 | 4,13 | Tier 1 |
| Loggerhead sea turtle *Caretta caretta* | FT | T | | G3,S3 | 2,8,10,13 | Tier 3 |
| Green sea turtle *Chelonia mydas* | FT | T | | G3,S2S3 | 2,8,10,13 | Tier 3 |
| Leatherback sea turtle *Dermochelys coriacea* | FE | E | | G2,S2 | 2,8,10,13 | Tier 3 |

| Imperiled Species Inventory | | | | | | |
|---|---|---|---|---|---|---|
| **Common and Scientific Name** | **Imperiled Species Status** | | | **Management Actions** | | **Monitoring Level** |
| | **FWC** | **USFWS** | **FDACS** | **FNAI** | | |
| Eastern indigo snake *Drymarchon couperi* | FT | T | | G3,S2? | 13 | Tier 1 |
| Gopher tortoise *Gopherus polyphemus* | ST | | | G3,S3 | 8,10,12, 13 | Tier 1 |
| Southern hog-nosed snake *Heterodon simus* | | | | G2,S2S3 | 13 | Tier 1 |
| Eastern kingsnake *Lampropeltis getula getula* | | | | G5,S1S2 | 13 | Tier 1 |
| Kemp's ridley sea turtle *Lepidochelys kempi* | FE | E | | G1,S1 | 2,8,10,13 | Tier 3 |
| **BIRDS** | | | | | | |
| Macgillivray's Seaside Sparrow *Ammospiza maritimus macgillivraii* | | | | G4T3, S2 | 4 | Tier 3 |
| Rufa Red Knot *Calidris canutus rufa* | FT | T | | G4T2,S2N | 4,8,9,10, 13 | Tier 3 |
| Snowy Plover *Charadrius nivosus* | ST | | | G3,S1 | 10,13 | Tier 2 |
| Piping Plover *Charadrius melodus* | FT | T | | G3,S2 | 8,9,10, 13 | Tier 3 |

| Imperiled Species Inventory | | | | | | |
|---|---|---|---|---|---|---|
| **Common and Scientific Name** | **Imperiled Species Status** | | | **Management Actions** | | **Monitoring Level** |
| | **FWC** | **USFWS** | **FDACS** | **FNAI** | | |
| Wilson's Plover *Charadrius wilsonia* | | | | G5,S2 | 8,9,10, 13 | Tier 3 |
| Worthington's Marsh Wren *Cistothorus palustris griseus* | ST | | | G5T3, S2 | 4 | Tier 3 |
| Little blue heron *Egretta caerulea* | ST | | | G5,S4 | 4 | Tier 2 |
| Reddish egret *Egretta rufescens* | ST | | | G4,S2 | 4 | Tier 2 |
| Tricolor heron *Egretta tricolor* | ST | | | G5,S4 | 4 | Tier 2 |
| Merlin *Falco columbarius* | | | | G5,S2 | | Tier 2 |
| Peregrine falcon *Falco peregrinus* | | | | G4,S2 | | Tier 2 |
| Magnificent frigatebird *Fregata magnificens* | | | | G5,S1 | | Tier 2 |
| Gull-billed Tern *Gelochelidon nilotica* | | | | G5,S2 | 8,9,10,13 | Tier 2 |
| American oystercatcher *Haematopus palliatus* | ST | | | G5,S2 | 8,9,10,13 | Tier 2 |

| Imperiled Species Inventory | | | | | | |
|---|---|---|---|---|---|---|
| **Common and Scientific Name** | **Imperiled Species Status** | | | **Management Actions** | | **Monitoring Level** |
| | **FWC** | **USFWS** | **FDACS** | **FNAI** | | |
| Caspian tern *Hydroprogne caspia* | | | | G5,S2 | 10,13 | Tier 2 |
| Wood stork *Mycteria americana* | FT | T | | G4,S2 | 4 | Tier 2 |
| Painted Bunting *Passerina ciris ciris* | | | | G5T3Q, S1S2 | 10 | Tier 2 |
| Roseate Spoonbill *Platalea ajaja* | ST | | | G5,S2 | 4 | Tier 2 |
| Black skimmer *Rynchops niger* | ST | | | G5,S3 | 8,9,10,13 | Tier 2 |
| Kirkland's warbler (Setophaga kirtlandii) | | | | G3G4,S1 | 13 | Tier 2 |
| Least tern *Sternula antillarum* | ST | | | G4,S3 | 8,9,10, 11,13 | Tier 3 |
| Sandwich tern *Thalasseus sandvicensis* | | | | G5,S2 | 10,13 | Tier 2 |
| **MAMMALS** | | | | | | |
| North Atlantic right whale *Eubalaena glacialis* | FE | E | | G1,S1 | 10 | Tier 1 |
| West Indian manatee *Trichechus manatus* | FT | T | | G2G3T2, S2S3 | 13 | Tier 1 |

**Management Actions:**

1. Prescribed Fire
2. Exotic Plant Removal
3. Population Translocation/Augmentation/Restocking

4. Hydrological Maintenance/Restoration
5. Nest Boxes/Artificial Cavities
6. Hardwood Removal
7. Mechanical Treatment
8. Predator Control
9. Erosion Control
10. Protection from Visitor Impacts (establish buffers)/Law Enforcement
11. Decoys (shorebirds)
12. Vegetation Planting
13. Outreach and Education

**Monitoring Level:**

Tier 1.
Non-Targeted Observation/Documentation: includes documentation of species presence through casual/passive observation during routine park activities (i.e. not conducting species-specific searches). Documentation may be in the form of Wildlife Observation Forms, or other district specific methods used to communicate observations.
Tier 2.
Targeted Presence/Absence: includes monitoring methods/activities that are specifically intended to document presence/absence of a particular species or suite of species.
Tier 3.
Population Estimate/Index: an approximation of the true population size or population index based on a widely accepted method of sampling.
Tier 4.
Population Census: A complete count of an entire population with demographic analysis, including mortality, reproduction, emigration, and immigration.
Tier 5.
Other: may include habitat assessments for a particular species or suite of species or any other specific methods used as indicators to gather information about a particular species. [If referenced in table, provide discussion in narrative]

***Objective A:*** Update baseline imperiled species occurrence list***.***

- Action 1 - Update imperiled species list as necessary to add or remove species in compliance with current FWC or USFWS listing status and update any accepted nomenclature changes.

***Objective B:*** Continue existing monitoring protocols for 12 selected imperiled animal species.

- Action 1 - Continue to implement existing monitoring protocols for marine turtle species and piping plover, red knot, Wilson's plover, least tern, black skimmer, American oystercatcher, Worthington's marsh wren, and MacGillivray's seaside sparrow.
- Action 2 - Review and revise protocols as necessary to remain consistent with FWC and USFWS standards.

Imperiled species management at the Talbot Islands State Parks focuses primarily on shorebirds and other coastal bird species, as well as marine turtle species that nest within the parks. The parks coordinate all monitoring of imperiled species at the parks with FWC and submits monitoring data to FWC as required.

Marine turtle nesting is monitored in strict accordance with the FWC Marine Turtle Conservation Handbook (FWC 2016). Little Talbot Island State Park is part of the Index Nest Beach Survey program. Both of the parks are surveyed as part of the Statewide Nesting Beach Survey in accordance with the DRP Marine Turtle Permit. A digital survey application, developed by DRP and adopted by FWC, uses GPS data collection in the field to allow direct digital data entry of the marine turtle nesting data.

Shorebird surveys are conducted in accordance with DRP Resource Management Standard, "Shorebird and Seabird Management." Surveys are conducted both during the nesting season and during the winter and migratory seasons. Data for nesting shorebirds are submitted to FWC via the online Florida Shorebird Database. The primary focus of surveys is on imperiled shorebird and seabird species that nest on the beaches and in the dunes. However, over-wintering and migratory imperiled species such as

the piping plover and red knot are monitored as well. Winter Shorebird Survey data are also submitted to FWC. Survey efforts are supplemented by dedicated volunteers who provide valuable assistance in monitoring imperiled shorebird and seabird species in the park. Volunteers routinely monitor shorebird flocks for banded birds, particularly piping plovers and red knots, and report that information to the USFWS and international researchers working with these migratory species.

FWC has developed a detailed species action plan for Worthington's marsh wren (FWC 2013) and conducted surveys in the region from 2014-17. The research focused on habitat identification and population surveys, as well as nest success, and included surveys for MacGillivray's seaside sparrow (Schwarzer 2013, Schwarzer et al 2018). The parks will work with FWC in the future if additional surveys for Worthington's marsh wren and MacGillivray's seaside sparrow are conducted in the region.

***Objective C:*** Continue existing monitoring protocols for two selected imperiled plant species.

- Action 1 - Continue to implement existing monitoring protocols for mound lily and angular fruit milkvine.

Mound lily yucca occurs within the beach dune areas that were heavily impacted by past erosion and recent hurricanes. The parks should develop a protocol to locate existing mound lily yucca plants and record the locations with GPS during the course of routine shorebird and marine turtle surveys. Park staff will continue to monitor angular fruit milkvines at the Grand Site on Big Talbot Island State Park and in other areas where park visitors or development may impact the plants.

## INVASIVE SPECIES

Big Talbot Island and Little Talbot Island fortunately have few invasive plant species. This makes surveying quite important so that incipient populations can be found and treated before they increase in size.

Two species on Little Talbot Island are of particular concern, *Imperata cylindrica* (cogongrass) and *Scaevola taccada* (beach naupaka). Cogongrass should be treated twice annually and beach naupaka should be treated at least once annually. Staff should be familiar with beach naupaka so that they can look for it on the beach as they go about their other duties. The few camphor (*Cinnomomum camphora*) and mimosa (*Albizia julibrissin*) trees are widely scattered and should be treated before they reach reproductive age. An invasive species of lantana (*Lantana camara*) may be present in the Talbot Islands State Parks. Since the endangered native lantana (*Lantana depressa*) has occurred on Little Talbot Island, staff should be aware of the differences between these two species and be very cautious about removing any lantana specimens that are not flowering.

| **Big Talbot Island State Park Invasive Plants** | | | |
|---|---|---|---|
| Species Name<br>Scientific Name - Common Name | FLEPPC<br>Category | Distribution | Zone ID |
| *Albizia julibrissin* - Mimosa | I | Single Plant or Clump | BT-04A, BT-04B |
| *Cinnamomum camphora* - Camphor-tree | I | Scattered Plants or Clumps | BT-04A |
| *Nephrolepis cordifolia* - Tuberous sword fern | I | Scattered Plants or Clumps, Scattered Dense Patches | BT-07C, BT-06B, BT-07D |

| Little Talbot Island State Park Invasive Plants | | | |
|---|---|---|---|
| Species Name<br>Scientific Name - Common Name | FLEPPC Category | Distribution | Zone ID |
| *Ficus microcarpa* - Laurel fig | I | Single Plant or Clump | LT-05 |
| *Imperata cylindrica* - Cogon grass | I | Scattered Dense Patches, Dominant Cover | LT-01, LT-03 |
| *Melia azedarach* - Chinaberry | II | Single Plant or Clump | LT-06 |
| *Scaevola taccada* - Beach naupaka | I | Single Plant or Clump | LT-02 |

An invasive insect, the Asian ambrosia beetle (*Xyleborus glabratus)*, has caused high rates of mortality to mature red bay trees in maritime hammocks by spreading laurel wilt disease. While the beetle now occurs throughout Florida, the park discourages transportation of firewood into or out of the park. Control of the movement of firewood is a proactive preventative approach that could help prevent the arrival of other invasive pest insects or diseases.

Feral hogs (*Sus scrofa*) have been present on Big Talbot Island and evidenced on Little Talbot Island. Staff removes hogs from the Talbot islands as needed. Invasive animal removal reports indicate that feral cats (*Felis domesticus*) and Norway rats (*Rattus norvegicus*) also occur within the parks. When encountered, staff removes these animals in accordance with DRP procedural guidelines.

***Objective A:*** Annually treat 24 gross acres equaling 1 infested acre of invasive plant species.

- Action 1 - Annually develop an invasive plant management work plan.
- Action 2 – Implement the annual work plan by treating 24 gross acres equaling approximately one infested acre across both parks annually.
- Action 3 - Implement a protocol to inspect equipment entering the parks to ensure they are free of soil and plant material.

In addition to treating, conduct surveys where they are overdue to find new infestations before they increase.

***Objective B:*** Implement control measures on one invasive animal species***.***

- Action 1 - Remove invasive animals as needed.

Several non-native animals occur from time to time on the Talbot islands. These include feral hogs and domestic cats. Their impact on shorebirds and other wildlife can be significant.

## CULTURAL RESOURCES

The Florida Master Site File (FMSF), maintained by the Division of Historical Resources, reveals 25 recorded cultural resources or sites on Little Talbot, Big Talbot and Long islands. Until recently, recorded survey activity within the parks has been limited to occasional visits by professional and avocational archaeologists, who left no survey plans or documentation of intent, or by state archaeologists responding to specific requests for technical assistance. A 1970s survey of Duval County included the islands, but activities appear to have been limited to visiting previously recorded sites. Ashley and Thunen (2000) performed an archaeological survey of the southern one-third of Big Talbot Island in 1998, locating, bounding and sampling one new archaeological site and seven previously recorded sites. A site-specific survey conducted in 2005 for the Timucuan Trail project revealed an additional archaeological site which was previously unrecorded.

Human activities affected these small islands well before European Contact, about 1516-30. Exposure of the islands to the Atlantic Ocean and its seasonal extremes probably dictated occasional or seasonal human use and settlement rather than long term and persistent village occupations. After contact, documented uses of the islands were still intermittent and short lived, at least until the establishment of plantation agriculture on Big Talbot Island (and, of course, on Fort George Island) during the late Second Spanish (1783-1821) and early American Territorial (1821-45) periods. Settlement has been more or less continuous since that time.

Recorded cultural resources in Big Talbot Island State Park are all archaeological in nature. The Grand Site, Du1, is a sand mound and shell midden ring with St. Johns II, Savannah and Mission period elements. The National Register of Historic Places listed it in 1970. Other resources include Du2, Talbot Island Mound B, a sand mound of undetermined period, and Du80, the Talbot Island site, a multi-component shell midden bisected by State Road A1A. Although damaged, much of the site is intact and preserved. Du93, the Half Moon Bluff site, is a shallow shell midden, heavily impacted by natural erosion. Du106, somewhat confusingly named the Big Talbot Island site, is a shallow oyster shell midden, and Du627, the Middle Midden, is a shell midden with Swift Creek, St. Johns II, Savannah and Mission period elements. Disturbances include pot hunting and possibly mining the shell midden for tabby in constructing the Houston plantation buildings. The Simpson Point site, Du13260, is a shell midden with evidence of Deptford period occupation. Du13262, the Big Talbot Bluff site, is a shell midden located on an eroding dune. Other pre-contact resources include Du628, a shell midden with St. Johns II elements, and Du629, located nearby. Florida Master Site File materials are somewhat contradictory about the cultural affiliation (either St. Johns II or unknown) of this aboriginal shell midden. Du630 is a shell midden of unknown period. The Talbot Tip site, Du16346, is located on the northern one-third of Big Talbot Island and is also a multicomponent shell midden site encompassing the St. Johns period.

Records of post-contact sites on Big Talbot Island are few. The Houston Plantation, Du90, consists of the remains of foundations or walls of six tabby structures. As noted above, it is possible that shell from Du627 was used in making the Houston structures. A probable 18$^{th}$- or 19$^{th}$-century habitation site, based on recovery of ceramic jar sherds, was recorded as Talbot I, Du631. Du11254 is a 19$^{th}$/20$^{th}$-century structure remnant. The Chimney Site, Du1548, is likely to be a fallen sugar evaporator structure of the 19$^{th}$ and possibly the 18th century. Du1549 the Houston Cemetery is located on private property adjacent to the park. An unrecorded but widely known resource on Big Talbot Island is the Old Public Road, a linear site that follows a generally north-south path on the island. It has probably been in use for 200 years.

A second plantation site, Du16006, named Dune Edge, is currently eroding into Nassau Sound at an alarming rate. It is believed that this site is associated with the Christopher Plantation, a late 18th/early 19th-century plantation site on the northernmost part of Big Talbot Island, and may also be associated with the Talbot Tip site, Du16346.

Long Island has fewer recorded sites, among them Du88, the Long Island site. In 1959, potsherds of uncertain cultural affiliation were recovered from this site, which was described in the Duval County survey as virtually undisturbed. A shipwreck, Du637, is variously reported as occurring in a dune or underwater in Simpson's Creek, which separates Long Island from Big Talbot Island.

The sole recorded cultural site on Little Talbot Island State Park is an object, Du3157, the remains of a wood-hulled ship which began washing out of the dunes at extreme high tides in the 1980s.

The Bird Island Wreck site, Du8030, is a late 19th-century shipwreck site located near the Bird Islands in Nassau Sound.

All visited resources are in fair condition, with the exception of Du16006, which is in poor condition. Looting and pilferage are absent on the three islands. Declines in condition of resources are due largely to age or climatic influences, or in the case of the Little Talbot Shipwreck, Du3157, to the ordinary action of surf, wind and sand. Special attention needs to be paid to the Dune Edge site, Du16006, as the artifacts are rapidly eroding from the site and draw the attention of park visitors who collect the objects. As park visitation increases, it will be necessary to manage resources from a base of knowledge that is assembled and recorded, then utilized to make informed decisions about possible actions.

**Cultural Sites Listed in the Florida Master Site File**

| Site Name and FMSF # | Culture/Period | Description | Significance | Condition | Treatment |
|---|---|---|---|---|---|
| DU00001<br>GRAND | Pre-historic | Archaeological Site | NRL | G | P |
| DU00002<br>MOUND B | Pre-historic | Archaeological Site | NE | G | P |

| Cultural Sites Listed in the Florida Master Site File | | | | | |
|---|---|---|---|---|---|
| **Site Name and FMSF #** | **Culture/Period** | **Description** | **Significance** | **Condition** | **Treatment** |
| DU00080<br>TALBOT ISLAND | Pre-historic<br>19th Century American, 1821-1899<br>British, 1763-1783 | Archaeological Site | NE | G | P |
| DU00088<br>LONG ISLAND | Pre-historic | Archaeological Site | NE | G | P |
| DU00090<br>HOUSTON PLANTATION | African-American<br>American Acquisition/Territorial Development 1821-45<br>British, 1763-1783<br>American Civil War, 1861-1865<br>St. Johns, 700 B.C.-A.D. 1500 | Archaeological Site | NE | G | P |
| DU00093<br>HALFMOON BLUFF | Pre-historic | Archaeological Site | NE | P | P |
| DU00106<br>BIG TALBOT ISLAND | Pre-historic | Archaeological Site | NE | P | P |
| DU00627<br>MIDDLE MIDDEN | Pre-historic | Archaeological Site | NE | G | P |

| Cultural Sites Listed in the Florida Master Site File | | | | | |
|---|---|---|---|---|---|
| **Site Name and FMSF #** | **Culture/Period** | **Description** | **Significance** | **Condition** | **Treatment** |
| DU00628<br>REID | Pre-historic | Archaeological Site | NE | G | P |
| DU00629<br>JONES BLUFF | Pre-historic | Archaeological Site | NE | NE | P |
| DU00630<br>NN | Pre-historic | Archaeological Site | NE | G | P |
| DU00631<br>ARMELLINO | Pre-historic<br>Spanish-First Period, 1513-1763 | Archaeological Site | NE | G | P |
| DU01548<br>CHIMNEY | Historic<br>Nineteenth century American, 1821-1899 | Archaeological Site | NE | G | P |
| DU03157<br>LITTLE TALBOT ISLAND SHIPWRECK | American, 1821-present | Archaeological Site | NE | G | P |
| DU11254<br>TALBOT I | Spanish-Second Period, 1783-1821 | Archaeological Site | NE | G | P |

| Cultural Sites Listed in the Florida Master Site File | | | | | |
|---|---|---|---|---|---|
| **Site Name and FMSF #** | **Culture/Period** | **Description** | **Significance** | **Condition** | **Treatment** |
| DU13260<br>SIMPSON POINT | Deptford, 700 B.C.-300 B.C. | Archaeological Site | NE | G | P |
| DU13262<br>BIG TALBOT BLUFF | Pre-historic | Archaeological Site | NE | P | P |
| DU14672<br>BLACK ROCK | Pre-historic<br>St Johns II | Archaeological Site | NE | G | P |
| DU16006<br>Dune Edge | Pre-historic<br>Twentieth century American, 1900-present | Archaeological Site | NE | F Or P | P |
| DU16346<br>Talbot Tip Site | Pre-historic<br>St. Johns, 700 B.C.-A.D. 1500<br>Spanish-Second Period, 1783-1821 | Archaeological Site | NE | G | P |
| DU19856<br>Big Talbot Island Ditch I | Twentieth century American, 1900-present | Linear Resource | NS | G | R |
| DU19857<br>Half Moon Bluff Trail | Nineteenth century American, 1821-1899 | Linear Resource | NS | G | P |

| Cultural Sites Listed in the Florida Master Site File | | | | | |
|---|---|---|---|---|---|
| **Site Name and FMSF #** | **Culture/Period** | **Description** | **Significance** | **Condition** | **Treatment** |
| DU21333<br>Houston Plantation Causeway | Nineteenth century American, 1821-1899<br>Twentieth century American, 1900-present | Linear Resource | NE | F | P |
| DU21353<br>Talbot Island Canoe | Historic or Prehistoric | Archaeological Site | NE | P | P |
| DU21449<br>A1A | Modern, 1950-present | Linear Resource | NR | G | RH |

***Objective A:*** Assess/evaluate 25 of 25 recorded cultural resources in the park.

- Action 1 - Complete 25 assessments/evaluations of archaeological sites.

***Objective B:*** Compile reliable documentation for all recorded historic and archaeological resources.

- Action 1 - Ensure all known sites are recorded or updated in the Florida Master Site File.

Record with the FMSF the Big Talbot Island Old Public Road, a linear site that follows a generally north-south path on the island. It has probably been in use for 200 years.

***Objective C:*** Bring one of 25 recorded cultural resources into good condition.

- Action 1 - Design and implement regular monitoring programs for 25 cultural sites.

Most of the sites on Big and Little Talbot islands are in good condition or else impacted by erosion caused by storms and tides. For the latter sites, document the changes and artifacts, if any, that are eroded.

# LAND USE COMPONENT

## VISITATION

Big Talbot Island and Little Talbot Island state parks have a long history of human occupation, beginning with the native Timucuan people. The island's exposure to the Atlantic Ocean and its seasonal extremes probably dictated occasional use by the Timucuan rather than the establishment of villages. In the 1790s, permanent settlement arrived with the introduction of plantation agriculture. Visitors on both islands may encounter signs of these past occupations evidenced by Native American middens and the remnants of plantation sites.

Big Talbot Island State Park offers visitors over 2 miles of unique beach features, from the sun-bleached skeletons of fallen trees at Boneyard Beach to the exposed labyrinth of hardpan formations found at Blackrock Beach. Little Talbot Island State Park provides visitors access to over 5 miles of Atlantic beach, as well as access to coastal habitats such as maritime hammock and coastal strand. Beach recreation such as shore fishing, swimming, surfing and beachcombing are all popular activities. The park also offers camping for both RV and tent campers along Myrtle Creek.

Similar recreational and interpretive opportunities extend beyond the park boundaries, including cycling the Timucuan Trail and paddling the Florida Circumnavigational Paddling Trail. The Timucuan Trail, a paved multiuse trail, parallels State Road A1A and traverses Big and Little Talbot islands, offering an immersive natural experience. The Timucuan Trail is a part of the much larger East Coast Greenway, a 3,000-mile cycling and pedestrian route between Maine and Florida. A segment of the Florida Circumnavigational Paddling Trail also provides access to both parks at Kayak Amelia, located between the two islands. Surrounding both parks are vast salt marshes that are home to wildlife such as terrapins, wading birds and a variety of mollusks.

### Trends

The majority of visitation at both Big Talbot Island State Park and Little Talbot Island State Park occurs during the warm spring and summer months, with attendance gradually decreasing with the arrival of fall. Visitation at Little Talbot Island State Park has decreased in the past 10 years as a result of beach erosion that has impacted the availability and safety of recreational facilities at the south end of the park. The South Beach area, formerly a major beach access point, has been closed to the public due to safety concerns since 2019.

## EXISTING FACILITIES AND INFRASTRUCTURE

### Big Talbot Island State Park

The Sawpit Island boat ramp and parking area is accessed from State Road A1A, just south of the Nassau Sound bridge. Here, a trailer parking area provides 35 oversized parking spaces. Another smaller parking area at the north end of Sawpit Island is designated for vehicles without trailers and accommodates 15 vehicles. A restroom adjacent to the boat ramp parking area serves the entire use area.

Visitors can access the Nassau Sound shoreline near the northern tip of Big Talbot Island by parking at the smaller Sawpit parking area and crossing over A1A at the designated pedestrian crosswalk. Proceeding north along a short stretch of the Timucuan Trail reveals an access point to the sound-side beach.

The Bluffs picnic area provides access to the Atlantic beach. This use area offers visitors three large pavilions with picnic tables and grills. The parking area can accommodate about 35 vehicles and includes paved ADA-compliant spaces. Included in this use area is an interpretive panel, two portable restroom facilities and an observation platform at the top of the bluff. A one-quarter-mile beach access trail leads visitors from the picnic area to the shoreline.

FDOT provides a 15-space parking area for direct access to the Black Rock and Timucuan trails. It is located approximately three-quarters of a mile south of the Bluffs picnic area along State Road A1A. The Black Rock Trail leads visitors to Boneyard/ Black Rock Beach where the scattered remains of fallen trees and hardpan outcroppings present a stunning foreground for the area's shoreline vistas. Static interpretive panels are installed along trails in the park to interpret natural resources and resource management procedures.

The Big Pine parking area is located toward the southern end of the park and can accommodate four vehicles. The parking area provides access to the Big Pine Trail that leads to panoramic views across pristine salt marshes.

Kayak Amelia is a longstanding concessionaire at the parks that offers kayak rentals on adjacent Long Island, a narrow sea island situated between Big Talbot and Little Talbot islands. Visitors can launch and land from this area to paddle the Nassau/Fort Clinch Paddling Trail and explore the salt creeks that permeate the extensive salt marsh. With paddling access as the priority, alternative uses (i.e., non-vendor) of this site may be evaluated if the concessionaire no longer provides these services.

## Little Talbot Island State Park

Park administration facilities are located near the entrance. These facilities consist of an entrance station, staff office building, storage structures and associated 13-space staff parking lot.

The campground is located on the west side of State Road A1A, directly across from the park entrance. Facilities include 40 campsites, which are served by two ADA-accessible bathhouses. Four of the sites offer stabilized parking. Access to adjacent Myrtle Creek is provided by a paddling launch and dock, while a scenic nature loop winds through the hammock. Along this nature trail, interpretive signs are provided to educate visitors on the surrounding natural communities and wildlife.

Further into the park past the entrance station is the North Beach use area. Currently only, the North Beach area is open to the public. This day-use area features a parking lot with 152 spaces, ADA-accessible paths to six large picnic pavilions, two restrooms and outdoor showers. A boardwalk leads to the beach at the northeast corner of the large parking area, while a natural-surface on-grade path leads to the beach at the southeast corner.

A smaller parking area occurs just to the south with seven small picnic pavilions and 16 parking spaces. South of this use area, the road is closed to vehicular traffic. However, the Timucuan Trail still allows bicycle-pedestrian access.

The 3.5-mile Dune Ridge Trail, also located in the northern portion of the barrier island park, offers an immersive experience through five distinct natural communities, including maritime hammock, beach dune and depression marsh. The trail is typically accessed from the northern beach day-use area via a

portion of the paved Timucuan Trail. The Dune Ridge Trail formally begins southwest of the ranger station, extending northeast along a relict dune to the Atlantic beach. Hikers return to the day-use area by a 1.25-mile stretch along the open beach.

For inventory reference, the South Beach area – now in disuse – contains seven picnic pavilions, one restroom, a storage building, and two separate parking areas with nearly 200 spaces. A portion of the boardwalk that once led visitors from the pavilions to the Atlantic beach also remains.

At the southernmost tip of the island is the Fort George Inlet use area with 52 parking spaces and an honor box. A short natural-surface pathway provides access to the Fort George River and a short paved path connects to the Timucuan Trail. From this popular access point, the Timucuan Trail extends south across the Fort George Inlet Bridge to Huguenot Memorial Park.

Park support facilities are located in two distinct areas on opposite sides of A1A. The north facilities include one staff residence, a pumphouse and four small storage structures. The south facilities include a three-bay maintenance building, eight storage buildings, two small sheds and one staff residence that includes a small dock on Simpson Creek. Three volunteer sites are located within this southern support area.

**Facilities Inventory**

Big Talbot Island State Park

| | |
|---|---|
| *Sawpit Creek Boat Ramp* | |
| Boat Ramp | 1 |
| Paved Trailer Parking (38 spaces) | 1 |
| Paved Non-Trailer Parking (15 spaces) | 1 |
| Restroom | 1 |
| *Bluffs Scenic Shoreline Picnic Area* | |
| Stabilized Parking Area (37 spaces) | 1 |
| Observation Platform | 1 |
| Portable Restrooms | 2 |
| Nature Trail Mileage | 0.25 |
| Interpretive Panel | 1 |
| Picnic Pavilions | 3 |
| Picnic Tables | 12 |
| *Black Rock/Timucuan Trail Access* | |
| Blackrock Trail Mileage | 0.48 |
| *Long Island-Simpson Creek Use Area* | |
| Kayak Amelia Concessionaire | 1 |
| Paddlecraft Hand Launch | 1 |
| Stabilized Parking Area (12 spaces) | 1 |
| Picnic Pavilion | 1 |
| Picnic Tables | 3 |
| Restroom | 1 |
| Interpretive Panel | 1 |
| *Primitive Camping Area* | |
| Primitive Campsites | 2 |

| *Support Area* | |
|---|---|
| Residence | 2 |
| Storage Building | 2 |
| *Other Trails* | |
| Big Pine Trail (4 space parking area) | 0.5 |
| Jones Cut Trail Mileage | 0.75 |
| Old Kings Highway Trail Mileage | 2 |

## Little Talbot Island

| *Campground* | |
|---|---|
| Campsites | 40 |
| Bathhouses | 2 |
| Stabilized Trailer Parking | 4 |
| Boat Ramp | 1 |
| Dock | 1 |
| Nature Loop Mileage | 0.68 |
| Playground | 1 |
| Amphitheater | 1 |
| *Entrance* | |
| Entrance Station | 1 |
| Administration Office | 1 |
| Storage Buildings | 2 |
| Paved Parking Area (13 spaces) | 1 |
| *North Beach Use Area* | |
| Paved Parking Area (152 spaces) | 1 |
| Boardwalk (475 feet) | 1 |
| Interpretive Kiosk | 1 |
| Large Picnic Pavilions | 6 |
| Restrooms | 2 |
| Dune Ridge Trail Mileage | 3.5 |
| Paved Parking Lot (16 spaces) | 1 |
| Small Picnic Pavilions | 7 |
| Boardwalk (550 feet) | 1 |
| Storage Buildings | 2 |
| *North Support Area* | |
| Residence | 1 |
| Bathhouse | 1 |
| Storage Buildings | 4 |
| Stabilized Parking Area (5 spaces) | 1 |
| *South Support Area* | |
| Residence | 1 |
| Storage Structures | 8 |
| Shop Building | 1 |
| *South Beach Use Area* | |

| | |
|---|---|
| Paved Parking Area (197 spaces) | 1 |
| Picnic Pavilions | 7 |
| Bike Pavilion | 1 |
| Restroom | 1 |
| Boardwalk (130 feet) | 1 |
| Storage Building | 1 |
| *Fort George Inlet Bridge* | |
| Paved Parking Area (52 spaces) | 1 |
| Honor Box | 1 |

## CONCEPTUAL LAND USE PLAN

**Detailed Conceptual Land Use Plan Objectives**

Big Talbot Island State Park

Below are detailed descriptions of land planning proposals and considerations, organized according to use areas or other types of specific sites within the park.

**Sawpit Creek Boat Ramp**

***Objective: Sustainably redevelop boat ramp for continued boating access.***
*Action Items:*

- *Renovate boat ramp.*
- *Improve parking area for capacity and efficiency of traffic circulation.*

The boat ramp is surrounded by tidal marsh and experiences tidal fluctuations, that can inundate the pavement and boardwalk. Erosion has opened a large gap along the northern edge of the boat ramp approach road between the road edge and adjacent wooden boardwalk. Despite repeated attempts to fill the gap with concrete, the subsidence and structural degradation has not abated. A full structural redevelopment project may be needed to preserve this popular boat ramp. Design and construction of a renovated or altogether new approach road and ramp should be confined within the existing footprint to avoid further impacts to the surrounding marsh habitat. Configuration of the existing approach road and ramp is perpendicular to the prevailing tide and flow of Sawpit Creek, however, the grade or orientation of a redesigned road may mitigate hydrological impediment. Although cost of construction may be a limiting factor, replacing the existing causeway-type road with a bridge design may yield the best results for both structural longevity and ecological-hydrological sensitivity.

Broader considerations for the Sawpit Boat Ramp must acknowledge that it is the most reliably accessible boat-launch site within the multi-park vicinity – attributed largely to its direct link with the dredged navigation channels of Sawpit and Sisters creeks. Other existing and contemplated boat ramps within this complex of islands and tidal creeks are subject to low tides that frequently preclude access. Alternative sites that have been evaluated for their suitability as boat ramps are also disadvantaged by their distance from regional population centers and main roads. Sawpit Creek Boat Ramp has the advantages of adjacency to A1A, proximity to popular boating destinations, and typically favorable tidal conditions. Given the low tides that preclude navigation from other points along the shoreline, Sawpit Creek should also be improved to accommodate paddlecraft launching (i.e., Sawpit Creek should serve as an alternative to the Long Island-Simpson Creek paddlecraft launch site during impassably low tides).

To avoid conflicts of use between boaters and paddlers, future designs of the boat ramp may encourage paddlers to portage paddlecraft along a designated footpath parallel to the ramp approach road (e.g., utilizing the same alignment as the existing wooden boardwalk). Although alternative launch points for paddlecraft have been considered at Sawpit (e.g., from the southwest corner of the existing Sawpit Creek parking area), none are considered suitable; such that direct access to the dredged Sawpit Creek is preferred.

A full reconfiguration of the trailer and non-trailer parking areas should be considered to maximize the number of trailer parking spaces available within the existing footprint. Even as the total number of parking spaces may be increased, the vegetated landscape islands or swales should remain to provide stormwater retention. Considering the potential construction of a new fishing pier at George Crady Bridge and the abundance of visitors with trailers utilizing the boat ramp, the number of non-trailer parking spaces may be reduced. Although not a primary function of the Sawpit Creek Boat Ramp, paddlecraft launching should be accommodated, which will require a moderate number of parking spaces that are not designated for vehicles with trailers.

With years of intensive use of the Sawpit Boat Ramp, habitual driving patterns have worn paths through portions of the landscape where vehicular access was not intended. For example, vehicles cross through the middle of the vegetated strip of land between tress that separates the two portions of the parking area, thereby creating an informal segment of road where erosion and soil compaction now occur. Consideration should be given to formalizing and stabilizing an extra lane for non-trailer vehicles to exit the parking area adjacent to the approach to the boat ramp.

**Bluffs Shoreline Picnic Area and Trailhead**

***Objective: Improve function of the use area while managing visitor use and improving interpretation.***
*Action Items:*

- *Coordinate potential turn lanes for safer vehicular access.*
- *Construct a permanent restroom as feasible.*
- *Direct visitor use and augment natural landscape to avoid erosion.*
- *Enhance interpretation.*
- *Preserve characteristic canopy.*

*Ingress*
Turning into the parking area from State Road A1A is, at times, hazardous due to the speed and volume of traffic. DRP should coordinate with FDOT regarding the need for north and southbound turn lanes. Installation of turn lanes should utilize road right-of-way and avoid incursion on park boundary.

*Permanent Restroom*
This scenically canopied use area serves as a picnic area with visual access over the steep eroding shoreline of the Atlantic. It also functions as the trailhead for access to Boneyard Beach. Considering the popularity of this use area, a permanent restroom should be constructed to replace the existing portable restroom that is located adjacent to an overlook platform in an area that may be subject to erosion. The proposed facility should be located an adequate distance from the eroding bluff to avoid environmental impact, interruption of natural scenery, and potential loss of capital facilities. As no municipal sewage system currently exists on Big Talbot Island, the placement of a septic system facility would need to consider any effect on ground and surface waters.

*Observation Deck*
Given the trending erosion of the bluff, the location of the existing observation deck has been repeatedly shifted inland. Although descending the bluff is prohibited, unauthorized footpaths persist, accelerating erosion of the bluff and scarring the viewshed. As brushing has been ineffective for discouraging descent of the bluff, alternative approaches to revegetating the landscape should be evaluated for the area at the top of the bluff (i.e., adjacent to the observation deck). Unauthorized paths should be blocked with the planting of on-site native vegetation along with temporary demarcation as a restoration area (for additional details, see the *Hydrology* section). If the existing observation deck becomes compromised by erosion, an alternative design and shifting of location should be considered to both maximize visual access over the edge of the bluff and preclude off-path activity.

The east perimeter of the Bluffs Shoreline Picnic Area is defined by the namesake bluffs. A dense stand of naturally recruited oaks and shrubby vegetation limit views over the Atlantic such that the only open view over the ocean is at the site of the existing observation deck. Although the stand of new vegetation along bluff is part of an altered natural community type, at the edge of a developed site, it performs an important role as a natural windbreak and barrier against saltspray. Any modification of the observation deck footprint or other efforts to provide scenic views from the bluffs must consider the ecological function of this vegetation wall in protecting the interior stand of mature oaks.

*Interpretation*
Interpretative elements at this use area may be integrated with the picnic pavilions, a potential future observation structure, and/or the entry point for the beach-access trail. Topics may include the geology and natural history of these sea islands and migration of the surrounding salt marsh and creek systems, as well as the natural erosion processes that have shaped the beach and high bluff of this dynamic sea island.

*Landscape Aesthetics*
Other considerations for this use area should include the protection of its characteristic mature live oaks and a gradual recruitment/succession plan to ensure that new live oaks gradually replace the aging stand. Parking spaces and vehicular traffic should be organized and routed adaptively to address the health of the canopy, the natural seeding and growth of new oaks, and potential reach of the coastal erosion. Recognizing the significance of the canopy and the erosion dynamics of the bluffs – siting of the proposed permanent restroom, location and design of an observation deck, and any potential improvements to parking and pavilions, must all be highly sensitive to environmental cues.

**Shoreline Access Trail**

***Objective: Improve the former and current trail.***
*Action Items:*
- *Facilitate restoration of former shoreline access trail corridor.*
- *Stabilize current shoreline access trail.*

To retreat from major shoreline erosion, the beach access trail stemming from the Bluffs Shoreline Picnic Area has been relocated farther west toward the entrance. Restoration of the former trail section should be facilitated by native plantings and natural barricades to deter ongoing use. The new trail should be stabilized with appropriate natural materials.

**Black Rock/Timucuan Trail Access**
***Objective: Improve visitor safety.***
*Action Item:*

- *Increase parking capacity.*

Black Rock parking area is a popular access point for both the Black Rock Trail and the Timucuan multi-use trail. Parking capacity is frequently exceeded on busy weekends and holidays. The expansion of this parking area should be considered to meet the frequent peak visitation. DRP should communicate the need to expand this parking area with FDOT. If expansion is warranted, it should be designated directly northwest of the current parking lot. This new addition should occupy up to a quarter of an acre and provide 14 more parking spaces. If expansion is not feasible, 14 parallel parking spaces along State Road A1A in the ruderal right of way should be considered.

**Long Island-Simpson Creek Use Area**

***Objective: Improve site as primary launchpoint for paddlers.***

This site is identified as the most suitable within the multi-park complex for routine launching of paddlecraft. If the longstanding Kayak Amelia concessionaire no longer provides rental services, this use area should still provide an accessible paddling launch for visitors. Various infrastructural and natural landscape improvements are needed to improve the quality of experience and aesthetics for paddlers launching from this site. Recognizing that low tides occasionally preclude navigation in and out of Simpson Creek, the Sawpit Creek Boat Ramp should serve as an alternative, where paddlers will share often high-volume use with boaters.

**Grand Site Interpretive Trail**

DRP has coordinated externally with the North Florida Land Trust and internally with the Bureau of Design and Construction to design a site management plan for a proposed interpretive trail and overlook boardwalk at the Grand Site. This interpretive trail will help expand visitor knowledge of the St. Johns II Culture of the Timucua Indians through numerous interpretive panels and exhibits.

## Little Talbot Island State Park

The use areas at Little Talbot Island State Park listed below detail specific objectives and action items to be implemented within the 10-year planning cycle.

**North Beach Access Area**

***Objective: Enhance the Dune Ridge Trail.***
*Action Item:*

- *Extend trail to visitor parking area.*

Currently, access to the Dune Ridge Trail is via a 0.3-mile walk along the paved Timucuan Trail. Providing an opportunity to bypass the paved Timucuan Trail through an attractive natural area would enhance the visitor experience. Short spans of boardwalk may be necessary to traverse narrow wetlands.

**South Beach Access Area**

***Objective:*** ***Improve beach access.***
*Action Item:*

- *Consider removal and relocation of defunct recreational infrastructure.*

The southern end of Little Talbot Island is geologically much newer than the north end. Much of the southern portion of the island has emerged through accretion since the mid-19th century, influenced largely by the presence of the nearby St. John's River jetty and its propensity to impede the net movement of sand along the coast from north to south. In recent decades, however, the southern end of the island has been eroding due to the northerly shift of the Fort George River outfall. The river outfall-related erosion has resulted in infrastructure loss rendering several facilities at the south beach day-use area, including the restroom, inoperable. At the same time, changes in nearshore bathymetry at the south end have created swift tidal currents that pose significant safety concerns. These issues have necessitated the closure of the south beach day-use area to visitors arriving by vehicle. Cyclists and pedestrians can still enter the south beach day-use area from the Timucuan Trail, although access to the beach and restroom is restricted.

While intergovernmental stakeholders are developing a plan to address the potential impacts to A1A, any proposed mitigation measures will only serve to slow the inevitable loss of acreage at the park's south end. Given the trending erosion, proactive removal of the defunct recreational infrastructure may be necessary before potentially hazardous debris is dispersed into the marine environment. Removal or relocation of any infrastructure is contingent on the advancement of the USACE Fort George Inlet Section 111 Project.

If erosion trends continue, modest roadside parking and a boardwalk should be considered at a sustainable distance north of the defunct facilities to provide additional beach access, sufficiently buffered from the south end erosion. This facility should be constructed far enough away from the north beach area to avoid visitor crowding and associated impacts to natural resources.

**Fort George Inlet**

***Objective: Continue engagement with U.S. Army Corps of Engineers regarding erosion abatement.***

The Fort George Inlet Section 111 Project is intended to reduce shoreline erosion at the southern end of the island with beach nourishment and the placement of groin structures. DRP will continue to coordinate these planning efforts with the USACE and seek contributing funds for the implementation of this project.

**Fort George Inlet Parking Area**

***Objective: Improve interpretation.***

To enhance the visitor experience, an interpretive element could be provided to visitors overlooking the Fort George Inlet. Interpretation may include historical changes in hydrography of the Fort George Inlet and the effects on Little Talbot Island, including how recent natural and anthropogenic influences have affected the inlet's migration and the maritime hammock of adjacent Fort George Island.

**Campground**

***Objective:* Enhance campsites and dune protection.**
*Action Items:*

- Elevate or relocate campsites.
- Armor authorized paths.
- Prevent makeshift paths.

Many of the campsites along Myrtle Creek experience frequent tidal flooding. These campsites should be elevated or relocated to higher ground within the existing footprint of the campground rather than relocation into surrounding intact natural communities. Improvement measures might include elevating the sites via appropriate fill along with associated elevation of utilities. Some sites may need to be abandoned and allowed to revert to natural area, or consideration should be given to conversion to tent-only with elevated platform. With long-term environmental changes and space limitations, a trend toward reduced capacity is anticipated.

Foot traffic stemming from the campground is causing erosion along the dune ridges within the adjacent maritime hammock. These sloping sandy soils are vulnerable to human disturbance. Authorized paths should be armored with permeable, organic trail stabilization materials such as coconut matting or comparable measures. Unauthorized paths should be "brushed in" with branches/tree trimmings or replanted and accompanied by appropriate signage to discourage use.

**South Support Area**

***Objective: Consolidate volunteer facilities.***

In the interest of reducing development and sprawl, the park should relocate all volunteer RV sites to the shop compound west of State Road A1A. Having all volunteer sites at the developed shop compound will reduce impacts in other areas of the park and allow for easier coordination of volunteer staff.


- Proposals
- Structures
- Boat Ramp
- Parking Lots
- East Coast Greenway
- Hiking/ Biking Trails
- Unpaved Park Roads
- Paved Park Roads

1. Sawpit Creek Boat Ramp - Consider redevelopment.
2. Sawpit Creek Parking Area - Consider reconfiguring parking lots and stabilizing another lane.
3. Shoreline Access Trail - Facilitate restoration of former trail. Stabilize Shoreline Access Trail.
4. Bluffs Scenic Shoreline Picnic Area and Trailhead - Construct a permanent restroom. Improve interpretation. Preserve the characteristic tree canopy. Prevent makeshift paths and plant native vegetation around overlook.
5. Bluffs Scenic Shoreline Access - Communicate the need for turn lanes off of State Road A1A.
6. Black Rock/ Timucuan Trail Access - Expand parking area.
7. Grand Site Interpretive Trail - Develop interpretive trail.
8. Long Island-Simpson Creek Use Area - Improve site as primary launchpoint for paddlers.

# Big Talbot Island State Park

Conceptual Land Use Plan

0 1,000 2,000 Feet

N


# Little Talbot Island State Park

Conceptual Land Use Plan

0 1,000 2,000 Feet

N

## OPTIMUM BOUNDARY

### Big Talbot Island State Park

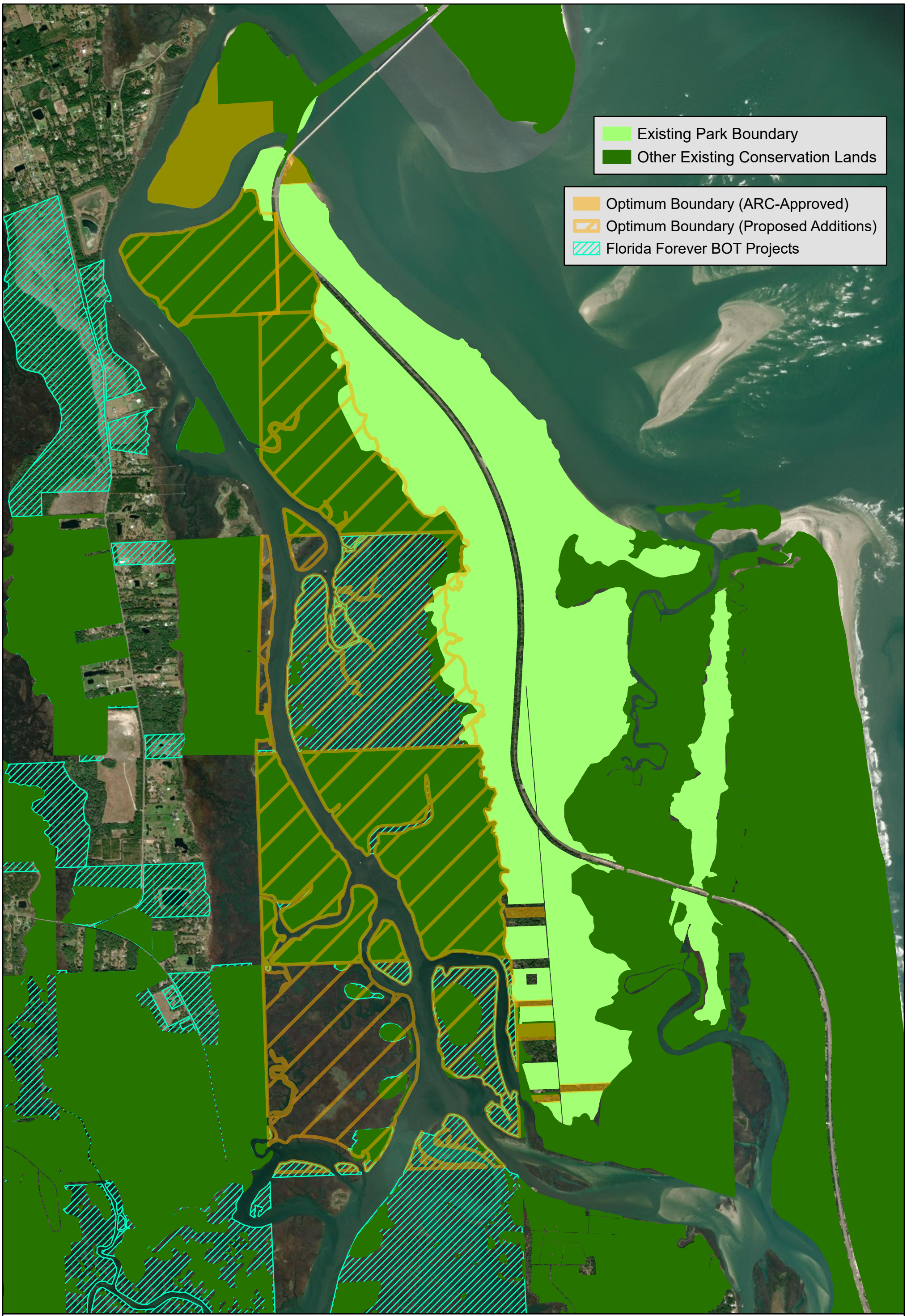
Surrounding Big Talbot Island State Park is a variety of conservation lands owned by federal, state and local agencies, as well as by private parties. These consist of the Timucuan Preserve, the Machaba Balu Preserve, Bird Island and other state parks. There are 14 parcels designated for a Florida Forever Board of Trustees (BOT) Project that is connected to Big Talbot Island and five other optimum boundary parcels that total 1,492.05 acres. Several of these parcels are owned by the North Florida Land Trust and should be considered for acquisition. DRP will work with the Division of State Lands to acquire 14 parcels for water quality protection, habitat conservation, and increased recreational opportunities.

The adjacent Florida Forever BOT Pumpkin Hill Creek Project encompasses 24,757 acres. This project is intended to preserve one of the largest tracts of ecologically productive lands in Duval County, thus improving and protecting water quality for the adjacent Nassau and St. Johns rivers. Conserving this land will support area fisheries and protect wading birds' rookeries. The project area also provides habitats to many rare and endangered species. Project parcels that are directly connected to Big Talbot Island State Park consist of nearly 1,464.7 acres.

At the southern end of Big Talbot Island are eight optimum boundary parcels which include significant cultural resource elements. These parcels total approximately 27.35 acres.

### Little Talbot Island State Park

Little Talbot Island State Park is bordered by local, private, federal, and state conservation areas. The northern end of Little Talbot Island and other areas of preserved barrier islands along the Atlantic coast are sanctuaries for migratory shorebirds. A parcel just north of Little Talbot and Long islands, just south of Bird Island, undergoes dynamic littoral sand drift but should be considered for acquisition given its proximity to the Talbot islands. This parcel is owned by the city of Jacksonville, and, if presented the opportunity, should be acquired to preserve critical habitat and colonial nesting areas for shorebirds. DRP will work with the Division of State Lands to acquire one 23.95-acre parcel for additional critical habitat protection.




# Big Talbot Island State Park

Optimum Boundary

0 0.5 1 Miles

N


# Little Talbot Island State Park

Optimum Boundary

0 0.5 1 Miles

N