



FORT GEORGE ISLAND CULTURAL STATE PARK

Park Chapter

ATLANTIC COAST REGION

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Fort George Island Cultural State Park

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Fort George Island Cultural State Park

Planning Region: Atlantic Coast

County: Duval

Lease/Management Agreement Number: 3784

Overview: Fort George Island preserves copious cultural resources, providing an extensive cross section of Florida's history. The world's largest and most complex shell ring is also protected in the Rollins Bird Sanctuary. A natural dune formation in the park's maritime hammock, Mount Cornelia, is considered one of the highest points along the Atlantic seacoast south of New Jersey.

Total Acreage: 820.64

Natural Communities	Acres
Depression Marsh	1.34
Hydric Hammock	1.16
Maritime Hammock	576.40
Salt Marsh	119.03
Shell Mound	36.65
Xeric Hammock	8.73
<hr/>	
Altered Landcovers	Acres
Developed	6.58
Ruderal	70.75

Acquisition: Fort George Island Cultural State Park was initially acquired on June 29, 1989, with Conservation and Recreational Lands (CARL) funds. Currently, the park comprises 820.64 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on August 22, 1989, the Trustees leased (Lease Number 3784) the property to the Division of Recreation and Parks (DRP) under a 50-year lease. The current lease will expire on August 3, 2039.

Resource Management Component

Hydrology

- Assess the park's hydrological restoration needs.
- Restore natural hydrological conditions and functions to approximately 3 acres of Depression Marsh natural community.

Imperiled Species

- Develop/Update baseline imperiled species occurrence inventory lists for plants and animals.
- Continue existing monitoring protocols for 2 selected imperiled animal species (Worthington's marsh wren and MacGillivray's seaside sparrow).
- Monitor and document 2 selected imperiled plant species in the park (Godfrey's swamp privet and low peperomia).

Fort George Island Cultural State Park

Invasive and Nuisance Species

- Annually treat 4 gross acres equaling 1 infested acre of invasive plant species.
- Implement control measures on 1 invasive animal species.

Cultural Resources

- Assess/evaluate 39 of 39 recorded cultural resources in the park.
- Compile reliable documentation for all recorded historic and archaeological resources.
- Bring 1 of 39 recorded cultural resources into good condition (McGundo midden, DU07511).

Land Use Component

Conceptual Land Use

Chappelle House

- Conduct a condition assessment and complete a historic structure report.
- Seek historic preservation funding.
- Remove the garden storage structure.

Neff House

- Consult with the Bureau of Natural and Cultural Resources and DHR to develop an appropriate management strategy.

Ribault Clubhouse

- Formalize the paddling launch with stabilization and demarcation measures.
- Relocate parking adjacent to the paddling launch.
- Provide vegetative buffering around the proposed parking area.

Point Isabel

- Remove seawall.
- Plan and implement a living shoreline restoration.

Trails

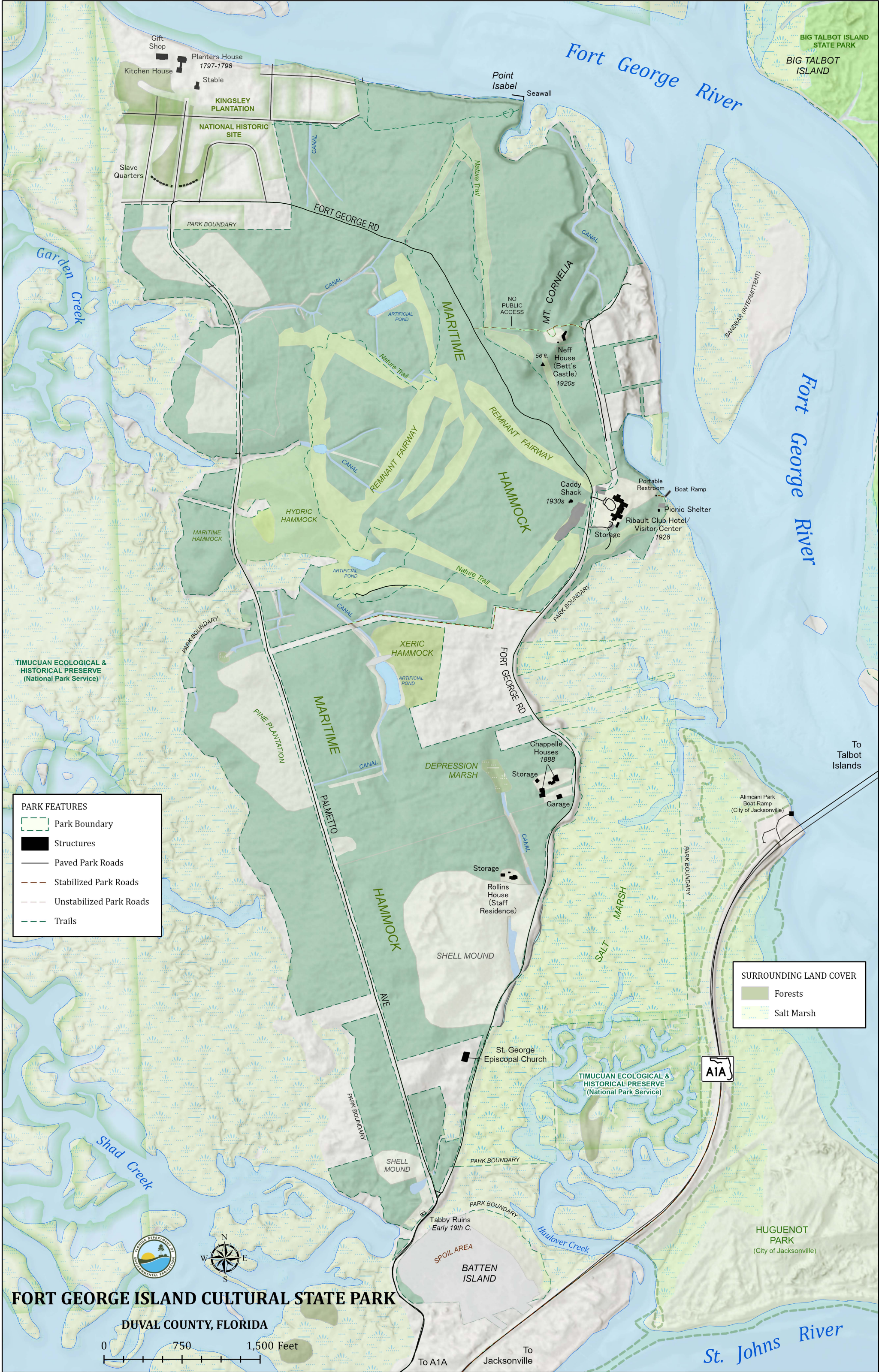
- Update, repair or replace interpretive exhibits in the Ribault Club visitor center, as needed.
- Produce a comprehensive interpretive sign plan.

Batten Island Entrance and Island Roads

- Collaborate with stakeholders to improve traffic flow and create a new park entrance.
- Coordinate with City of Jacksonville to make feasible improvements to city roads.

Optimum Boundary

Parcels identified in the park's optimum boundary will create a continuous park boundary, retain wildlife habitats, and preserve buffering between residential development and the proposed park entrance. Many of these parcels consist of vacant wetlands which could be restored and preserved to enhance habitat and watershed protection for the surrounding salt marsh system.



PARK FEATURES

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

SURROUNDING LAND COVER

- Forests
- Salt Marsh



FORT GEORGE ISLAND CULTURAL STATE PARK

DUVAL COUNTY, FLORIDA



To A1A

To Jacksonville

St. Johns River

INTRODUCTION

LOCATION AND ACQUISITION HISTORY

Fort George Island Cultural State Park is located in Duval County. Access to the park is from State Road A1A, also known as Heckscher Drive. The Mayport Ferry provides access to the area from the south side of the St. Johns River. The Atlantic Coast Region Map also reflects significant land and water resources existing near the park.

Fort George Island Cultural State Park was initially acquired on June 29, 1989, with Conservation and Recreational Lands (CARL) funds. Currently, the park comprises 820.64 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on Aug. 22, 1989, the Trustees leased (Lease No. 3784) the property to the Division of Recreation and Parks (DRP) under a 50-year lease. The current lease will expire on Aug. 3, 2039.

Fort George Island Cultural State Park is designated single-use to provide public outdoor recreation and conservation. There are no legislative or executive directives that constrain the use of this property (see appendix). A legal description of the park property 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 park 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 park.

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 park. 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

The purpose of Fort George Island Cultural State Park is to preserve Fort George Island's multilayered cultural landscape, while interpreting the island's rich history through educational as well as recreational experiences.

Park Significance

- Fort George Island's cultural resources prove the island has been a site of human occupation for over 5,000 years, from approximately 2680 B.C. to the present. This small island preserves and provides an extensive cross section of Florida's unique history.
- The shell ring in the Rollins Bird Sanctuary is the world's largest and most complex shell ring and reveals key information regarding life patterns of indigenous people from 1600-2300 B.C., the Orange Period.
- Although the landscape today appears to be maritime hammock, Kingsley Plantation occupied much of the island which was cleared and cultivated by enslaved people. Structures like the McGundo house and some ditches are still visible. The Kingsley Plantation, managed by the National Park Service, includes slave quarters and a historic home.
- The Fort George Inlet to the east provides over half of the surrounding salt marsh system's daily influx of saltwater.
- Mount Cornelia, a natural dune formation and impressive geomorphic feature on Fort George Island, is one of the highest points along the Atlantic seacoast south of New Jersey.

Central Park Theme

The once exclusive 1920s Ribault Club at Fort George Island Cultural State Park provides a backdrop for telling 6,000 years of history amid sprawling oak trees and salt marsh.

Fort George Island Cultural State Park is classified as a special feature site in the DRP unit classification system. A special feature is a discrete and well-defined object or condition that attracts public interest and provides recreational enjoyment through visitation, observation, and study. A state special feature site is an area which contains such a feature, and which is set aside for controlled public enjoyment. Special feature sites for the most part are either historical or archaeological by type, but they may also have a geological, botanical, zoological or other basis. State special feature sites must be of unusual or exceptional character or have statewide or broad regional significance.

Management of special feature sites places primary emphasis on protection and maintenance of the special feature for long-term public enjoyment. Permitted uses are almost exclusively passive in nature and program emphasis is on interpretation of the special feature. Development at special feature sites is focused on protection and maintenance of the site, public access, safety, and the convenience of the user.

OTHER DESIGNATIONS

The unit is not within an Area of Critical State Concern as defined in section 380.05, Florida Statutes and it is not under study for such designation. The park is a component of the Florida Greenways and Trails System, administered by the DEP Office of Greenways and Trails.

All waters within the park have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302, Florida Administrative Code. Surface waters in this park are also classified as Class II waters (shellfish propagation and harvesting area) or Class III waters (suitable for fish consumption and recreation) by the Department. The park is 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). Additionally, all waters within and surrounding the park boundary are designated as Outstanding Florida Waters (OFW).

PARK ACCOMPLISHMENTS

- Completed salt marsh restoration project on Batten Island in conjunction with the Florida Department of Transportation (FDOT) (2016).
- Completed site clearing of crypts archeological site to reduce risk to crypt structures (2017).
- Partnered with FDOT to install vegetation at the Fort George Inlet parking area to reduce highway impacts on nesting birds.
- Completed 84% goal for invasive plant treatment (0.012 acres) in 2018 and 73% (0.14 acres) in 2019.
- Renewed contract with Cape Leisure to include concessionaire operation of daily visitor services at the Ribault Club, expanding visitor contacts and supplementing park staff (2016).

RESOURCE MANAGEMENT COMPONENT

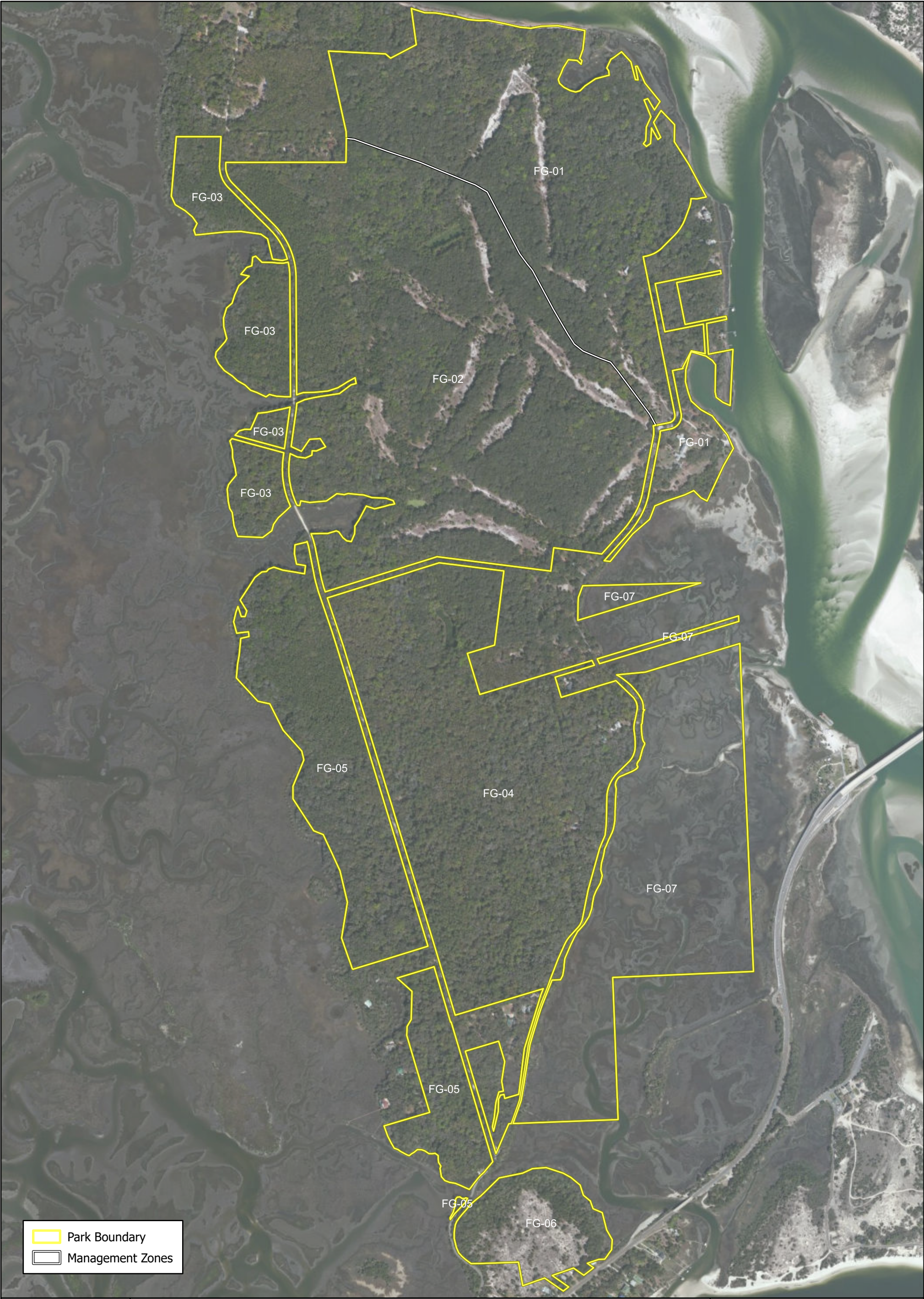
Fort George Island Cultural State Park Management Zones			
Management Zone	Acreage	Managed with Prescribed Fire	Contains Known Cultural Resources
FG-01	155.97	N	Y
FG-02	233.25	N	Y
FG-03	39.09	N	Y
FG-04	164.12	N	Y
FG-05	86.37	N	Y
FG-06	25.37	N	Y
FG-07	116.46	N	Y

TOPOGRAPHY

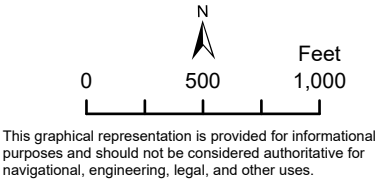
Fort George Island is a partially undeveloped barrier island located on the northeast coast of Florida in the City of Jacksonville, Duval County. Fort George Island, and Little Talbot Island to the east, is the southernmost islands in the Lagoons and Barrier Islands Chain, also known as the "Sea Islands Chain". This chain of islands extends from the Santee River in South Carolina south to the St. Johns River in Florida. The island is the southernmost in the Barrier Island Sequence District and Sea Islands Province.

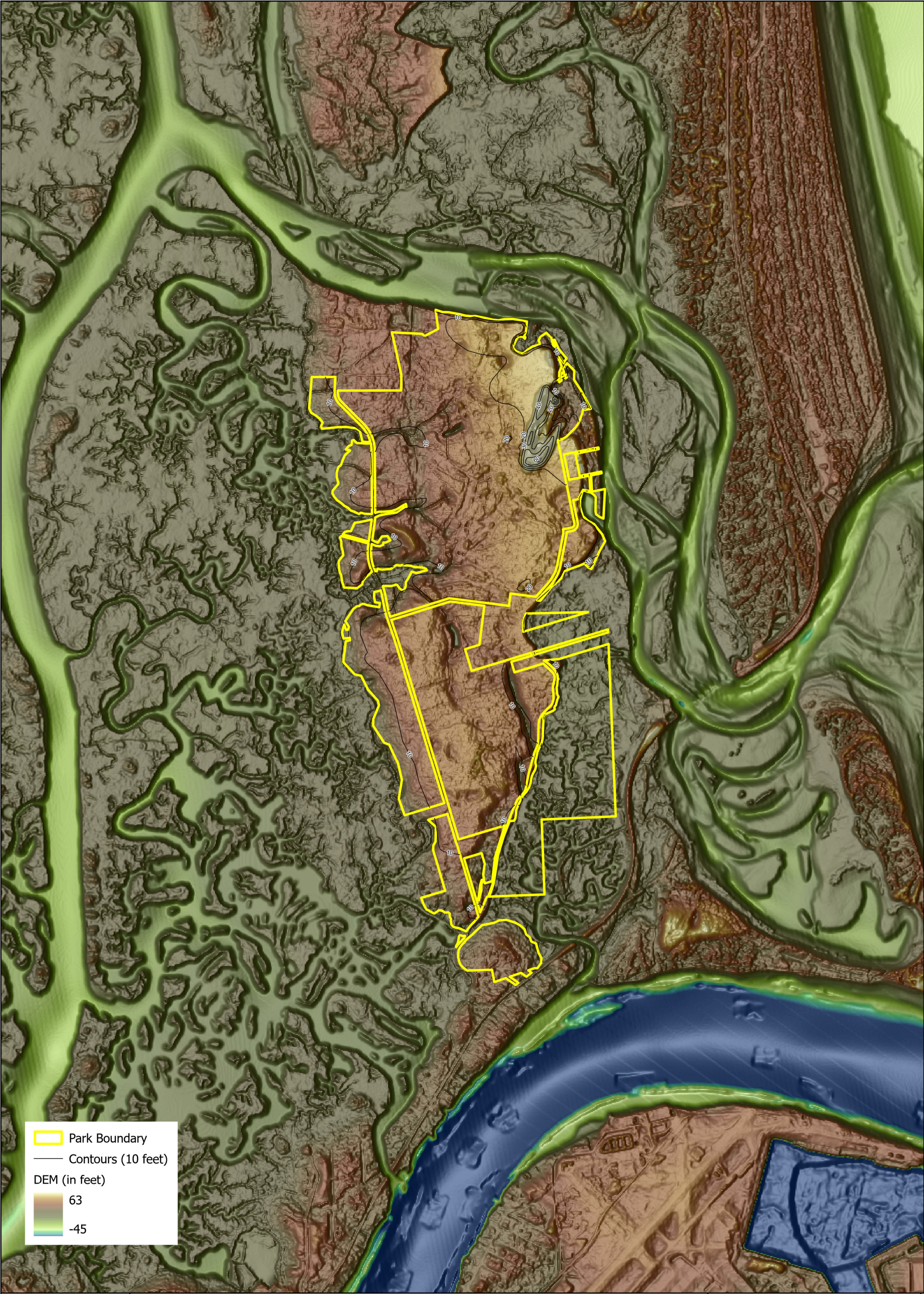
Fort George Island has elevations ranging from sea level to about 54 feet mean sea level on the ridges of Mount Cornelia. Beginning with the first aboriginal shell middens, Fort George Island has a long history of human activity altering the topography. These modifications were most intense during the past three centuries when most, if not all, of the island was cleared for agriculture. Although forestlands now cover the old fields, many of the ditches dug for irrigation or drainage remain in these areas. Examples are found in the northwest corner of the island where a series of shallow ditches associated with the Kingsley Plantation in the 1800s persist. Alterations that are more recent include an elaborate drainage system along the western edge of the island for mosquito control and ditching in the center of the island for drainage of the Fort George golf course. One of the most intrusive ditches is 1,050 feet long, 10 feet deep and eight feet wide, with an adjacent, seven-foot-tall spoil berm. Another notable and intrusive ditch system is that which drains the Mount Cornelia complex. This system of ditches is at least 1,800 feet long and penetrates into the dune complex. To date, at least four miles of ditches and an extensive array of excavated ponds and borrows have been identified on Fort George Island.

The large knolls of the Mount Cornelia complex were also altered during construction of the Neff House and during development of the former golf course, when several roads and golf cart paths were cut through the old dunes. The only cut currently in use by motorized vehicles is the one leading to the Neff House. Construction of the golf course significantly changed the landscape of Fort George Island. Knolls were re- contoured to accommodate fairways, and ditches and ponds were excavated to facilitate drainage. Other influences on the topography of the park include erosion at the northeast tip of the island, as well as at Point Isabel (Blue's Point), and at scattered locations along the eastern shoreline of the island. Tidal action and storm surges are causing mild erosion along some of the numerous ditches on the island.

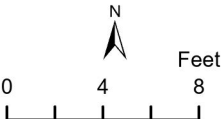


FORT GEORGE ISLAND CULTURAL STATE PARK
Management Zones





FORT GEORGE ISLAND CULTURAL STATE PARK
Topography



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SOILS

Ten different soil types have been identified on Fort George Island (Watts 1998). These soils fall into two major groups, Spodosols and Entisols. Identified by a hardpan or red spodic layer, spodosols are mainly found in the northeastern section of the island and can be seen in eroded sections of Blue's Point, also known as Point Isabel. The hardpan is composed of organic matter, iron and sometimes aluminum. Although spodosols constitute the most common soil family in Florida, the particular suborder of the soil series Cornelia that is found on Fort George Island is a haplohumod, one of the rarer soils in the United States. Haplohumod soils are distinguished by the presence of a very thick accumulation of organic carbon in the spodic layer. The soils of Mount Cornelia, a dome-shaped knoll on Fort George Island, belong to this soil series. Probably most of these soils were formed in the late Pleistocene or Holocene.

Entisols occur on the western side and southern tip of the island. These soils are relatively young and sandy, with no hardpan, and were probably the type most used in agriculture over the years. In numerous places, oyster shell middens cover the entisols. The appendix contains a detailed description of these soils (see Soils Map).

Management activities will follow generally accepted best management practices to prevent further soil erosion and conserve soil and water resources on site.

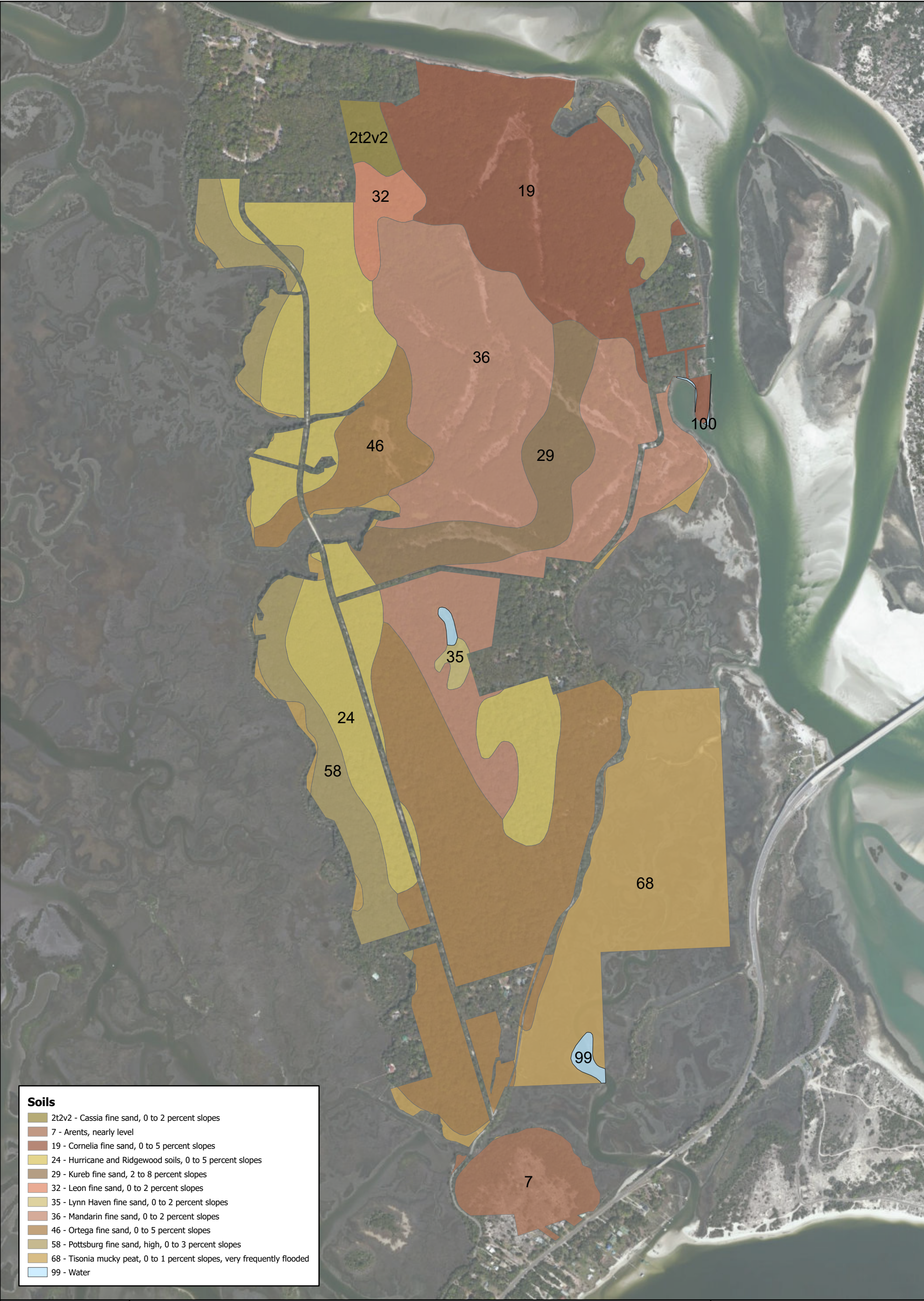
HYDROLOGY

The long cultural history on Fort George Island plays a substantial role in the understanding of the existing hydrology of this unique coastal barrier island (Stowell 1996). Fort George Island is located at the southern end of the Sea Island Coastal Region, a chain of coastal barrier islands that extend 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).

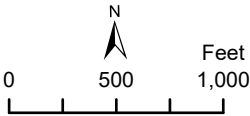
The park is located along a divide between two major freshwater/estuarine river basins (i.e., Nassau and St. Johns rivers) and within three distinct subbasin drainages (i.e., Fort George River, Sisters Creek, and lower St. Johns River) (DEP 2023a). The downstream reaches of the coastal rivers in this region reverse flow twice daily because of ocean tides. The tidal range is 1.62 at spring tide and 1.25 at neap tide.

The Nassau and St. Johns rivers, Sawpit and Sisters creeks and Fort George River are all 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 ever shifting and dynamic formation of Fort George and the Talbot Islands (Kojima and Mehta 1979; Raichle 1993; Adamus et al. 1997, Anderson et al. 2005).

As the southern-most barrier island in the Sea Islands chain, Fort George shares a common boundary with portions of the Nassau River-St. Johns River Marshes Aquatic Preserve, and the Timucuan Ecological and Historical Preserve. (National Park Service 1996; Anderson et al. 2005). The late 1800s historic Kingsley Plantation complex (i.e., like many small-scale agricultural production sites that preceded it back into the 1700s), now managed by the National Park Service (NPS), also shares a common boundary with the park and is situated on the northwestern shoreline of the Island. In the 1920s, island redevelopment on Fort George brought luxury hotels, clubhouses, and a golf course in the north central part of the island.



FORT GEORGE STATE PARK
Soils



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As an intracoastal waterway connection to the Nassau River in the north, Sawpit Creek (i.e., Gunnison Cut) branches southward into two main tributaries just northwest of the park, including the Fort George River and Sisters Creek. Fort George Island lies south and west of the Talbot Islands with its entire eastern and northern boundary flanked with the Fort George River and an extensive tidal salt marsh estuary including Haulover Creek.

The Fort George River exits to the Atlantic Ocean through the Fort George Inlet at the southeastern corner of the island. A bridge for State Road A1A spans the entire inlet near its mouth (Olsen 1999).

An extensive salt marsh estuary borders the entire west side of Fort George Island including Sisters Creek and a network of large tidal streams like Garden, Deep, and Shad creeks. The Fort George River is part of both the Nassau and St. Johns River drainage basins (DEP 2023 Map Direct).

The wetland and natural communities of Fort George Island have been extensively altered over the past 500-plus years of its European occupation. Fort George Island contains several freshwater wetlands, but as stated, nearly all have been altered in some way by the long, complicated human cultural history associated with the island (Stowell 1996). The freshwater wetlands known to be represented at the park include depression marsh and hydric hammock. The park's estuarine wetland communities include portions of salt marsh tidal embayments such as Garden and Haulover creeks.

Most surface water drainage on the Fort George is from east to west, except for the southeastern part of the island, including Rollins Bird and Plant Sanctuary, which drains east to the Haulover Creek estuary.

Garden Creek receives drainage from most of the northwestern half of the island. The historic remnants of the old golf course in the north still have many direct wetland drainage connections into the tidal areas of the Garden Creek estuary. There is at least one historic freshwater wetland (i.e., Old Bottom Pond) at the north end of the park that has been extensively altered by historic mosquito ditches that should be restored. Several altered ditches, mostly related to misguided mosquito management, are scattered land scars of the historic past that can be seen throughout the park property. The north and east island shorelines drain east toward the Fort George River and its southwestern shoreline drains westward towards the Shad and Deep Creeks estuary.

In the late 1970s, extensive hydrological assessments were conducted on the island by its owners to evaluate the property once again for potential redevelopment (Motz 1985; DRP District 2 files). With the state's acquisition of large portions of Fort George Island that began in 1989, the important process of protecting and restoring its natural and cultural resources has since moved into a new phase.

The main hydrological issues that influence the park's 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 Fort George Inlet and Atlantic beach (as discussed in *Regional Hydrology* section).

Water Quantity

As their name implies, barrier islands like Fort George 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 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 McClaugherty 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 McClaugherty 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 (UFA), 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 strongly influenced by short/long-term trends in groundwater consumption including public supply and industry (SJRWMD 2017).

In the 1980s, the clubhouse facilities and golf course irrigation wells on Fort George Island were known to have sharply altered the local hydrology. At that time there were at least 26 known wells scattered across Fort George Island (Motz 1985). Currently there are as many as 11 known wells within the park boundary being monitored by various entities (DEP Map direct; SJRWMD 2023; USGS).

When the Fort George golf course was last operational in the 1970s and 80s, two north island wells (i.e., J-228 and J-576) served primarily the course irrigation/clubhouse and used an estimated 170,000 to 180,000 gallons-per-day (GPD) of Upper Floridan groundwater. During that time, withdrawal rates for these golf facilities accounted for 90-95% all groundwater use on the entire Fort George Island (Motz 1985).

Park management has long worked with the St. Johns River Water Management District (SJRWMD) and the U.S. Geological Survey (USGS) to assess the utility of wells on park property, and several wells have been capped and have not been used for production since termination of golf course operations.

Monitoring of the surficial and UFA from wells located on Fort George Island has indicated high chloride and sulfate concentrations, which are strong indicators of saline conditions (SJRWMD 2023). During the period 1930-1982, these two indicators of saline conditions both showed increased concentrations within surficial and UFA over time (Toth 1990). Currently this steady rise in saline conditions has continued (Anderson et al., 2005; Pinto et al., 2022).

Contamination of surficial or UFA freshwater by Lower Floridan saltwater is primarily due to the existence a lower hydraulic head (i.e., lower pressure) in these upper zones. Over-pumping contributes to a lowered pressure (i.e., cone of depression) in the UFA (Toth 1990).

Regional groundwater withdrawals, specifically at major pumping centers like Jacksonville and Fernandina Beach, have also historically resulted in significant impacts, cones of depression and saltwater intrusions into freshwater aquifers (Brown 1984; Peck et al., 2005; SJRWMD and SRWMD 2015; SJRWMD 2017).

Several surficial and UFA wells located at Fort George Island (SJRWMD well No. D-0614 (surficial) and No. D-1383 (UFA)) 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 Fort George Island, 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 McClaugherty 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 St. Johns River and Suwannee River water management districts, Fort George Island is now part of a Water Resource Caution Area (SJRWMD 2017).

One well (i.e., TP-2) that was installed in the late 1970s by the previous landowners has never been used and its regulatory permit (i.e., Consumptive Use Permit (CUP)) has long expired. Nonetheless, if any new CUP application to open this previously tapped well occurs, groundwater withdrawal quantities and its quality should be closely monitored.

At least one golf course well (i.e., Ribault clubhouse well J-228 = USGS D-164) was also strongly suspected of contributing to local groundwater quality declines, but USGS staff continue to monitor this and other wells on the island. The USGS has monitored the Ribault clubhouse well since Aug. 19, 1930 (Spechler 1991).

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 is being monitored throughout the northeast region waterbodies by numerous entities, including SJRWMD, NPS, DEP and the U.S. Environmental Protection Agency (EPA) (Hynds and Starkey 2019; Allen et al., 2022; DEP 2023; EPA 2023a).

Unfortunately, there is virtually no surface water quality data for the freshwater resources within the boundaries of the Fort George. However, there are three sample stations on the west side of the island in the Garden Creek drainage and several more on the east side in tidal creeks of the Fort George River (DEP 2023 Map Direct). Multiple stations are scattered throughout the estuarine systems surrounding the park.

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, and 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 creeks associated with Talbot Islands estuaries are 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 (DEP 2023 Map Direct). This is only one of numerous similar NPDES permits routinely issued throughout the greater Jacksonville region.

In the two most recent 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).

Over the past 12 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). 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 declining (unsatisfactory, or worsening indicators) trends were 5 of 7 sediment or water contaminants (e.g., metals such as copper, cadmium, lead and nickel) and 8 of 13 water quality conditions (e.g., fecal bacteria, dissolved oxygen).

The overall trend for surface water quality for estuarine waterbodies of both major river basins (lower St. Johns and Nassau rivers) has generally been declining significantly with increased, salinity, saltwater intrusion and eutrophic conditions through time (Williams and Kimbell 2013; Pinto et al., 2022).

Hydroperiod Alterations and Coastal Erosion/Sedimentation

Within the region from mid-Georgia south to Fort George Inlet, Florida, the coastal shoreline has changed significantly in position and volume over the past 150 years (Byrnes and Hiland 1995).

The most significant anthropogenic shoreline manipulation occurred 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 continually drive changes within the adjacent barrier islands (Dean and O’Brien 1987; Byrnes and Hiland 1995). In reference to Fort George Island, these changes include accretion on the northern/middle segment of Little Talbot Island, northward erosion of Little Talbot’s southern tip and updrift and migrating sediments within Fort George Inlet (Marino et al., 1990; Raichle 1993; Olsen Associates Incorporated 1999).

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).

Southward sand transport along the Atlantic Ocean shoreline occurs at an estimated rate of 1.48×10^5 cubic yards per year (Kojima and Hunt 1980). The St. Mary’s Inlet jetty is a significant impediment to this mass movement of sand within the littoral zone and has significantly influenced patterns of erosion at Amelia Island’s southern tip.

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 transport (i.e., accretion of Wards Bank= Huguenot Park) posing dire consequences for an eroding Little Talbot Island southern tip (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 and Talbot islands, including OFWs of the Timucuan and aquatic preserves might be even further subjected to higher eutrophication levels from both Nassau and St. Johns rivers as their primary sources (Anderson et al. 2005; DiDonato et al. 2005; Erik Olsen, personal communication).

Not discounting the anthropogenic influences of artificial coastal jetties, erosion of Little Talbot Island's southern shoreline and migration of Wards Bank are unique, protected examples that highlight the integral geologic processes of sea island formation.

Artificial ditches have negatively affected the hydrology of several freshwater wetlands of the park. The artificial ditches 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 Fort George Island is that there has been a decrease of overall freshwater wetland acreage and an increase in erosion/sedimentation with a direct conduit to adjacent estuarine communities. The decrease in size of freshwater wetlands on a barrier island, a resource that is already naturally limited, can be dramatic.

The artificial conduit linking fresh and saltwater wetlands can drastically alter both ecosystems via sediment and nutrient laden runoff into the adjacent estuary and saltwater intrusion into freshwater wetlands from tidal flushing. Additionally, ditch elevations can drop several feet below the surface and therefore can have a direct interface to the surficial groundwater. There are numerous historic ditches throughout Fort George Island that were created for stormwater runoff, upland drainage for roads, agriculture, golf course facility construction and historically misguided mosquito management policies (Wilson Miller 2004). Topographic ditch and borrow pit scars can be easily seen on digital elevation model (DEM) light detection and ranging (LIDAR) maps.

Wetland restoration at the park should focus on three primary ditch alterations that include Old Bottom Pond, Blues Pond and Fairway Creek (Creek through 14th hole fairway), and a living shoreline tidal marsh project at Point Isabelle.

The pond restoration will return approximately 8 and 2.6 acres of freshwater depression marsh to natural function in Old Bottom and Blues Ponds respectively. Rectifying the impacts of ditching in Fairway Creek, the historic headwaters to the Garden Creek estuary, would restore natural unimpeded flow to this tidal creek. Point Isabelle is an artificially hardened seawall shoreline, that with full removal and conversion to a living shoreline, could restore a sizable area of estuarine salt marsh community.

Assessment of Needs

Objective: Assess the park's hydrological restoration needs.

Actions:

- Continue to cooperate with state and federal agencies and researchers in monitoring park hydrology, especially groundwater levels and surface water quality.
- Continue to review and comment on proposed land use/zoning changes within properties bordering the park.
- Assess and evaluate hydrological impacts in the park, especially within artificial ditches where natural sheetflow has been disrupted. Initiate corrective actions as appropriate.
- Assess hydrological impacts (i.e., altered hydroperiod) to the park's depression marsh natural community.

Restoration

Objective: Restore natural hydrological conditions and functions to approximately 3 acres of depression marsh natural community.

Actions:

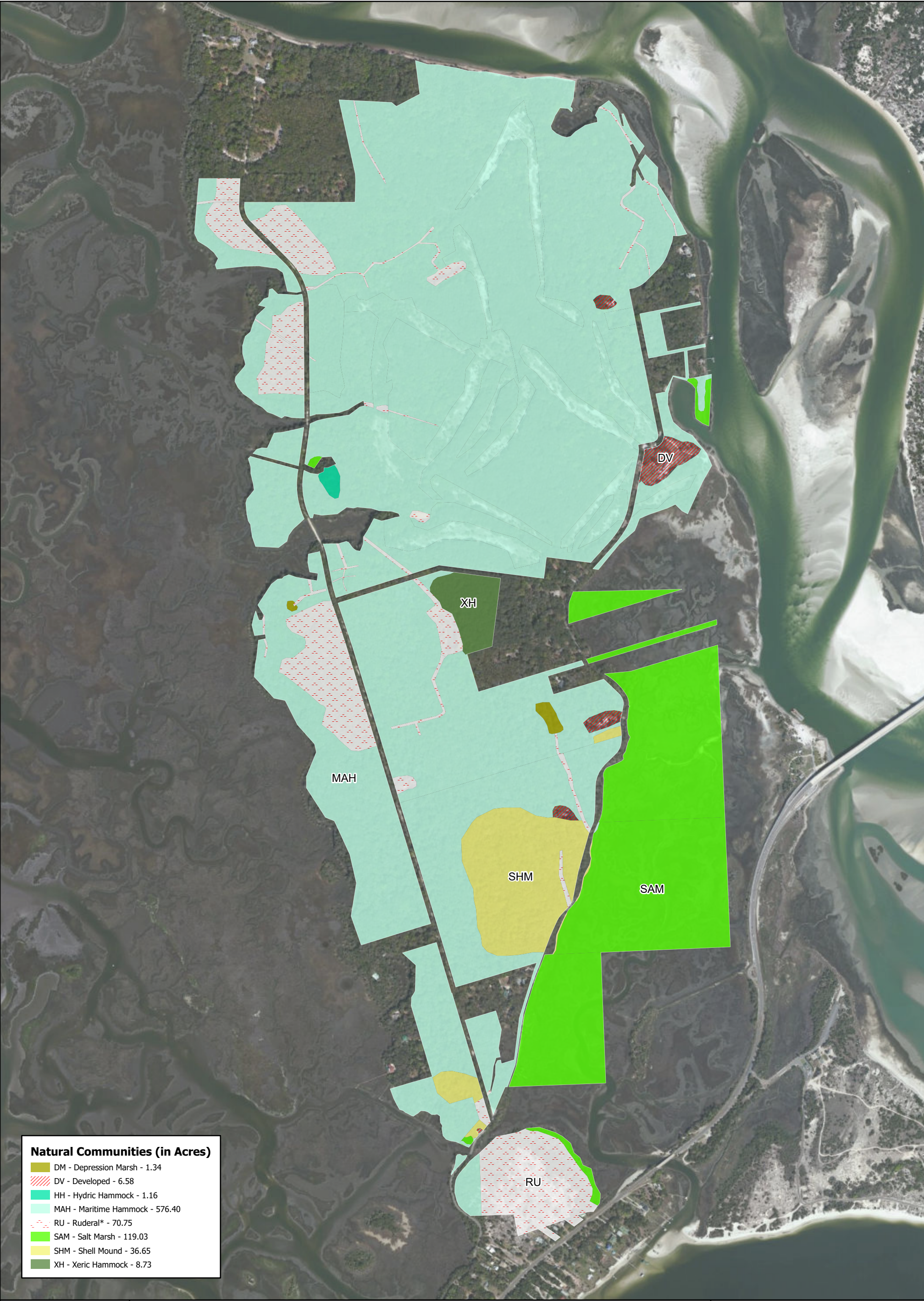
- Conduct an assessment and evaluate the feasibility of implementing wetland restoration within the park's artificial ditches.
- Determine if ditch block installation could be a useful technique for restoring natural hydroperiods within the park's depression marsh wetlands.

NATURAL COMMUNITIES

Maritime Hammock

This community typically occurs on sandy soils of old dunes that have been stabilized long enough to allow development of a mature, closed canopy forest. On Fort George Island, however, maritime hammock appears on a variety of soils, including some that might have once supported fire-type communities such as flatwoods. Before humans arrived and drastically altered the landscape, mesic and scrubby flatwoods and perhaps other natural communities may have existed on the island. Now, however, only occasional individuals of typical flatwoods species other than saw palmetto are present. Soil profiles have changed dramatically due to shell deposition and centuries of crop cultivation. Extensive drainage systems associated with the former golf course have further altered the potential of the island to support the variety of communities that might have once occurred there.

The maritime hammock on Fort George Island is widespread, but its condition is highly variable. Mature examples located in the northeast part of the island and at the southern end are in good condition. In these areas, a canopy of live oak, southern red cedar and southern magnolia shades a midstory composed mainly of devil's walking stick (*Aralia spinosa*), yaupon holly and young cabbage palm. In other locations on the island where vegetation is still recovering from clearing that took place in the latter part of the 20th century, laurel oak (*Quercus laurifolia*) dominates the overstory. Saplings of other canopy trees and shrubs grow as understory species in these areas, which are in fair to poor condition depending upon the extent of regrowth. Limited areas of maritime hammock in the midsection of the island are dominated by a laurel oak overstory, but numerous pine stumps up to 30 inches in diameter are scattered throughout. Regeneration of other hardwood species has occurred in these locations.



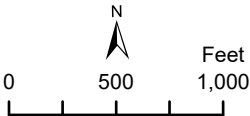
Natural Communities (in Acres)

DM - Depression Marsh	- 1.34
DV - Developed	- 6.58
HH - Hydric Hammock	- 1.16
MAH - Maritime Hammock	- 576.40
RU - Ruderal*	- 70.75
SAM - Salt Marsh	- 119.03
SHM - Shell Mound	- 36.65
XH - Xeric Hammock	- 8.73



FORT GEORGE STATE PARK

Natural Communities - Existing Conditions



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

A fringe of maritime hammock extends along the western portion of the island, in between salt marsh and planted pine. Along the inland part of this fringe, the canopy is relatively diverse, but in areas adjacent to the marsh, only the most salt-tolerant species prevail. Due to sea level rise, marsh vegetation is currently invading the understory of the maritime hammock fringe closest to the marsh. In addition, the maritime hammock along the edge of the marsh contains scattered spoil piles from a ditch that runs through the salt marsh for nearly the entire length of the island, within 30 feet of the forest.

The red bay has experienced extreme mortality since about 2005 because of the rapid proliferation of an invasive exotic insect, the Asian ambrosia beetle (*Xyleborus glabratus*). The ambrosia beetle bores into mature red bay trees, introducing a fungal pathogen (*Raffaelea lauricola*) that causes laurel wilt disease and almost certain death (Mayfield and Thomas 2009). While most of the adult red bays on Fort George Island have been infected and top-killed, small saplings and re-sprouts can be found in the park.

Protection from disturbance is the primary management measure for maritime hammock. Maintaining a continuous, closed tree canopy prevents salt spray damage from enlarging gaps in the canopy. Mitigation of erosional impacts from visitor use is also a priority. Signage and discreet fencing in vulnerable spots are often successful in modifying pedestrian behavior. Relatively few exotic species occur in the maritime hammock, although armadillos (*Dasypus novemcinctus*), which are common, tend to damage the leaf litter and upper soil layers. Possible measures for mitigating the hydrological impacts of the ditches that cut through the maritime hammock may include the strategic placement of ditch blocks to exclude tidal influences and reduce the dewatering of adjacent maritime hammock soils.

Shell Mound

The shell mound community is largely restricted to the southern portion of the island where shell deposits are most extensive. This community is host to many of the listed plant species that occur on Fort George Island. The best example of shell mound can be found in the Rollins Bird and Plant Sanctuary, which was once technically part of Little Talbot Island State Park but is now included in the lease for Fort George Island Cultural State Park. It appears that shell deposits here are among the deepest and least disturbed on the island. The Rollins shell mound community, although similar to maritime hammock, includes several calcium-loving species such as smallflower mock buckthorn (*Sageritia minutiflora*), Godfrey's swampprivet (*Forestiera godfreyi*), red cedar, cabbage palm and two plants that are at their northernmost limits, low peperomia (*Peperomia humilis*) and wild coffee (*Psychotria nervosa*). Shell mound vegetation is also present on the Chappelle parcel, which was acquired in 2004, and near the McGundo Midden, despite the extensive shell mining that has taken place at the latter site. Feral hogs are potential threats to listed plant species found in this natural community. Rooting by hogs has been observed in at least one of the park's shell mounds.

Shell deposits of lesser extent are found over many other parts of the island, but these deposits generally support maritime hammock vegetation. Some of these shell deposits may have once been cultivated or otherwise disturbed and they currently do not support shell mound species. Small areas of actual shell mound community may exist hidden within areas mapped as maritime hammock, but recent field surveys did not locate any such occurrences.

The shell mound areas that still have significant onsite cultural resources should be monitored at least yearly to evaluate mound stability and any trends in vegetation loss/erosion and/or human disturbance. If exotic plants are observed on a mound, they should be removed in such a way as to avoid disturbing any subsurface resources. Dead trees will be treated in a similar fashion to limit ground disturbance. To improve protection of these vulnerable resources, preserve staff should inform appropriate law enforcement personnel about locations of mounds and encourage more frequent patrols.

Xeric Hammock

Fort George Island's xeric hammock may have evolved from a small patch of scrubby flatwoods that was subjected to long-term fire exclusion. The scrubby flatwoods community remains common on some coastal islands where fire still recurs periodically, including Big Talbot Island, which is just north of Fort George Island. Representative species in the xeric hammock include blue huckleberry (*Gaylussacia frondosa* var. *tomentosa*), coastalplain staggerbush (*Lyonia fruticosa*), saw palmetto (*Serenoa repens*), and sand live oak (*Quercus geminata*). The community is in fair condition.

The best management strategy for the park's xeric hammock will be to protect it from disturbance and allow development to continue.

Depression Marsh

The two depression marshes in the park are barely functioning wetlands, one just north of the southwestern-most pine plantation and a larger one just west of the Chappelle grounds. Both are drained by ditches and consequently are in poor condition. At present, shrubs and vines dominate these marshes. There is little or no herbaceous component, although ferns are occasional.

Salt Marsh

The largest section of DRP-managed salt marsh associated with Fort George Island extends eastward of the Rollins Bird and Plant Sanctuary almost to the Fort George River. This is a low marsh that is in good condition. Saltmarsh cordgrass is the dominant plant species, with small clumps of needle rush interspersed. Haulover Creek, the main tidal creek that flows through this marsh, drains southward to the St. Johns River but also maintains some connectivity with the Fort George River to the northeast. Elsewhere within the park, small amounts of salt marsh occur along the fringe of a small peninsula located just north of the Ribault clubhouse, along the eastern edge of Batten Island, and in an interior wetland. A large ditch of approximately 200 yards connects the small interior salt marsh to expansive salt marshes that stretch west to Garden Creek. Historic maps (USGS 1856 in Wayne and Dickinson 1986) indicate that this interior marsh once had hydrologic connections to a salt marsh area to the south. Before construction of the ditch that drained it westward, this system may have been a freshwater wetland that naturally drained southward.

Of all the natural communities on or around Fort George Island, salt marsh probably contains the greatest diversity of animal species. Invertebrates are abundant. These 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*).

Unfortunately, many of these species are sensitive to disturbance from human intrusion. A recent increase in foot traffic within the marshes along the Fort George River has led to increased wildlife disturbance as well as some habitat damage and erosion along 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.

Salt marsh requires little active management other than protection from human intrusion and disturbance. Landings of boats and paddle craft should be discouraged except at designated launch sites to protect salt marsh vegetation along the park's shoreline. Stormwater runoff from developed areas may cause a decline in salt marsh productivity and should be minimized.

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 at Fort George Island may include 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.

Estuarine Mollusk Reef

Estuarine mollusk reefs may occur within the tidal creeks that weave through salt marshes adjacent to Fort George Island, 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 is the dominant species in the estuarine mollusk reef, although other mollusk species also inhabit the reefs. Mollusk reefs are vulnerable to impacts from degradation of water quality. The mollusk reefs at Fort George Island are situated within Class II waters, but shellfish harvesting is now locally prohibited due to water quality concerns.

Protection of water quality and quantity are the primary management measures for estuarine communities, but the success of these measures is often contingent on activities that occur well outside the park boundaries.

Estuarine Unconsolidated Substrate

Tidal creeks and tidal flats represent this natural community at Fort George Island. For mapping purposes, this community is lumped under the estuarine composite substrate category and its acreage is included within the total acreage for estuarine composite substrate.

Numerous tidal creeks, some relatively large (e.g., Haulover Creek), flow through the salt marshes of Fort George Island. These creeks provide critical habitat for many fish species. Diamondback terrapins (*Malaclemys terrapin centrata*) also range within the creeks. West Indian manatees (*Trichechus manatus*) visit the tidal creeks seasonally, particularly during spring and fall migrations.

Salt pans, which occur in the upper intertidal zone, function as ecotones with the salt marshes that fringe Fort George Island. These flats are barren and sandy, with a soil salinity reaching 200 ppt 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.

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 Fort George Island tidal creeks. At low tide, exposed tidal flats provide critical feeding areas for many types of shorebirds and wading birds. The potential for wildlife disturbance is high due to boat traffic in the creeks and foot traffic on the flats.

Altered Land Cover Types

Canal/Ditch

Numerous ditches dating from various time periods are located on Fort George Island. These ditches total over 4 miles in length, not including those that pass through salt marsh. Aerial photographs indicate extensive ditching took place in the mid-1960s, presumably as part of mosquito control efforts.

Other ditches date back to various episodes of golf course construction. Some ditches may have even been excavated during the plantation period. Many of the ditches drain what were once naturally functioning wetlands. Presently, almost no undrained natural wetlands remain on the island. Notable examples of ditched wetlands include the swales between dunes in the Mount Cornelia complex, a barely functioning freshwater wetland (depression marsh) just north of the southwesternmost pine plantation, and three remnant wetland systems located at the easternmost ends of fingers of salt marsh that extend into the island from the west. Other natural wetlands undoubtedly existed on Fort George Island before the extensive ditching occurred.

As described in the *Hydrology* section above, in the early 2000s DRP obtained FDOT mitigation funds to conduct a hydrologic restoration feasibility study that would evaluate the features described above. Wilson Miller, Inc. was awarded a contract to conduct that study, which was completed in 2005.

One of DRP's long-range goals is to restore the altered wetlands within the park. Before initiating wetland restoration on Fort George Island, however, staff should complete their evaluation of the network of ditches, culverts and created ponds. The evaluation should focus on 1) locations of ditches, 2) age and origin of ditches, 3) historic significance of ditches, 4) current impacts of ditches on adjacent natural communities, 5) current impacts of ditches on adjacent cultural resources and 6) current drainage effects on adjacent private and public parcels. Once this evaluation is finished, staff will be able to develop specific plans for restoration and establish priorities. A completed restoration plan will allow the park to take advantage of mitigation opportunities as they arise.

Over 8 miles of mosquito ditches were dug in the park between the early 1950s and late 1960s. The ditches were designed to drain intermittent wetlands into permanent ditches to create habitat for predatory fish that would prey on mosquito larvae. The ditches have not been maintained for several decades. Mosquito ditching is rarely used in freshwater wetlands due to modern wetland permitting constraints and the high cost of maintenance. Restoration of the mosquito ditches to the historical natural community types would cause a high level of damage and disturbance. Allowing the ditches to gradually revegetate, coupled with strategically based ditch blocks, would restore these areas to a more natural state with minimal damage to existing vegetation and at a much lower cost. The long-term desired future condition for the mosquito 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 include the Rollins Lodge and Garage and vicinity (a park residence is located there), the two Chappelle houses and grounds (including another park residence), the Nettleton Neff House and vicinity, the Ribault clubhouse and grounds, and the Thomson Tabby Ruins. Priority invasive plant species (Florida Invasive Species Council Category I and II species) will be removed from all developed areas. Other management measures will include proper management of stormwater and adherence to development guidelines that are compatible with resource management in adjacent areas.

Impoundment/Artificial Pond

At least four artificially enlarged ponds currently serve as wetland habitat on Fort George Island. These ponds appear to have been natural wetlands before their enlargement. All of these ponds are linked to salt marsh via ditches.

The dominant tree species is Carolina willow (*Salix caroliniana*). Shrub dominants include elderberry (*Sambucus canadensis*) and buttonbush (*Cephalanthus occidentalis*). Duckweed (*Lemna* sp.) often covers these freshwater ponds. Cattail (*Typha latifolia*) and pickerel weed (*Pontederia cordata*) are also here.

The long-term desired future condition for the artificial ponds is to let them remain as facsimiles of natural wetlands. Restoration to their original condition would dramatically disturb the surrounding natural communities. The ponds provide freshwater habitats that are otherwise not available elsewhere in the park and serve as important habitats for wildlife species such as wading birds and alligators.

Pine Plantation

Three stands of planted slash pines occur along Palmetto Avenue, introduced in the mid-1960s by Victor Blue (Jones 1967). The western boundaries of the pine stands are irregular, with fringes of maritime hammock separating the pines from the marsh. In the interior of some stands, pines are planted around large live oaks. Many maritime hammock species have begun colonizing the understory in the less dense sections of the stands. It appears that these pine stands will slowly succeed toward maritime hammock if left undisturbed. Self-thinning is already taking place.

Restoration Natural Community (DFC - Maritime Hammock)

Abandoned golf fairways represent an early successional stage of maritime hammock on Fort George Island. The Ribault Club constructed the original nine-hole golf course in the late 1920s. It was later expanded to an 18-hole course in 1968 (Stowell 1996). During the golf course construction, fairways were cut through the maritime hammock and the natural topography and drainage of the area were altered. The state of Florida acquired the course in 1989 and leased it to the city of Jacksonville until 1991. In that year, active management as a golf course was discontinued because of environmental concerns, the associated costs of modernizing facilities and adopting management practices to minimize environmental damage. Restoration of the fairways to maritime hammock via natural succession has been occurring since. Dr. John Randall and students from the botany department at the University of North Florida evaluated the progress of the fairway restoration in the mid-1990s. They discovered that species richness on fairways had roughly doubled (from 21 species to 46) and species evenness had increased since the abandonment of the golf course (Randall 1997). The fairways are continuing to be colonized by woody vegetation such as pines, oaks and bird-dispersed trees and shrubs, some of which have grown more than 30 feet. Staff monitor the restoration process every five years via photo points.

Restoration Natural Community (DFC - Salt Marsh)

About 4.6 acres of former salt marsh along the eastern edge of Batten Island underwent restoration. This area had been a functional salt marsh before dredge spoil was deposited to create the island sometime prior to 1970. In 2015, FDOT designed and obtained the necessary permits for a project to restore some of the lost salt marsh. The project, which was completed in early 2017, included the removal of invasive hardwoods from wetlands, recontouring of soils to encourage re-establishment of salt marsh vegetation, and cutting of three small passes through a sand bar to allow tidal flow to occur between the site and Haulover Creek. Staff will monitor progress of the restoration via photo points.

Spoil Area

Although not mapped separately, there are spoil ridges and piles associated with most of the mosquito ditches that are mapped as canal/ditch within the park. The maritime hammock that borders the salt marsh on the west side of the island contains scattered spoil piles from a ditch that slices north-south through the salt marsh for nearly the entire length of the island. Spoil areas within the maritime hammock will be left in place in most cases due to the maritime hammock vegetation that has recolonized them. Batten Island at the southern end of the park is not a natural island. It is a human creation composed of dredge spoil that was deposited there before 1970. Hairgrass (*Muhlenbergia capillaris*) dominates the center of the island, while vegetation such as wax myrtle (*Myrica cerifera*), sabal palm, groundsel tree and smilax species have partially colonized the edges of the island.

IMPERILED SPECIES

Six imperiled plant species and 20 imperiled animal species have been recorded at Fort George Island Cultural State Park. One plant, the state endangered plume polypody (*Pecluma plumula*), has not been seen on the island since at least 1983. Records for Fort George Island exist from only two locations, at the cultural site DU149 and on one of the tabby slave quarters at Kingsley Plantation. Both sites were surveyed in 1984 and site DU149 was resurveyed in 1999. Neither survey relocated the plant. The current thought is that the polypody fern is now extirpated from the island (Water and Air Research, Inc. 1984). A second imperiled fern, southern lip fern (*Myriopteris microphylla*), also occurs on the island, but it has not yet been recorded on park property. Suitable habitat exists within the park, however, so staff should be on the lookout for it. The other four imperiled plant species in the park thrive in relatively undisturbed habitat with the exception of one population of low peperomia (*Peperomia humilis*), which is being encroached upon by confederate jasmine (*Trachelospermum jasminoides*) near the Chapelle addition.

Protection of imperiled plant species means protecting suitable habitat from disturbance. 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 Fort George Island in 1984. Although the specimen was vouchered and confirmed by the University of Florida Herbarium, it and another specimen collected at Little Talbot Island in 1990 may be escaped cultivars of *Lantana depressa* (Hattaway 1995).

Numerous imperiled animals use habitat on or adjacent to Fort George Island. Some are transient but others are permanent residents. Gopher tortoises (*Gopherus polyphemus*) of many different age classes are common in open, well-drained areas of Fort George Island (including the abandoned fairways and Batten Island). Gopher tortoises also frequent the old dune system around Mount Cornelia. The Florida Fish and Wildlife Conservation Commission (FWC) has adopted a statewide protocol for monitoring gopher tortoises based on a line transect distance sampling method (LTDS) (Smith et al. 2009). Any future assessments of the status of the gopher tortoise population in the park should consider using this standard protocol.

The eastern indigo snake (*Drymarchon couperi*) once occurred on Fort George Island, but the species was not recorded during the last two comprehensive surveys that were conducted there in 1985 (Fairfield Communities) and in 1992 (Jacksonville Zoo partnership). Wading birds, including some listed by FWC as threatened, have long maintained a roosting area just north of the Ribault clubhouse.

Fort George Island also provides important habitat for a breeding population of painted buntings (*Passerina ciris*). This neotropical migrant, which FWC considers to be a species of greatest conservation need, has experienced a significant, 4-6% annual decrease in numbers recently in the southeastern United States. Habitat loss is a major cause of the decline. 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 USGS determined annual survival rates of the painted bunting at various locations in the southeastern Atlantic coastal states, including the Talbot Islands/Fort George Island area (Sykes 2004). FWC conducted surveys of singing males at the parks between 2008 and 2010 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 development in the park, and when planning and siting visitor-use activities. At Fort George Island, however, summer resident painted buntings continue to find refuge along the edges of the park's well-preserved maritime hammock.

Worthington's marsh wren (*Cistothorus palustris griseus*) and McGillivray's seaside sparrow (*Ammodramus maritimus macgillivrayi*) are two imperiled birds that inhabit salt marsh areas in the park. Population status of these species is still relatively unknown (Sauer et al. 2014). An FWC biological review of these species concluded that increased monitoring efforts were needed because of ongoing threats to salt marsh habitat along the east coast and a trend of declining marsh wren/sparrow populations in the area (FWC 2011). A species action plan has been developed for these two species (FWC 2013a).

The West Indian manatee has also been documented in estuarine areas around Fort George Island. A growing concern in the area's salt marshes and tidal creeks 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. DRP will post manatee protection zone signs at boat ramps and canoe launches within the park. DRP will also consider approaching the proper authorities to establish idle speed zones within the narrower tidal creeks.

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 Florida Natural Areas Inventory (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						
Godfrey's swamp privet <i>Forestiera godfreyi</i>			E	G2,S2	9, 10	Tier 1
Spiked crested coralroot <i>Hexalectris spicata</i>			E		9, 10	Tier 1
Atlantic Coast Florida lantana (<i>Lantana depressa</i> var. <i>floridana</i>)			E	G2T1, S1	10	Tier 1

Imperiled Species Inventory						
Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FWC	USFWS	FDACS	FNAI		
Plume polypody <i>Pecluma plumula</i>			E	G5,S2	9, 10	Tier 2
Low peperomia <i>Peperomia humilis</i>			E	G5,S2	2, 9, 10	Tier 1
Ft. George ladiestresses <i>Mesadenus lucayanus</i>			E	G4G5, S1S2	2, 9, 10	Tier 2
REPTILES						
American alligator <i>Alligator mississippiensis</i>	FT(S/A)	FT(S/A)		G5,S4	4, 13	Tier 1
Eastern indigo snake <i>Drymarchon couperi</i>	FT	T		G3,S2?	10	
Gopher tortoise <i>Gopherus polyphemus</i>	ST			G3,S3	8,10,13	Tier 1
BIRDS						
Macgillivray's seaside sparrow <i>Ammodramus maritimus macgillivrayi</i>				G4T3,S2	4, 10	Tier 3
Wilson's plover <i>Charadrius wilsonia</i>				G5,S2	8, 9, 10, 13	Tier 1
Worthington's marsh wren <i>Cistothorus palustris griseus</i>	ST			G5T3,S2	4, 10	Tier 3
Little blue heron <i>Egretta caerulea</i>	ST			G5,S4	4, 10	Tier 2
Reddish egret <i>Egretta rufescens</i>	ST			G4,S2	4	Tier 1
Tricolored heron <i>Egretta tricolor</i>	ST			G5,S4	4, 10	Tier 2
Peregrine falcon <i>Falco peregrinus</i>				G4,S2		Tier 1
Gull-billed tern <i>Gelochelidon nilotica</i>				G5,S2	8, 9, 10, 13	Tier 2
American oystercatcher <i>Haematopus palliatus</i>	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 <i>Hydroprogne caspia</i>				G5,S2	10, 13	Tier 1
Black rail <i>Laterallus jamaicensis</i>				G3,S2	4, 10	Tier 1
Wood stork <i>Mycteria americana</i>	T	FT		G4,S2	4, 10	Tier 1
Painted bunting <i>Passerina ciris ciris</i>				G5T3Q, S1S2	10, 13	Tier 2
Black skimmer <i>Rynchops niger</i>	ST			G5,S3	10, 13	Tier 1
Least tern <i>Sternula antillarum</i>	ST			G4,S3	10, 13	Tier 1
Sandwich tern <i>Thalasseus sandvicensis</i>				G5,S2	10, 13	Tier 1
MAMMALS						
West Indian manatee <i>Trichechus manatus</i>	FT	T		G2G3T2, S2S3	10,13	Tier 1

Management Actions:

- | | |
|---|---|
| 1. Prescribed Fire | 8. Predator Control |
| 2. Exotic Plant Removal | 9. Erosion Control |
| 3. Population Translocation/Augmentation/Restocking | 10. Protection from visitor impacts (establish buffers)/law enforcement |
| 4. Hydrological Maintenance/Restoration | 11. Decoys (shorebirds) |
| 5. Nest Boxes/Artificial Cavities | 12. Vegetation planting |
| 6. Hardwood Removal | 13. Outreach and Education |
| 7. Mechanical Treatment | |

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]

Inventory

Objective: Develop/update baseline imperiled species occurrence inventory lists for plants and animals.

Actions:

- Continue to inventory the park to update imperiled species inventory lists.

Fauna

Objective: Continue existing monitoring protocols for two selected imperiled animal species.

Actions:

- Continue to implement existing monitoring protocols for Worthington's marsh wren and MacGillivray's seaside sparrow.
- Review and revise protocols as necessary to remain consistent with FWC and U.S. Fish and Wildlife Service (USFWS) standards.

FWC has developed a detailed species action plan for Worthington's marsh wren (FWC 2013) and conducted surveys in the region in 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 park 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.

Flora

Objective: Monitor and document two selected imperiled plant species in the park.

Actions:

- Develop monitoring protocols for two selected imperiled plant species including Godfrey's swamp privet and low peperomia.
- Implement monitoring protocols for two imperiled plant species listed in Action 1 above.

Godfrey's swamp privet and low peperomia occur in the maritime hammocks and are often associated with shell deposits. The species should be recorded when they are observed and protected from disturbance.

INVASIVE SPECIES

Fort George Island Cultural State Park has 13 recorded species of invasive plants. Several of these are a threat to the maritime hammock natural community on the island. *Macfadyena unguis-cati* (Cat's claw vine), *Paederia foetida* (Skunk vine) and *Pueraria montana* (Kudzu) are the most damaging the maritime hammock. They occur on the Chappelle parcel along with confederate jasmine (*Trachelospermum jasminoides*) which exists on the northern edge of shell mound in the Rollins Bird and Plant Sanctuary and in the yard of the ranger residence. The confederate jasmine threatens to overcome the imperiled *Peperomia humilis* that grows in the unique microhabitat provided by the shell mound. The very invasive Cat's claw vine (*Dolichandra unguis-cati*) is widely distributed on the Chappelle grounds and has

intermingled with the lawn grasses around the ranger residence. Eradication of these species continues to be a priority. Treatments should be thorough and occur at least annually. The Chappelle property needs to be inventoried periodically for other invasives that may show a tendency to spread into the Rollins Bird and Plant Sanctuary.

Lantana strigocamara, an invasive species of lantana that formerly had the taxonomic name *Lantana camara*, occurs on Fort George Island. Since the endangered native lantana (*Lantana depressa* var. *depressa*) has also been recorded on Fort George Island, staff removing the invasive lantana should be aware of the differences between the two species and be very cautious about removing any lantana specimens that are not flowering. Also, hybrids between *Lantana strigocamara* and *Lantana depressa* are known to occur (Sanders 2012), so care should be taken when identifying plants in the field.

Frequent survey for invasive species will enable park staff to discover new invaders promptly and implement control measures in a timely manner to avoid severe infestations.

Invasive Plant Species			
Species Name <i>Scientific Name</i> - Common Name	FISC Category	Distribution	Zone ID
<i>Dioscorea bulbifera</i> - Air-potato	I	Single Plant or Clump, Scattered Plants or Clumps, Dominant Cover	FG-04, FG-05, FG-03
<i>Lantana camara</i> - Lantana	I	Single Plant or Clump	FG-05, FG-06
<i>Lonicera japonica</i> - Japanese honeysuckle	I	Single Plant or Clump, Scattered Plants or Clumps, Linearly Scattered	FG-06, FG-02, FG-04
<i>Macfadyena unguis-cati</i> - Cat's claw vine	I	Scattered Plants or Clumps	FG-02, FG-04, FG-05
<i>Melia azedarach</i> - Chinaberry	II	Single Plant or Clump, Scattered Plants or Clumps	FG-05
<i>Nephrolepis cordifolia</i> - Tuberous sword fern	I	Scattered Plants or Clumps	FG-01, FG-05, FG-06
<i>Paederia foetida</i> - Skunk vine	I	Scattered Plants or Clumps	FG-05
<i>Pueraria montana</i> - Kudzu	I	Single Plant or Clump	FG-04
<i>Ricinus communis</i> - Castor bean	II	Single Plant or Clump	FG-04
<i>Sapium sebiferum</i> - Chinese tallow tree	I	Scattered Plants or Clumps	FG-06
<i>Sphagneticola trilobata</i> - Wedelia	II	Scattered Dense Patches	FG-06
<i>Wisteria sinensis</i> - Chinese wisteria	II	Single Plant or Clump	FG-04
<i>Xanthosoma sagittifolium</i> - Elephant ear	II	Single Plant or Clump	FG-04

In 2002, the Asian ambrosia beetle (*Xyleborus glabratus*) was first detected in the United States in coastal Georgia. The beetle and the fungal pathogen (*Raffaelea lauricola*) that it transmits, cause laurel wilt disease and almost certain death in red bays (*Persea borbonia*) and other species in the Lauraceae family. The ambrosia beetle and its associated pathogen spread rapidly, reaching Duval County by 2005

(Mayfield and Thomas 2009). Since then, many of the adult red bays at Fort George Island have died. The beetle has now spread throughout Florida and many of the surrounding states, carrying the deadly laurel wilt disease with it. Although most of the adult red bays at Fort George Island have been top-killed, the infected trees often re-sprout from their root systems. The long-term impact of this disease on Lauraceae species in Florida remains to be discovered.

Invasive Plant Treatment

Objective: Annually treat 4 gross acres equaling 1 infested acre of invasive plant species.

Actions:

- Annually develop invasive plant management work plan.
- Implement annual work plan by treating 4 gross acres equaling approximately 1 infested acre annually.
- Implement a protocol to inspect equipment entering the park 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.

Invasive and Nuisance Animal Control

Objective: Implement control measures on one invasive animal species.

Actions:

- Remove hogs as needed.

Feral hogs (*Sus scrofa*) are occasionally encountered on Fort George Island. Hogs cause significant ground disturbance during foraging and wallowing activities and can quickly damage sensitive natural and cultural resources including shell rings, rare plants, and wetlands. To prevent such damage from occurring, park staff will continue to remove feral hogs from the island as soon as possible after they are detected.

CULTURAL RESOURCES

The Florida Master Site File (FMSF) lists 39 sites within the unit. Numerous other sites occur in the surrounding salt marshes. Thirty-one (or possibly as many as 32) of the Fort George Island sites lie within the boundaries of the park. The exact location of one site, Fort St. George, is unknown, but it also may lie within the park. Kingsley Plantation, managed by the National Park Service, contains two recorded sites. Two other known sites on the island are located on private property. Currently, four sites on Fort George Island are recognized as National Register Sites, two of which are on park property. Others are eligible for nomination.

Fort George Island Cultural State Park has a rich and extensive heritage. The park's cultural resources span a period stretching from approximately 2680 BC to the present. Included among these resources are the largest and least disturbed shell ring in the southeastern United States, archaeological remains from one of the longest operating Spanish missions in Florida, structural and archaeological remains dating from the plantation period of the 18th and 19th centuries, and the Ribault clubhouse, golf course and associated structures from the boom period of the late 19th century. That one small island contains such a comprehensive cross section of Florida history is unique.

Extensive archaeological work has taken place on and around Fort George Island. A number of resources on the island are known from descriptions dating back to the 19th century (see summary in Dickenson and Wayne 1987). The earliest systematic surveys of Fort George Island were commissioned by landowners who wished to develop portions of the island (Nidy 1974, Hart and Fairbanks 1982, Dickinson and Wayne 1987). Several later studies were conducted after establishment of the National Park Service's Timucuan Ecological and Historic Preserve, of which Fort George Island is a part. These studies included an overview and assessment of archaeological sites within the preserve (Hammersten 1988), a historical resource study (Stowell 1996), and additional archaeological testing of non-surveyed areas (Russo et. al 1993).

At least 25 of the sites located in Fort George Island Cultural State Park have a prehistoric component. Noteworthy among these sites is the Fort George Shell Ring (DU72). This shell ring, located in the Rollins Bird Sanctuary, is the largest and most complicated shell ring known in the world, reaching a maximum diameter of 250 meters. It is larger in volume than any other known ring (Russo and Saunders 1999). It is also unique in that 11 smaller rings are attached to the main ring. Recent investigations have indicated that the areas surrounding the shell ring may have been occupied year-round, which is contrary to current thinking about the life patterns of peoples from the Orange Period of 1600-2300 B.C. (Russo 1993, Russo and Saunders 1999). This site is currently thought to be so significant that it deserves nomination to the National Register of Historic Places. Furthermore, studies of the site likely are sufficient to meet nomination criteria for the register (see Russo and Saunders 1999 for nomination strategies). The current condition of the shell ring is fair. Some shell may have been mined out of the eastern side of the ring, but confirmation of that would require further testing.

Immediately surrounding the shell ring is the Rollins Bird Sanctuary site (DU7510), comprising the above-mentioned village site and midden deposits from several periods. Other prehistoric midden deposits are located adjacent to the Rollins Bird Sanctuary site, including the Fort George Island Midden (DU5), the Chappelle Midden (DU1542) and the Liana Site (DU136). The McGundo Midden (DU7511) is located south of the Fort George Island Midden and the Liana Site. These sites occupy the southern third of the island and represent cultural deposits from the Preceramic period (3500-2400 B.C.) to the Savannah and St. Johns periods (1600 A.D.). It should also be noted that, despite the relatively extensive archaeological survey work that has been conducted on Fort George Island, delimitation of site boundaries has often been influenced more by modern property boundaries and by the limits of surveys than by the actual extent and period of cultural deposits.

Over the years, coastal erosion and various land use practices have had a significant impact on the condition of shell mounds along the eastern shoreline of the island. In the past, roads were cut through midden deposits, mosquito control ditches were excavated through many sites and shell was mined for use in the construction of tabby structures and roads and for fill material. Purportedly, the McGundo Midden and portions of the Fort George Island Midden once attained a height of over 10 meters. These middens are now almost reduced to grade. In general, the condition of the middens on the island is fair. Most of the disturbed areas are now stabilized. The Fort George Island Midden, however, which stretches along the eastern side of the island, is rated as poor due to chronic erosion.

Archaeologists have identified numerous other prehistoric sites at Fort George Island Cultural State Park. These include 15 shell middens other than the five mentioned previously. One of the midden sites has also been identified as a campsite and another as a village site. Midden conditions vary. Some are undisturbed while others have been variously affected by roads, mosquito control ditches, shell mining and golf course construction. Although many were altered significantly by these disturbances, the middens are now somewhat stabilized and are considered to be in fair condition. Exceptions to this

assessment occur where active erosion is taking place along ditches that are subject to tidal action. Some of these ditches bisect sites or run adjacent to them. One burial mound and one artifact scatter are also located in the park. The mound was severely damaged by pot hunting activities of years past.

Several of the midden sites also have historic period deposits. The Ribault clubhouse, for example, sits atop the Ribault Club Midden. On the site of the present clubhouse, a 19th-century hotel once stood. The hotel later burned. During the construction and later demolition of the 19th-century hotel and during construction of the present clubhouse, upper levels of the Ribault Club Midden were disturbed. The midden contains debris from the original Fort George Hotel (Dickenson and Wayne 1987).

Other midden sites contain artifacts from the Mission period that are associated with the Mission San Juan del Puerto. These sites include the Twister Site (8DU137), the Thirteenth Green Site (8DU138) and the San Juan Creek Site (8DU148).

The Mission San Juan del Puerto represents the “first contact” period, which is a mixing of prehistoric and historic periods. Because of the Mission Site association with the Spanish mission system and with Frey Francisco Pareja, and because of its potential to yield information as an archaeological site, it has been listed on the National Register of Historic Places. The mission’s longevity was one of the greatest in Florida. Established in 1587, the mission functioned until it was destroyed in 1702 during an English invasion of what was then Spanish Florida. During the mission’s operation, nine smaller associated mission stations, or visitas, were established in the outlying area relatively short distances away. One of these visitas may have been located on Big Talbot Island, as indicated by evidence uncovered during a recent archaeological excavation (Thunan personal communication). Francisco Pareja, one of the missionaries, spent 33 years at San Juan del Puerto and left written records of the life and ways of the Timucuan Indians. Several of his works were actually written in the Timucuan language. These texts are the earliest known writings in any North American Indian language (Stowell 1996).

Today, archaeological remains are all that survive of San Juan del Puerto. Various archaeologists have undertaken investigations of the site (Jones 1967, Dickenson and Wayne 1985, Nidy 1974, Hart 1982 in Dickenson and Wayne 1985, Hart and Fairbanks 1982 in Dickenson and Wayne 1985, Russo 1993). Because of these studies, the boundaries of the site are relatively well defined. Furthermore, the probable locations of the mission core area and associated aboriginal village have been identified. The same research indicated a possibility that the aboriginal inhabitants of the mission site were not only Timucuan, but also Gule Indian (Dickenson and Wayne 1985). The condition of the San Juan del Puerto site is fair. Current disruptions of the site include Palmetto Avenue, a small associated parking area that bisects the site, and possibly the tidal creek and associated ditch that lie to the south. Past disruptions of the site include probable cultivation during the plantation period, clearing in the 1960s for the pine plantation that now sits atop much of the site, and the excavation of mosquito control ditches north and south of the site.

A number of other historical resources are present on Fort George Island. Englishman James Oglethorpe built Fort Saint George, the namesake for Fort George Island, in 1736. As previously mentioned, the fort’s exact location is unknown. Nidy (1974) assigned its location to Mount Cornelia, but recent archaeological investigations have revealed no evidence to support this. A new site number (DU1543) has been assigned to the circular earthworks that were previously thought to be associated with Fort Saint George. Numerous other locations have been proposed as the site of the fort, however, none of these has produced supporting archaeological evidence.

Some resources date from the plantation period, when the more intensive types of land use are thought to have started. A succession of landowners bought, farmed and sold properties on Fort George Island.

These properties contained the lands and some of the structures of what we now call the Kingsley Plantation, presently a unit of the National Park Service. According to Baker (1985), Europeans first cleared extensive areas of the island during the early plantation period, circa 1760s-1780s. Cultivation by Native Americans has been documented as occurring well before that. For example, Jonathan Dickinson described stockpiles of corn when he visited San Juan del Puerto in 1696 (Stowell 1996). Native agricultural practices likely existed on the island even earlier. The island was operated as a plantation under a succession of owners from about the 1760s until the 1850s. Sea Island cotton, timber, corn, sugar cane, rice, indigo, sweet potatoes, oranges and lemons were all produced (Wayne and Dickenson 1986, Stowell 1996). While exact measurements are not available, it has been estimated that most of the island was cleared at one point or another during the plantation era (Baker 1985). To what extent any portion was cultivated is unclear, but in the 1840s near the end of the plantation period, between 162 and 180 acres were under active cultivation (Stowell 1996).

One site that is associated with agricultural use of the island is the Rice Dam Site (DU2579). This site contains remnants of an earthen dam and wooden floodgates that once stretched across a slough. These structures were presumably built to impound water in the slough for purposes of rice cultivation. A mosquito control ditch has since breached the dam.

Site DU149 consists of two burial monuments made of tabby brick. Two tablets, placed at the site sometime after construction, suggest that the monuments were built around 1808 and that they commemorate the remains of the McIntosh family, relatives of one of the plantation owners. An alternative interpretation is that site DU149 contains two British soldiers from the 18th century (Stowell 1996). The tablets were later removed but have since been recovered from a private landowner. The monuments' styles and workmanship are ostensibly similar, but they differ considerably. Further reconnaissance of the area by DRP staff has provided indications that the monuments are located in a burial ground, probably a historic era cemetery. Site DU149 has been vandalized in the past and is in poor condition. Vegetation is removed on a regular schedule to help arrest deterioration of the tabby.

At the southern end of the island, atop the McGundo Midden, stand the remains of a partially constructed tabby house called the Thomson Tabby Ruins (DU379), also referred to as the Munsila McGundo/Thomas Ruins. The builder of the structure remains unknown. Archaeologists have attributed Zephaniah Kingsley of Kingsley Plantation with building the structure for his wife and children. Other evidence suggests that a planter employed by one of the plantation owners, Charles R. Thomson, may have built the house. Thomson reportedly died before moving to the island (Stowell 1996). In March of 2006, the National Park Service, Historic Preservation Training Center (HPTC) assisted DEP with the stabilization of the tabby structure under the Sept. 29, 2004, cooperative agreement with DEP. Conservation and stabilization tasks were performed in accordance with recommendations from the Historic Structures Report. Stabilization included materials analyses, cleaning, grouting repairs, tabby concrete cast and the reinstatement of the wood mantel, headers and buck jamb. Conservation work on the ruins complied with the Secretary of Interior's Standards and Guidelines for Historic Structures and was reviewed by the Division of Historic Resources (DHR).

Severe erosion of the McGundo Midden still threatened the ruins, however, so DRP considered various means of stabilizing slopes at the site. In 2007, the park partially restored a critically eroded section of the midden immediately west of the ruins. Staff placed similar type shell from an off-site location atop a thin fabric barrier between historic and modern materials, forming a shell slope that tapers downward to the edge of a tidal marsh. If that effort fails to reinforce DU379 adequately, staff may need to find additional shell material, obtain a wetland permit and partially fill the marsh at the base of the slope.

Remnants of a mill site (DU77) are located near the mid-section of the island along a tidal creek. The site is described as a sugar mill in the FMSF. However, its previous function is unknown. A tabby platform and earthworks were all that remained the last time it was located. Weisman (1990) reported that he was unable to locate the mill during field reconnaissance and suggested that mosquito ditching might have destroyed the site. Further investigation is needed to assess the condition of these resources.

Several structures within the park date from the Florida boom development period of the 1920s. These structures are associated with the Ribault Club, a club resort and real estate venture, with an associated nine-hole golf course, tennis courts and other amenities. These developments were designed to attract a wealthy membership from northern cities that would purchase land from the club and build winter homes and cottages.

One of three homes built on the island during the 1920s boom period, the Nettleton Neff House, is located on park property. The Neff house is a structure in the Tudor Revival style that stands atop a large dune on the east side of the Island. The Neff house was constructed to serve as a private resort home in the 1920s. The original house is in poor condition but has been stabilized. A wing added in the 1960s has been removed because it was contributing to the deterioration of the original house. The major source of damage to the historic portion of the structure stemmed from the poor condition of the 1960s addition. Water entered the collapsing 1960s structure and traveled into the original portion of the building. This caused elevated humidity levels throughout the structure, further compromising its condition. An asbestos removal project has been completed. A Historic Structures Report was completed in 2006, giving the park alternative resource management strategies for the Neff house.

Several structures associated with the golf course also date from the boom period of the 1920s. The clubhouse (Ribault Club clubhouse/Fort George Club clubhouse), attributed to Maurice Fatio and Mellon Greeley, was completed in 1928. The clubhouse building consists of a main H-shaped, masonry veneer, wood-framed structure with two asymmetrical wooden wings. The north wing had experienced a fire. Over the years, the original clubhouse had undergone several minor alterations, including shed roofs and porches. After appropriate documentation, these alterations were removed. The clubhouse building suffered from years of deferred maintenance leading to extensive water and termite damage, as well as vandalism. Currently, however, the clubhouse is completely stabilized and fully renovated. It is now open to the public for events, and it contains an extensive array of interpretive displays developed by the NPS in coordination with DRP. DRP, DHR and the city of Jacksonville funded the restoration of the building. The Ribault clubhouse was successfully nominated for listing on the National Register of Historic Places in 2000.

Some of the structures or sites of former structures associated with the golf course and clubhouse are unrecorded, i.e., the lodge, caddy structure, and shelter. The lodge was a wood-frame structure purportedly built to accommodate visitor overflow from the clubhouse. Located northeast of the clubhouse, it had become decrepit and dangerous. This building was photographically documented, demolished and removed. The caddy structure (groundskeeper's office) is a small, wood-frame structure that was probably completed before World War II. The caddy structure is stable. The soil below the caddy structure is contaminated with arsenic, and a plan to remove the contamination is in development. The rain shelter (on-course shelter, stopping point) is another small wood-framed building. The actual date of construction is unknown, but it was probably built before 1960. The condition of the shelter is poor. The roof is missing, and the walls are failing. Other unrecorded cultural resources include clubhouse support facilities such as driveways, tennis courts, lawn bowling green, putting green and a pump house. Most are in fair or poor condition.

The Chappelle addition contains the historic Hall Chappelle House, built in 1888, the Leo Chappelle House, built in the 1960s, and two contemporary garages. A Historic Structures Report has not yet been prepared for the Hall Chappelle House. The Hall Chappelle House is not recorded in the FMSF.

An unrecorded, but partially documented, historical resource that dates from the plantation period is Palmetto Avenue. A line of cabbage palms along the avenue marks the route of the historic road to the Kingsley Plantation. The palms were planted in the early and mid-19th century, and many are still alive. The general condition of the palms is deteriorating due to their advanced age. Other observed threats to the palms are competition for light from adjacent forest trees, grading of Palmetto Avenue and trimming associated with maintenance of overhead power lines. Using GPS equipment, DRP biologists have begun to map the locations of individual palms and to document their health. Other unrecorded resources on Fort George Island include the original Ribault Club golf course and the Rollins Bird and Plant Sanctuary's garage and lodge. The original golf course, created in 1927, contained nine holes. Noted golf course designer Donald Ross is reputed to be the architect, though DRP has not corroborated this. Expansion to an 18-hole course occurred in the 1960s. Currently the golf course is abandoned. Reforestation of the site through natural succession to maritime hammock is the present goal.

There is a lodge and garage associated with the development of the Rollins Bird and Plant Sanctuary. The buildings were constructed by Millar (Gertrude) Wilson at the time she donated the sanctuary to Rollins College in 1939-40. Wilson was the daughter of John F. Rollins and was born on Fort George Island. John Rollins was the brother of Alonzo Rollins, the founder of Rollins College in Winter Park, Florida. The structures were built to provide housing for students coming to study at the sanctuary and for Rollins alumni gatherings. The garage is a log building. The exterior of the lodge is constructed of sawn half-logs nailed in place to give the appearance of a log building (Stowell 1996). The lodge, which is in better condition than the garage, is currently used as a residence for park personnel. The condition of these resources can be assessed as fair, pending further investigation. These structures are significant for their association with the development of the sanctuary, which was the last of the Rollins holdings on the island, and as examples of rustic, camp architecture that was common in the early half of the 20th century. A contemporary newspaper account also mentions a fallen chimney and cellar from a reportedly earlier structure near the new buildings. The existence or location of these resources has not yet been confirmed. Wilson also had trails built in the sanctuary and no research has been conducted to locate the trails that could be considered part of the historic landscape.

Currently, no formal program of cultural landscape management exists at the park despite the recognition of several important cultural landscapes. People have altered nearly all of Fort George Island during the many periods of human occupation of the island. At present, only one of the island's cultural landscapes is actively managed. The two original fairways within view of the Ribault clubhouse are informally identified as important features of the cultural landscape worthy of preservation. The park currently maintains the portions of these two fairways that are in view of the Ribault clubhouse.

Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
DU00004 Fort George Island Sand Mound	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
DU00005 Fort George Island Midden	Pre-historic St Johns I & II, 700 BC -1500 A. D.	Archaeological Site	NR	P	P
DU00053 San Juan Del Puerto Mission	Pre-historic, St Johns I & II, 700 B.C. -1500 A.D.; Spanish 1513 - 1763	Archaeological Site	NRL	G	P
DU00072 Ft. George Shell Ring	Late Archaic	Archaeological Site	NR	F	P
DU00076 Ribault Club Midden	Late Archaic, St Johns 700 B.C. – 1500 A.D.	Archaeological Site	NRL	F	P
DU00077 Sugar Mill	American 1821- present	Archaeological Site	NE	G	P
DU00108B Kingsley Plantation (Artifacts)	Multi-cultural; 1821-1899 American; African American; British, 1763-1783; American Civil War, 1861-1865	Archaeological Site	NR	G	P
DU00136 Liana	Alachua, Archaic & Deptford 8500 B.C. – 1600 A.D.	Archaeological Site	NR	G	P
DU00137 Twister	Archaic, St Johns I & II, First Spanish	Archaeological Site	NS	F	P
DU00138 Thirteenth Green	Deptford, St Johns, Spanish First or Second	Archaeological Site	NR	F	P
DU00139 Ditch	Deptford, St Johns, Spanish First or Second	Archaeological Site	NR	G	P
DU00140 Borderline	Prehistoric, St Johns, St. Augustine	Archaeological Site	NE	G	P
DU00141 Grave Robber Mound	Prehistoric, St. Augustine	Archaeological Site	NE	G	P
DU00145 16th Tee	Prehistoric	Archaeological Site	NE	G	P
DU00146 Mill Midden	Archaic, Woodland, Nineteenth Century American	Archaeological Site	NR	F	P
DU00147 Smilax	Prehistoric	Archaeological Site	NE	G	P
DU00149 Duval County Crypt	Established 1808	Historic Cemetery	NE	G	P
DU00650 Ft St George	American 1821- present; Spanish 1513-1763	Archaeological Site	NE	G	P

Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
DU01542 Chappelle Midden	Prehistoric, Twentieth Century American 1900-present; St Johns, 700 B.C. – 1500 A.D.	Archaeological Site	NS	F	P
DU01543 Dune	American 1821-present; British, 1763-1783	Archaeological Site	NE	GG	P
DU01544 Sherrol	Archaic, 8500 B.C.-1000 B.C.	Archaeological Site	NE		P
DU02575 Golf Course 10	Deptford, 700 B.C.-300 B.C.	Archaeological Site	NE		P
DU02576 Golf Course 11	Twentieth century American, 1900-present; Deptford, 700 B.C.-300 B.C.; St. Johns, 700 B.C.-A.D. 1500	Archaeological Site	NE	G	P
DU02577 Golf Course 6	Nineteenth century American, 1821-1899, St. Johns II, A.D. 800-1500, Spanish-First Period, 1513-1763	Archaeological Site	NE	G	P
DU02578 Golf Course 13	Prehistoric	Archaeological Site	NE	G	P
DU02579 Rice Dam	Nineteenth century American, 1821-1899	Archaeological Site	NE	G	P
DU07510 Rollins Bird Sanctuary	Archaic, Deptford, Orange & St Johns II, 8500 B.C. – 1500 A.D.	Archaeological Site	NE	G	P
DU07511 Mcgundo MIDDEN	Late Archaic, St. Johns	Archaeological Site	NR	F	P
DU07525 Attwater, Kent House	C1920	Historic Structure	NR	P	P
DU07526 Ribault Inn Club	1928	Historic Structure	NRL	G	RH
DU17799	Prehistoric	Archaeological Site	NE	G	P
DU17800 Marsh Cross	Historic	Archaeological Site	NE	G	P
DU18976 Neff Redeposit	Orange; St. Johns, 700 B.C.-A.D. 1500	Archaeological Site	NE	G	P
DU18977 Back Road Redeposit	Orange; St. Johns, 700 B.C.-A.D. 1500	Archaeological Site	NE	G	P

Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
DU19067 FGI Power Line	Unknown	Archaeological Site	NE	G	P
DU19867 St. George Episcopal Church Cemetery	1906-present	Historical Cemetery	NE	G	P
DU21127 Rollins Cabin	1951	Historic Structure	NR	G	RH
DU21129 Ribault Lodge	Boom Times, 1921-1929	Historic Structure	NE	G	P
DU21131 Chapelle House	1900	Historic Structure	NR	F	RH
DU21132 Chapelle Guest House	1911	Historic Structure	NE	G	RH
DU21134 Caddy Shack	1928	Historic Structure	NR	G	RH
DU21139 Palmetto Avenue	1817-1877	Linear Resource	NR	G	P
DU21140 Fort George Golf Course	1926-1960	Linear Resource	NR	G	P
DU21141 Fort George Canal	1791-1930	Linear Resource	NR	G	P
DU21142 Fort George Road	1817-1877	Linear Resource	NR	G	P
DU21449 A1A	American, 1900 to present	Linear Resource	NR	G	RH
DU21450 UF#1	Deptford, 700 B.C.-300 B.C.	Archaeological Site	NE	G	P
DU21451 UF#2	Prehistoric lacking pottery	Archaeological Site	NE	G	P
DU21452 UF#3	Deptford, 700 B.C.-300 B.C.	Archaeological Site	NE	G	P
DU21453 UF#4NE	Deptford, 700 B.C.-300 B.C.	Archaeological Site	NE	G	P

Significance:

NRL - National Register Listed
NRE - National Register Eligible
LS - Locally Significant
NE - Not Evaluated
NS - Not Significant

Conditions:

G - Good
F - Fair
P - Poor

Recommended Treatment:

RS - Restoration
RH - Rehabilitation
ST - Stabilization
P - Preservation
R - Removal

Condition Assessment

Objective: Assess/evaluate 39 of 39 recorded cultural resources in the park.

Actions:

- Complete 39 assessments/evaluations of archaeological sites.
- Complete a Historic Structures Report for the Hall Chapelle House. Prioritize stabilization of the structure and evaluate the feasibility of adaptive reuse.

Documentation of Recorded Sites

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

Actions:

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

Preservation Measures

Objective: Bring one of 39 recorded cultural resources into good condition.

Actions:

- Develop and implement measures to sustainably stabilize the McGundo Midden DU07511.
- Design and implement regular monitoring programs for 39 cultural sites.

SPECIAL MANAGEMENT CONSIDERATIONS

Arthropod Control Plan

All DRP lands are designated as “environmentally sensitive and biologically highly productive” in accordance with Ch. 388 and Ch. 388.4111 Florida Statutes. If a local mosquito control district proposes a treatment plan, the DRP works with the local mosquito control district to achieve consensus. By policy of DEP since 1987, aerial adulticiding is not allowed, but larviciding and ground adulticiding (truck spraying in public use areas) is typically allowed. The DRP does not authorize new physical alterations of marshes through ditching or water control structures.

Fort George Island Cultural State Park does not have an Arthropod Control Plan. Mosquito control plans temporarily may be set aside under declared threats to public or animal health, or during a Governor’s Emergency Declaration.

LAND USE COMPONENT

VISITATION

The visitor experience at Fort George Island Cultural State Park is centered around the Ribault Club, a former winter resort built in 1928. Today the club serves as the park's visitor center and features extensive interpretive displays detailing the island's long history of human habitation. On the grounds of the Ribault Club, visitors will find a small paddling launch and a trailhead for the Fairway Loop Trail. Also located on Fort George Island, but managed by the National Park Service, is the Kingsley Plantation. These significant cultural destination sites are the primary draw for visitors to the park.

Fort George Island is the southernmost island in the "Sea Islands Chain." This chain of islands extends from the Santee River in South Carolina to the St. John's River in Florida. The park is well buffered and protected by the surrounding estuarine marshes and islands of the Timucuan Ecological and Historic Preserve, enhancing its aspects as a wildlife refuge and a destination for wildlife enthusiasts.

Trends

Visitation at Fort George Island Cultural State Park tends to remain relatively constant throughout the year. Annually, the park receives approximately 62,000 visitors. Relatively stable attendance year-round is most likely attributed to most people visiting the park for interpretive experiences or to attend special events at the Ribault Club, rather than outdoor activities dependent on favorable weather.

Economic Impact

Fort George Island Cultural State Park recorded 59,876 visitors in FY 2022/2023. By DRP estimates, the FY 2022/2023 visitors contributed \$7,523,162 in direct economic impact, the equivalent of adding 105 jobs to the local economy (FDEP 2023).

EXISTING FACILITIES AND INFRASTRUCTURE

Upon entering the park, visitors are greeted by the "Thomson Tabby Ruins," the remains of a tabby house whose construction was halted when its owner, Charles Thomas, died in 1855.

The canopied park drive continues past the historic Rollins sanctuary lodge and Chappelle houses before reaching the Ribault Club, a 1920s-era resort that once boasted an 18-hole golf course, tennis courts and boat dock. The historic Ribault Club has been restored and repurposed with portions serving as the park visitor center, event hall and staff residence. It presents an extensive array of interpretive displays developed by the National Park Service and Florida Park Service. Crushed lime rock stabilized parking provides 18 spaces. An on-grade road extends past the parking area to a paddling launch near the former 1920s-era boat dock. This small, unimproved launch site accommodates up to six vehicles. A pavilion with picnic tables provides shelter, while several interpretive panels provide information on the area's natural resources. Just up the steep bluff is a portable restroom.

The caddy shack associated with the historic golf course is located across Fort George Road from the Ribault Club, along with stabilized overflow parking with 140 spaces.

Northwest of the Ribault clubhouse is the historic Neff House. Built in 1927 as a winter home for Chicago businessman Nettleton Neff, the castle-like mansion hosted a series of eccentric occupants, including

the prominent Betz family, until its acquisition by DRP in 1989. The aging house was repurposed for a time as the park administrative office until it eventually fell into disrepair.

The park's Fairway Loop Trail can be accessed from the Ribault clubhouse parking areas and directly off Fort George Road, well north. A three-space natural parking area to access the northern segment of this trail is southwest of Point Isabel, off Fort George Road. Following the hiking trail, visitors can access Point Isabel with its old seawall fortifying the north end of the island. The trail system for Fort George Island roughly follows the relict fairways and intermittently provides interpretive panels. The trails allow visitors to explore almost 4 miles of the park, winding through maritime hammock and successional forests. The Kingsley Connector can be accessed southwest of Point Isabel, which guides visitors from the fairways to the Kingsley Plantation.

Facilities Inventory

<i>Rollins Bird and Plant Sanctuary</i>	
Rollins Lodge	1
Residence Storage	1
<i>Chapelle Houses</i>	
Hall Chapelle House	1
Leo Chapelle House	1
Storage Structures	2
<i>Ribault Clubhouse Area</i>	
Ribault Clubhouse	1
Stabilized Parking (18 spaces)	1
Shoreline Parking (6 spaces)	1
Portable Restroom	1
Pavilion	1
Interpretive Signs	2
Paddling Launch	1
Overflow Parking (140 spaces)	1
Caddy Shack	1
<i>Neff House</i>	
Neff House	1
Neff House Tower	1
<i>Point Isabel</i>	
Seawall (length in feet)	47
Stabilized Parking (3 spaces)	1
<i>Parkwide</i>	
Fairway Loop Trail (mileage)	3.84

CONCEPTUAL LAND USE PLAN

Chappelle House

Objective: Preserve this historic structure.

Actions:

- Conduct a condition assessment and complete a historic structure report.
- Seek historic preservation funding.
- Remove the garden storage structure.

The Hall Chappelle House was constructed in 1888 and needs a condition assessment. A new roof, installed circa 2018, has helped stabilize the structure, however, it is not safe to enter as there is asbestos and lead paint throughout the building. Considering the history of this structure and its surrounding landscape, this plan includes provision for further preservation including remediation of hazardous materials, renovation, and adaptive reuse (see *Cultural Resources* section for additional details).

The garden storage structure west of the Chappelle House is in poor condition, lacks historic context and should be removed. The Leo Chappelle Residence and adjacent garage to the southwest are in good condition and should remain in use as a staff residence and associated storage.

Neff House

Objective: Develop an appropriate management strategy.

Actions:

- Consult with the Bureau of Natural and Cultural Resources and DHR.

Vandalism of cultural resources remains a concern for DRP and the NPS. The 1920s historic Neff House has fallen into disrepair and has experienced unauthorized entry. DRP will coordinate with DHR to complete a condition assessment for this structure. If warranted by the condition assessment, DRP will develop plans for removal.

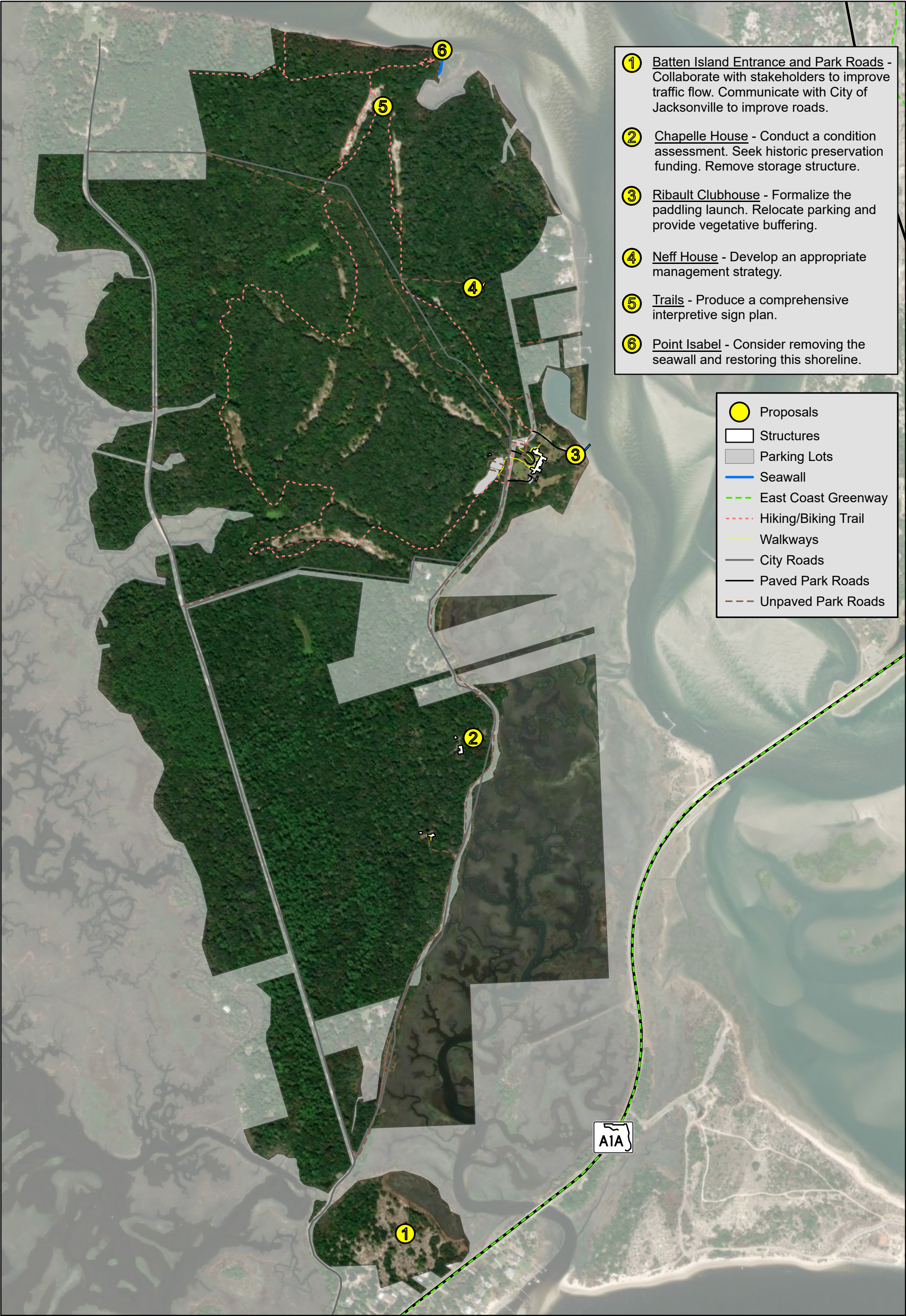
Ribault Clubhouse

Objective: Improve the shoreline.

Actions:

- Formalize the paddling launch.
- Relocate parking.
- Provide vegetative buffering.

The paddling launch to the east of the Ribault clubhouse should be formalized with stabilization and demarcation measures. Similar to Pumpkin Hill Creek Preserve State Park, this launch site should consider stabilization with native material like oyster shells and demarcation from the dirt road with native plantings. To further formalize and improve the appearance of this launch site, the parking near



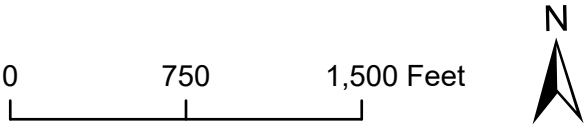
- ① Batten Island Entrance and Park Roads - Collaborate with stakeholders to improve traffic flow. Communicate with City of Jacksonville to improve roads.
- ② Chapelle House - Conduct a condition assessment. Seek historic preservation funding. Remove storage structure.
- ③ Ribault Clubhouse - Formalize the paddling launch. Relocate parking and provide vegetative buffering.
- ④ Neff House - Develop an appropriate management strategy.
- ⑤ Trails - Produce a comprehensive interpretive sign plan.
- ⑥ Point Isabel - Consider removing the seawall and restoring this shoreline.

- Proposals
- Structures
- Parking Lots
- Seawall
- East Coast Greenway
- Hiking/Biking Trail
- Walkways
- City Roads
- Paved Park Roads
- Unpaved Park Roads



Fort George Island Cultural State Park

Conceptual Land Use Plan



the shoreline should be relocated approximately 400 feet northwest in the cleared grassy area north of the Ribault clubhouse. Six parking spaces including one trailer spot with natural or pervious surfacing are recommended. The exact placement of the proposed parking should consider the viewshed from the back of the Ribault Club where outdoor events such as weddings occur.

Point Isabel

Objective: Protect the shoreline and enhance visitor access.

Actions:

- Remove seawall.
- Plan and implement a living shoreline restoration.

The salt marsh and natural shoreline surrounding Point Isabel has been impacted by the 20th-century bulkhead and seawall. This collapsing structure further threatens to degrade the Point Isabel shoreline. The failing structure also poses a hazard to visitors. DRP should coordinate with FWC, the DEP Office of Resilience and Coastal Protection, and the U.S. Fish & Wildlife Service Jacksonville Field Office to plan for the structure's removal and associated living shoreline restoration (see the *Hydrology* section for additional details).

Trails

Objective: Expand interpretive opportunities.

Actions:

- Update, repair or replace interpretive exhibits in the Ribault Club visitor center, as needed.
- Produce a comprehensive interpretive sign plan.

In addition to the exhibits in the visitor center at the Ribault Club, the Saturiwa Trail Audio Tour provided by the National Park Service highlights the island's natural and cultural features, from the Thomson Tabby Ruins to the Kingsley Plantation, with 23 points of interest. On park trails, there is limited interpretation. Considering the park's extended history with intermittent occupation from 10,000 B.C., an interpretive sign plan is recommended to determine the most effective way to connect visitors to the park's meaningful significance. The type, design, quantity and placement of interpretive elements to deepen understanding will be specified during this additional planning process with an emphasis on sensitive cultural site protection. During this planning, updating related interpretive exhibits in the visitor center at the Ribault Club should be considered.

Batten Island Entrance and Island Roads

Objective: Improve traffic flow and create a new park entrance.

Actions:

- Collaborate with stakeholders to improve traffic flow.
- Coordinate with city of Jacksonville to make feasible improvements to city roads.
- Provide an entrance station and necessary facilities.

The existing island roads are narrow and degraded, with trees located directly at the road edge. Fort George Road, located along the eastern shoreline, winds through sharp curves with limited sight lines. While the existing layout of the road provides a scenic drive, it also creates potential hazards for motorists, cyclists and pedestrians. Adopting measures to adequately accommodate traffic is anticipated to take on greater importance as visitation increases at the park. Both of the island's main roads, Fort George Road and Palmetto Avenue, are city of Jacksonville-maintained right of ways. As a major local stakeholder DRP, along with the National Park Service and island residents, will remain engaged with the city to communicate concerns and help develop improvements and mitigating measures while advocating for the preservation of the park's natural and cultural resources. Any changes to the existing roads should consider the need to maintain the aesthetics of the tree canopy and avoid significant alterations of viewshed and historic character.

To date, a road and traffic circulation study has been conducted by the city of Jacksonville with collaboration by DRP, the National Park Service and island residents. It is recommended that a paved, two-way road and bridge be constructed as a long-term solution to improving and regulating access to the park. Visitors would enter the park from State Road A1A by crossing Batten Island, as well as a short bridge over the marsh, to the convergence of Palmetto Avenue and Fort George Road. Compared to the current routing of Fort George Road which follows the low-lying, marshy, western edge of Batten Island, the proposed new route (with multiuse trail) would run through the higher elevated center of Batten Island. This would avoid the flooding and congestion frequently experienced on the current entrance road alignment and eliminate one of the most hazardous sections of Fort George Road.

If this new entrance road and adjacent trail are constructed on Batten Island, the original 0.5 mile-stretch of Fort George Road from State Road A1A to the marsh crossing at the western arm of Shad Creek will only be used by local residents with driveway access and park visitors intent on visiting the Thomson Tabby Ruins. This original initial segment of Fort George Road will dead end just past the last residence driveway at a small parking area with cul-de-sac where visitors will park and continue along a short trail to view the tabby ruins.

To provide a safe connection for Timucuan Trail users on the southside of State Road A1A, a pedestrian hybrid beacon may be needed from A1A to Batten Island. To extend and connect the Timucuan Trail from State Road A1A to Fort George Island, the multiuse trail will parallel the proposed entrance road through Batten Island. Where feasible, vegetative buffers should separate vehicular and pedestrian lanes.

An entrance station may be sited on Batten Island at an appropriate distance from the Heckscher Drive intersection to avoid potential stacking issues. Adjacent to the entrance station, a parking lot with up to 15 spaces and an administrative office could be constructed commensurate to staffing needs. The city of Jacksonville maintains all roads on Fort George Island, requiring entrance to be open to the public with no afterhours gates. Therefore, the purpose of entrance area facilities would be to provide a sense of arrival with initial staff/visitor interface, provide administrative space and improve security presence for the park's sensitive cultural resources as well as island residents.

If the proposed Batten Island entrance and traffic reconfiguration concepts are not implemented, the island's roads should be improved/stabilized as feasible within the next 10-year planning cycle. Pavement as a stabilization measure is not recommended, but improving road shoulders or trails with oyster shells and other native pervious material should be considered. An extension of the paved Timucuan Trail, beyond the Palmetto Avenue cutoff, may excessively alter or impact the park's cultural

resources and/or historic character. Careful consideration should precede any plans for paved trail extension along Fort George Road.

If the two-way traffic flow continues on Fort George Road and Palmetto Avenue, widening and stabilizing the former's shoulders with oyster shells should be considered. Any proposed stabilization measures should be sensitive to the dense tree canopy, recorded archaeological sites, imperiled species, wetlands, private residents and the overall cultural landscape. Any such measures must be coordinated with city of Jacksonville.

OPTIMUM BOUNDARY

Fort George Island is surrounded by private, city, state and federal conservation lands. Some of these natural areas include the Machaba Balu Preserve, Huguenot Memorial Park, the Talbot Islands, and the Timucuan Preserve. There are also numerous private inholdings. The 24,757-acre Pumpkin Hill Creek Florida Forever Board of Trustees Project borders Fort George Island to the west. Four parcels totaling 5.91 acres are associated with this Florida Forever project and are included in the park's optimum boundary.

A 3.02-acre vacant property disrupts the continuous western park boundary along Palmetto Avenue and is included in the park's optimum boundary.

Located on Batten Island, east of Fort George Road, is a vacant governmental parcel that borders several residential properties along State Road A1A. Just north of this property are two other vacant and privately-owned parcels proposed for acquisition. Acquisition of these parcels would retain wildlife habitats and preserve buffering between residential development and the proposed Batten Island entrance road. One of these parcels has the potential to serve as an additional staff residence. These three parcels total 2.89 acres.

