Fort Clinch State Park

Approved
Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
August 2017

Florida Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

August 28, 2017

Steven Cutshaw
Division of Recreation and Parks
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 525
Tallahassee, Florida 32399-3000

RE: Fort Clinch State Park - Lease #3620

Dear Mr. Cutshaw:

On **August 18, 2017**, the Acquisition and Restoration Council recommended approval of the **Fort Clinch State Park** management plan. Therefore, the Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Fort Clinch State Park** management plan. The next management plan update is due August 18, 2027.

Approval of this land management plan does not waive the authority or jurisdiction of any governmental entity that may have an interest in this project. Implementation of any upland activities proposed by this management plan may require a permit or other authorization from federal and state agencies having regulatory jurisdiction over those particular activities. Pursuant to the conditions of your lease, please forward copies of all permits to this office upon issuance.

Sincerely,

Raymond V. Spaulding
Office of Environmental Services
Division of State Lands
Department of Environmental Protection

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INTRODUCTION

Fort Clinch State Park is located in Nassau County within the city limits of Fernandina Beach (see Vicinity Map). Access to the park is from State Road A1A in Fernandina Beach, also known as Atlantic Avenue (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

Fort Clinch State Park was initially acquired on September 20, 1935 using "Old Money." Currently, the park comprises 2,178.25 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on January 23, 1968, the Trustees leased (Lease Number 3620) the property to DRP under a 99-year lease. The current lease will expire on January 22, 2067.

Fort Clinch State Park is designated single-use to provide public outdoor recreation and other park-related uses. There are no legislative or executive directives that constrain the use of this property (see Addendum 1).

Purpose and Significance of the Park

The purpose of Fort Clinch State Park is to protect the pre-Civil War Era Fort Clinch and interpret the fort's historical artifacts. The park also preserves the diverse ecosystem and imperiled species habitat of Florida's northernmost barrier island while facilitating resource-based outdoor recreation.

Park Significance

- Listed in the National Register of Historic Places in 1972, the park protects Fort Clinch. The fort was built as a part of the Third System of Defense used to defend the entrance of Cumberland Sound. Fort Clinch was erected with a detached scarp wall and is one of the only coastal fortifications in the nation with this unique construction style. Construction on the fort began in 1847 and remains unfinished.

- The park offers active living history interpretations that showcase the life of a Union soldier in 1864, and artifacts such as small arms, soldier uniforms, personal letters, construction materials, and cannons are displayed at the fort and in the museum.

- The park interprets the Civilian Conservation Corps program, as Fort Clinch State Park was one of eight parks built by the CCC. The CCC program was the impetus for the Florida State Park system.

- The park protects diverse nature communities that include Florida's iconic white sand beaches and coastal beach dunes, one of the state's most outstanding examples of maritime hammock, and portions of the Amelia River saltwater estuary.

- The park provides critical habitat for imperiled species such as Worthington's marsh wren (*Cistothorus palustris griseus*), piping plover (*Charadrius melodus)*, gopher tortoise (*Gopherus polyphemus*) and loggerhead sea turtle (*Caretta caretta*).

- The park provides numerous opportunities for resource-based outdoor recreation including camping, beach activities, fishing, hiking, biking, wildlife viewing, and interpretation of the structure and artifacts found at Fort Clinch.

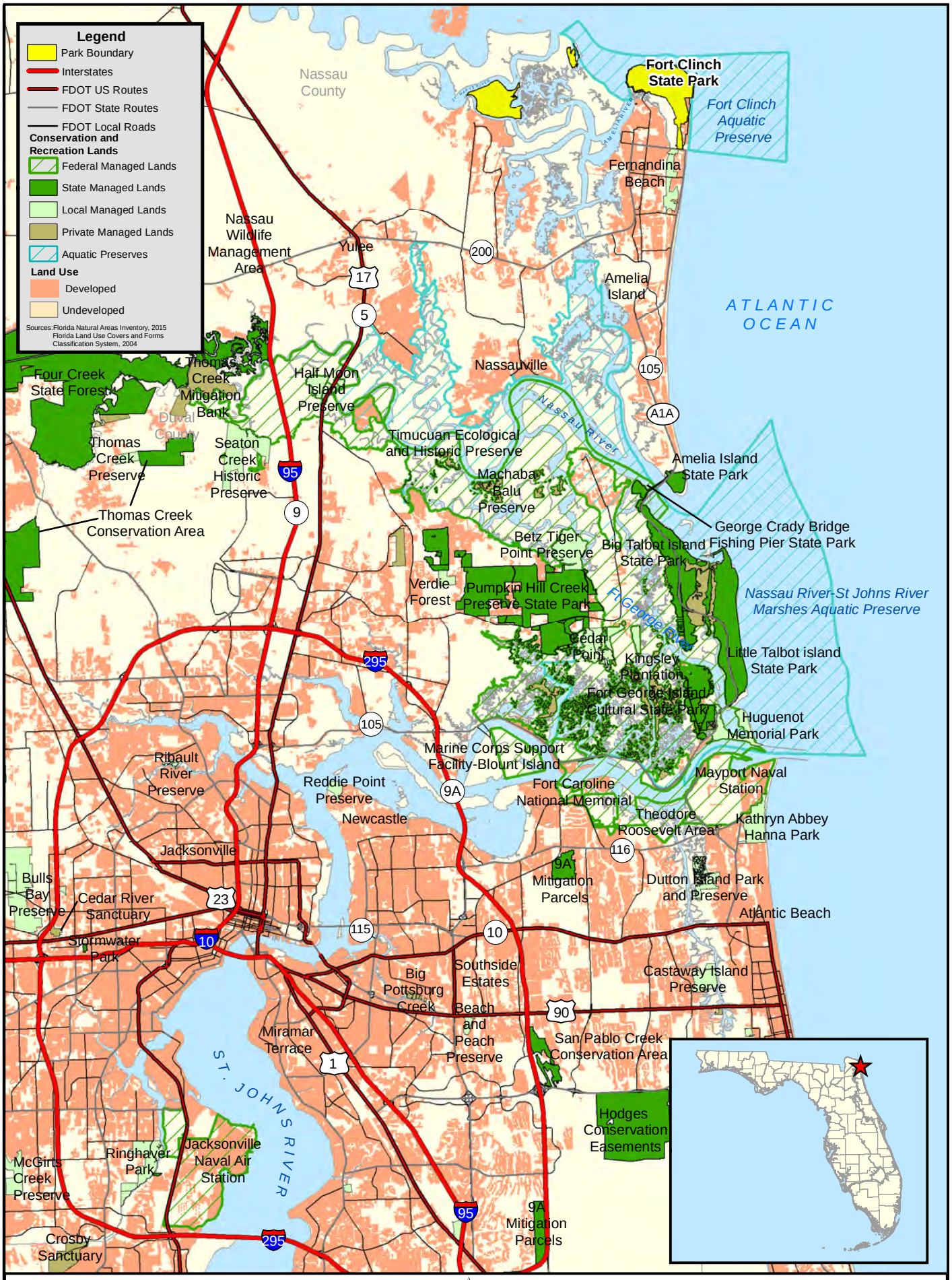
Fort Clinch State Park is classified as a state park in the DRP's unit classification system. In the management of a state park, a balance is sought between the goals of maintaining and enhancing natural conditions and providing various recreational opportunities. Natural resource management activities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

Purpose and Scope of the Plan

This plan serves as the basic statement of policy and direction for the management of Fort Clinch State Park as a unit of Florida's state park system. It identifies the goals, objectives, actions and criteria or standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives and provide balanced public utilization. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and is intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the 2004 approved plan.

The plan consists of three interrelated components: the Resource Management Component, the Land Use Component and the Implementation Component. The Resource Management Component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management needs and issues are identified, and measurable management objectives are established for each of the park's management goals and resource types. This component provides guidance on the application of such measures as prescribed burning, exotic species removal, imperiled species management, cultural resource management and restoration of natural conditions.

The Land Use Component is the recreational resource allocation plan for the park. Based on considerations such as access, population, adjacent land uses, the natural and cultural resources of the park, current public uses and existing development. Measurable objectives are set to achieve the desired allocation of the physical space of the park. These objectives identify use areas and propose the types of facilities and programs as well as the volume of public use to be provided.



FORT CLINCH STATE PARK

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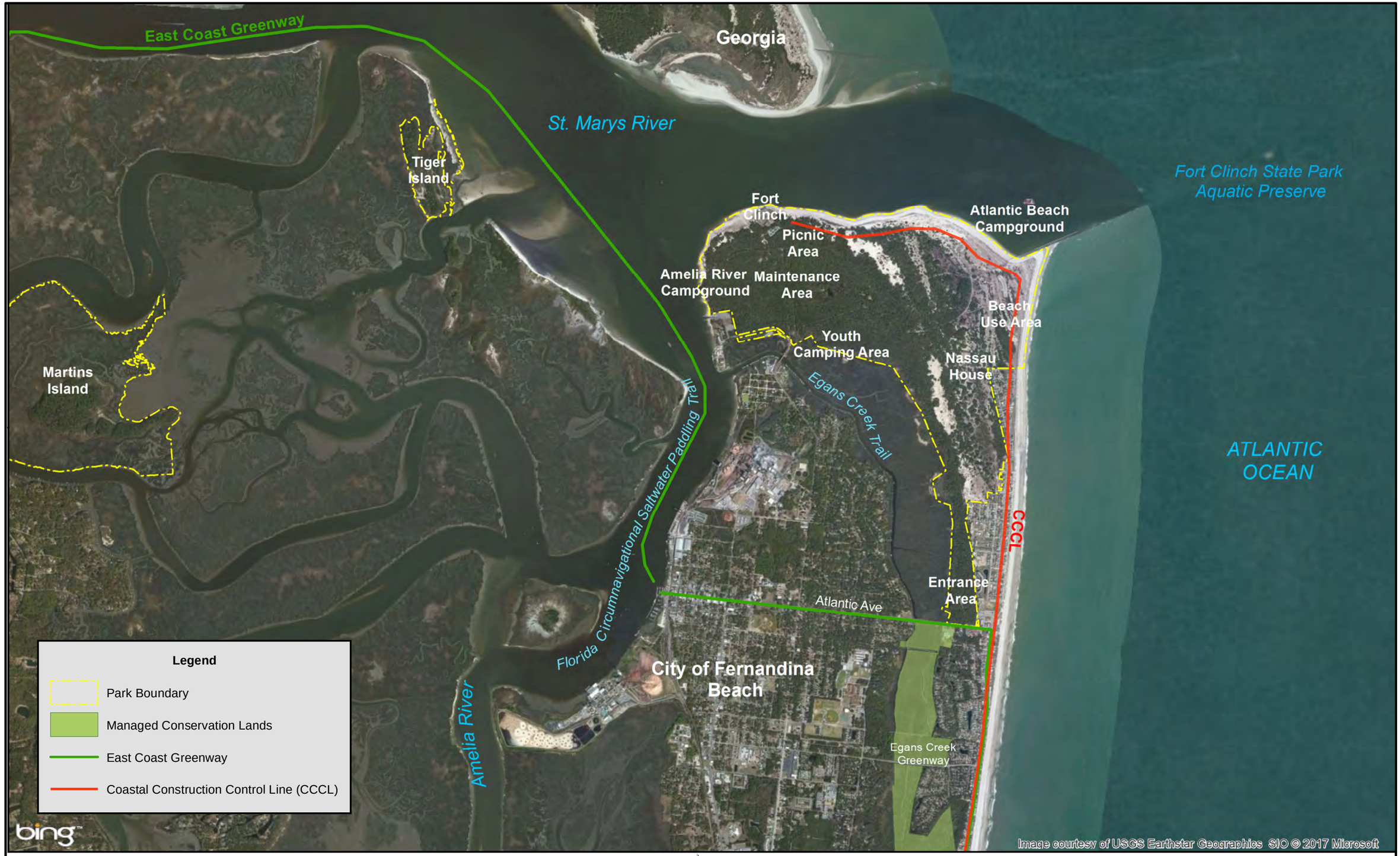
Florida Department of Environmental Protection
Division of Recreation and Parks
Office of Park Planning

VICINITY MAP



FORT CLINCH STATE PARK

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Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

REFERENCE MAP

The Implementation Component consolidates the measurable objectives and actions for each of the park's management goals. An implementation schedule and cost estimates are included for each objective and action. Included in this table are (1) measures that will be used to evaluate the DRP's implementation progress, (2) timeframes for completing actions and objectives and (3) estimated costs to complete each action and objective.

All development and resource alteration proposed in this plan is subject to the granting of appropriate permits, easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state or federal agencies. This plan is also intended to meet the requirements for beach and shore preservation, as defined in Chapter 161, Florida Statutes, and Chapters 62B-33, 62B-36 and 62R-49, Florida Administrative Code.

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 the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, 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 forest management activities specifically identified in this plan) would not be consistent with this plan or the management purposes of the park and should be discouraged.

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.

DRP may provide the services and facilities outlined in this plan either with its own funds and staff or through an outsourcing contract. Private contractors may provide assistance with natural resource management and restoration activities or a concessionaire may provide services to park visitors in order to enhance the visitor experience. For example, a concessionaire could be authorized to sell merchandise and food and to rent recreational equipment for use in the park. A concessionaire may also be authorized to provide specialized services, such as interpretive tours, or overnight accommodations when the required capital investment exceeds that which DRP can elect to incur. Decisions regarding outsourcing, contracting with the

private sector, the use of concessionaire s, etc. are made on a case-by-case basis in accordance with the policies set forth in DRP's Operations Manual (OM).

Management Program Overview

Management Authority and Responsibility

In accordance with Chapter 258, Florida Statutes and Chapter 62D-2, Florida Administrative Code, the Division of Recreation and Parks (DRP) is charged with the responsibility of developing and operating Florida's recreation and parks system. These are administered in accordance with the following policy:

> *It shall be the policy of the Division of Recreation and Parks to promote the state park system for the use, enjoyment, and benefit of the people of Florida and visitors; to acquire typical portions of the original domain of the state which will be accessible to all of the people, and of such character as to emblemize the state's natural values; conserve these natural values for all time; administer the development, use and maintenance of these lands and render such public service in so doing, in such a manner as to enable the people of Florida and visitors to enjoy these values without depleting them; to contribute materially to the development of a strong mental, moral, and physical fiber in the people; to provide for perpetual preservation of historic sites and memorials of statewide significance and interpretation of their history to the people; to contribute to the tourist appeal of Florida.*

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) has granted management authority of certain sovereign submerged lands to the DRP under Management Agreement MA 68-086 (as amended January 19, 1988). The management area includes a 400-foot zone from the edge of mean high water where a park boundary borders sovereign submerged lands fronting beaches, bays, estuarine areas, rivers or streams. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation. The agreement is intended to provide additional protection to resources of the park and nearshore areas and to provide authority to manage activities that could adversely affect public recreational uses.

Many operating procedures are standardized system-wide and are set by internal direction. These procedures are outlined in the OM that covers such areas as personnel management, uniforms and personal appearance, training, signs, communications, fiscal procedures, interpretation, concessions, public use regulations, resource management, law enforcement, protection, safety and maintenance.

Park Management Goals

The following park goals express DRP's long-term intent in managing the state park:

- Provide administrative support for all park functions.
- Protect water quality and quantity in the park, restore hydrology to the extent feasible and maintain the restored condition.
- Restore and maintain the natural communities/habitats of the park.
- Maintain, improve or restore imperiled species populations and habitats in the park.
- Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.
- Protect, preserve and maintain the cultural resources of the park.
- Provide public access and recreational opportunities in the park.
- Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.

Management Coordination

The park is managed in accordance with all applicable laws and administrative rules. Agencies having a major or direct role in the management of the park are discussed in this plan.

The Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service (FFS), assists DRP staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FWC) assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within the park. In addition, the FWC aids DRP with wildlife management programs, including imperiled species management. The Florida Department of State (FDOS), Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites. The Florida Department of Environmental Protection (DEP), Florida Coastal Office (FCO) aids staff in aquatic preserves management programs. The DEP, Bureau of Beaches and Coastal Systems aids staff in planning and construction activities seaward of the Coastal Construction Control Line (CCCL). In addition, the Bureau of Beaches and Coastal Systems aid the staff in the development of erosion control projects.

Public Participation

DRP provided an opportunity for public input by conducting a public workshop and an Advisory Group meeting to present the draft management plan to the public. These meetings were held on March 15, 2017 and March 16, 2017, respectively. Meeting notices were published in the Florida Administrative Register, March 6, 2017 Vol. 43/44, included on the Department Internet Calendar, posted in clear view at the park, and promoted locally. The purpose of the Advisory Group meeting

is to provide the Advisory Group members an opportunity to discuss the draft management plan (see Addendum 2).

Other Designations

Fort Clinch State Park is not within an Area of Critical State Concern as defined in Section 380.05, Florida Statutes, and it is not presently under study for such designation. The park is a component of the Florida Greenways and Trails System, administered by the Department's 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 III waters by the Department. This park is within Fort Clinch State Park Aquatic Preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

Introduction

The Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) in accordance with Chapter 258, Florida Statutes, has implemented resource management programs for preserving for all time the representative examples of natural and cultural resources of statewide significance under its administration. This component of the unit plan describes the natural and cultural resources of the park and identifies the methods that will be used to manage them. Management measures expressed in this plan are consistent with the DRP's overall mission in natural systems management. Cited references are contained in Addendum 3.

The DRP's philosophy of resource management is natural systems management. Primary emphasis is placed on restoring and maintaining, to the degree possible, the natural processes that shaped the structure, function and species composition of Florida's diverse natural communities as they occurred in the original domain. Single species management for imperiled species is appropriate in state parks when the maintenance, recovery or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes and should not imperil other native species or seriously compromise the park values.

The DRP's management goal for cultural resources is to preserve sites and objects that represent Florida's cultural periods, significant historic events or persons. This goal often entails active measures to stabilize, reconstruct or restore resources, or to rehabilitate them for appropriate public use.

Because park units are often components of larger ecosystems, their proper management can be affected by conditions and events that occur beyond park boundaries. Ecosystem management is implemented through a resource management evaluation program that assesses resource conditions, evaluates management activities and refines management actions, and reviews local comprehensive plans and development permit applications for park/ecosystem impacts.

The entire park is divided into management zones that delineate areas on the ground that are used to reference management activities (see Management Zones Map). The shape and size of each zone may be based on natural community type, burn zone, and the location of existing roads and natural fire breaks. It is important to note that all burn zones are management zones; however, not all management zones include fire-dependent natural communities. Table 1 reflects the management zones with the acres of each zone.

Table 1. Fort Clinch State Park Management Zones			
Management Zone	**Acreage**	**Managed with Prescribed Fire**	**Contains Known Cultural Resources**
FCL-01	92.59	N	Y
FCL-02A	144.54	N	Y
FCL-02B	3.95	N	N
FCL-03	278.64	N	Y
FCL-04	376.23	N	Y
FCL-05	171.97	N	Y
FCL-06	207.68	N	N
FCL-07	49.34	N	Y
FCL-08	35.25	N	Y
FCL-09	74.35	N	N
FCL-10	756.53	N	Y

Resource Description and Assessment

Natural Resources

Topography

Fort Clinch State Park is located at the northern tip of Amelia Island, the northernmost barrier island along Florida's Atlantic coast in Nassau County. The unique feature of this barrier island chain is its extremely broad expanse of lowland salt marshes and meandering tidal creeks lying landward of old beach ridges that formed during the Pleistocene Epoch (Alber et al. 2005). In Florida, geologists describe this distinct physiographic region as the Atlantic Coastal Ridge and part of the St. Marys Meander Plain (White 1970). The origins of the beach sediments that comprise these coastal islands are from both continental shelf deposits and Piedmont-draining river systems (Giles and Pilky 1965). In Florida, two major watersheds that have influenced the geologic processes in the formation of Amelia Island are the Nassau and St. Marys Rivers (Foyle et al. 2004). Cumberland Island, Georgia is positioned immediately north of Fort Clinch across the St. Marys Inlet. Because of their shared resources and similarities, scientists often discuss the numerous attributes of Amelia and Cumberland Island together (Raichle et al. 1997).

Topographic relief at Fort Clinch ranges from sea level to 52 feet mean sea level (msl). The highest elevations occur along a ridge of old barrier dunes that extends in an arc from St. Marys Inlet southward through the center of the park. The park's topography contains linear undulating ridges with alternating interdunal swale depressions within the classic barrier island system (Graham and Parkinson 2009; Johnson and Muller 1993; Florida Natural Areas Inventory (FNAI) 2010). On the eastern shoreline of the park, dune ridges as high as 18 feet run parallel to the Atlantic Ocean. In contrast, dunes in the northwestern portion of the park are

FORT CLINCH STATE PARK

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MANAGEMENT ZONE MAP

truncated. They generally run in an east to west direction, paralleling the St. Marys Inlet. These dune ridges are 10-25 feet in height, with an occasional dune reaching 38 feet.

The recent geomorphologic history of Amelia Island has been dramatic and includes tremendous anthropogenic efforts to stabilize and improve the St. Marys Inlet for human navigation. Historically, extensive shoals such as Kingsley Bank, Pelican Shoals and an emerging island called North Breakers existed at the entrance to the St. Marys River (McLemore et al. 1981). These deposits were the result of a natural net southerly transport of ocean sediments in the Cumberland Island region (Byrnes and Hiland 1995). A United States Coastal Survey Map from 1875 (Patterson 1875) depicts the north end of Amelia Island as substantially narrower than at present (Bache 1857; Parchure 1982). A comparison of historic maps during the period from 1857 to 1957 clearly shows Amelia Island's northeastern shoreline advanced approximately 3500 feet seaward (Raichle et al. 1997).

One primary reason that major topographic changes have taken place on Amelia and its northern neighbor, Cumberland Island is in response to the jetty armoring of the St. Marys Inlet (Kraus et al. 1994; Olsen 1995; Raichle et al. 1997). In northeast Florida, the St. Marys Inlet and the adjacent beaches, have long been designated as one of Florida most "critically eroded" coastal regions (FDEP 2012a).

St. Marys Inlet has remained navigable since at least the mid-1500s even though subtle shifts in the main entrance channel naturally occurred due to sedimentation and shoaling processes. Prior to any inlet improvements, the St. Marys Entrance Channel was about 12 feet deep across its outer bar (Raichle et al. 1997). More recently, mechanical dredging has maintained the channel depth between 40-70 feet (Howard and Olsen 2004). Historically, a shallower secondary channel also hugged the Cumberland Island coast (Leslie 1862). In 1879, the U.S. Congress, seeking to guarantee and improve access to the Port of Fernandina, authorized construction of two large stone jetties at the St. Marys Inlet (McLemore et al. 1981). Jetty construction finished in 1904. One jetty, extending 19,150 feet, is located at the south end of Cumberland Island; the other jetty, 11,200 feet long, is at the north tip of Amelia Island. The consequences of this anthropogenic armoring set in motion the need for the United States Army Corps of Engineers (USACOE) to provide constant maintenance and attention to a vast set of coastal erosion and accretion issues in this region (USACOE 1984, 1999).

Even before construction of the jetties, the USACOE had noted a problem with erosion along the shoreline of the inlet fronting Fort Clinch. The counterscarp wall of the fort, described in 1843 as being hundreds of feet from the high-water mark, was observed in 1880 to be impacted by every high tide (Raichle et al. 1997). Attempts to stabilize the site began in 1881 with the construction of five spur groins; two additional groins were completed in 1883.

Construction of the north and south jetties exacerbated the erosion problem at the base of the fort. What had previously been a very broad inlet with two navigable channels was transformed into a constricted single inlet with all flow confined

between the jetties (Parchure, 1982). An increase in the inlet flow rate (both quantity and velocity) resulted. Scouring forces of currents in St. Marys Inlet increased significantly. The forces were greatest at the narrowest point of the inlet, which happened to be opposite the fort. Another by-product of jetty construction was the removal of the capacity of the shoals at the mouth of the inlet to buffer the north tip of Amelia Island from incident wave energy. The vulnerability of both the island and the fort to erosional forces increased, and by 1899, a significant amount of shoreline east of the fort had been lost. It became apparent to engineers that the fort was beginning to act as a headland projecting into the inlet, thereby interrupting littoral drift of sand from east to west and starving the beaches west of the fort (Olsen 1995). In an attempt to resolve the problem, six more groins were constructed in 1899 along the shoreline just west of the fort (Raichle et al. 1997).

Among the more recent efforts to stabilize the shoreline in front of the fort was work done by the Civilian Conservation Corps (CCC) between 1937 and 1939. A 1937 survey by the National Park Service had recommended the placement of nine groins in the area. At least five of the original groins were still in existence then, albeit in need of repair. Consequently, the CCC project was a combination of new construction and rehabilitation of old structures, including restoration of an old seawall of undetermined age in front of the fort.

After Hurricane Dora caused significant damage to the groins at the base of the fort in 1964, erosion accelerated. The response was to construct a rock revetment along the beach as a temporary protective structure. Despite recommendations by the USACOE, no further action took place until 1992 when a groin restoration project commenced. For a variety of reasons, especially lack of funding, the project did not fulfill design specifications. The groins in front of the fort received beach nourishment materials of 158,000 cubic yards (cy) in 1993 and 84,400 cy in 1996. Severe erosion continued, however, exacerbated by regular maintenance dredging of the inlet to accommodate Trident submarines stationed at the Kings Bay Naval Submarine Base (Kraus et al. 1994). The inadequacies of the groin system left the shoreline at the fort still vulnerable to erosion. If nourishment alone were the response, dredge sediment ranging from an estimated 100,000 to 250,000 cy would be needed every two years. However, coastal engineers have determined that long-term protection of the fort needed to include additional restoration alternatives beyond and including nourishment (Olsen 1995).

In the late 1990's the Division solicited various project options to address the significant on-going erosion problems. One such project called St. Marys Inlet Management Study addressed northeast Florida's coastal erosion in a regional context with additional discussions about possible measures to protect the fort (Raichle et al. 1997). Another alternative that the Division eventually decided to support was the Fort Clinch Shoreline Stabilization Feasibility Study (Raichle and Olsen 1998). This favored option targeted restoration of shoreline sediments around the fort using a combination of activities, including groin rehabilitation, addition of revetments to existing groins, and construction of new revetment-equipped groins. In 1998, the Division acquired necessary funding to implement the

FORT CLINCH STATE PARK

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Date of aerial; 2011

TOPOGRAPHIC MAP

Fort Clinch Shoreline Stabilization project and contractors completed the project in May 2000 (Raichle and Olsen 1998).

As constructed, the revitalized groin system along the fort shoreline consisted of two new T-head groins and four rehabilitated groins modified with T-heads. A concrete mattress foundation at the base of each groin provided additional support. In February 2001, the groin field in front of the fort and the inlet shoreline east of the fort received about 150,000 cy of beach nourishment materials dredged from the inlet. In January 2001, District staff established a monitoring protocol to document the long-term effectiveness of the groins. Periodic monitoring of the site currently includes photography at established photo points and use of GPS to map the shoreline in front of the fort.

In addition to shoreline erosion at the fort, another major consequence of jetty construction in 1904 was significant regional coastal shoreline changes (Howard and Olsen 2004). With such extreme alterations, this inlet jetty system functions as a complete littoral barrier to alongshore sediment transport (Kraus et al. 1994; Rosati et al. 2002). Over 200,000 cy per year passes over the north jetty at Cumberland to create an ongoing southerly advance of this island (Richards and Clausner 1988; Howard and Olsen 2004). As a result, regular maintenance dredging to move large quantities of sand is required, and numerous federally authorized improvement projects have deepened, lengthened and widened the St. Marys Inlet navigation channel (USACOE 1999). Since 1957, a substantial portion of shoreline below the Fort Clinch jetty has been erosional due to this littoral barrier, and periodic nourishment with inlet sediment stabilizes this condition. Similar problems are also occurring at the south end of Amelia Island at Nassau Sound Inlet (Raichle 1993).

Jetty construction and beach manipulation are not the only human impacts upon the topography of Fort Clinch State Park. Landscape changes associated with early English Period plantations are likely also. Old maps indicate that an indigo processing facility once operated in vicinity of Willow Pond. When the fort itself was constructed in 1847, a military road was built to connect it with Old Fernandina. This road proceeded south from the fort, slicing through east-west dune lines (U. S. Coastal Survey 1875) and disrupting natural drainage patterns. Later, the City constructed 14th Street parallel to the military road, reinforcing this disruption.

Judging from old aerial photography, channeling and straightening of Egan's Creek to the west of the park occurred sometime before 1943. Spoil from the project was deposited along the edges of the marsh, much of it near the south end of the current park drive. In the 1950s, coastal managers constructed mosquito control ditches throughout the Egan's Creek marshes (Coastal Engineering Lab 1958). The ditches extended well into the uplands of the park, changing the drainage characteristics of the freshwater interdunal swale wetlands and introducing saltwater tidal influences. The ditches and their adjacent berms constitute a significant modification of the natural topography of the park. Another major alteration of topography took place sometime between 1953 and 1960 when a 2.5-acre borrow pit was excavated west of Willow Pond. The pit supplied material for

approaches to the 14th Street Bridge across Egan's Creek. Other topographic changes in the park have resulted from destabilization of dunes on the east side of the park (especially the "walking dune"), due in large part to residential development east of the park.

Geology

Pleistocene deposits make up the core of Amelia Island; the Pleistocene base is the Silver Bluff formation, formed 35,000 years BP. Younger Holocene deposits overlie them (Henry 1971). Each of these recent sediments is composed of undifferentiated surface materials containing fine-grained sands, with clay lenses and shell layers interspersed.

Underlying the recent sediments is the Hawthorn Group of middle Miocene age. Beds of sand and clay are dominant in the Hawthorn Group, except near the base of the formation where hard beds of sand and carbonate occur. Underlying the Hawthorn Group is the Ocala Group, consisting of relatively pure limestone of Eocene age (Watts 1991).

Amelia Island formed during two distinct periods of time and in response to two major fluctuations of sea level. There are several in depth discussions available concerning geologic history and formation of Amelia as a barrier island (Henry 1971).

Soils

Eleven soil types occur at Fort Clinch State Park, including Beaches, Fripp fine sand, Leon fine sand, Newhan-Corolla, Urban land, Leon fine sand tidal, Ridgewood fine sand, Tisonia mucky peat, Kureb-Resota fine sands, Aqualfs, and Corolla fine sand (Watts 1991). The soils are mapped (see Soils Map), and a detailed description of each soil type in included in Addendum 4.

Most of the soils found at Fort Clinch State Park are Entisols. Entisols occur throughout Florida in the older dunes of the Pleistocene and Holocene epochs. These soils can sustain growth of maritime hammock such as that found at the park. The floristic richness of these hammocks is undoubtedly dependent upon the improved nutrient value of the substrate, which contains a considerable amount of coquina shell fragments. Only in two small areas of the park is the Spodosol order of soils represented. These areas, as one might expect, are associated with mature maritime hammock.

Representatives of two suborders of Entisols, aquents and psamments, occur at Fort Clinch State Park. Aquents are wetter soils, found in tidal marshes where they are in a continual state of saturation. Psamments, in contrast, have low water-holding capacity and account for all upland soils at the park. The only suborder of Spodosols represented at the park is Aquod. This particular suborder, very common in Florida, is distinguished by its characteristic hardpan and associated poor drainage.

FORT CLINCH STATE PARK

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Date of aerial: 2014

SOILS MAP

Soil erosion is evident at three primary locations in the park including the St. Marys Inlet and Atlantic shorelines, the hiking/biking loop trail, and along the network of mosquito ditches that bisect the interdunal swale wetlands. The most severe park erosion occurs along the shorelines of the St. Marys Inlet and Atlantic Ocean as was discussed in the *Topography* section of this plan.

Soil disturbance and erosion from swift tidal currents in the St. Marys Inlet can be highly detrimental to the structural integrity of the park's primary cultural feature, namely Fort Clinch. Continual exposure to this type of environmental stress may eventually lead to serious destabilization of the fort's walls. The restoration efforts that took place in the early 2000s to revitalize the T-head groin system along the shoreline adjacent to the fort appear to have stabilized the majority of the erosion problem. However, Cumberland Island's continued accretion and growth southward into St. Marys Inlet is one of the current threats to the parks northern shoreline (Howard and Olsen 2004). As the south end of Cumberland Island accretes, the main navigation channel for the St. Marys inlet also migrates southward and becomes dangerously close to the park's shoreline near Fort Clinch.

Areas within the park that are also prone to significant soil erosion include service roads, footpaths, and areas of high visitor use including the hiking and mountain bike loop trail system. The Fort Clinch trail system, created in the late 1990s, accommodates both hikers and mountain bikes. This 5.5-mile loop trail is adjacent to the main park drive and runs from the park entrance at the south to the fort parking area at the northern terminus. Most of the trail follows gently undulating topography through oak dominated hammocks, but occasionally the trail is routed over more erosion-prone dune scarps. The trail has been excluded from the most sensitive and highest dune ridges, and is diverted onto the main park drive as a shared multiple use trail in one of its sections. Considering the age of the trail, the trail system is in fairly good shape given the erosion rates. However, it is well known that all trails will eventually suffer from the effects of soil erosion in the absence of an adequate maintenance plan (Bratton et al. 1979). Even though there are specific areas on the trail that are in need of repair, the erosion is not extreme at any one location. The areas that do accumulate the heaviest erosion rates are those sections with elevated slopes, areas where the trail passes immediately adjacent to large oak or cedar trees with extensive root systems, and sharp corners.

Despite attempts at mitigation, the foot trails into several old dunes that were once stable are also eroding significantly. For example, Fort Clinch has endured long-term problems with an illegal neighborhood cut-through that bisects a large beach ridge, dubbed the "walking dune", on the eastern park boundary. Near the River Campground, unauthorized footpaths threatened to destabilize large vegetated dunes in the past. Strategically placed fences have discouraged these footpaths.

The park routinely monitors susceptible areas for changes in erosion patterns and will continually encourage compliance with staying on designated trails. Previous erosion control measures have included the planting of stabilizing vegetation such as sea oats and the placing of fences in strategic locations to block or divert foot

traffic from erosion prone areas. Management activities will continue to follow accepted best management practices to minimize or prevent additional soil erosion and to protect the park's soil and water resources.

Minerals

No known commercial mineral deposits occur in the area.

Hydrology

Fort Clinch State Park occupies the northern portion of Amelia Island, a coastal barrier island located on the Florida/Georgia border. Amelia Island lies at the southern extent of a large section of Atlantic coast known as the Sea Islands Coastal Region, which contains as many as 23 short drumstick-shaped barrier islands separated from the mainland and surrounded by water during high tides (Hayes 1994). This unique barrier chain extends for 112 miles from Bulls Island, South Carolina in the north, south to Little Talbot Island, Florida (Mathews et al. 1980).

Amelia Island is approximately 13.5 miles long and has a maximum width of three miles. The island is oriented parallel to the mainland, bound on the east by the Atlantic Ocean, on the north by St. Marys Inlet (mouth of the St. Marys River and Cumberland Sound), on the west by the Amelia River, and on the south by the Nassau River (Raichle et al. 1997). Amelia's land area totals about 11,600 acres, with 1,363 acres comprising Fort Clinch State Park. The parks' most prominent hydrological features include the St. Marys River, Egan's Creek, Willow Pond, and an imperiled natural community, coastal interdunal swales (FNAI 2010). The main hydrological issues that influence the park's water resources are 1) erosion and sedimentation along the shoreline of the St. Marys Inlet and Atlantic beaches (see *Topography* above), 2) regional groundwater depletion and saltwater intrusion and 3) increased estuarine water quality degradation.

As mentioned above in *Topography*, the Nassau and St. Marys Rivers are the two large surface water drainage basins west of the Amelia Island. The St. Marys River originates in the Okefenokee Swamp of southern Georgia, approximately 125 miles upstream from Cumberland Sound/St. Marys Inlet. The drainage area of the St. Marys watershed encompasses nearly 1,000 square miles in Florida alone (Georgia and Florida total is 1,585 square miles). Tidal influences on the St. Marys River can go as far as 64 miles upstream with typical tidal flow reversals that occur up to twice daily as far up as 21 miles (FDEP 2004).

The Nassau watershed is about half the size (464 square miles) of the St. Marys basin and is contained entirely within Florida (Ayres Associates 1999). Egan's Creek and the southern portion of Amelia River are included within the Nassau River basin. Egan's Creek, an extensive tidal creek and salt marsh community lies along most of the eastern boundary of Fort Clinch State Park. At least one historic map references this system as Clarkes Creek (Leslie 1862). Egan's Creek empties westward into the Amelia River. Amelia River connects the St. Marys River to the

north and with the Nassau River to the south (FDEP 2004). Major portions of the Amelia River were historically channelized to create a navigable Intracoastal Waterway along the entire western side of the island. Numerous tributaries braid through the salt marsh ecosystem to make up the Amelia River estuary, which includes creeks such as Jackson, Alligator, Lanceford, Soap, St. Joseph, Tiger and Bells River. These waters are included either in the Fort Clinch State Park Aquatic Preserve or in the Nassau River-St. Johns River Marshes Aquatic Preserve (FDEP 1986). Two isolated estuarine upland islands embedded within this extensive salt marsh system that are under Division management and included in the park boundary are Martin's and Tiger Islands.

Saltwater Intrusion and Freshwater Wetlands

As their name implies, barrier islands are isolated from the mainland and by their very nature, have limited surface water and groundwater availability (Tarbox and Hutchings 2003). On the Atlantic coast in northeast Florida, the Upper Floridan can extend as a thin lens of varying depth up to 50 miles offshore (Levy 1966; Barlow 2003). However, going back as far as 1880, groundwater resources in this region have undergone a long history of anthropogenic changes (Peck et al. 2005).

Northeast Florida (Nassau County) and southeast Georgia (Camden County) both belong to a groundwater subarea that includes over 1000 square miles. Regional flow of groundwater in this region is from west to east following subsurface water contours (i.e. potentiometric surface). The potentiometric surface simply defines the directionality and underground topography of the Floridan aquifer as measured by tightly cased wells (Brown 1984).

Since groundwater pumping first began, water scientists have closely monitored subsurface "cones of depression" that have developed on the aquifer's potentiometric surface. It is important to understand that these numeric depressions in the potentiometric surface indicate significant areas of discharge, including anthropogenic groundwater withdrawals (Knowles 2001). Major cones of depression over the past 10 years or more have occurred in four specific Florida/Georgia locations including Fernandina Beach and Jacksonville, Florida, and St. Marys and Brunswick, Georgia (Fairchild and Bentley 1977; Brown 1984; Kinnaman and Dixon 2011). Regional cones of depression can cumulatively contribute to major alterations of watershed boundaries as was recently depicted in the Suwannee River Basin of north Florida (Grubbs and Crandall 2007; Swihart 2011; Still 2010). The paper mill industry has been the primary contributor to significant groundwater declines in this region of Florida/Georgia (Peck et al. 2005). However, public supply in Florida during the past 20 years has greatly increased and is threatening to shift this balance (Borisova and Carriker 2009).

In the 1930s, four major paper mill companies set up large wood processing operations at Fernandina Beach, Florida (Nassau County) and St. Marys, Georgia (Camden County) and began to extract groundwater for these facilities at a rate of 0.5 million gallons per day (mg/d) (Peck et al. 2005). The mills generally shut down for maintenance only during short periods in July and December of each year. By 1977, these significant pumping centers alone withdrew groundwater at a rate of

over 105 mg/d, which accounted for 90% or more of water use in Nassau and Camden County (Brown 1984). Aquifer deficits at the center of pumping in Fernandina Beach during this time were over 120 feet below historic levels (Johnston et al. 1980; Brown 1984). One of Georgia's mills in St. Marys closed its operations down in 2002, and as a result, the Nassau/Camden groundwater subarea experienced a significant increase in the aquifer levels for the first time since the 1950's (Peck et al. 2005).

The St Johns River Water Management District (SJRWMD) is the state agency responsible for issuing water use permits in the region, and in doing so, must ensure that proposed uses are in the public interest, which includes the conservation of fish and wildlife habitat and the protection of recreational values (Chapter 373 Florida Statues). In October 2011, the SJRWMD, Suwannee River Water Management District (SRWMD) and Florida Department of Environmental Protection (FDEP) entered into an interagency agreement that outlined closer coordination in the management of north Florida water supplies. The two water management districts are now required to address the issues of decreased groundwater resources when they conduct district water supply planning activities (SRWMD 2010; SJRWMD 2011).

As of 2011, groundwater withdrawals in the Fernandina Beach region appear to have stabilized with a much-reduced cone of depression; however, aquifer deficits are still nearly 70 feet below historic levels (Barlow 2003; Marella and Berndt 2005; Williams et al. 2011). Given the projected water supply needs for the area, the USGS predicts that groundwater levels throughout Florida, including those underlying Amelia Island, will continue to decline (Sepulveda 2002). One serious outcome of the cumulative consumptive use of freshwater supplies on the lowering of groundwater levels has been increased coastal saltwater intrusion into the Floridan aquifer.

Saltwater intrusion can occur both naturally, such as during droughts when the freshwater lens shrinks, and anthropogenically during periods of heavy groundwater withdrawals (Spechler 1994, 2001; Barlow 2003). During the two most recent historically worst droughts on record (i.e., 1998-2002 and 2010-2012), saltwater intrusion occurred on a statewide scale and groundwater pumping exacerbated this process (Marella and Berndt 2005; Copeland et al 2011). Water scientists now suggest that saltwater encroachment is and will continue to become an even greater environmental threat to Florida than is global sea level rise (Payne 2010).

Saltwater intrusion can adversely interfere with the long-term term sustainability of Florida's water resources. For example, residents of the Fernandina Beach and Fort Clinch State Park once obtained potable groundwater from onsite wells that pumped freshwater from the surficial aquifer that at the time ranged between 20 feet to 120 feet in depth as well as from deeper units in the Upper Floridan. As early as the 1970s, the surficial at both of these locations had already shown significant signs of saltwater intrusion as measured by increased chloride levels (Frazee and McClaugherty 1979). Chloride levels greater than 250 milligrams/liter (mg/l) exceed Florida's primary drinking water standards for public supply (Florida

Administrative Code 62-302.530). By the late 1990s, Fort Clinch's groundwater quality precipitously declined to a point that the decision was made to cap all park supply wells and hook up to the Florida Public Utility Commission of Fernandina Beach to receive its potable water.

Saltwater intrusion as well as artificial ditching and draining can also negatively affect the freshwater ecology of natural communities (FNAI 2010). Small coastal islands such as Amelia at Fort Clinch can have an extremely limited diversity of freshwater wetland communities, whereas a greater number and extent can typically occur on larger islands (Franz 1971; Hillestad et al. 1975). At Fort Clinch, two important freshwater communities that make up surface wetlands are coastal interdunal swales and depression marshes (FNAI 2010; Johnson and Muller 1993).

Mosquito control ditches have considerably altered the natural topography and thus the freshwater wetlands of the park. The park contains an eight-mile network of ditches, excavated during the early 1950s to late 1960s in an effort to eradicate mosquito larvae that developed in low elevation areas, including interdunal swale wetlands. As constructed, the ditches connected all low-lying areas of the park and drained westward toward the marshes of Egan's Creek. With each tidal change, salt water entered the park through these ditches. The resulting increase in salinity in the swales severely affected natural wetland vegetation. The ditches, some as deep as 15 feet, also modified the natural hydrology of the interdunal swales by intercepting lateral groundwater flow.

During the years following construction of the ditches, the local Mosquito Control District periodically used heavy machinery to keep the ditches open and functioning. Considerable damage to vegetation resulted. Lately the Division has restricted the use of machinery in clearing the ditches, but it still allows cleaning by hand. The Mosquito Control District, however, has elected to adopt a hands-off approach in most cases, and the ditches and ditch banks appear to be reverting slowly to a more natural state. Perhaps the natural hydrology is also recovering to some extent.

Other than mentioned above, the current level of hydrological impact of these artificial ditches on interdunal swales wetlands of the park is unknown. Similarly, we also do not understand if the park's two additional freshwater depression marsh communities, namely Willow Pond and an adjacent human-made borrow pit, are being influenced by saltwater intrusion or drainage alteration by mosquito ditches.

Very little is known about Willow Pond, including its origin, freshwater source, and previous extent of manipulation. Willow Pond may have been a source of fresh water for an indigo processing facility in the 18th century. Other manipulations of the pond may have occurred during construction of the fort in the mid-1800s. Aerial photography indicates that manipulations also occurred during construction of the park by the Civilian Conservation Corps in the 1930s. In the 1960s a large irregularly shaped borrow pit was excavated adjacent to Willow Pond to supply fill for the 14th Street Bridge reconstruction. Prior to this bridge retrofit, flood control structures that impounded Egan's Creek were in place at this location (Henry

1971). Since the initial borrow pit disturbance, sediments have gradually accumulated and a diverse assemblage of wetland vegetation has become established. The borrow pit marsh is now an important foraging and roosting site for wading birds, and it may function as a nesting site as well. A thorough evaluation of the park's freshwater wetland communities and potential restoration alternatives that could return natural surface water drainage within the park is needed.

Water Quality

Because the coastal region of northeast Florida has been important to our understanding of saltwater encroachment into the Floridan aquifer, water scientists have sampled groundwater levels and quality at Fort Clinch since the late 1970s (Frazee and McClaugherty, 1979; Brown 1984; Spechler 2001; Peck et al. 2005). In the Fort Clinch region, over 100 different wells are an integral part of a mechanism to track groundwater quality in the area (FDEP 2013a). Some of the wells are associated with coastal saltwater intrusion monitoring, while others have served to document changes associated with known contaminated sites. The Division of Water Resource Management in FDEP monitors at least seven types of groundwater wells within the Fort Clinch region, including water supply wells, FGS wells, Class V wells, background-monitoring wells, and private wells (Hicks and Marks 2005).

Historically, there have been as many as six groundwater wells located within the boundary of Fort Clinch State Park (Document in files at District 2 office, DRP). Three of those wells that are important include N-19 (78 feet deep) and N-18 (33 feet deep) that penetrates the surficial, and N-3 (Florida Geological Survey (FGS) also refers to as #18823: 800 feet deep) that reaches down into the Ocala limestone of the Floridan. There are also numerous data available concerning surface water quality for the estuarine and beach water bodies that surround Fort Clinch, however no data is available for the previously mentioned freshwater wetlands in the park. Much of the hydrological information that has been collected, stored, and managed by state water management agencies can now be accessed through a variety of web-based filters (SJRWMD 2013; FDEP 2013a, FDEP 2013b).

It was not until the late 1980s that state officials began to first recognize the surface water quality problems in northeast Florida and to implement regulations to protect these water resources (FDEP 1986). Effluent discharge from regional paper mill industries as well as other sources has contributed to increased water quality issues associated with the aquatic estuarine system adjacent to the park. Throughout the 1980s and continuing today, paper mill companies in this region are permitted to discharge treated effluent directly into the adjacent water bodies, such as Amelia River, typically on outgoing tides. In the past, state environmental officials would constantly charge these industries with a series of Class III water quality standard violations (FDEP 1991; FDEP 1999). Associated with these violations have been exceedances of ammonia (extremely high), arsenic, silver, selenium, and dissolved oxygen (FDEP 1991; FDEP 1999; Livingston, 1996). As of 2011, industry effluent discharged into these estuarine water bodies appears to better conform to Florida's standards concerning surface water quality regulations,

however the list of toxic substances released into these waters is still overwhelmingly exhaustive (FDEP 2011).

In addition to industrial pollution, development, rapid growth, stormwater runoff and an essential need for human wastewater treatment have contributed significantly to the nutrient enrichment of the estuarine ecosystem surrounding the park (FDEP 1999; FDEP 2009b). In 1986, water bodies in the St. Marys/Nassau River Basin were classified as both Class II or Class III waters, and sustainable harvesting of shellfish was allowed (FDEP 1986; Coffin et al. 1992; Newman et al. 2003; FDEP 2013c). As of 2012, all water bodies surrounding the park are designated as “Unclassified” because the current sanitary conditions of the area have not been thoroughly characterized for the protection of the health of shellfish consumers (Chapter 5L-1.003(7) F.A.C.). Harvest of shellfish from these “Unclassified waters” is unlawful mainly because of unacceptable coliform levels (Florida Department of Agriculture and Consumer Services (FDACS) 2012). The Nassau County Soil and Water Conservation District was conducting a study to determine the feasibility of re-establishing shellfish harvests in the area. The outcome of that study is not known.

In 1996, the FDEP initiated a formal, statewide monitoring program for groundwater and surface water quality, including those within the St. Marys and Amelia River estuaries as mentioned above (Maddox et al 1992; FDEP 2009a). This Integrated Water Resource Monitoring Program (IWRMP) takes a comprehensive watershed approach based on natural hydrologic units (Livingston 2003). This watershed approach provides a framework for implementing Total Maximum Daily Load (TMDL) requirements that will attempt to restore and protect water bodies that have been declared impaired (Clark and DeBusk 2008).

According to DEP’s basin status report for this region, several water bodies within the St. Marys River Basin (10 total), including the St. Marys River and Jacksons Creek, and the Nassau River Basin (13 total), including Nassau and South Amelia Rivers, all became potentially impaired water bodies in 1998 because of total coliform bacteria, and high mercury levels (FDEP 2004, 2007). Based on Florida’s Impaired Waters Rule (IWR), the EPA in 2003 verified that those water bodies were impaired, which meant that their surface water quality did not meet applicable state water quality standards (IWR, Chapter 62-303 F.A.C.). This designation triggered a long chain of mandatory requirements that Florida must accomplish to achieve compliance with EPA regulations concerning polluted water bodies.

The regulatory compliance process will start when Florida re-prioritizes the tributaries of the St. Marys and Nassau River Basins and appropriately assigns a TMDL for each polluted system (FDEP 2007). Officials have only classified one water body (an unnamed tributary in upper Nassau River Basin) as a high priority for this region; that occurred in 2007. As of 2013, no additional TMDL’s or Basin Management Action Plan (BMAP) had been adopted for the St. Marys/Nassau River Basins. A statewide mercury TMDL is currently in draft format (FDEP 2012b).

Natural Communities

This section of the management plan describes and assesses each of the natural communities found in the state park. It also describes of the desired future condition (DFC) of each natural community and identifies the actions that will be required to bring the community to its desired future condition. Specific management objectives and actions for natural community management, exotic species management, imperiled species management [and population restoration] are discussed in the Resource Management Program section of this component.

The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI). The premise of this system is that physical factors such as climate, geology, soil, hydrology and fire frequency generally determine the species composition of an area, and that areas that are similar with respect to those factors will tend to have natural communities with similar species compositions. Obvious differences in species composition can occur, however, despite similar physical conditions. In other instances, physical factors are substantially different, yet the species compositions are quite similar. For example, coastal strand and scrub--two communities with similar species compositions--generally have quite different climatic environments, and these necessitate different management programs. Some physical influences, such as fire frequency, may vary from FNAI's descriptions for certain natural communities in this plan.

When a natural community within a park reaches the desired future condition, it is considered to be in a "maintenance condition." Required actions for sustaining a community's maintenance condition may include; maintaining optimal fire return intervals for fire dependant communities, ongoing control of non-native plant and animal species, maintaining natural hydrological functions (including historic water flows and water quality), preserving a community's biodiversity and vegetative structure, protecting viable populations of plant and animal species (including those that are imperiled or endemic), and preserving intact ecotones that link natural communities across the landscape.

The park contains 8 distinct natural communities as well as altered landcover types (see Natural Communities Map). A list of known plants and animals occurring in the park is contained in Addendum 5.

Beach Dune

Desired Future Condition: Beach dune is a coastal mound or ridge of unconsolidated sediments found along shorelines with high energy waves. Vegetation will consist of herbaceous dune forming grass species such as sea oats (*Uniola paniculata*) and sand cordgrass (*Spartina alterniflora*). Other typical species may include sea rocket (*Cakile* spp.), railroad vine (*Ipomea pes-caprae*), seashore paspalum (*Paspalum vaginatum*), beach morning glory (*Ipomea imperati*), and beach sunflower (*Helianthus debilis*).

Legend

- BD - Beach Dune - 50.13 ac.
- CG - Coastal Grassland - 263.60 ac.
- CS - Coastal Strand - 203.60 ac.
- MAH - Maritime Hammock - 762.59 ac.
- CIS - Coastal Interdunal Swale - 15.55 ac.
- SAM - Salt Marsh - 660.23 ac.
- EUS - Estuarine Unconsolidated Substrate - 70.14 ac.
- MUS - Marine Unconsolidated Substrate - 48.49 ac.
- BA - Borrow Area - 6.87 ac.
- CD - Canal/ditch - 18.27 ac.
- DV - Developed - 53.82 ac.
- SA - Spoil Area - 19.68 ac.
- UC - Utility Corridor - 5.24 ac.

ST. MARYS RIVER

JOLLY RIVER

BELLS RIVER

AMELIA RIVER

MAH

EUS

SAM

CS

DV

SA

MUS

BD

CG

CIS

UC

BA

CD

bing

Image courtesy of USGS Earthstar Geographics SIO © 2016 Microsoft Corporation

FORT CLINCH STATE PARK

N

0 0.25 0.5 1 Mile

Department of Environmental Protection
Division of Recreation and Parks
Date of aerial: 2014

NATURAL COMMUNITIES
EXISTING CONDITIONS MAP

Description and Assessment: Beach dunes are typically wind-deposited and are sparsely to densely vegetated with salt-tolerant pioneer species. Though adapted to a harsh environment, dune plants are very vulnerable to human disturbance. The beach dune is usually a very dynamic community due to the unstable nature of active dune fields. Once pioneer vegetation stabilizes a beach dune community, succession to more enduring communities may occur, particularly in areas with long-term shoreline accretion. Beach dunes at Fort Clinch occur along the Atlantic shoreline and along the Cumberland Sound shoreline. Shoreline accretion along the eastern shoreline has allowed an extensive area of beach dune to develop. The dunes are of a more limited extent along the receding northern shoreline that flanks the fort. An older field of beach dunes occurs in the center of the park along what was once the east shoreline of the north tip of Amelia Island (before construction of the jetties). This older dune area parallels the current eastern shoreline, but is located up to two-thirds of a mile inland. This dune field is classified as coastal grassland due to the distance from the current shoreline and the coastal grassland species that are gradually invading it.

The shoreline along Cumberland Sound and the St. Marys Entrance is eroding, causing some loss of beach dune and adjacent natural communities. Natural and human impacts on the inlet, discussed in the *Topography* section of this plan, are largely responsible for the erosion. Periodic renourishment of the beach near the fort has slowed the retreat of the shoreline somewhat, however, heavy equipment used during the placement of dredge spoil causes temporary damage to some of the beach dunes in the area.

In April 1982, the park began to prohibit vehicular traffic on the beach. Since that time, vehicular damage to beach vegetation and dunes has decreased dramatically. Boardwalks now extend from the beach campground and from the east and west parking lots through the dunes to the pier and swimming beach. Now that these walkways provide the public with convenient access to points of interest, most of the unauthorized footpaths that once degraded the dunes have disappeared. The beach dunes are considered to be in good condition.

General Management Measures: Management of beach dunes usually centers on protection from human disturbance since the adjacent beaches are typically the focal point of recreational activities in coastal parks. Interpretive signs are generally effective in advising the park visitors of the need to stay off the beach dunes. Boardwalks leading to dune crossovers provide easy access to shorelines and discourage walking in the beach dunes. Periodic surveys for exotic plant infestations are also important in catching new infestations early. The park recently eradicated one of the first infestations of beach vitex (*Vitex rotundifolia*) in Florida. Seeds or plant fragments apparently washed up on shore from infestations in the Carolinas. Hand collection of sea oat seeds may be permitted under certain circumstances.

Coastal Grassland

Desired Future Condition: Coastal grassland is predominantly an herbaceous community occupying the flatter and drier portions of the transition zone between the primary beach dunes and the natural communities dominated by woody species

(such as coastal strand or maritime hammock). With the exception of overwash from severe storms, it will be a relatively stable community compared to the dynamic primary dunes. Coastal grassland will occur primarily on the broader barrier islands and capes along the sandy coasts of Florida. Characteristic plant species may include bluestem grasses (*Andropogon* spp. and *Schizachyrium* spp.), camphorweed (*Heterotheca subaxillaris*) and earleaf greenbriar (*Smilax auriculata*). Other common species may include seaoats (*Uniola paniculata*), bitter panicgrass (*Panicum amarum*) and saltmeadow cordgrass (*Spartina patens*).

Description and Assessment: The coastal grassland at Fort Clinch occurs on level to low rolling terrain located in the northeastern and northern part of the park, inland from the beach dune community. Typical plants of this community are species such as broomsedge (*Andropogon scoparius*), pink muhly grass (*Muhlenbergia capillaris*), croton (*Croton glandulosus*), camphor weed, earleaf greenbrier, prickly pear cactus (*Opuntia stricta*) and wax myrtle (*Myrica cerifera*). Scattered small pockets of scrubby oaks (*Quercus geminata*) are also present. Gopher tortoises, eastern moles, marsh rabbits, cotton mice, rat snakes and eastern diamondback rattlesnakes occur here as well.

By its very nature, this community type is prone to natural disturbance from storm surges and blowouts. Artificial disturbances such as mosquito control ditching, former development sites, and road construction have also impacted several areas of coastal grassland within the park. Vegetation eventually stabilizes most soil disturbances, but disturbance of existing vegetation should be avoided to prevent destabilization of low dunes, which would cause increased wind erosion. The coastal grassland in the park is considered to be generally in good condition.

General Management Measures: Although coastal grassland experiences a variety of natural disturbances, impacts from development, foot traffic, and vehicular traffic should be kept to a minimum to avoid wind erosion issues. The native prickly pear cactus in the coastal grasslands is also susceptible to damage from the larvae of the exotic cactus moth (*Cactoblastis cactorum*). Surveys for this invasive species should be conducted on a regular basis, and infestations reported to FDACS, Division of Plant Industry.

Coastal Strand

Desired Future Condition: Coastal strand can be characterized as stabilized, wind-deposited coastal dunes that are thickly vegetated with evergreen salt-tolerant shrubs. It is an ecotonal community that will generally lie between the beach dune or coastal grassland and the maritime hammock. Coastal strand dunes will contain deep, well drained sands that are generally quite stable but become susceptible to severe damage if the vegetation is significantly disturbed. North of Cape Canaveral, temperate plant species, including saw palmetto, (*Serenoa repens*), dwarfed cabbage palms (*Sabal palmetto*), tough bully (*Sideroxylon tenax*), yaupon holly (*Ilex vomitoria*), Hercules' club, (*Zanthoxylum clava-herculis*), and dwarfed, shrubby forms of red bay (*Persea borbonia*), red cedar (*Juniperus virginiana*), and live oak (*Quercus virginiana*) will dominate. Smooth domed canopies will develop as the taller vegetation is "pruned" by the windblown salt spray that kills the outer

buds. This process is not as prevalent on the west coast of Florida or on the lee-side of islands due to prevailing easterly winds. Significant debate exists on the relative occurrence of natural fires compared to inland pyric communities. The Division Fire Management Standard estimates that the appropriate fire return interval to be between 4 and 15 years. However, variability outside this range may occur based on site specific conditions and management goals.

Description and Assessment: Much of the coastal strand community at Fort Clinch is relatively young, occurring on dunes that have recently accreted and stabilized. Coastal strand is an ecotonal community that generally lies between beach dunes, coastal grassland, and maritime hammock. In many instances, the coastal strand occurs as islands of woody vegetation within coastal grassland. In some cases coastal strand may develop adjacent to or within coastal interdunal swales. Mosquito ditch construction in the 1950s disturbed several of these sheltered pockets in Zones FCL-04 and FCL-05. There is also a stand of slash pines covering about 8.5 acres in FCL-04 that appears to have been planted in the coastal grassland and coastal strand in the 1980s. Based on the proliferation of hardwoods in this area, it is classified as coastal strand and is likely to eventually succeed to maritime hammock.

Establishment of coastal strand occurs only after herbaceous plants have stabilized the dunes. Due to its young age and a history of disturbance, the coastal strand at Fort Clinch differs somewhat from other, more mature coastal strands found further south along the east coast of Florida, where saw palmetto and scrub oaks are the dominant vegetation.

In some cases, it is very difficult to distinguish between coastal strand and the earlier successional stages of maritime hammock. In the absence of periodic disturbances such as catastrophic storms or fire, coastal strand that is sheltered from salt spray will gradually succeed to maritime hammock. This process has occurred at Fort Clinch, and much of what was once coastal strand is now young maritime hammock. Other than impacts from mosquito ditching, the coastal strand at Fort Clinch is in good condition.

General Management Measures: Unlike better developed coastal strands that occur further south along the Atlantic coast, and which share affinities with scrub vegetation, the coastal strand at Fort Clinch developed recently as a result of the rapid accretion of sand after the construction of the St. Marys jetties. Fire does not appear to play a significant role in these young coastal strands that quickly succeed towards maritime hammock as the shoreline expands and reduces the effects of salt pruning. Older coastal strands that occur on stable shorelines are maintained in an early successional stage by constant salt spray, and may be more pyrogenic as they mature and develop extensive stands of saw palmetto and pyrogenic oaks. The stand of slash pines in Zone FCL-04 has been prescribed burned in the past for fuel reduction, but coastal strand at Fort Clinch is not considered a fire-maintained natural community. The coastal strand should also be monitored for the presence of the exotic cactus moth since prickly pear cactus may also occur here. Restoration of

the natural hydrology of the coastal interdunal swales described below will also benefit the coastal strand areas that have been impacted by mosquito ditching.

Maritime Hammock

Desired Future Condition: Maritime hammock is a coastal evergreen hardwood forest occurring in narrow to broad bands along stabilized coastal dunes. Canopy species will typically consist of live oak (*Quercus virginiana*), red bay (*Persea borbonia*), and cabbage palm (*Sabal palmetto*). The canopy will typically be dense and often salt-spray pruned. Other canopy species include pignut hickory (*Carya glabra*) and southern magnolia (*Magnolia grandiflora*). Subcanopy species will include American holly (*Ilex opaca*) and southern red cedar (*Juniperus virginiana*). Shrub species will include yaupon holly (*Ilex vomitoria*), saw palmetto (*Serenoa repens*), and/or wax myrtle (*Myrica cerifera*). Herbaceous groundcover will be very sparse or absent.

Description and Assessment: The maritime hammock at Fort Clinch is one of the most outstanding examples of this natural community in the state. Maritime hammock typically occurs as a band of hardwood forest lying inland of the coastal strand community. This community occurs on old dunes that have been stabilized long enough to allow the development of a mature, closed canopy, forest.

The maritime hammock at Fort Clinch State Park begins as a narrow band at the southern end of the park and extends some three miles to the northwest boundary on Cumberland Sound. About midway into the park, the hammock curves to the west and becomes much broader. Throughout this broad section, the dunes are generally oriented east and west.

Dominant canopy species include live oak, southern magnolia, American holly and southern red cedar. Hackberry (*Celtis laevigata*), red mulberry (*Morus rubra*), aralia (*Aralia spinosa*), American beautyberry (*Callicarpa americana*), ebony spleenwort (*Asplenium platyneuron*) and dwarf palmetto (*Sabal minor*) - all species typically supported by areas high in calcium - are also part of this mesic community. The maritime hammock here also supports a large number of insect-eating birds such as vireos, warblers and flycatchers as well as other animals. Many songbirds migrate along coastal areas and use maritime hammocks for resting, feeding and staging areas during migration. Due to its strategic location at the end of a barrier island, the maritime hammock at Fort Clinch is a critical area for migrating songbirds.

The maritime hammocks of the northeast Florida coast have been heavily impacted by the spread of Laurel Wilt Disease, a fungal pathogen (*Raffaelea lauricola*) spread by an Asian species of ambrosia beetle (*Xyleborus glabratus*). The disease was first detected in NE Florida in 2005 (Mayfield and Thomas 2009). While the majority of the adult red bays in the park have been infected and died back, small saplings and resprouts still exist in the park.

Historically, some damage to the maritime hammock occurred during the building of the military entrance road in the 1800s. Construction of mosquito control ditches

beginning in the late 1950s caused additional damage. Another disturbance was the large borrow pit west of Willow Pond, excavated around 1960 during reconstruction of the 14th Street Bridge. Impacts to maritime hammock from park development are evident in several locations, including park roads, the ranger residences and shop area, and the River Camping Area.

The purpose of the mosquito ditches was to eradicate mosquito larvae that hatched in pockets of freshwater in swales located at the bases of dune ridges in the maritime hammock. The ditches allowed tidal flooding from adjacent salt marshes to penetrate deep into the maritime hammock, theoretically eradicating larvae dependent upon the freshwater that collected in the swales. At present, however, tidal waters only flood some of the swales intermittently. In these areas, tidal waters trapped in the swales may form pools of standing water that actually attract breeding mosquitoes. The ditches may significantly alter the natural hydrology of the maritime hammock, presumably by dewatering the hammock through accelerated drainage of freshwater derived from precipitation. Other, more effective methods of mosquito control are now available. The ditches have long outlived their purported usefulness, and the Division should explore feasible means of restoring the disturbed areas, or at the very least, mitigate the hydrological impacts.

Erosion and compaction from foot traffic are occurring along the Willow Pond trails, around the River Camping Area, and in the picnic area. In most cases, the erosion problems are a by-product of unauthorized paths created by park visitors on the slopes of stabilized dunes. Erosion is also a serious issue along the off-road bicycle trail that runs parallel to and on both sides of the main park drive. With the exception of the limited areas impacted by the above disturbances, the maritime hammock at Fort Clinch is in good condition.

General Management Measures: Protection from disturbance is the primary management measure necessary in the maritime hammock. Maintaining a continuous and 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 have been successful in modifying pedestrian behavior, and strategic mulching and stabilization have been useful in moderating the erosion caused by bicycles. Relatively few exotic plant or animal species occur in the maritime hammock, although armadillos (*Dasypus novemcinctus*) are common and damage the leaf litter and upper soil layers. Mitigation of the hydrological impacts of the mosquito control ditches may include strategically placed ditch blocks to exclude tidal influences and reduce dewatering of the adjacent maritime hammock soils.

Coastal Interdunal Swale

Desired Future Condition: Coastal interdunal swale is a variable community which occurs as marshes, moist grasslands, dense shrublands, or damp flats which occur in strips between successive dune ridges that develop as beach building occurs seaward (accretion). Dominant plant species may be quite variable and a function of local hydrology, salt water occurrence, and the age of the swale. Wetter areas may include sawgrass (*Cladium jamaicense*), cattail (*Typha* spp.), or needle rush

(*Juncus roemerianus*) while shallower areas may have a diverse mixture of herbs, including southern umbrellasedge (*Fuirena scirpoidea*), Carolina redroot (*Lachnanthes carolina*), spadeleaf (*Centella asiatica*), and broomsedges (*Andropogon* spp.). Shrubby areas may contain wax myrtle (*Myrica cerifera*) and coastalplain willow (*Salix caroliniana*). Hurricanes and tropical storms can flood the swales with salt water after which they are recolonized with salt-tolerant species like needle rush (*Juncus roemerianus*), Gulf Coast spikerush (*Eleocharis cellulosa*), and yellow spikerush (*Eleocharis flavescens*).

Description and Assessment: Coastal interdunal swales occur in low areas within the coastal grassland and coastal strand community types. Since these low areas are also more sheltered from salt spray, they may succeed to coastal strand as hardwoods begin to dominate. The coastal interdunal swales range from herbaceous to shrub-dominated wetlands. The herbaceous swales are dominated by sand cordgrass (*Spartina bakeri*) and other grasses that tolerate wet soils. Wax myrtle, sabal palm, southern red cedar, hackberry, and peppervine (*Ampelopsis arborea*) are common in the shrub-dominated swales. Many of the larger swales were modified by mosquito ditching prior to 1973. The coastal interdunal swales range from fair to good condition depending on the extent of the mosquito ditching within them.

General Management Measures: Maintaining a natural hydrological regime is a priority in the management of coastal interdunal swales. Runoff from developed areas should be avoided. Restoration of impacted coastal interdunal swales may include filling in or blocking of old mosquito ditches that may be affecting the surficial water table. The DRP will assess the current condition of these wetlands to determine the proper restoration methods and to develop a restoration plan.

Salt Marsh

Desired Future Condition: Salt marsh is a largely herbaceous community that occurs in the portion of the coastal zone affected by tides and seawater and protected from large waves. Salt marsh typically will have distinct zones of vegetation based on water depth and tidal fluctuations. Saltmarsh cordgrass (*Spartina alterniflora*) will dominate the seaward edge; the areas most frequently inundated by tides. Needle rush (*Juncus roemerianus*) will dominate the higher, less frequently flooded areas. Other characteristic species include Carolina sea lavender (*Limonium carolinianum*), perennial saltmarsh aster (*Symphyotrichum tenuifolium*), wand loosestrife (*Lythrum lineare*), marsh fimbry (*Fimbristylis spadicea*), and shoreline seapurslane (*Sesuvium portulacastrum*). A landward border of salt-tolerant shrubs including groundsel tree (*Baccharis halimifolia*), saltwater falsewillow (*Baccharis angustifolia*), marshelder (*Iva frutescens*), and Christmasberry (*Lycium carolinianum*) may exist. Soil salinity and flooding will be the two major environmental factors that influence salt marsh vegetation. While there is little data on natural fire frequency in salt marshes, fire probably will occur sporadically and with a mosaic pattern, given the patchiness of the fuels intermixed with creeks, salt flats, etc.

Salt Flat (variant of Salt Marsh)

Desired Future Condition: Within a salt marsh, areas of slightly higher elevation, flooded only by storms and extreme high tides and isolated from sources of freshwater become very saline and desiccated due to constant evaporation. These areas are dominated by species that can tolerate the extreme salinity including saltwort (*Batis marittima*), annual glasswort (*Salicornia bigelovii*), perennial glasswort (*Sarcocornia ambigua*) and bushy seaside oxeye (*Borrichia frutescens*) or short grasses, such as saltgrass (*Distichlis spicata*), and seashore paspalum (*Paspalum vaginatum*).

Description and Assessment: The Egan's Creek area includes a large expanse of salt marsh, but only scattered strips of that salt marsh fall within the park boundary that lies to the east and north of Egan's Creek. The most extensive areas of salt marsh within the park lie around Martin's Island. The park includes a narrower band of salt marsh that is associated with Tiger Island. Both islands include examples of the salt flat variant of salt marsh adjacent to the uplands.

The dominant plant of this community at Fort Clinch State Park is saltmarsh cordgrass (*Spartina alterniflora*). This species is the major indicator of the low marsh systems of the Northeast Atlantic Coast Region. Unlike the high marshes of the lagoons in Florida's lower peninsula, where saltgrass (*Distichlis spicata*) dominates, tides flood this marsh daily.

Although low in plant diversity, this estuarine area serves as feeding, cover, and reproductive habitat for a great diversity of animal life such as worms, mussels, oysters, clams, shrimp, crabs, sand dollars, sea urchins, whelks, snails, and fish. Diamondback terrapins (*Malaclemys terrapin*) are considered a species of greatest conservation need by FWC. Protection of the salt marsh habitats and tidal creeks near Martin's and Tiger Islands will help protect this declining species. The salt marshes also provide important breeding habitat for the imperiled Worthington's marsh wren (*Cistothorus palustris griseus*) and Macgillivray's seaside sparrow (*Ammodramus maritimus macgillivraii*) (NeSmith and Jue 2003).

The salt marsh associated with Egan's Creek is laced with parallel ditches that intersect Egan's Creek. Egan's Creek itself is an artificial channel created by dredging. Along the landward margin of the marsh a major ditch follows the contour, picks up the flow from the interior of the island, and delivers it to the interconnected ditches that empty into the creek. Over the years, the species composition of the marsh has changed from a system primarily dominated by black rush (*Juncus roemerianus*) to one comprised almost exclusively of saltmarsh cordgrass (*Spartina alterniflora*). This situation may be the result of increased tidal inundation or some yet unknown factor. The salt marshes within the park are considered to be in good condition.

General Management Measures: Salt marsh requires little active management as long as it is protected from human intrusion and disturbance. Stormwater runoff from developed areas may impact estuaries and should be minimized.

Estuarine Unconsolidated Substrate

Desired Future Condition: Estuarine unconsolidated substrate will consist of expansive unvegetated, open areas of mineral based substrate composed of shell, coralgal, marl, mud, and/or sand (sand beaches). Desired conditions include preventing soil compaction, dredging activities, and disturbances such as the accumulation of pollutants.

Description and Assessment: Estuarine unconsolidated substrate occurs in the vicinity of Martin's and Tiger Islands. These areas are far enough upstream that salinity levels fall below the threshold for them to be classified as a marine community type. Most of the estuarine unconsolidated substrate within the park are mud substrates associated with tidal creeks that lie within a matrix of salt marsh. These mud deposits lie below the elevation that will support salt marsh vegetation. In general these areas are considered to be in good condition.

General Management Measures: Management of estuarine unconsolidated substrate includes protection from pollution or other sources of contamination, and avoidance of dredging of the tidal creeks.

Marine Unconsolidated Substrate

Desired Future Condition: Marine unconsolidated substrate will consist of expansive unvegetated, open areas of mineral based substrate composed of shell, coralgal, marl, mud, and/or sand (sand beaches). The presence of natural marine debris, or wrack, is considered desirable as it greatly enhances nutrient cycling and the food web. Desired conditions include preventing soil compaction, dredging activities, and disturbances such as the accumulation of pollutants.

Description and Assessment: This community occurs along the Cumberland Sound and Atlantic shorelines of the main portion of the park. It is a sparsely vegetated or unvegetated, relatively open area of subtidal, intertidal, and supratidal beach. The substrate is composed mainly of unconsolidated sand. The distribution of these sediments largely depends on the wind and water velocities that affect the beach shoreline. Salinity levels in the Cumberland Sound and along the Atlantic shoreline are typical of marine community types.

Unconsolidated substrate communities composed chiefly of sand are resilient and demonstrate a good ability to recover from recreational and renourishment disturbances. These areas have been renourished with beach quality sands numerous times since the St. Marys Inlet was first dredged to maintain shipping channels. With the gradual southerly migration of the inlet, there is a constant loss of sand from the shoreline along the Cumberland Sound. A series of rock groins and revetments have been built along that shoreline over the past century to protect Fort Clinch. The most recent manifestation is a series of T-shaped groins that were installed by retrofitting some existing linear groins. This has served to slow the loss of sand and establish a more stable shoreline adjacent to the Fort.

The marine unconsolidated substrates are important habitats for nesting shorebirds, including Wilson's plovers and least terns. These species rear their young within

these habitats, and Wilson's plover chicks actively forage between the water line and wrack line. Migratory and over-wintering shorebirds like the federally threatened piping plover and red knot also use these habitats for foraging. Marine turtles also nest in the supratidal areas of the high beach. Beach renourishment activities, including pipelines on the beach and direct placement of dredge spoil can have direct impacts on nesting female turtles, nests, and hatchlings.

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

Altered Landcover Types

Borrow Area

This altered landcover type at Fort Clinch includes a series of interconnected freshwater ponds collectively called Willow Pond, and a large water-filled borrow pit located further to the west. Dominant trees include Carolina willow (*Salix caroliniana*). Shrub dominants are elderberry (*Sambucus canadensis*) and buttonbush (*Cephalanthus occidentalis*). Duckweed (*Lemna* sp.) often covers these fresh water ponds. Cattail (*Typha latifolia*) and pickerel weed (*Pontederia cordata*) are present as well.

The origins of Willow Pond are unclear. The pond is located in an interdunal trough within a mature maritime hammock. It is known that in the 1930s members of the Civilian Conservation Corps (CCC) stationed at Fort Clinch dredged fill dirt from this area, creating a small oligotrophic lake. Sometime between 1943 and 1953 a large mosquito ditch was excavated from Egan's Creek north toward the fort. A second ditch was later excavated, connecting the first to the western end of Willow Pond. The effects of these ditches on the hydroperiod of Willow Pond are unknown. A large borrow pit, excavated west of Willow Pond sometime around 1960, was located just south of the second ditch. This borrow pit provided fill dirt for the reconstruction of the 14th Street Bridge across Egan's Creek. It may also affect water levels in Willow Pond.

The water levels of Willow Pond currently fluctuate according to the amount of local rainfall and the extent of pumping by local industrial mills. The main ponds appear to be fed by surficial groundwater, and the present depth of the largest pond is

unknown. All of the small ponds are in advanced stages of eutrophication, and water depths are generally shallow.

The long term desired future condition for these borrow areas is to let them remain as facsimiles of natural wetlands. Restoration to maritime hammock or another original condition would dramatically disturb the surrounding natural communities. As they stand now, 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.

Canal/Ditch

Over eight miles of mosquito ditches were dug in the state 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 and fill in, 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. Please see the desired future condition statement for those natural communities, above.

Developed

Developed areas consist of natural communities that have been replaced or nearly replaced by structures or permanently cleared areas. At Fort Clinch State Park these areas include roads, shop and residence areas, Fort Clinch, the park's visitor center and museum, ranger station, family and youth campgrounds, parking lots and the Nassau House. The developed areas within the park will be managed to minimize the effect of the developed areas on adjacent natural areas. Priority invasive plant species (FLEPPC Category I and II species) will be removed from all developed areas. Other management measures include proper stormwater management and development guidelines that are compatible with prescribed fire management in adjacent natural areas.

Spoil Area

Several areas with the park are mapped as spoil areas. Shoreline areas that have been renourished in the past with dredge spoil are classified as marine unconsolidated substrate, beach dune, and coastal grassland where appropriate, and not included as spoil areas.

A series of dikes or embankments surround the artificial ponds that make up Willow Pond and the borrow pit west of Willow Pond. The Willow Pond dikes were probably constructed by the CCC while removing fill dirt from the Willow Pond area, and currently serve as part of the Willow Pond Nature Trail. The long term desired

future condition for these spoil areas is to let them remain in place due to their close association with the adjacent freshwater wetlands.

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. These spoil areas within the maritime hammock will be left in place in most cases due to the maritime hammock vegetation that has recolonized them. Removal of spoil areas associated with mosquito ditches in coastal interdunal swales and coastal grasslands will be determined on a case-by-case basis depending on hydrological restoration priorities.

A large area of possible dredge spoil is located in Zone FCL-04 east of the old dune field. It consists of a long, narrow, fan-shaped deposition of sand and coquina that extends north from the proximity of the beach access road almost to Cumberland Sound. In early aerial photographs (1943), the area appears as a clearly defined, long triangle terminating in a narrow apex at the southern end, with little or no vegetative cover. Sequential aerials show relatively little colonization by vegetation over the past 50 years. The deposit is topographically higher than the surrounding areas and appears from the soil survey to be of a different soil type (Newhan-Corolla).

The origins of this deposit are unclear, but it appears to have been greatly disturbed at some point before 1943. This section of the island accreted about the time the St. Marys Inlet jetties were constructed in the late 1800s. Early records from the dredging of the St. Marys Inlet do not record any upland spoiling of dredged material in this vicinity (Raichle et al 1997). Further research is needed to determine the origins of this deposit and to outline management actions that may be warranted.

Utility Corridor

Approximately two miles of electrical power line right-of-ways are mapped as utility corridor within the park. These pass mainly through maritime hammock where they create a break in the canopy. Such breaks not only allow salt spray effects to penetrate the maritime hammock canopy, but can also serve as access routes for invasive species. Brown cowbirds may use power lines and other corridors to access hardwood hammocks and parasitize the nests of native songbirds. Exotic plants, including lantana (*Lantana camara*) may also thrive in disturbed areas like power line easements. To the extent possible, the impacts of tree trimming and mowing should be minimized within the park. In certain areas it may be beneficial to investigate using underground power lines as an alternative to maintaining an open canopy over existing utility corridors. The long term desired future condition for the utility corridors is to restore the altered landcover type to the original natural community types which include maritime hammock, coastal strand, and coastal grassland. Please see the desired future condition statement for those natural communities, above.

Imperiled Species

Imperiled species are those that are (1) tracked by FNAI as critically imperiled (G1, S1) or imperiled (G2, S2); or (2) listed by the U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FWC) or the Florida Department of Agriculture and Consumer Services (FDACS) as endangered, threatened or of special concern.

Several of the imperiled plant species at Fort Clinch State Park are orchids, and occur in the maritime hammock. Other than protection from disturbance near visitor access points and along service roads, they require relatively little direct management.

Lechea divaricata, spreading pinweed, a state endangered species, was collected from Fort Clinch State Park in 1943. It is not known if this population still exists in the park, or if the determination was correct since there are no known herbarium records for this species from Nassau or adjacent counties. District and park staff should conduct a Tier 1 survey for the presence of this species.

A population of the state threatened shell-mound prickly pear, *Opuntia stricta*, occurs in the park. Recently the invasive exotic pest of the cactus, *Cactoblastis cactorum*, was also found in the park. Because of the arrival of this pest the park should monitor its populations of *Opuntia stricta* for *Cactoblastis cactorum* and remove the egg sticks of this exotic moth as needed.

Many of the imperiled animal species found at the park are transients that do not actually breed on site. Significant numbers of imperiled wading and shorebird species use the marshes and beaches of the park as resting and feeding habitat during migration and over winter. The federally threatened piping plover may be found over wintering on the shorelines of park, including the beaches of Tiger Island. The *rufa* subspecies of the red knot was recently listed as federally threatened due to the precipitous decline in this population of red knots along the eastern seaboard. This subspecies over winters in southern South America and passes through Fort Clinch State Park during the spring and fall migration periods. Shorebird species, in particular, tend to be vulnerable to human disturbance since they may compete with park visitors for access to the shoreline and beach areas. These species would benefit from an active environmental education program aimed at educating park visitors about the impacts of human disturbance on wildlife. The broad beach area immediately south of the jetty is a very important resting and roosting area for shorebirds. Repeated disturbances by park visitors walking along the shoreline may be detrimental to imperiled species such as the black skimmer and least, Caspian, gull-billed, and sandwich terns. H. Smith (pers. comm.) suggests that tangential approaches to roosting/resting shorebirds may be less disturbing than direct approaches. Park and district staffs will investigate methods of educating beach users, and the park will work to route visitors away from resting shorebirds to minimize disturbances whenever possible. Those shorebird species that breed within the park, the Wilson's plover and least tern, are systematically monitored during the breeding season. Known nest sites are posted

and park visitors are excluded from these areas to protect the nesting birds in accordance with Division policies. Conflicts with beach users can arise since shorebird young are precocious and may leave the posted nest sites.

Staff will follow the guidelines and recommendations provided in the Division's Resource Management Standard, *Shorebird and Seabird Management*, for the protection and management of least terns and other imperiled shorebird and wading bird species. Staff will adopt setback distances for protection of colonial breeding birds as recommended in *Shorebird and Seabird Management* and in Rogers and Smith (1995).

Although the vast majority of the marine turtles nesting in the park are loggerhead sea turtles, both the green and leatherback sea turtles have also been recorded nesting in the park. Fort Clinch State Park participates in Florida's Marine Turtle Index Nesting Beach Survey. From May 1 through August 31, the park provides daily logs of the nesting activity of marine turtles to the FWC's Fish and Wildlife Research Institute. The park also provides an annual nesting summary to the FWC for the Statewide Nesting Beach Survey through the Division of Recreation and Parks' marine turtle program coordinator. The FWC's Imperiled Species Management Section issues permits for all marine turtle activities conducted at the park. Activities permitted at Fort Clinch State Park include nesting surveys, stranding and salvage activities, nest relocations, nest screening with self-releasing cages, and the maintenance and display of preserved specimens. Staff generally avoids relocation of nests unless there is no other alternative. Protective caging of nests is only used when necessary. In most cases, nest disturbance by staff is kept to the minimum necessary. The FWC Marine Turtle Conservation Handbook (FWC 2016) directs all marine turtle activities at the park.

Diamondback terrapins occur in the marshes and tidal creeks of Egan's Creek and near Martin's and the Tiger Islands. This species is declining, and is considered a species of greatest conservation need by FWC. Population studies of this species in the park will be encouraged in cooperation with FWC and other partners.

Park management currently prohibits domestic dogs and cats on the park's beaches and dunes in order to protect nesting and resting shorebirds and marine turtles. Dogs are perhaps the most destructive and disturbing influence on ground-nesting shorebirds. Dogs also prey upon marine turtle eggs and hatchlings. The threat of domestic pets roaming the beach is most severe at night. Although park regulations prohibit pets on the Fort Clinch beaches at all hours, this is particularly hard to enforce or document at night when campers may walk their pets without the likelihood of encountering uniformed personnel. Most of the egg laying and hatching of marine turtles occurs at night. Shorebirds are also vulnerable at night when tending nests. Park staff will continue to monitor beaches for unauthorized incursions by pets, and will document any impacts observed on wildlife species.

Occasionally special events may be held at the fort, sometimes after normal park operating hours. These events must be reviewed to ensure that they do not impact imperiled species on the beaches adjacent to the fort. This is particularly critical

during the shorebird and marine turtle nesting seasons when loud noises or lighting may disturb nesting species.

Worthington's marsh wren (*Cistothorus palustris griseus*), a FWC Species of Special Concern, breeds in the salt marshes of Martin's and Tiger Islands. FNAI staff have conducted surveys and documented Worthington's marsh wren and Macgillivray's seaside sparrow (*Ammodramus maritimus macgillivraii*) within the park's salt marshes (NeSmith and Jue 2003). FWC (Schwarzer 2013) proposed further surveys of Worthington's marsh wren in the region and conducted surveys in 2014-15 (Schwarzer and Cox 2015).

The painted bunting (*Passerina ciris*), a species that nests at Fort Clinch State Park, has been declining in the southeastern United States over the past several decades according to Breeding Bird Survey data (Sauer et al. 2012; Delany et al 2013). Scientists now consider the eastern population of painted bunting at risk due to a number of factors, including loss of optimum breeding habitat and fragmentation of habitat in general (Sykes and Holzman 2005). The United States Geological Survey determined annual survival rates of the painted bunting at various locations in the southeastern Atlantic Coastal states, including Fort Clinch State Park (Sykes 2004). FWC conducted surveys of singing males at the park between 2008 and 2010 to estimate population densities. Their study confirmed that populations have declined (Delany et al 2013). FWC will be continuing population studies of painted buntings in northeast Florida, including Fort Clinch State Park. The park likely plays 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.

The waters offshore of Amelia Island serve as a winter calving ground for the endangered northern right whale from December 1 through March 31. The south Georgia-north Florida region has been designated as Critical Habitat for the northern right whale by the National Marine Fisheries Service. The boundaries of the area extend from the shoreline to 15 miles offshore (Raichle et al 1997). The West Indian manatee occurs in the Amelia River and associated tidal creeks, while the Florida black bear is a transient species that has rarely passed through the park enroute to less inhabited areas.

Table 2 contains a list of all known imperiled species within the park and identifies their status as defined by various entities. It also identifies the types of management actions that are currently being taken by DRP staff or others, and identifies the current level of monitoring effort. The codes used under the column headings for management actions and monitoring level are defined following the table. Explanations for federal and state status as well as FNAI global and state rank are provided in Addendum 6.

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
PLANTS						
Spiked crested coralroot *Hexalectris spicata*			LE		9,10	Tier 1
Spreading pinweed *Lechea divaricata*			LE	G2,S2	9,10	Tier 2
Shell-mound pricklypear *Opuntia stricta*			LT		8,9	Tier 2
White fringed orchid *Plantanthera blephariglottis*			LT		9,10	Tier 1
Yellow fringed orchid *Platanthera ciliaris*			LT		9,10	Tier 1
Moundlily yucca *Yucca gloriosa*			LE		9	Tier 1
REPTILES						
American alligator *Alligator mississippiensis*	FT(S/A)	FT(S/A)		G5,S4	4,13	Tier 1
Loggerhead sea turtle *Caretta caretta*	FT	LT		G3,S3	2,8,10,13	Tier 3
Green sea turtle *Chelonia mydas*	FE	LE		G3,S2	2,8,10,13	Tier 3

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Leatherback sea turtle *Dermochelys coriacea*	FE	LE		G2,S2	2,8,10,13	Tier 3
Gopher tortoise *Gopherus polyphemus*	ST			G3,S3	8,10,12, 13	Tier 1
BIRDS						
Macgillivray's Seaside Sparrow *Ammodramus maritimus macgillivraii*				G4T2, S2	4	Tier 3
Rufa Red Knot *Calidris canutus rufa*	FT	LT		G4T2,S2N	4,8,9,10, 13	Tier 3
Piping Plover *Charadrius melodus*	FT	LT		G3,S2	4,8,9,10, 13	Tier 3
Wilson's Plover *Charadrius wilsonia*				G5,S2	4,8,9,10, 13	Tier 3
Worthington's Marsh Wren *Cistothorus palustris griseus*	ST			G5T3, S2	4	Tier 3
Little blue heron *Egretta caerulea*	ST			G5,S4	4	Tier 2
Reddish egret *Egretta rufescens*	ST			G4,S2	4	Tier 2

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Tricolor heron *Egretta tricolor*	ST			G5,S4	4	Tier 2
Merlin *Falco columbarius*				G5,S2		Tier 2
Peregrine falcon *Falco peregrinus*				G4,S2		Tier 2
Magnificent frigatebird *Fregata magnificens*				G5,S1		Tier 2
Gull-billed Tern *Gelochelidon nilotica*				G5,S2	10,13	Tier 2
American oystercatcher *Haematopus palliatus*	ST			G5,S2	10,13	Tier 2
Caspian tern *Hydroprogne caspia*				G5,S2	10,13	Tier 2
Wood stork *Mycteria americana*	FT	LT		G4,S2	4	Tier 2
Roseate Spoonbill *Platalea ajaja*	ST			G5,S2	4	Tier 2
Black skimmer *Rynchops niger*	ST			G5,S3	10,13	Tier 2
Least tern *Sternula antillarum*	ST			G4,S3	4,8,9,10, 11,13	Tier 3

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Sandwich tern *Thalasseus sandvicensis*				G5,S2	10,13	Tier 2
MAMMALS						
West Indian manatee *Trichechus manatus*	FE	LE		G2,S2	13	Tier 1
Florida black bear *Ursus americanus floridanus*				G5T2, S2	13	Tier 1

Management Actions:

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

Monitoring Level:

Tier 1. Non-Targeted Observation/Documentation: includes documentation of species presence through casual/passive observation during routine park activities (i.e. not conducting species-specific searches). Documentation may be in the form of Wildlife Observation Forms, or other district specific methods used to communicate observations.

Tier 2. Targeted Presence/Absence: includes monitoring methods/activities that are specifically intended to document presence/absence of a particular species or suite of species.

Tier 3. Population Estimate/Index: an approximation of the true population size or population index based on a widely accepted method of sampling.

Tier 4. Population Census: A complete count of an entire population with demographic analysis, including mortality, reproduction, emigration, and immigration.

Detailed management goals, objectives and actions for imperiled species in this park are discussed in the Resource Management Program section of this component and the Implementation Component of this plan.

Exotic and Nuisance Species

Exotic species are plants or animals not native to Florida. Invasive exotic species are able to out-compete, displace or destroy native species and their habitats, often because they have been released from the natural controls of their native range, such as diseases, predatory insects, etc. If left unchecked, invasive exotic plants and animals alter the character, productivity and conservation values of the natural areas they invade.

While Fort Clinch does have some invasive exotic plant species present it is fortunate that their populations are not extensive at this time. The park will work to keep those areas free of exotic plants free of them in the future and also reduce or eliminate current infestations. To achieve this, the park will need to be vigilant in their surveys in order to find and remove infestations before they expand.

In the past 10 years the park staff has treated 147 acres of invasive exotic plants. Some species have been detected and removed from the park by the quick action of staff. Beach vitex (*Vitex rotundifolia*) was found in the park in 2011 and immediately removed. This species is a serious pest further north along the US coastline, and the infestation at Fort Clinch was documented as one of the first in the state. This type of early detection and rapid response (EDDR) approach by the park will be continued so that the park is protected from new, aggressive, invasive exotics. The park monitors the coastal areas for new infestations of beach vitex. As of 2013, additional beach vitex plants have been found and treated in the vicinity of the original infestation. Brazilian pepper (*Schinus terebintihfolia*) was initially found at the park and quickly removed. Unfortunately this species still grows on neighboring properties and ongoing removal is necessary.
The park currently has scattered populations of Sprenger's asparagus fern (*Asparagus aethiopicus*) which is bird dispersed. This is a species that is increasingly appearing in coastal areas and should be removed as thoroughly as possible. It is often difficult to treat and may need a combination of hand removal and herbicide. Silverthorn (*Elaeagnus pungens*) is another species that is increasingly showing up in natural areas. It can form dense thorny thickets and ladder fuels and should be removed as soon as possible.

Lantana (*Lantana camara*) is also found in the park. The native state endangered pineland lantana, *Lantana depressa* var. *floridana*, has been found previously at Little Talbot Island State Park in Duval County, and could potentially occur at Fort Clinch. Park staff should familiarize themselves with the difference between these two similar species. *Lantana depressa* var. *floridana* has solid yellow or orange flowers, while *Lantana camara* has orange and yellow, or purple and yellow, multicolored flowers. Staff treating *Lantana camara* should be aware of the differences between the two species and should not remove any lantana plants that are not flowering.

Park exotic occurrence data, treatments and surveys are recorded in the statewide invasive exotic plant database. All new invasive exotic species will continue to be recorded as soon as they are found. All areas of the park are examined periodically for invasive exotic species.

The park will practice preventative measures to avoid unintended introductions of exotic plants. Equipment entering the park is inspected for plant material and soil and cleaned if necessary. Any fill, lime rock or landscaping material brought into the park should be clean, and the source should be inspected.

Many of the parks' invasive exotic plant problems arise from invasive exotic plants on neighboring properties. Park outreach efforts target invasive exotic plants to encourage neighbors to assist in the removal of these species.

Table 3 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive, exotic plant species found within the park (FLEPPC 2013). The table also identifies relative distribution for each species and the management zones in which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species

Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
PLANTS			
Sprenger's asparagus-fern *Asparagus aethiopicus*	I	1	FCL-03
		2	FCL-06
		3	FCL-06
Lantana *Lantana camara*	I	1	FCL-02B, FCL-07
		2	FCL-02B, FCL-02A
		4	FCL-08
Tuberous sword fern *Nephrolepis cordifolia*	I	2	FCL-02A
		3	FCL-02A
		4	FCL-02A
Torpedo grass *Panicum repens*	I	2	FCL-06
Brazilian pepper *Schinus terebinthifolius*	I	1	FCL-06
Durban crowfootgrass *Dactyloctenium aegyptium*	II	1	FCL-02B

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	**FLEPPC Category**	**Distribution**	**Management Zone (s)**
		2	FCL-02B
Silverthorn *Elaeagnus pungens*	II	2	FCL-10
Chinaberrytree *Melia azedarach*	II	1	FCL-04
		2	FCL-02A , FCL-06, FCL-10

Distribution Categories:

0 No current infestation: All known sites have been treated and no plants are currently evident.
1 Single plant or clump: One individual plant or one small clump of a single species.
2 Scattered plants or clumps: Multiple individual plants or small clumps of a single species scattered within the gross area infested.
3 Scattered dense patches: Dense patches of a single species scattered within the gross area infested.
4 Dominant cover: Multiple plants or clumps of a single species that occupy a majority of the gross area infested.
5 Dense monoculture: Generally, a dense stand of a single dominant species that not only occupies more than a majority of the gross area infested, but also covers/excludes other plants.
6 Linearly scattered: Plants or clumps of a single species generally scattered along a linear feature, such as a road, trail, property line, ditch, ridge, slough, etc. within the gross area infested.

Exotic animal species include non-native wildlife species, free ranging domesticated pets or livestock, and feral animals. Because of the negative impacts to natural systems attributed to exotic animals, the DRP actively removes exotic animals from state parks, with priority being given to those species causing the greatest ecological damage.

In some cases, native wildlife may also pose management problems or nuisances within state parks. A nuisance animal is an individual native animal whose presence or activities create special management problems. Examples of animal species from which nuisance cases may arise include venomous snakes or raccoons and alligators that are in public areas. Nuisance animals are dealt with on a case-by-case basis in accordance with the DRP's Nuisance and Exotic Animal Removal Standard.

Over the previous 10 years feral hogs, feral dogs, feral cats, armadillos and raccoons have been removed. Feral hogs are present on Martin's Island and in the main park area in relatively low numbers. Feral cats are of particular concern since they may carry and transmit diseases to native wildlife, including bobcat and mink. Raccoons need to be regularly controlled in the park. The park follows Division Policy when removing raccoons. Coyotes are also known to occur within the park. Coyotes are typically only removed from parks if they are impacting imperiled species, specifically marine turtle or shorebird nests. The population of white-tailed deer has increased significantly in the park over the past few decades. Over browsing of beach dune and coastal grassland vegetation has led to destabilization of dunes and loss of vegetation. The expansion of coyotes in the park may help

reduce the deer population or at least discourage deer from using the open habitats that coyotes prefer. If deer continue to damage sensitive vegetation, staff will consult with FWC to determine an appropriate course of action.

In 2002 the red bay ambrosia beetle, *Xyleborus glabratus,* was first detected in the United States in Georgia. The beetle carries a fungal pathogen (*Raffaelea lauricola*) that causes laurel wilt disease and results in the death of red bays (*Persea borbonia)* and other species in the Lauraceae family. The beetle and its associated pathogen spread rapidly and in 2005 it was detected in Duval County, Florida (Mayfield and Thomas 2009). Since that time many of the adult red bays at Fort Clinch have died. The beetle and laurel wilt have now spread throughout most of Florida and many of the surrounding states. At Fort Clinch while most of the adult red bays have been top killed, the trees continue to resprout from their roots. It may be that members of the Lauraceae will continue to survive as in a shrub form as the remnant tree root systems continue to resprout. The long term impacts of this disease on members of the Lauraceae have many unknowns at this point.

Cactoblastis cactorum, an exotic cactus moth, arrived in the Florida Keys in 1989. It is a threat to native cactus species and has been spreading north particularly along the coasts. By 2000 it had reached the northeast coast of Florida and Fort Clinch. This is of particular concern because the state threatened shell-mound pricklypear, *Opuntia stricta*, occurs in the park. The park should continue to monitor the impact of the exotic moth on the shell-mound pricklypear.

Detailed management goals, objectives and actions for management of invasive exotic plants and exotic and nuisance animals are discussed in the Resource Management Program section of this component.

Special Natural Features

The maritime hammock at Fort Clinch State Park is an outstanding example of a natural community that was once widespread on Amelia Island and along the Atlantic Coast of Florida. The maritime hammock covers ancient stabilized dunes that were left far behind as the northeast corner of Amelia Island rapidly accreted sand. These high rolling sand ridges run parallel to the park drive from the park entrance north to the St. Marys Inlet and the Fort. The well-developed oak canopy shelters the park drive and provides critical habitat for a variety of resident and migratory songbirds, and other wildlife.

Cultural Resources

This section addresses the cultural resources present in the park that may include archaeological sites, historic buildings and structures, cultural landscapes and collections. The Florida Department of State (FDOS) maintains the master inventory of such resources through the Florida Master Site File (FMSF). State law requires that all state agencies locate, inventory and evaluate cultural resources that appear to be eligible for listing in the National Register of Historic Places. Addendum 7 contains the FDOS, Division of Historical Resources (DHR) management procedures

for archaeological and historical sites and properties on state-owned or controlled properties; the criteria used for evaluating eligibility for listing in the National Register of Historic Places, and the Secretary of Interior's definitions for the various preservation treatments (restoration, rehabilitation, stabilization and preservation). For the purposes of this plan, significant archaeological site, significant structure and significant landscape means those cultural resources listed or eligible for listing in the National Register of Historic Places. The terms archaeological site, historic structure or historic landscape refer to all resources that will become 50 years old during the term of this plan.

Condition Assessment

Evaluating the condition of cultural resources is accomplished using a three-part evaluation scale, expressed as good, fair and poor. These terms describe the present condition, rather than comparing what exists to the ideal condition. Good describes a condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. Fair describes a condition in which there is a discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A fair assessment is usually a cause for concern. Poor describes an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.

Level of Significance

Applying the criteria for listing in the National Register of Historic Places involves the use of contexts as well as an evaluation of integrity of the site. A cultural resource's significance derives from its historical, architectural, ethnographic or archaeological context. Evaluation of cultural resources will result in a designation of NRL (National Register or National Landmark Listed or located in an NR district), NR (National Register eligible), NE (not evaluated) or NS (not significant) as indicated in the table at the end of this section.

There are no criteria for determining the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered highly significant. In the same way, a high quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium collected from a specific park over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park's history, including construction and resource management efforts, would all be significant.

The following is a summary of the FMSF inventory. In addition, this inventory contains the evaluation of significance.

Prehistoric and Historic Archaeological Sites

Desired Future Condition: All significant archaeological sites within the park that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: A Predictive Model for the park was completed in 2012 (Collins et al 2012). There are seven archaeological sites within the park. One archaeological site (NA 47) was remapped and its location no longer occurs within the park boundary. Sites NA 16 and NA 48 are both prehistoric. The first, NA 16, is the Quarantine Station Site. Its exact location is unknown. NA 48 is an unnamed shell heap or mound. Bullen and Griffin (1952, 1984) identified and recorded these during their surveys of Amelia Island in the mid-1950s. Martin's Island NA 703 is a multi-component site that is historic and pre-historic (Hendryx and Smith, 2000). The historic period at the site spans from 1783 through the territorial settlement years and into the 20th Century.

The remaining recorded archaeological sites are products of United States government military or civilian activities. Three sites (NA 52, NA 53 and NA 80A) date to the Civil War period of the fort. The Encampment Site, NA 52, is probably a component of a Civil War era army camp. China, other ceramics, and glass objects of the period were recovered. The file for NA 53, Fort Clinch Beach is vague. Its map reference appears to include only the beach between the fort and the river, an area that, for the most part no longer exists. This may be the site of a Civil War execution. Due to beach erosion this component of the site may no longer exist. It may also refer to the series of brick masonry structures located on the beach west of the fort. The structures, including a well enclosure and several low retaining walls, have been covered by recent depositions of sand by the Army Corps of Engineers. A brick masonry ruin, sometimes called the "Sergeant's House", is nearby but higher in the dunes. Fort Clinch NA 80A is associated with the fort and contains pre-historic and Civil War components. The site was described during the fort's barracks drainage improvement project (Johnson and Lewis, 2004).

The Quarantine Point Ballast Dump, NA 57, marks a place where ships of the late 19th century removed ballast to better distribute cargo. It is an important site whose existence testifies to the vigorous commerce of Fernandina over an undefined time.

Willow Pond it is not a natural pond and its complete history is unknown. It is not recorded as an archaeological site. Further information is needed about the pond's development and activities during the CCC period.

Condition Assessment: The locations of several archaeological sites within the park are unknown and as such their conditions are unknown. Park staff and archaeologists preparing the Predictive Model for the park have looked unsuccessfully for Quarantine Station (NA00016), N-3 of Bullen & Griffin 1952 (NA00048), Amelia Island Civil War Encampment (NA00052) and Fort Clinch Beach (NA00053). The Fort Clinch Beach site may no longer exist since so much of the

beach has eroded away.

The location of Quarantine Point (NA00057) is known and the condition is good although there are ongoing threats to the site. The river and tides are eroding the site and illegal camping and vandalism also impact the site. Campers sometimes move rocks associated with the site to make fire rings.

Martin's Island (NA00703) site is in good condition. An ongoing threat is the presence of feral hogs which could damage the site by rooting. Park staff should monitor damage caused by feral hog activity. If the site is threatened it may be necessary to remove feral hogs.

Fort Clinch NA00080A is associated with the fort and is in good condition. The park should limit ground disturbance within and around the fort.

General Management Measures: Park staff should photo document changes in condition of Quarantine Point (NA00057). Law enforcement should continue to regularly patrol the area to prevent illegal camping and vandalism.

Park staff should periodically monitor damage caused by feral hog activity. If Martin's Island (NA00703) is threatened by rooting it may be necessary to remove feral hogs.

To protect the good condition of Fort Clinch NA00080A the park should limit ground disturbance within and around the fort.

Historic Structures

Desired Future Condition: All significant historic structures and landscapes that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: There are 12 historic structures and one resource group in Fort Clinch State Park recorded with the FMSF.

The park owes its name and prominence to its best-known cultural resource, Fort Clinch. The fort was a tertiary component of the Third, or Totten, System of Defense. Its purpose was to defend the entrance to Cumberland Sound (Nolan 1974; Shepard 1965). Construction work began in 1847 (Shepard 1965). It proceeded slowly and in spurts until federal reoccupation of the fort and surrounding reservation in 1862. Most of the construction visible today occurred between 1862 and 1867, although "modern" elements were added during the Spanish American War of 1898 (Shepard 1965; Herndon et al 1995). The fort remains unfinished. When designed, Fort Clinch was a good example of the defensive advances of the early 19th century. Its brick masonry construction and protective embrasures for cannons and their crews were state-of-the-art until about 1862. In that year, the ease with which the new, and plentiful, rifled cannons could breach masonry forts made Fort Clinch instantly obsolete.

Fort Clinch is a classic public work of the pre-Civil War United States. The construction project brought together men and materials from all over the country in building a fort to defend the burgeoning commerce of the nation. It was the largest structure on Amelia Island, although it is not an especially large fortification. Fort Zachary Taylor, located in Key West, is a larger, more complex structure, although its mass was significantly reduced during the late 19th century. Still, Fort Clinch is an impressive and historically significant edifice.

The fort has many structural components within its footprint, some of which have been assigned Florida Park Service building numbers. The structures were built at the same time as the fort, as part of the fort and of the same material as the fort. They are all recorded as part of the original FMSF NA 80 and National Register of Historic Places nomination. Two of these structures were recorded separately in 1989 (NA 718, NA 719) but will be linked in the FMSF database to indicate that they are part of NA 80.

Fort Clinch is recorded in the Florida Master Site File as NA 80. The National Register of Historic Places listed it on February 23, 1972. A Restoration Master Plan for Historic Fort Clinch (Herndon et al 1995) was developed for the park.

The early development of Fort Clinch State Park was a project of the Civilian Conservation Corps (CCC). The original 1930s area of the park itself, as reflected in the formal park plan, is a resource significant to development of public recreational facilities in Florida and the southeastern United States. The plan and its surviving components were among the resources examined in the Survey of New Deal Era Resources in Florida State Parks (Historic Property Associates, Inc. 1989), hereinafter referred to as the Survey of New Deal Resources. That grant-supported project identified elements of nine state parks planned or constructed by “alphabet agencies” like the CCC, WPA, and NYA. Identified components were recorded. Among these components are: the camping area latrine (NA00721, building 4); the combination building (NA00720, building 1), presently designated the Interpretive Center; and a shop area storage building, actually a vehicle shelter (NA00722, building 15), constructed as a picnic shelter but subsequently moved to its present location.

Civilian Conservation Corps activities within Fort Clinch are the basis of all subsequent restorations. The CCC performed considerable work within and near the fort. The Survey of New Deal Era Resources concentrated on “new” construction and did not communicate the extent of repair or restoration work. For example, the survey confirmed restoration or adaptive alteration of the Quartermaster Building (NA00718, building 5) and the Soldiers’ Barracks (NA00719, building 6), but did not identify either as a park component constructed by the CCC. Of course, neither building represents original CCC construction. For better or for worse, the work of those young men became an inherent part of the “sweat equity” in the fort. Fortunately, subsequent architectural and historical studies by Shepard (1965), Nolan (1974), and Herndon et al (1995) have recognized the CCC contribution to preserving the past.

One additional resource significant to the history of public works and aids to navigation is known. This is the Rear Range Beacon Oil Storage House complex (NA00983), a late-19th century brick-masonry structure. The site includes foundations for a fixed beacon structure and for storage tanks to supply illuminating oil to it and to a movable beacon on the beach. The structure, which is designated park building 18, is mislabeled “abandoned lighthouse” on some park maps.

Additional historic structures were constructed during the early park service development period during the 1950’s and 1960’s. All of these structures were and still are utilitarian park buildings including a Residence-Ranger (NA01283), Shop/Office (NA01284), Shop/Equip Shed (NA01285), Storage (NA01286) and Bathhouse, River Camp (NA01287).

The resource group, Fort Clinch Entrance Drive (NA01282), was constructed by the Civilian Conservation Corps during the time they worked at Fort Clinch. This is now the main park drive.

No Historic Structure Report has been done for any of the CCC buildings.

Condition Assessment: Fort Clinch has a multi-component nature and as a collective or single structure is in fair condition. Individual elements within the fort are in conditions ranging from good to poor. Beach erosion that began during the late 19th Century potentially threatens the fort itself. The condition of Fort Clinch (NA80) and all of its component parts including the Quartermaster Building (NA00718) and the Soldiers’ Barracks (NA00719) is a primary concern of the park. Because of the multi-component nature of the fort and the ongoing need for maintenance and repair, effective management depends on judicious application of expertise and funds. Therefore, establishing and ongoing documentation of the conditions of the resources is the first step in allocating them.

Beach erosion along the northern edge of the fort could significantly damage the fort if not addressed. A series of unfortunate events that accelerated loss of the fort beach began in the late 19th century with construction of jetties to improve the inlet into Cumberland Sound. This disrupted the north to south sand flow along the barrier islands. Amelia Island was starved for waterborne sand while contributing sand to the southward flow beyond the navigation jetties. Subtraction of sand is evident along the Atlantic side of the island, but starvation is even more terribly evident in front of Fort Clinch. Prior to the construction of the jetties a beach some 100 yards wide once sloped from the fort to Cumberland Sound. Now what little beach remains is dependent on T-groins constructed in 2000 and the periodic deposition of dredge sand where the beach had been by the Army Corps of Engineers.

Beach re-nourishment and dredging of the sound occurs on an annual basis with the Fort Clinch groins usually receiving sand every other year. Re-nourishment is critical to protecting the fort from erosion. Protecting the re-nourished sand from erosion between replenishment events will benefit the condition of the fort. Beach plantings could aid the stabilization of the beach and the fort.

Iron used in the fort construction has a significant impact on the condition of the fort depending on its location in the structure. It was used in the gun ports, drawbridge and gun platforms. Only the iron contained within the structure of the fort gun ports is corroding and expanding to the point of gun port closure. Iron in other parts of the fort can be maintained. Iron expansion in the gun ports will eventually lead to structural failure. Several years ago the iron was removed from the NW bastion's gun ports and the masonry was tucked and pointed to repair it. The remaining bastions still contain iron which is expanding.

The park is actively restoring the fort ramparts by removing trees and vegetation. They also plan to remove trees and vegetation that are encroaching on the fort walls.

The Rear Range Beacon Oil Storage House (NA00983) is a ruin and its condition is poor. The park does not have enough information about the original structure at this time to restore it as there is only one known historic photograph. The structure should be stabilized. The masonry will need to be tucked and pointed to stabilize it. If additional documentation of the structure is found restoration could be considered at that time.

The Bathhouse, River Camp BL027023 (NA01287) is in no longer in use. While the building is structurally sound a new bathhouse has been constructed in the campground. The structure should be documented and demolished. Tents sites are planned in the vacated footprint.

The Latrine (NA00721) is in fair condition. The building was added on to and there are structural cracks adjacent to the addition.

The Residence-Ranger BL027013 (NA01283) is a block building in fair condition. It needs to be rewired. The other historic structures in the park (Shop/Office BL027014 NA01284, Shop/Equip Shed BL027002 NA01285, Maintenance Shed NA00722 and Storage BL027017 NA01286) are in good condition. The Combination Building (NA00720) is in good condition but has been modified since its construction during the New Deal era.

The CCC era park entrance drive (NA1282) is a linear resource in fair condition. The primary concerns are to maintain the closed canopy structure over the road, to stabilize the road edge and to repave the road. The tree canopy is dying in the section near Egan's Creek apparently from saltwater intrusion. Large recreational vehicles are damaging the road surface. It is necessary to trim the canopy to accommodate them, but trimming should not open the canopy to salt spray.

General Management Measures: Any restoration and maintenance of the fort should follow the direction of the Restoration Master Plan for Historic Fort Clinch (Herndon et al 1995). Any special events held within the fort must be reviewed for potential impacts to cultural resources.

The park employs a full time mason to tuck and point the brickwork and maintain

the structural integrity of the fort. Maintenance of metal surfaces in the fort is ongoing. Management measures vary depending on the location of the metal. Iron still needs to be removed and masonry repaired in all the fort's gun ports except the NW bastion. In other areas exterior metalwork can be maintained by sandblasting and painting.

The rampart slopes of the fort need to be stabilized with geoweb and sod. This will protect the ramparts and the kitchen which is underneath.

To maximize the protection of the fort from erosion provided by the beach re-nourishment, the park should consider measures including additional plantings to aid the stabilization of the re-nourished sand beach and the fort.

The addition to the Latrine (NA00721) should be removed so that only the CCC structure remains. The structural cracks adjacent to the addition should be addressed at this time.

The Combination Building (NA00720) should be restored to the CCC structural style in which it was built.

While maintaining the CCC era park entrance drive (NA1282) it is important to protect the closed nature of the tree canopy. If any canopy trimming is needed it should be done with great care. If the canopy is opened too much by trimming salt spray may enter and damage or kill the canopy.

A Historic Structure Report is needed for the CCC structures.

Collections

Desired Future Condition: All historic, natural history and archaeological objects within the park that represent Florida's cultural periods, significant historic events or persons, or natural history specimens are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: The Park maintains collections of objects and artifacts. Most of the collections relate directly or implicitly to the fort structure, to activities that took place there, or to the lives of persons who lived or worked at the fort. Some collection items make portions of the historic structure appear to be in use or aid rangers and volunteers in interpreting the history of the site.

The collections include several cannons: a mounted Rodman 10 Inch Shell Gun model 1861 at the park entrance, an 1863 three-inch ordinance rifle donated by general Duncan Lamonte Clinch's great-great grandson on display in the museum, and a model 1898 Gatlin gun manufactured by Colt Firearms company. Several original 24-lb howitzer cannon mounts are kept in the bakery pantry at the fort site as well. Cannon shot, shells, canister shot, grapeshot as well as implements used in traversing and moving cannons are located within the Fort Ammunition magazine. The Park maintains an 1849 Colt pocket pistol in it original wooden case and an 1860 Spencer Carbine rifle. Other personal items include a traveling Civil War desk,

and a Doctors Amputation Kit. The book collection is stored in the visitors' center in climate controlled conditions.

Iron artifacts recovered during the restoration of the fort, including bullets, buttons, working tools, and a wide variety of hardware from the fort are on display in the historic museum building NA00720. Other items pertaining to the fort include a collection of family Civil War documents, letters, and discharge papers for 1st Sergeant George D. Hughes who was stationed at Fort Clinch from 1862 through 1865. His great-great grandson Bill Bulger donated the collection to the park. The documents are being digitized.

The park also maintains a list of collection items that are on loan. Objects of significance include a painting of General Duncan Lamonte Clinch, General Clinch's camp chair, and military shackles for wartime prisoners.

The remaining collection objects are natural history interpretive specimens.

The park has an inventory of its collection and a scope of collections statement.

Condition Assessment: Overall the condition of the collection is fair although certain components are in good condition. The majority of the collection is contained within the museum (NA00720) in climate controlled conditions.

Considering their age the Bulger collection of letters, documents and personal items are in good condition.

The Gatlin gun is in good condition due to recent restoration that included rust removal and repainting.

The 1861 10-inch Rodman Shell gun is in fair condition and the 1863 three inch ordinance rifle is in good condition. The 24-lb Howitzer Cannon mounts are in fair condition.

The small collection of metal objects, nails, bolts and miscellaneous hardware are in fair to poor condition due to their exposure to the salt environment.

Level of Significance: The collection pieces directly associated with the fort are very significant. These include an 1863 ordinance rifle, a camp chair and personal items belonging to General Clinch; tools, bullets and hardware discovered during restoration of the fort and documents belonging to Sergeant Hughes who was stationed at the fort. These items original to the fort and period are artifacts that directly represent a snapshot of life at the fort during its use.

General Management Measures: In general the collection items should be protected from salt and sunlight and receive routine cleaning to prevent corrosion and deterioration.

The Gatlin Gun should be kept in a climate controlled area to prevent future

corrosion and minimize exposure to outdoor environmental conditions.

Preservation of the 1861 10-inch Rodman Shell gun and the 1863 3-inch ordinance rifle requires the routine cleaning of the metal components and repainting as necessary with oil or epoxy based paints to prevent corrosion or further pitting of the metal. The 24-lb Howitzer Cannon mounts require similar maintenance to prevent corrosion.

Stabilization and management of the collection of miscellaneous metal objects includes removal of rust when possible and coating them with rust inhibitor such as black paint. They should be stored in a humidity controlled environment.

The remaining items including small firearms, surgeon's kit, traveling desk and miscellaneous accoutrements require routine cleaning and care to prevent corrosion and buildup.

Historic documents related to the fort, including those civil war documents donated by Mr. Bill Bulger need to be scanned. These documents should be displayed and stored in an archival manner in climate controlled conditions to protect them from degrading. They should be protected from exposure to UV light.

Detailed management goals, objectives and actions for the management of cultural resources in this park are discussed in the Cultural Resource Management Program section of this component. Table 4 contains the name, reference number, culture or period, and brief description of all the cultural sites within the park that are listed in the Florida Master Site File. The table also summarizes each site's level of significance, existing condition and recommended management treatment. An explanation of the codes is provided following the table.

Table 4. Cultural Sites Listed in the Florida Master Site File

Site Name and FMSF #	Culture / Period	Description	Significance	Condition	Treatment
Quarantine Station/N-16 Bullen & Griffin 52 NA00016	Pre-historic	Archaeological Site	NE	NE	P
N-3 of Bullen & Griffin 1952 NA00048	Pre-historic	Archaeological Site	NE	NE	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture / Period**	**Description**	**Significance**	**Condition**	**Treatment**
Amelia Island Civil War Encampment NA00052	Pre-historic and historic - Civil War	Archaeological Site	NE	NE	P
Fort Clinch Beach NA00053	Unknown	Archaeological Site	NE	NE	P
Quarantine Point NA00057	14th to 19th Century	Archaeological Site	NE	F	P
Fort Clinch NA00080	19th Century Civil War	Historic Structure	NRL	F	P
Fort Clinch NA00080A	American Territorial, Civil War, Late 19th Century	Archaeological Site	NR	G	P
Martin's Island NA00703	Pre-historic, Late 18th Century -20th Century	Archaeological Site	NR	G	P
Storage Building NA00718	1850 - New Deal CCC	Historic Structure	NR	F	P
Barracks NA00719	1850 - New Deal CCC	Historic Structure	NR	F	P
Combination Building NA00720	1940 New Deal CCC	Historic Structure	NR	G	RH
Latrine NA00721	1940 New Deal CCC	Historic Structure	NR	F	RH
Maintenance Shed NA00722	1939 New Deal CCC	Historic Structure	NR	G	RH

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture / Period**	**Description**	**Significance**	**Condition**	**Treatment**
Rear Range Beacon Oil Storage House NA00983	19th Century	Historic Structure	NE	P	ST
Residence-Ranger BL027013 NA01283	1952	Historic Structure	NE	F	RH
Shop/Office BL027014 NA01284	1958	Historic Structure	NE	G	RH
Shop/Equip Shed BL027002 NA01285	1961	Historic Structure	NE	G	RH
Storage BL027017 NA01286	1961	Historic Structure	NE	G	RH
Bathhouse, River Camp BL027023 NA01287	1963	Historic Structure	NE	F	R
Fort Clinch Entrance Drive NA01282	CCC New Deal	Resource Group	NE	F	P

Significance:

NRL	National Register listed
NR eligible	National Register
NE	not evaluated
NS	not significant

Condition:

G	Good
F	Fair
P	Poor
NA	Not accessible
NE	Not evaluated

Recommended Treatment:

RS	Restoration
RH	Rehabilitation
ST	Stabilization
P	Preservation
R	Removal
N/A	Not applicable

Resource Management Program

Management Goals, Objectives and Actions

Measurable objectives and actions have been identified for each of the DRP's management goals for Fort Clinch State Park. Please refer to the Implementation Schedule and Cost Estimates in the Implementation Component of this plan for a consolidated spreadsheet of the recommended actions, measures of progress, target year for completion and estimated costs to fulfill the management goals and objectives of this park.

While, the DRP utilizes the ten-year management plan to serve as the basic statement of policy and future direction for each park, a number of annual work plans provide more specific guidance for DRP staff to accomplish many of the resource management goals and objectives of the park. Where such detailed planning is appropriate to the character and scale of the park's natural resources, annual work plans are developed for prescribed fire management, exotic plant management and imperiled species management. Annual or longer- term work plans are developed for natural community restoration and hydrological restoration. The work plans provide the DRP with crucial flexibility in its efforts to generate and implement adaptive resource management practices in the state park system.

The work plans are reviewed and updated annually. Through this process, the DRP's resource management strategies are systematically evaluated to determine their effectiveness. The process and the information collected is used to refine techniques, methodologies and strategies, and ensures that each park's prescribed management actions are monitored and reported as required by Sections 253.034 and 259.037, Florida Statutes.

The goals, objectives and actions identified in this management plan will serve as the basis for developing annual work plans for the park. The ten-year management plan is based on conditions that exist at the time the plan is developed. The annual work plans provide the flexibility needed to adapt to future conditions as they change during the ten-year management planning cycle. As the park's annual work plans are implemented through the ten-year cycle, it may become necessary to adjust the management plan's priority schedules and cost estimates to reflect these changing conditions.

Natural Resource Management

Hydrological Management

Goal: Protect water quality and quantity in the park, restore hydrology to the extent feasible and maintain the restored condition.

The natural hydrology of most state parks has been impaired prior to acquisition to one degree or another. Florida's native habitats are precisely adapted to natural drainage patterns and seasonal water level fluctuations, and variations in these

factors frequently determine the types of natural communities that occur on a particular site. Even minor changes to natural hydrology can result in the loss of plant and animal species from a landscape. Restoring state park lands to original natural conditions often depends on returning natural hydrological processes and conditions to the park. This is done primarily by filling or plugging ditches, removing obstructions to surface water "sheet flow," installing culverts or low-water crossings on roads, and installing water control structures to manage water levels.

Objective A: Conduct/obtain an assessment of the park's hydrological restoration needs.

Action 1	Continue to cooperate with state and federal agencies and researchers regarding hydrological research and monitoring programs within the park, particularly related to freshwater wetlands, groundwater levels, and surface water quality of its associated estuarine water bodies
Action 2	Continue to monitor, review and comment on proposed land use/zoning changes within lands bordering the park

The most significant hydrological features in the park include the St. Marys River, Egan's Creek, Willow Pond, and several coastal interdunal swales, an imperiled natural community type. Control of erosion and sedimentation along the St. Marys and Atlantic shorelines near Fort Clinch as well as preservation of surface water and groundwater quality for all adjacent park water bodies will remain top priorities for the Division. The following are hydrological assessment actions recommended for the park.

Since the 1940's, regional over consumption of groundwater has exacerbated the level of saltwater intrusion and created a significant cone of depression near Fort Clinch. The effects of this significant groundwater depletion on the freshwater wetlands of the park is unknown. In order for water managers to be able to protect water quality and potentially restore groundwater to its historic levels, they will need to track the extent of the drawdown. Additionally, regulatory agencies have determined that the surface waters surrounding Fort Clinch are impaired because of high levels of coliforms and mercury. Shellfish harvesting in water bodies throughout the St. Marys/Nassau River Basin is currently "Unclassified." Although all of these water quantity/quality issues are complex, genuine improvements are still achievable. To facilitate that process, the DRP will continue its tradition of close cooperation with state and federal agencies and independent researchers engaged in hydrological research and monitoring in the park, and it will encourage and facilitate additional research in those areas.

The DRP will rely upon agencies such as the SRWMD, USGS, and FDEP to keep it apprised of any declines in surface water quality or any additional suspected contamination of groundwater in the region. District staff will continue to monitor Environmental Resource Permit and Water Use Permit requests for the region in order to provide timely and constructive comments that promote protection of the park's water resources. Additional cooperative efforts may include facilitating the

review and approval of research permits and providing researchers with assistance in the field, including orientation to park resources. Recommendations derived from these monitoring and research activities will be essential to the decision making process during management planning. One activity worthy of the DRP support is continued groundwater monitoring of all important wells and water bodies under the parks jurisdiction.

Staff will continue to monitor land use or zoning changes within lands bordering the park. Major ground disturbances on neighboring properties or inadequate treatment of runoff into local streams could ultimately cause significant degradation of park resources. When appropriate, DRP District 2 staff will provide comments to other agencies regarding proposed changes in land use or zoning that may affect the park. In addition, district staff will closely monitor any mining operations or large consumptive use permits in the St. Marys/Nassau River basins for significant changes that may adversely affect park resources.

The Division will continue to work closely with the SJRWMD to ensure that consumptive use permits for the region are responsibly issued and that current groundwater levels are protected, and consciously restored to historic conditions.

Objective B: Restore natural hydrological conditions and functions to approximately 1 acres of Coastal Interdunal Swale natural community.

Action 1	Assess hydrological impacts (i.e. altered hydroperiod) to the parks interdunal swale wetland community
Action 2	Determine if ditch block installation could be a useful restoration technique to restore natural hydroperiod within the parks interdunal swale wetlands

Historic mosquito ditches and decreased groundwater supplies over the years may have impacted several acres of previously functioning interdunal swale wetlands at Fort Clinch. Mosquito ditches have bisected a variety of upland (e.g. maritime hammock) and wetland (e.g. interdunal swales) natural communities at the park. Visible impacts of these ditches include fragmentation and an interruption of natural surface water sheetflow. The following hydrological restoration actions are recommended for the park.

The DRP will evaluate the condition of all interdunal swale wetlands at Fort Clinch by mapping, reconnaissance, and determining their current ecological status. District and park staff will determine if it is possible to restore these wetland communities, specifically those that are bisected by historic mosquito ditches. If staff determines that restoration is possible, restoration alternatives such as ditch blocks will be developed and implemented. Park staff will comply with best management practices to maintain the existing water quality on site and will take appropriate action to prevent soil erosion or other impacts to water resources.

Park and district staffs will evaluate other alterations in the park that may have negatively affected natural hydrology. For example, staff will seek funds or

interested parties to research the origins, source of water supply, and extent of manipulation of the Willow Pond wetlands. Additionally, if necessary, staff will initiate corrective actions such as the installation of low water crossings or culverts in appropriate locations.

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

Action 1 Develop and implement a Trail Management Plan for the park's recreational trails

Action 2 Assess erosion impacts from coastal erosion, surface water runoff, and recreational uses and implement corrective measures

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

The DRP will continue its tradition of close cooperation with state and federal agencies engaged in park shoreline protection strategies associated with St. Marys Inlet navigation channel. The DRP will continue to work with agencies such as the USACOE and FDEP to keep it apprised of new alternatives that will further stabilize shoreline erosion rates and preserve the historic structural integrity of Fort Clinch.

Staff will regularly monitor areas of the park that are prone to erosion. Wherever necessary, the park will adopt corrective measures to reduce the impacts of soil erosion on water resources.

Park and district staffs will investigate the best management options for additional mitigation of erosion in public use areas such as the Fort Clinch hiking and biking trail system. The DRP will develop and implement a Trail Management Plan for this park recreational trail. This plan will define expectations of a well-maintained and sustainable trail system by prioritizing impacts and educating all stakeholders concerning park resource protection.

Natural Communities Management

Goal: Restore and maintain the natural communities/habitats of the park.

The DRP practices natural systems management. In most cases, this entails returning fire to its natural role in fire-dependent natural communities. Other methods to implement this goal include large-scale restoration projects as well as smaller scale natural communities' improvements. Following are the natural community management objectives and actions recommended for the state park.

Objective A: Complete a comprehensive floral and faunal survey, and update the park's baseline plant and animal list.

Action 1 Conduct a comprehensive floral and faunal survey of the new additions to park, specifically Martin's and Big Tiger Islands

Action 2 Continue to update the park's plant and animal lists

With the addition of Martin's Island and Big Tiger Island to the park, significant areas of salt marsh and estuarine unconsolidated substrate are now within the park boundary. More limited areas of maritime hammock were also added to the park. Additional plant and animal surveys will be conducted to determine if any additional new species have been added to the park. The park and district staff, along with volunteers, will continue to survey the park to update the existing plant and animals lists. Recent emphasis on the documentation of arthropods and other invertebrates within the park has expanded the species lists for this unit management plan update.

Prescribed Fire Management

Prescribed fire is used to mimic natural lightning-set fires, which are one of the primary natural forces that shaped Florida's ecosystem. Prescribed burning increases the abundance and health of many wildlife species. A large number of Florida's imperiled species of plants and animals are dependent on periodic fire for their continued existence. Fire-dependent natural communities gradually accumulate flammable vegetation; therefore, prescribed fire reduces wildfire hazards by reducing these wild land fuels.

All prescribed burns in the Florida state park system are conducted with authorization from the FDACS, Florida Forest Service (FFS). Wildfire suppression activities in the park are coordinated with the FFS.

With the exception of a small stand of planted slash pines within the coastal strand natural community, prescribed burning has not been part of the resource management program at Fort Clinch State Park. The natural communities that occur in the park do not require periodic fire for their maintenance. If future research happens to change that perception, then the park will consider implementation of a more active burn program.

In order to track fire management activities, the DRP maintains a statewide burn database. The database allows staff to track various aspects of each park's fire management program including individual burn zone histories and fire return intervals, staff training and experience, backlog, etc. The database is also used for annual burn planning which allows the DRP to document fire management goals and objectives on an annual basis. Each quarter the database is updated and reports are produced that track progress towards meeting annual burn objectives.

Natural Community Restoration

In some cases, the reintroduction and maintenance of natural processes is not enough to reach the desired future conditions for natural communities in the park, and active restoration programs are required. Restoration of altered natural communities to healthy, fully functioning natural landscapes often requires substantial efforts that may include mechanical treatment of vegetation or soils and reintroduction or augmentation of native plants and animals.

FORT CLINCH STATE PARK

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0 0.25 0.5 1 Mile

Department of Environmental Protection
Division of Recreation and Parks
Date of aerial: 2014

NATURAL COMMUNITIES
DESIRED FUTURE CONDITIONS MAP

For the purposes of this management plan, restoration is defined as the process of assisting the recovery and natural functioning of degraded natural communities to desired future condition, including the re-establishment of biodiversity, ecological processes, vegetation structure and physical characters.

Examples that would qualify as natural community restoration, requiring annual restoration plans, include large mitigation projects, large-scale hardwood removal and timbering activities, roller-chopping and other large-scale vegetative modifications. The key concept is that restoration projects will go beyond management activities routinely done as standard operating procedures such as routine mowing, the reintroduction of fire as a natural process, spot treatments of exotic plants, and small-scale vegetation management.

During this management plan revision cycle, no additional natural community/habitat restoration or maintenance actions beyond those mentioned under the *Hydrological Management* section above are recommended to create the natural community desired future conditions (see Desired Future Conditions Map).

Imperiled Species Management

Goal: Maintain, improve or restore imperiled species populations and habitats in the park.

The DRP strives to maintain and restore viable populations of imperiled plant and animal species primarily by implementing effective management of natural systems. Single species management is appropriate in state parks when the maintenance, recovery or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes, and should not imperil other native species or seriously compromise park values.

In the preparation of this management plan, DRP staff consulted with staff of the FWC's Imperiled Species Management or that agency's Regional Biologist and other appropriate federal, state and local agencies for assistance in developing imperiled animal species management objectives and actions. Likewise, for imperiled plant species, DRP staff consulted with FDACS. Data collected by the USFWS, FWC, FDACS and FNAI as part of their ongoing research and monitoring programs will be reviewed by park staff periodically to inform management of decisions that may have an impact on imperiled species at the park.

Ongoing inventory and monitoring of imperiled species in the state park system is necessary to meet the DRP's mission. Long-term monitoring is also essential to ensure the effectiveness of resource management programs. Monitoring efforts must be prioritized so that the data collected provides information that can be used to improve or confirm the effectiveness of management actions on conservation priorities. Monitoring intensity must at least be at a level that provides the minimum data needed to make informed decisions to meet conservation goals. Not

all imperiled species require intensive monitoring efforts on a regular interval. Priority must be given to those species that can provide valuable data to guide adaptive management practices. Those species selected for specific management action and those that will provide management guidance through regular monitoring are addressed in the objectives below.

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

Action 1 Park and District staff and park volunteers will continue to inventory the park to update imperiled species inventory lists.

Objective B: Monitor and document 8 selected imperiled animal species in the park.

Action 1 Develop monitoring protocols for 2 selected imperiled animal species including Worthington's marsh wren and Macgillivray's seaside sparrow.

Action 2 Implement monitoring protocols for 8 imperiled animal species including those listed in Action 1 above and marine turtle species (3), piping plover, Wilson's plover, and least tern.

Imperiled species management at Fort Clinch State Park focuses primarily on shorebirds and other coastal bird species in addition to marine turtle species that nest within the park. The park coordinates all monitoring of imperiled species at the park with FWC, and submits monitoring data to FWC as required.

The FWC has developed a detailed species action plan for Worthington's marsh wren (FWC 2013) and conducted surveys in the region in 2014-2015. The research is focused on habitat identification and population surveys (Schwarzer 2013, Schwarzer and Cox 2015). Surveys for Macgillivray's seaside sparrow within the park will also be a priority, and will utilize park staff and volunteers and potentially FWC staff.

Shorebird surveys are conducted in accordance with the Division's Resource Management Standard, *Shorebird and Seabird Management*. Surveys are conducted both during the nesting season and during the winter and migratory seasons. Data for nesting shorebirds are submitted to FWC via the online Florida Shorebird Database. The primary focus of nesting surveys is on Wilson's plovers and least terns. Winter Shorebird Survey data are also submitted to FWC. The park's survey efforts are supplemented by dedicated volunteers who provide valuable assistance in monitoring imperiled shorebird species in the park. Volunteers monitor the threatened piping plover and red knot, and report information on banded birds to the USFWS and international researchers working with these migratory species.

Marine turtle nesting is monitored in strict accordance with FWC Marine Turtle Conservation Guidelines (FWC 2007). The park participates in the Index Nest Beach

Survey program as well as the Statewide Nesting Beach Survey in accordance with the Division's Marine Turtle Permit.

Objective C: Monitor and document 2 selected imperiled plant species in the park.

Action 1	Develop monitoring protocols for 2 selected imperiled plant species including shell-mound pricklypear and pine pinweed.
Action 2	Implement monitoring protocols for 2 imperiled plant species listed in Action 1 above.

District and park staff will conduct a Tier 1 survey to determine the presence of the state endangered spreading pinweed (*Lechea divaricata*). This species has not been documented at Fort Clinch since it was determined to be there in 1943. A monitoring protocol is needed.

A population of the state threatened shell-mound pricklypear, *Opuntia stricta*, occurs in the park. Recently the invasive exotic pest of the cactus, *Cactoblastis cactorum*, was also found in the park. Because of the arrival of this pest the park should monitor the health of its populations of *Opuntia stricta*. *Cactoblastis cactorum* egg sticks will be removed as an exotic animal action item. A monitoring protocol is needed for the shell-mound pricklypear.

Exotic Species Management

Goal: Remove exotic and invasive plants and animals from the park and conduct needed maintenance control.

The DRP actively removes invasive exotic species from state parks, with priority being given to those causing the ecological damage. Removal techniques may include mechanical treatment, herbicides or biocontrol agents.

Objective A: Annually treat 1 acre of exotic plant species in the park.

Action 1	Annually develop/update exotic plant management work plan.
Action 2	Implement annual work plan by treating 1 acre in park, annually, and continuing maintenance and follow-up treatments, as needed.

Because Fort Clinch State Park is relatively free of invasive exotic plants, park staff have the real opportunity of eliminating most invasive exotics from the park. Species which may prove especially detrimental to the park habitats are beach vitex, Sprenger's asparagus fern, silverthorn, and Brazilian pepper, however efforts will be made to remove all invasive exotic species.

The entire park will be scouted for invasive exotic plants at least twice during this current management plan cycle. Treatment plans will be guided in part by survey results.

Park staff will engage park neighbors in an outreach program. The goal should be to educate neighbors and park visitors about the impacts of invasive exotics and to encourage them to remove invasive exotics from their properties.

Objective B: Implement control measures on 3 exotic animal species in the park.

Action 1 Remove feral hogs and feral cats as necessary.
Action 2 Monitor the exotic cactus moth and remove egg sticks from any cacti on which they occur and in particular remove them from the shell-mound prickly pear.

The focus will be on removing exotic species that impact the most important natural resources of the park. This might include species that impact shorebirds, sea turtles and other bird species. Exotic species that impact imperiled species should be given greater attention.

Feral hogs will be removed from the park as they occur. Although relatively small numbers of hogs have occurred within the park, they have the capacity to cause severe damage to natural areas, particularly wetlands. Whenever they are detected in the park, staff will institute control measures.

The park should monitor and remove egg sticks of the exotic cactus moth, *Cactoblastis cactorum*, from *Opuntia stricta* and any other cacti on which it may occur.

Further research on the biology of the red bay ambrosia beetle and the associated red bay fungal pathogen *Raffaelea lauricola* would be useful. In particular it would be helpful to understand the biology of the pathogen and its vector on the Lauraceae hosts after the initial infection and mortality events have occurred. For example does the pathogen persist in the red bay and other Lauraceae roots and root suckers, do the root suckers serve as a disease reservoir, will red bays persist in a shrub rather than tree form, will they survive to bear fruit and what is the disease impact on species that depend on the Lauraceae for fruit or as a plant host?

Objective C: Develop and implement measures to prevent the accidental introduction or further spread of invasive exotic plants in the park.

Action 1 Prepare written guidelines to prevent the introduction and spread of invasive exotic plants. Provide staff with the tools to implement the guidelines.

Exotic plants often invade an area accidentally through preventable methods of entry. To limit accidental introduction and movement of exotic species, park staff will need to develop and practice preventative measures, including a protocol for equipment inspection and decontamination. Activities such as mowing, logging, fire line preparation and road building can introduce or redistribute exotics through contaminated equipment. Fill dirt, lime rock, potted horticultural plants and mulch

are all potentially contaminated by exotics even if they are not readily visible at the time of entry into the park. Some new infestations of exotics may be preventable by ensuring that contractors clean their equipment before entering the park. The further spread of exotics already established in the park may be avoided by making sure that staff and contractors do not move equipment from a contaminated area to an exotic free area within the park without cleaning their equipment first.

Cultural Resource Management

Cultural resources are individually unique, and collectively, very challenging for the public land manager whose goal is to preserve and protect them in perpetuity. The DRP will implement the following goals, objectives and actions, as funding becomes available, to preserve the cultural resources found in Fort Clinch State Park.

Goal: Protect, preserve and maintain the cultural resources of the park.

The management of cultural resources is often complicated because these resources are irreplaceable and extremely vulnerable to disturbances. The advice of historical and archaeological experts is required in this effort. All activities related to land clearing, ground disturbing activities, major repairs or additions to historic structures listed or eligible for listing in the National Register of Historic Places must be submitted to the FDOS, Division of Historical Resources (DHR) for review and comment prior to undertaking the proposed project. Recommendations may include, but are not limited to concurrence with the project as submitted, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effect. In addition, any demolition or substantial alteration to any historic structure or resource must be submitted to the DHR for consultation and the DRP must demonstrate that there is no feasible alternative to removal and must provide a strategy for documentation or salvage of the resource. Florida law further requires that the DRP consider the reuse of historic buildings in the park in lieu of new construction and must undertake a cost comparison of new development versus rehabilitation of a building before electing to construct a new or replacement building. This comparison must be accomplished with the assistance of the DHR.

Objective A: Assess and evaluate 20 of 20 recorded cultural resources in the park.

Action 1	Complete 20 assessments/evaluations of archaeological sites.
Action 2	Complete 1 Historic Structures Reports (HSR's) for Combination Building NA00720.

All sites should be visited at least annually. Some of the archaeological sites have unknown locations. In spite of this park staff should continue to visit the area thought to contain sites. Any artifacts found in the area of an unknown site should be documented by GPS location and the FMSF should be updated.
Quarantine Point (NA00057) should be documented photographically so that

changes are recorded over time.

Because the park has a Restoration Master Plan for Historic Fort Clinch, no Historic Structure Report is needed for the fort.

A Historic Structures Report should be prepared for the CCC/New Deal era structures within the park. The first priority should be Combination Building NA00720.

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

Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.
Action 2	Conduct Level 1 archaeological survey for any unsurveyed areas that may be impacted by proposed new developments.

A Predictive Model for the park identified areas of high, medium and low probability of locating archaeological sites was completed in 2012 (Collins et al 2012). New cultural sites will be recorded with the FMSF as they are encountered.

Any areas of new development should be confined to the current use area to limit the impact of ground disturbance. No Level I archaeological survey is needed at this time. However if any development does occur a Level I survey should be conducted in the area of expected impact.

The history of Willow Pond should be investigated and the pond recorded with the FMSF if appropriate.

The park has already developed a Scope of Collections Statement to guide the extent of the collection.

Objective C: Bring 7 of 20 recorded cultural resources into good condition.

Action 1	Design and implement regular monitoring programs for 20 cultural sites
Action 2	Create and implement a cyclical maintenance program for the park's collection items.
Action 3	Implement repair and stabilization of the bastion gun ports for Ft Clinch (NA00080).
Action 4	Scan Civil War documents and store archivally.
Action 5	Develop and implement a plan to restore the original structure, remove the addition and repair structural cracks of The Latrine (NA00721).
Action 6	Develop and implement a plan to document and demolish The Bathhouse, River Camp BL027023 (NA01287).
Action 7	Develop and implement a plan to stabilize the Rear Range Beacon Oil Storage House (NA00983).

All bastion gun ports of the fort (NA00080) except the northwest one need repair and structural stabilization. The corroding, expanding metal within the gun ports should be removed and bricks should be repointed or replaced as needed.

Develop and implement plans to augment stabilization of the fort provided by beach re-nourishment. This might include planting of beach species to stabilize the soil.

The Latrine (NA00721) is a New Deal era building in fair condition. It has been added on to and there are structural cracks adjacent to the addition. The park should develop and implement a plan to restore the original structure, remove the addition and repair structural cracks.

The Combination Building (NA00720) is a New Deal era building in good condition however the building has been modified. The park should develop and implement a plan to return the design elements of the building to the original New Deal design.

The Residence-Ranger BL027013 (NA01283) is in fair condition because it needs to be rewired. The park will re-wire this structure.

The Bathhouse, River Camp BL027023 (NA01287) is currently not in use. The park should develop a plan to document and demolish the building and place tent sites in the vacated footprint.

The Rear Range Beacon Oil Storage House (NA00983) is a ruin that needs stabilization. The masonry should be tucked and pointed to stabilize the structure.

The CCC era park entrance drive (NA1282) needs management guidelines to protect the tree canopy over the road and to be repaved.

The park also has several significant collection items that need maintenance to bring them to good condition or keep them in good condition. Specifically historic documents related to the fort, including those civil war documents donated by Mr. Bill Bulger need to be scanned and displayed and stored in an archival manner in climate controlled conditions to protect them from degrading. They should be protected from exposure to UV light. The collection's metal objects need preventative removal of rust and coating with a rust inhibitor such as black paint to maintain them in good condition. They should be stored in a humidity controlled environment.

Special Management Considerations

Timber Management Analysis

Chapters 253 and 259, Florida Statutes, require an assessment of the feasibility of managing timber in land management plans for parcels greater than 1,000 acres if the lead agency determines that timber management is not in conflict with the primary management objectives of the land. The feasibility of harvesting timber at this park during the period covered by this plan was considered in context of the

DRP's statutory responsibilities and an analysis of the park's resource needs and values. The long-term management goal for forest communities in the state park system is to maintain or re-establish old-growth characteristics to the degree practicable, with the exception of those communities specifically managed as early successional.

During the development of this plan, an analysis was made regarding the feasibility of timber management activities in the park. It was determined that the primary management objectives of the unit could be met without conducting timber management activities for this management plan cycle. Timber management will be re-evaluated during the next revision of the management plan.

Coastal/Beach Management

The DRP manages over 100 miles of sandy beach, which represents one-eighth of Florida's total sandy beach shoreline. Approximately one-quarter of Florida's state parks are beach-oriented parks and account for more than 60 percent of statewide park visitation. The management and maintenance of beaches and their associated systems and processes is complicated by the presence of inlets and various structures (jetties, groins, breakwaters) all along the coast. As a result, beach restoration and nourishment have become increasingly necessary and costly procedures for protecting valuable infrastructure. Beach and inlet management practices affect beaches for long distances on either side of a particular project. DRP staff needs to be aware of and participate in the planning, design and implementation of these projects to ensure that park resources and recreational use are adequately considered and protected.

The park includes approximately 0.76 miles of beach along the Atlantic Ocean, all of which is considered critically eroded. The park also includes approximately 2.58 miles of beach along the St. Marys Inlet and Amelia River. The 1.9 miles along the St. Marys Inlet is also classified as a critically eroded inlet beach. Several imperiled species depend on the park's beaches for nesting sites, including three species of marine turtles as well as least terns and Wilson's plovers. Other imperiled shorebird species, notably the federally threatened piping plover and red knot, use the park's beaches as resting and feeding sites during migration or over winter.

All of the beaches at the park are accessible to the public. During shorebird nesting season certain areas may be posted to prevent visitors from impacting nesting shorebirds. Although this may suffice to protect nests, once chicks are mobile and leave the nest, it is more difficult to protect them from visitor impacts. This is particularly problematic with Wilson's plovers which do not form large colonies. Their isolated nests and mobile chicks are cryptic and often difficult to protect. Pedestrians and cyclists using the beach may also flush resting and feeding birds either intentionally or inadvertently. Interpretive signs are used at beach access points to educate park visitors about avoiding impacts to shorebirds. Although dogs are not permitted on the park's beaches, this is occasionally violated by park patrons, and likely more often violated by pedestrians accessing the park from the municipal beach to the south. Dogs may appear to shorebirds as a greater threat

than humans, particularly if the dogs are allowed to run off leash. The park uses signage at all access points, including the south boundary line on the beach, to inform park visitors of rules and regulations pertaining to dogs and other potential impacts.

The Division has management authority over a 400-foot zone from the edge of mean high water in areas where the park fronts on the Amelia River, the St. Marys Inlet, and the Atlantic Ocean. This also applies to the sovereign submerged lands surrounding the park boundary at Martin's and Tiger Islands. Where emergent wetland vegetation exists, the zone extends water-ward 400 feet beyond the vegetation. Within this zone, the park staff will enforce Division regulations. Harvest of any wildlife within this zone, with the exception of fish, is prohibited.

As part of the effort to implement our goal to restore and maintain the natural communities and habitats of the state park, the following special management objectives for coastal systems are recommended.

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

Action 1 Continue to cooperate with federal, state and local agencies and researchers regarding monitoring and assessment of beach erosion within the park, particularly related to the historic Fort Clinch structure.

The St. Marys Inlet has three active Federal navigation projects, namely access between the Atlantic Ocean into Fernandina Harbor (Florida), Kings Bay Naval Submarine Base (Georgia), and the Atlantic Intracoastal Waterway (Raichle et al 1997). Over a century of extensive inlet stabilization and shoreline hardening has caused severe impacts to littoral longshore transport along much of Amelia Island's Atlantic shoreline and Fort Clinch. A complete history of erosion at Fort Clinch and the region is found at the beginning of this document under *Topography*.

In 1986, Florida legislatively designated (Chapter 161 F. S.) numerous areas in the state, including Amelia Island and Fort Clinch, as "critically eroded" and began to develop regional remediation strategies and long-term restoration plans (FDEP 2012a). Soon after, Florida and the United States federal government executed a memorandum of understanding clarifying their partnership to dredge the St. Marys inlet and transport the sediments to downdrift beaches and nearshore sites (FDEP 2008). Federal, state, and local stakeholders agreed to participate in active management actions that included inlet sand bypassing, beach nourishment and shoreline hardening where severe erosion cases were warranted (FDEP 1998).

The 1997 St. Marys Entrance Inlet Management Plan became an integral restoration guidance document for all active management actions occurring on northern Amelia Island and Fort Clinch (Raichle et al 1997). Maintenance dredging in St. Marys Inlet has generally occurred on an annual basis with a sediment bypassing objective

between 554,000 and 797,000 cubic yards per year (FDEP 2008). Fort Clinch State Park, City of Fernandina Beach, and the Atlantic shoreline of Amelia Island all benefit from these management activities.

The FDEP Bureau of Beaches and Coastal Systems (BBCS) is responsible for the protection and management coastal systems in the State of Florida.
With nearly 400 miles of shoreline and 8 miles of inlets critically eroded, BBCS has developed a statewide Strategic Beach Management Plan to help prioritize its responsibilities and effectively implement necessary management actions (FDEP 2008).

This statewide BBCS program also supports comprehensive shoreline surveys and monitoring, development of regulatory system and detailed documentation of weather-related impacts along all sandy beach ecosystems in Florida. Each year this division obtains routine aerial photography that covers over one quarter of the state and thereby gathering, every four years, a complete photographic collection of Florida's shorelines (FDEP 2014). This division also documents and has extensive records of topography and nearshore bathymetry for all critical erosion regions of the state, including Amelia Island. Along with BBCS's existing record of aerial photography (i.e. 1977-present), park and district staff collected from 2000-2005 GPS details of several eroded regions of Fort Clinch (Documents on file at District 2 office, DRP). This information has already been presented in earlier sections of the plan.

All critically eroded beaches in Florida, including those at Fort Clinch are also periodically assessed for long-term changes and trends, especially those that are related to significant weather events such as hurricanes (Foster et al 1999, Absalonsen and Dean 2010, FDEP 2012a). Beginning in 1981, BBCS established a series of coastal reference landmarks (i.e. range monuments) in order to delineate shoreline areas for comparative measurements. Nassau County has 82 range monuments, with R-1 beginning immediately east of the fort at Fort Clinch and R-13 at the south boundary of the park (FDEP 2013d). These range monuments are also involved with delineating regulatory boundaries (i.e. coastal construction control line or CCCL) in critically eroded coastal regions.

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

Action 1	Continue to cooperate with federal, state and local agencies and researchers regarding monitoring and assessment of beach erosion within the park, particularly related to the historic Fort Clinch structure,
Action 2	Continue to review, comment and establish effective protocols for monitoring imperiled species potentially affected by St. Marys Inlet dredge operations,

Action 3 Continue to work with the Division to determine the best options to mitigate for the expanding southern tip Cumberland Island.

Northern Amelia Island, and therefore Fort Clinch State Park, has undergone significant shoreline changes over the past 100 years (See *Topography* section). Since the successful implementation of the 1999 shoreline stabilization (i.e. groinfield reconstruction), the historic Fort Clinch structure has not been significantly impacted by storms or other factors (Raichle and Olsen 1998, Olsen 2013). The T-head groinfield and crenulate-shaped beach "cells" located between structures, however, do recede slowly over time and therefore require periodic refilling.

Federal maintenance dredging of the St. Marys Entrance Channel occurs annually in order to assure the U.S Navy that required navigational depths into Kings Bay Naval Submarine Base will be sustained. The two traditional areas of historic beach nourishment within the park are around the forts groinfield area out to range monument R-3 and between R-8 to R-9

Additionally, sand bypass operations to areas outside the park boundary, such as Fernandina Beach still involves stakeholder negotiation, planning and construction activities on Fort Clinch beaches. In order to move dredged sand from St. Marys Inlet, USACOE typically requests FDEP authorization to position a large pipeline conduit across park lands parallel to the Atlantic beach shoreline from the south jetty structure (R-9) to the park's south boundary (R-13). In order to accomplish this operation the Division and USACOE develop a Use Agreement (UA) that details specific conditions associated the sand moving operations (USACOE 2011). One of the more important constraints discussed during these operations concerns minimizing impacts to federal and state imperiled species as mentioned above.

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

Another factor that complicates erosion management decisions at Fort Clinch is that the St. Marys Inlet acts as a political boundary between Florida and Georgia. Cumberland Island lies on the north side of the inlet and like Florida is similarly subject to coastal littoral processes. In this case, however, the southern tip of Cumberland Island is undergoing accretion, gradually increasing its size and therefore decreasing the overall width of the St. Marys Inlet (Howard and Olsen

2004). The concern for Fort Clinch is that these inlet changes are adding additional hydraulic stress to Amelia Island near the fort because of a southerly migration of the navigation channel.

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. Mosquito control plans temporarily may be set aside under declared threats to public or animal health, or during a Governor’s Emergency Proclamation.

Mosquito ditches were cut throughout the park beginning in the 1950’s, and an Arthropod Management Plan was proposed by the Amelia Island Mosquito Control District in 1990. There is not a current plan.

Sea Level Rise

Potential sea level rise is now under study and will be addressed by Florida’s residents and governments in the future. The DRP will stay current on existing research and predictive models, in coordination with other DEP programs and federal, state, and local agencies. The DRP will continue to observe and document the changes that occur to the park’s shorelines, natural features, imperiled species populations, and cultural resources. This ongoing data collection and analysis will inform the Division’s adaptive management response to future conditions, including the effects of sea level rise, as they develop.

Resource Management Schedule

A priority schedule for conducting all management activities that is based on the purposes for which these lands were acquired, and to enhance the resource values, is located in the Implementation Component of this management plan.

Land Management Review

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation and recreation lands titled in the name of the Board of Trustees are being managed for the purposes for which they were acquired and in accordance with their approved land management plans. The considered recommendations of the land management review team and updated this plan accordingly.

Fort Clinch State Park was subject to a land management review on October 22, 2012. The review team made the following determinations:

- The land is being managed for the purpose for which it was acquired.
- The actual management practices, including public access, complied with the management plan for this site.

LAND USE COMPONENT

Introduction

Land use planning and park development decisions for the state park system are based on the dual responsibilities of the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP). These responsibilities are to preserve representative examples of original natural Florida and its cultural resources, and to provide outdoor recreation opportunities for Florida's citizens and visitors.

The general planning and design process begins with an analysis of the natural and cultural resources of the unit, and then proceeds through the creation of a conceptual land use plan that culminates in the actual design and construction of park facilities. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation and management. Additional input is received through public workshops, and through environmental and recreational-user groups. With this approach, the DRP objective is to provide quality development for resource-based recreation throughout the state with a high level of sensitivity to the natural and cultural resources at each park.

This component of the unit plan includes a brief inventory of the external conditions and the recreational potential of the unit. Existing uses, facilities, special conditions on use, and specific areas within the park that will be given special protection, are identified. The land use component then summarizes the current conceptual land use plan for the park, identifying the existing or proposed activities suited to the resource base of the park. Any new facilities needed to support the proposed activities are expressed in general terms.

External Conditions

An assessment of the conditions that exist beyond the boundaries of the unit can identify any special development problems or opportunities that exist because of the unit's unique setting or environment. This also provides an opportunity to deal systematically with various planning issues such as location, regional demographics, adjacent land uses and park interaction with other facilities

Fort Clinch State Park is located within Nassau County, with a majority of park property falling within the City of Fernandina Beach jurisdiction. The park is about 35 miles north of Jacksonville in the northeast part of the state. Approximately 800,000 people live within 30 miles of the park (U.S. Census 2010).

The population of Nassau County is diverse in terms of demographic characteristics. According to U.S. Census data (2013), 13% of residents in the county identify as black, Hispanic or Latino, or another minority group. Forty percent of residents can be described as youth or seniors (U.S. Census 2013).

Two-thirds (65%) of the population is of working age (16 to 65) (U.S. Census Bureau 2013). In 2013, the per capita personal income for Nassau County was $45,817, slightly higher than the statewide average of $41,497 (U.S. Bureau of Economic Analysis 2013).

There are considerable publicly-owned resource-based recreation opportunities within 15 miles of the park. These include Amelia Island State Park, Big Talbot Island State Park, Fernandina Plaza State Park, George Crady Bridge Fishing Pier State Park, Pumpkin Hill Creek Preserve State Park, and Little Talbot Island State Park, all of which are managed by the DRP. These parks offer fishing, picnicking, paddling, birding, camping, hiking, biking, and beach access, as well as excellent educational opportunities related to area ecosystems, history, and archaeological sites. Timucuan Ecological and Historic Preserve and Cumberland Island National Seashore are federally managed and provide historic interpretation, nature observation, boating, and fishing. The Florida Forest Service allows hunting, wildlife viewing, hiking, horseback riding, and paddling on Four Creeks State Forest. In addition, locally managed recreation opportunities exist at Betz Tiger Point Preserve, the Timucuan Trail, Egans Creek Greenway, and Half Moon Island Preserve.

The park is located in the Northeast Vacation Region, which includes Baker, Clay, Duval, Flagler, Nassau, Putnam, and St. Johns counties (Visit Florida 2013). According to the 2013 Florida Visitor Survey, approximately 6.6% of domestic visitors to Florida visited this region. Roughly 86% of visitors to the region traveled to the Northeast for leisure purposes. The top activities for domestic visitors were visiting friends or relatives and beach/waterfront. Summer was the most popular travel season, but visitation was generally spread throughout the year. Most visitors traveled by non-air (81%), reporting an average of 3.5 nights and spending an average of $115 per person per day (Visit Florida 2013).

Florida's Statewide Comprehensive Outdoor Recreation Plan (SCORP) indicates that participation rates in this region for saltwater beach activities, freshwater fishing, freshwater boat-ramp use, visiting archaeological and historic sites, wildlife viewing, bicycle riding, hiking, and camping are higher than the state average with demand for additional facilities increasing through 2020 (FDEP 2013).

The Florida Circumnavigational Saltwater Paddling Trail, or the CT, spans 1,515 miles along Florida's coast, from Pensacola to Fort Clinch. Segment 26, a 30-mile link beginning at Sister's Creek Marina in Jacksonville ends at Fort Clinch State Park. The trail follows the St. Johns River Blueway and traverses five state parks and several historic and cultural sites.

A portion of the East Coast Greenway, a developing 3,000-mile trail system that links all the major cities of the eastern seaboard between Canada and Key West, runs along Amelia River and continues along Atlantic Avenue, the park's southern boundary, before continuing south.

Existing Use of Adjacent Lands

Fort Clinch State Park is located at the north end of Amelia Island in Nassau County. The park is surrounded by the Atlantic Ocean on the east, Cumberland Sound on the north, and by Amelia River and St. Mary's River on the west and northwest. Egan's Creek marsh is along the park's southwest border. The Fort Clinch State Park Aquatic Preserve also bounds the park, including the St. Mary's River and Amelia River. The City of Fernandina Beach surrounds the park on the east, west, and south. A small easement to the town on the southeast corner completes the boundaries. Residential development is located on the Atlantic Ocean side of the park. Cumberland Island in Camden County, Georgia is located across St. Mary's River. The property is Georgia's largest barrier island containing undeveloped beaches and maritime forests managed by the National Park Service.

Planned Use of Adjacent Lands

Nassau County is within the Northeast Florida Regional Council alongside Baker, Clay, Duval, Flagler, Putnam, and St. Johns Counties. This area of the state is often referred to as the First Coast. The developed areas in the region are anticipated to double by 2060, projecting a population increase of nearly 2 million people (NEFRC 2014). Nassau County's population is projected to add 99,800 people by 2030, reflecting a 36% change from 2010's population of 73,314 (Census 2010).

Property adjacent to the park is predominantly zoned for Conservation (CON). Conservation land is intended to provide long-term protection of environmentally sensitive resources within the city. Land to the southeast, along the Atlantic Ocean, begins as low-density residential (R-1) south of Kimberly Street, and gradually increases densities as you move south, becoming medium (R-2) and high density (R-3) districts (City of Fernandina Beach 2006). Property zoned for Conservation is similarly designated as such in the future land use element for the City of Fernandina Beach. Likewise, the comprehensive plan identifies residential density transitions from low-density to high-density moving south along the Atlantic Ocean (City of Fernandina Beach 2011). The western discontinuous properties of the park in Nassau County jurisdiction are designated for conservation in the county's future land use element. Adjacent land to the south of the river are identified as medium density residential for future use (Nassau County 2011). A review of proposed comprehensive plan amendments in the city and county showed that no substantial development projects are proposed that would impact the park.

Property Analysis

Effective planning requires a thorough understanding of the unit's natural and cultural resources. This section describes the resource characteristics and existing uses of the property. The unit's recreation resource elements are examined to identify the opportunities and constraints they present for

recreational development. Past and present uses are assessed for their effects on the property, compatibility with the site, and relation to the unit's classification.

Recreational Resource Elements

This section assesses the park's recreational resource elements, those physical qualities that, either singly or in certain combinations, can support various resource-based recreation activities. Breaking down the property into such elements provides a means for measuring the property's capability to support potential recreational activities. This process also analyzes the existing spatial factors that either favor or limit the provision of each activity.

Land Area

The state park's diversity of landscapes, from the beach dunes to the maritime hammock provide a broad array of recreational and educational opportunities for Florida's residents and visitors. The park contains eight of the biological communities common to Florida's barrier islands. A majority of the coastal upland area is maritime hammock community, and is considered to be one of the most outstanding examples of this community in the state. Hiking and nature trails provide visitor access to these habitats. Likewise, the natural communities facilitate biking, picnicking, and birding activities.

Water Area

Fort Clinch State Park occupies the northern portion of Amelia Island, a coastal barrier island. This location allows views of the water on three sides of the park and provides water-based recreational opportunities, such as surfing, fishing, swimming, and paddling south of the Jetties within the Atlantic Ocean.

Shoreline

Undeveloped coastal barrier islands are exceedingly rare. Fort Clinch State Park has over 6 miles of undeveloped shoreline, not including Martins Island and Tigers Island. Of these, 3.4 miles are accessible to park visitors. The beach at Fort Clinch State Park is extremely popular for swimming, shelling, and sunning activities. Willow Pond, and the nature trail around it provide a different, more introspective experience of the hydric landscapes in Fort Clinch State Park.

Natural Scenery

This diversity of plant and animal species allows for seasonal wildlife viewing activities. The most prominent area for this is the beach, which serves as a resting and foraging site for shorebird species and as a nesting site for sea turtles. The park's views provide a setting for a variety of recreational activities including photography, picnicking, and the interpretation of natural and cultural resources.

Significant Habitat

Fort Clinch State Park offers a variety of coastal habitats with excellent opportunities for wildlife viewing. The coastal hammock, with several hundred species of plants, is a prime habitat for upland species, allowing opportunities for nature study along park trails.

Natural Features

The significant natural features in the park include both geological and vegetative elements such as the dunes, Egan's Creek marsh, Willow Pond, and the Atlantic Beaches. The beach is the focal point of most of the recreational activities in the park. The long, winding entrance drive presents a rare opportunity to experience a mature maritime hammock community. The sand dunes and other beach communities are visually accessible, as are parts of the ancient dunes in the hammock area. This combination provides diverse opportunities for nature observation, scenery appreciation, and nature photography.

Archaeological and Historical Features

Construction of Fort Clinch, an all-masonry fort with casement gun emplacements, began in 1847 and continued through the Civil War. The introduction of rifled cannons changed the significance attached to this type of brick and stone construction, and Fort Clinch was left in an unfinished state. Construction on the fort proceeded in a sporadic manner through the Spanish-American War. The fort was in use as recently as World War II. Fort Clinch is listed in the National Register of Historic Places.

Other known cultural resources on the site include the area surrounding Fort Clinch, the outer light beacon facilities, the earliest portion of the River Camping Area, the docking facilities used during fort construction, the quarantine station/hospital and an old military road.

Pre-historic Indian village sites and mounds have been found on Amelia Island at Old Town, the Junior High School and the Lighthouse. Given the park's location and resources, some form of settlement or extended seasonal use once existed. In addition, since Amelia Island has been constantly occupied since Europeans first arrived in North America, additional historic-era sites may be located on the state park property. The remnants of several old plantations and mills are located on or around Fort Clinch State Park.

Assessment of Use

All legal boundaries, significant natural features, structures, facilities, roads and trails existing in the unit are delineated on the base map (see Base Map). Specific uses made of the unit are briefly described in the following sections.

Past Uses

Fort Clinch State Park was owned by United States Government between 1842 and 1928. During this period, it served as a military installation, and a military road was built from Old Fernandina to Fort Clinch. This road proceeded on a north-south direction crossing the east-west dune lines, disrupting the natural drainage patterns. Later, 14th Street paralleled the road reinforcing this disruption. The property was declared surplus in 1928 and transferred to private ownership. The park was purchased by the State of Florida in 1936 and developed by the Civilian Conservation Corps (CCC), under guidance from the National Park Service.

Future Land Use and Zoning

The DRP works with local governments to establish designations that provide both consistency between comprehensive plans and zoning codes and permit typical state park uses and facilities necessary for the provision of resource-based recreation.

Park property is zoned for Recreation (REC). Land within this district is intended for land devoted to parks and recreation facilities. These facilities can include parks, open spaces, activity-based development, and publicly-owned recreational facilities (City of Fernandina Beach 2006). The park is also identified for Recreation in the City of Fernandina's future land use element. This designation allows playgrounds, picnic areas, trails, paths, and active or passive open space (City of Fernandina Beach 2011). There are no expected conflicts between the future land use or zoning designations and typical state park land uses

Current Recreational Use and Visitor Programs

Fort Clinch State Park is an important source for resource-based recreation for Amelia Island, northeast Florida and southeast Georgia. Development of recreational facilities has occurred primarily at the northern end of the park. The primary recreational activities include saltwater beach activities and fishing, camping, picnicking and visiting the historic Fort. A "Living History" interpretation program is also provided at the Fort. The beach, St. Mary's inlet, and the fort are popular locations for weddings and event photography.

During "First Weekend" and special events, the interpretive program is expanded to include re-enactments. The state park provides shared-use hiking and bicycling trails, and is an outstanding resource for environmental education tours and the interpretation of natural systems. Fort Clinch State Park is also part of the Great Florida Birding and Wildlife Trail.

Fort Clinch State Park recorded 300,663 visitors in FY 2014/2015. By the DRP estimates, the FY 2014/2015 visitors contributed $26,306,384 million in direct

economic impact, the equivalent of adding 421 jobs to the local economy (FDEP 2015).

Other Uses

Utility lines span the park, located within the property, perpendicular to 14th street. A 7-acre portion of property within the southeast corner of the park was previously used as youth stop camp by the Department of Corrections.

Protected Zones

A protected zone is an area of high sensitivity or outstanding character from which most types of development are excluded as a protective measure. Generally, facilities requiring extensive land alteration or resulting in intensive resource use, such as parking lots, camping areas, shops or maintenance areas, are not permitted in protected zones. Facilities with minimal resource impacts, such as trails, interpretive signs and boardwalks are generally allowed. All decisions involving the use of protected zones are made on a case-by-case basis after careful site planning and analysis.

At Fort Clinch State Park, the beach dune community, all wetland communities and the maritime hammock, with the exception of currently developed areas, have been designated as protected zones (see the Conceptual Land Use Map). Fort Clinch and the area visible from its ramparts is designated cultural site protected zone.

Existing Facilities

Recreational Facilities

The park's recreational facilities are contained in four primary use areas: the Amelia River Camping Area, Atlantic Beach Camping Area, Beach Use Area, and Fort/Visitor Center. Amelia River Camping Area and the Fort are located on the western portion of the park. The Atlantic Beach Camping Area and Beach Use Area are on the eastern edge of the park. A multi-use trail runs from the Visitor Center to the Entrance Station, running along both sides of the park drive (See Base Map).

Recreation Facilities

Fort Clinch
Historic Fort Complex
Visitor Center
Museum
Boardwalks (2)

Fort Picnic Area
Picnic Tables (25)
Grills (15)
Playground

Beach Area
Boardwalks (2)
Restrooms (2)
Fishing Pier (2,400 feet)
Interpretive Exhibit/ Birdwatching Window
Shower Stations (2)
Picnic Tables (10)

Atlantic Beach Campground
Campsites (21 & 6 tent sites)
Bathhouse (1)
Boardwalks (1)
Shower Station (1)
Dump Station

Amelia River Campground
Campsites (42)
Campfire Circle
Bathhouse
Dump Station

Primitive Group Camp
Campsites (4)

Parkwide
Willow Pond Nature Trail (1.5 miles)
Hammock Trail (0.5 miles)
Multi-Use Trail (6 miles)
Interpretive Panels (6)
Interpretive Kiosks (5)
Observation Platforms (2)

Support Facilities

The park's support facilities include parking at the Beach Use Area, Willow Pond Trailhead, and the Visitor Center. A maintenance area is located along the park drive leading to the Amelia River Camping Area.

Entrance Area
Entrance Station

Parking
Beach Area/Fishing Pier (198 spaces)
Willow Pond Trailhead (6 spaces)
Visitor Center (111 spaces)
Egans Creek Scenic Overlook (3 spaces)

Administration
Administration Building

Shop/Residence Area
Maintenance Shops (2)
Equipment Sheds (5)
Storage Shed (8)
Residences (2)
Employee-Owned Mobile Homes (4)

Legend

- Park Boundary
- County Road
- Park Road Paved
- Park Road Stabilized
- Park Road Unstabilized
- State Road
- Walkways
- Hiking Trail
- Hiking/Biking Trail
- Structures
- Parking Lots
- Camping Sites

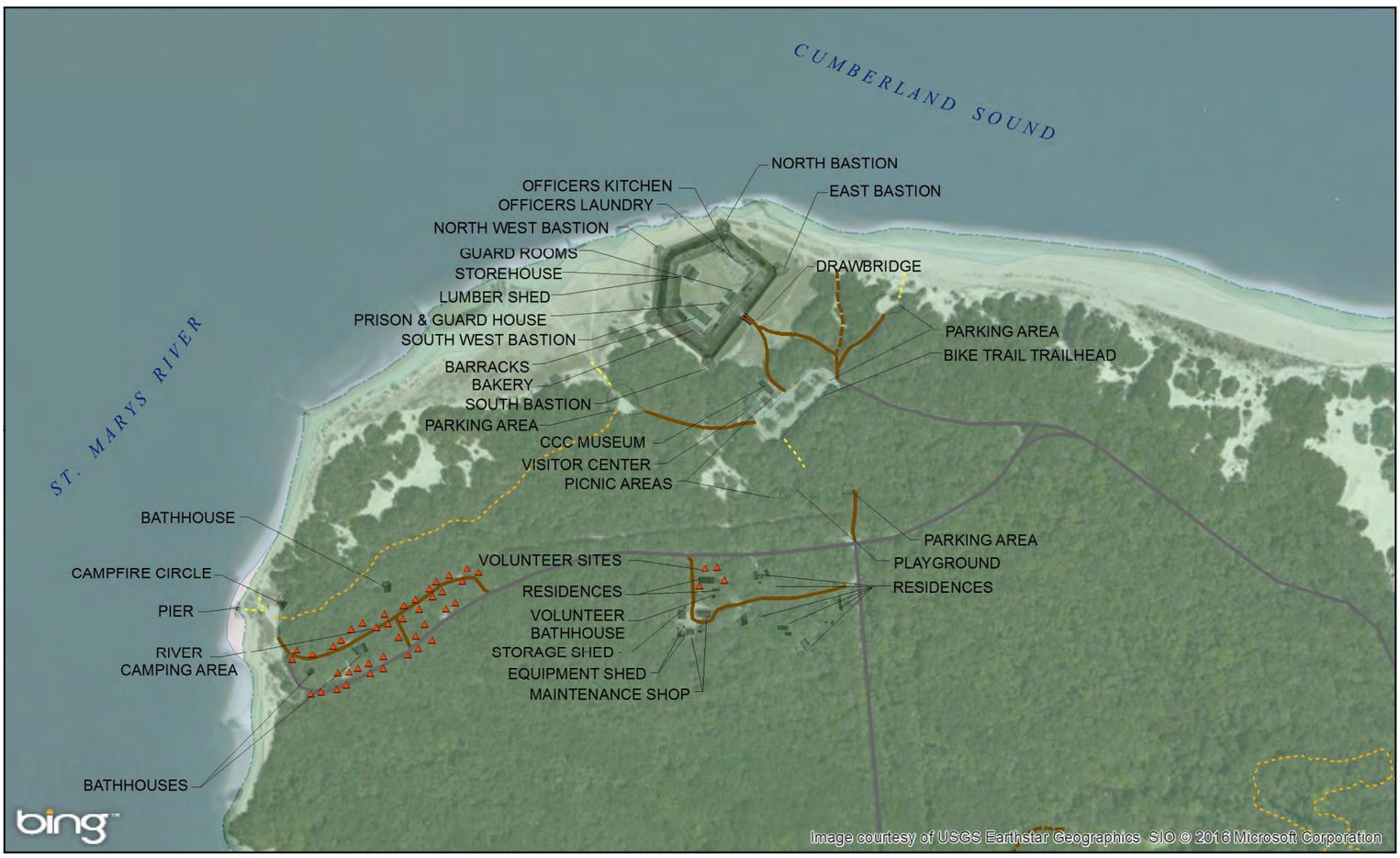
FORT CLINCH STATE PARK

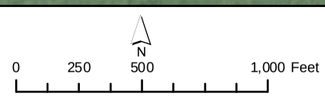
N

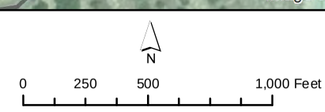
0 0.25 0.5 1 Mile

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

BASE MAP PAGE 1







Legend

Park Boundary	Biking Trail
County Road	Hiking Trail
Park Road Paved	Walkways
Park Road Stabilized	Structures
Park Road Unstabilized	Parking Lots
State Road	Camp Sites

Conceptual Land Use Plan

The following narrative represents the current conceptual land use proposal for this park. The conceptual land use plan is the long-term, optimal development plan for the park, based on current conditions and knowledge of the park's resources, landscape and social setting (see Conceptual Land Use Plan). The conceptual land use plan is modified or amended, as new information becomes available regarding the park's natural and cultural resources or trends in recreational uses, in order to adapt to changing conditions. Additionally, the acquisition of new parkland may provide opportunities for alternative or expanded land uses. The DRP develops a detailed development plan for the park and a site plan for specific facilities based on this conceptual land use plan, as funding becomes available.

During the development of the conceptual land use plan, the DRP assessed the potential impact of proposed uses or development on the park resources and applied that analysis to determine the future physical plan of the park as well as the scale and character of proposed development. Potential resource impacts are also identified and assessed as part of the site planning process once funding is available for facility development. At that stage, design elements (such as existing topography and vegetation, sewage disposal and stormwater management) and design constraints (such as imperiled species or cultural site locations) are investigated in greater detail. Municipal sewer connections, advanced wastewater treatment or best available technology systems are applied for on-site sewage disposal. Creation of impervious surfaces is minimized to the greatest extent feasible in order to limit the need for stormwater management systems, and all facilities are designed and constructed using best management practices to limit and avoid resource impacts. Federal, state and local permit and regulatory requirements are addressed during facility development. This includes the design of all new park facilities consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, park staff monitors conditions to ensure that impacts remain within acceptable levels.

Potential Uses

Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities in the park.

The existing recreational activities and programs of this state park are appropriate to the natural and cultural resources contained in the park and should be continued. New and improved activities and programs are also recommended and discussed below.

Objective: Maintain the park's current recreational carrying capacity of 4,120 users per day.

The park will continue to provide the current range of recreational day use opportunities. Hiking, bicycling, camping, swimming, fishing, and other beach activities are popular activities for park patrons.

Objective: Expand the park's recreational carrying capacity by 240 users per day.

The addition of tent and RV camping at the Amelia River Campground and Atlantic Beach Campground will increase opportunities for overnight visits at Fort Clinch State Park. Picnic pavilions at the Picnic Area and Beach Use Area will allow shaded picnicking opportunities at both ends of the park.

Objective: Continue to provide the current repertoire of 20 interpretive, educational and recreational programs on a regular basis.

Fort Clinch State Park currently offers about 20 educational, recreational, and interpretive programs and events. The educational and interpretive programs focus primarily on the park's cultural and natural resources. The goal of these programs is to facilitate an appreciation and understand of the resources within Fort Clinch State Park. Current cultural programs include Union and Confederate Fort Garrisons featuring the Civil War-era and Spanish-American War-era, as well as a World War II Commemoration event. First-person fort interpretive programs are centered on the Confederate and Union periods. Saturday evenings on Union Garrison Weekends there are candlelight viewings. Candlelight tours occur regularly from May to August. Other interpretive programs cover topics such as the Range Beacon and lighthouse, Florida Park Service, and Fort Clinch State Park Overview.

Recreational programming offered at the park gives visitors a chance to have outdoor adventures and learn about potential new hobbies and activities. Currently, the park's Recreational Skills programs include birdwatching, camping, fishing, bicycling, hiking, surfing and kayaking. Every Saturday, there are guided nature walks through Willow Pond. In addition, the park hosts fishing clinics for children, as well as campfire cooking programs. Educational programming is provided on the History of the American Soldier, Barrier Island dynamics, wetlands, wildlife, and sea turtles. The park also hosts programs on the Birding Trail and beach walks.

Objective: Develop 4 new interpretive, educational and recreational programs.

The park will add 4 new recreational and interpretive programs that seek to enlighten visitors on Fort Clinch State Park's natural and cultural resources. Visitor education will be provided in person and through interpretive displays and kiosks located throughout the park. The CCC bathhouse at the Amelia River

Camping Area will be renovated as an interpretive shelter with panels displaying information about the CCC. Presentations and/or guided walks will also be hosted for beginning bird watchers wishing to explore the wildlife at the park. As the City of Fernandina constructs a canoe launching facility at the Atlantic Avenue Park Crossing of Egan's Creek, kayak interpretive programs will be facilitated to take visitors on a leisurely kayak tour of the surrounding waterways.

Proposed Facilities

Capital Facilities and Infrastructure

Goal: Develop and maintain the capital facilities and infrastructure necessary to implement the recommendations of the management plan.

The existing facilities of this state park are appropriate to the natural and cultural resources contained in the park and should be maintained. New construction, as discussed further below, is recommended to improve the quality and safety of the recreational opportunities, to improve the protection of park resources, and to streamline the efficiency of park operations. The following is a summary of improved and new facilities needed to implement the conceptual land use plan for Fort Clinch State Park:

Objective: Maintain all public and support facilities in the park.

All capital facilities, trails and roads within the park will be kept in proper condition through the daily or regular work of park staff and/or contracted help.

Objective: Improve/repair 9 existing facilities.

Major repair projects for park facilities may be accomplished within the ten-year term of this management plan, if funding is made available. These include the modification of existing park facilities to bring them into compliance with the Americans with Disabilities Act (a top priority for all facilities maintained by DRP). The following discussion of other recommended improvements and repairs are organized by use area within the park.

Recreation Facilities

Amelia River Campground

At the campfire circle located within the Amelia River Campground, the fish cleaning table will be replaced. Parking and accessibility improvements will also be made in this area. The existing dump station should be relocated up the road from the campground near the dumpsters where there can be a pull through for RV access. The site of the current dump station should be repurposed to accommodate a few RV or tent sites. Drainage and campsite improvements will be made to eliminate flooding issues at some campsites. The old bathhouse

should be demolished due to age and replaced with tent sites that fit within the existing disturbed footprint. The additional campsites should be serviced by the existing capacity at the campground restroom. The CCC bathhouse will be converted into an interpretive shelter with panels, educating campers on this historic program and their influence at Fort Clinch State Park.

Tiger/Martins Island

The dock at Martins Island will be replaced with a new one for staff access. Existing structures on Martins Island should be demolished. No additional facilities are considered for Tiger Island.

Visitor Center

The courtyard between the Visitor Center and Museum should be expanded to provide increased seating and picnicking opportunities. Updates to the museum exhibits, related to the historic information displayed, will be made.

Picnic Area

A medium picnic pavilion should be constructed to provided shaded picnicking opportunities. A small unisex restroom should be considered within the picnic area to provide facilities for visitors. This restroom should be located adjacent to the existing parking area.

Willow Pond Trailhead

A designated parking area for 8 to 10 vehicles, including 1 ADA space, should be created to maximize parking for visitors to the Willow Pond Trailhead and lighthouse oil storage building ruins. This designated parking area should be stabilized to address soil erosion issues occurring at the trailhead. The multi-use trail should be rerouted along the parking area to avoid conflict with cars. Pedestrian enhancements will be made to include a formalized path that creates a direct route with signage for safe pedestrian crossing to the lighthouse oil storage building ruins.

Nassau House

The existing facilities at the Nassau House area should be demolished in order to facilitate restoration of the area to its natural state. No recreational potential was identified due to the fragmentation from the park's primary use areas.

Atlantic Beach Campground

The existing campground loop at the Atlantic Beach Campground should be expanded to accommodate 10 additional RV sites. The location of these additional RV sites should be sited in a manner that avoids disturbing nesting shorebird habitat. Low-impact development standards should also be implemented in order to minimize impact to the surrounding natural communities and imperiled species habitat.

Beach Use Area

Two small picnic pavilions will be added in the existing grass picnic area to provide shaded picnicking opportunities for beach visitors. The beach restrooms

should be replaced and consolidated into one 10-fixture restroom. The restroom located at the fishing pier should be replaced with a large restroom that includes concession space. Following Hurricane Matthew and the damage sustained, the pier received a structural assessment and it was determined that the pier will need to be demolished. The DRP will replace the pier, as funding becomes available.

Support Facilities

Shop/Residence Area
The existing shop area should be reconfigured to maximize utilization of the space. In order to provide more space for equipment, additional bays should be added onto the existing 3-bay pole barn.

Entrance Area
The park entrance building serves both day-use and overnight visitors to Fort Clinch State Park. Fixtures within the ranger station will be upgraded, due to the structure's age, to best serve administrative functions and visitor services.

Parkwide
DRP staff will address stormwater management issues in coordination with the City of Fernandina Beach. Staff will also continue to monitor the park boundary and access issues on the park's eastern border.

In an effort to improve the safety of cyclists and pedestrians on park property, improvements to the park road should be implemented. These improvements should include measures such as shared-lane markings, pedestrian crossings, and signage that prompts drivers to be aware that cyclists have full access to the park road.

Objective: Construct 1 mile of trail.

A trail will be constructed to connect the Atlantic beach campground and beach parking area to the main park drive. The trail will connect overnight visitors to other use areas in the park and provide a safe route where pedestrians and bicyclists can avoid car traffic. The trail will run along the existing park road and should incorporate safe crossings, when necessary.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Ten-Year Implementation Schedule and Cost Estimates (Table 6) located in the Implementation Component of this plan. These cost estimates are based on the most cost-effective construction standards available at this time. The preliminary estimates are provided to assist the DRP in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes. New facilities and improvements to existing facilities recommended by the plan include:

Recreation Facilities

Amelia River Campground
Replace fish cleaning table
Improve parking and accessibility
Relocate dump station
Add RV and tent sites
Demolish old bathhouse
Convert CCC bathhouse

Tiger/Martins Island
Replace dock
Demolish existing structures

Visitor Center
Expand courtyard
Improve museum exhibits

Picnic Area
Medium picnic pavilion
Small unisex restroom

Willow Pond Trailhead
Designated parking area
Pedestrian enhancements

Nassau House
Demolish existing structures
Restore to natural state

Atlantic Beach Campground
Expand campground loop
Trail to park drive

Beach Use Area
Small picnic pavilions (2)
Replace beach restroom
Replace fishing pier restroom
Replace fishing pier

Support Facilities

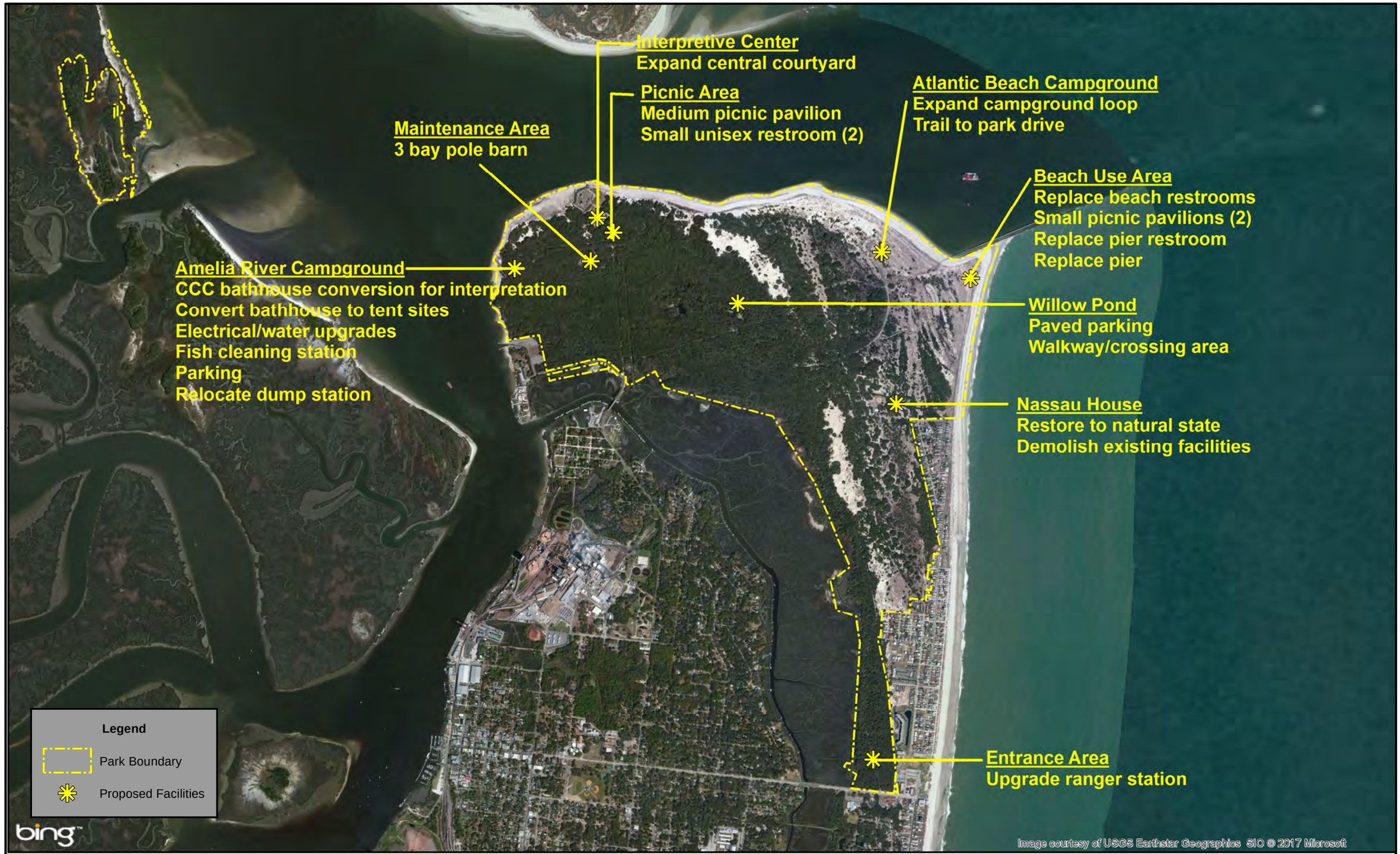
Entrance Area
Upgrade ranger station

Parkwide
Address stormwater issues
Monitor boundary/access issues
Shared-lane markings
Pedestrian crossings
Signage/wayfinding

Shop/Residence Area
Reconfigure shop area
Add additional bays to pole barn

Recreational Carrying Capacity

Carrying capacity is an estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site. The carrying capacity of a unit is determined by identifying the land and water requirements for each recreation activity at the unit, and then applying these requirements to the unit's land and water base. Next, guidelines are applied which estimate the physical capacity of the unit's natural communities to withstand recreational uses without significant degradation. This analysis identifies a range within which the carrying capacity most appropriate to the specific activity, the activity site and the unit's classification is selected (see Table 5).



FORT CLINCH STATE PARK

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0 0.25 0.5 1 Miles

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

CONCEPTUAL LAND USE PLAN

Table 5. Recreational Carrying Capacity

Activity / Facility	Existing Capacity* One Time	Existing Capacity* Daily	Proposed Additional Capacity One Time	Proposed Additional Capacity Daily	Estimated Recreational Capacity One Time	Estimated Recreational Capacity Daily
Trails						
Multi-Use	60	120			60	120
Nature	20	80			20	80
Visitor Center	380	1,520			380	1,520
Picnicking	100	200	56	112	156	312
Camping						
Standard Facility	552	552	128	128	680	680
Primitive Group Camp	16	16			16	16
Campfire Circle	168	168			168	168
Fishing	240	480			240	480
Swimming	492	984			492	984
TOTAL	**2,028**	**4,120**	**184**	**240**	**2,212**	**4,360**

*Existing capacity revised from approved plan according to DRP guideline

The recreational carrying capacity for this park is a preliminary estimate of the number of users the unit could accommodate after the current conceptual development program has been implemented. When developed, the proposed new facilities would approximately increase the unit's carrying capacity as shown in Table 5.

Optimum Boundary

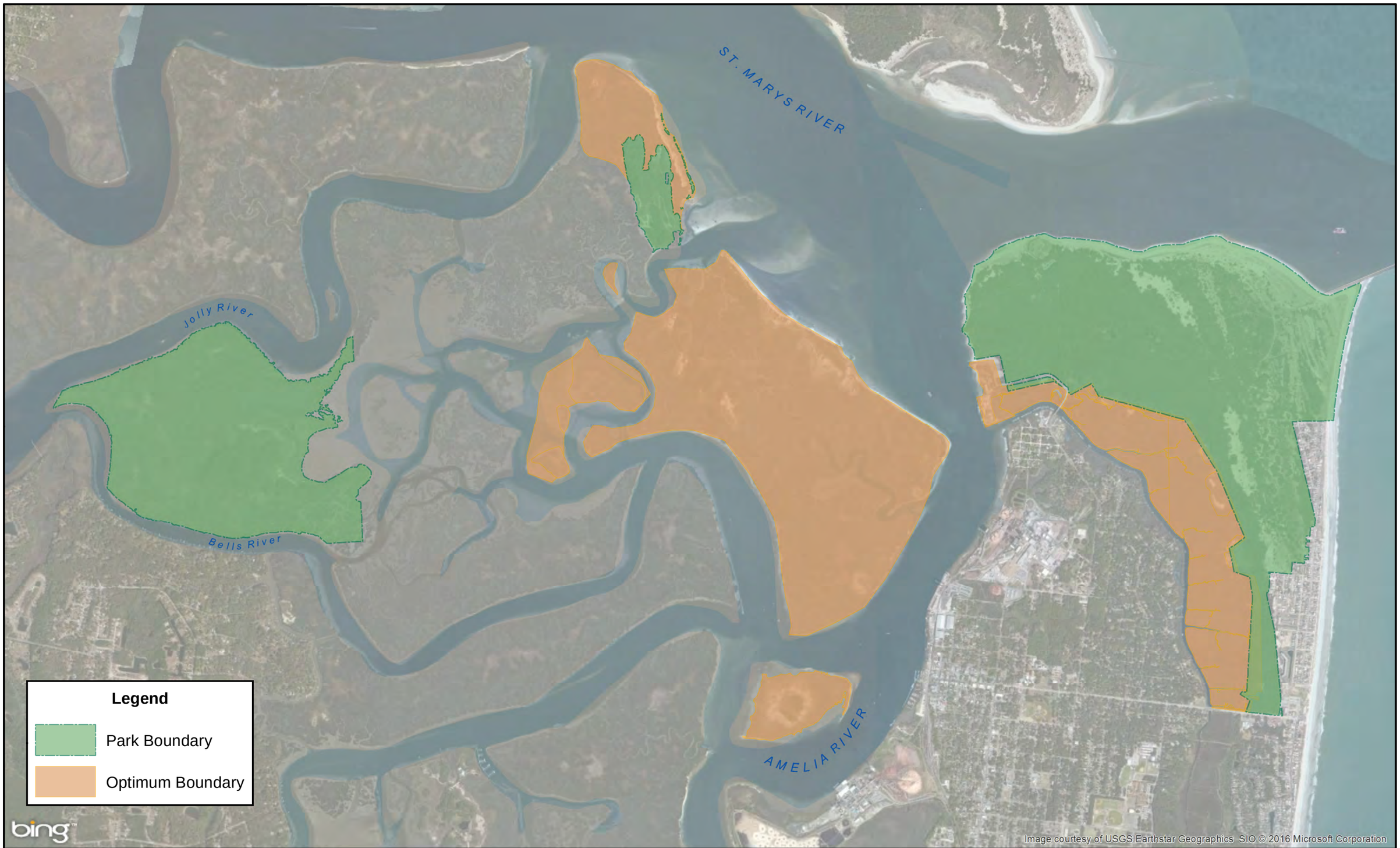
The optimum boundary map reflects lands considered desirable for direct management by the DRP as part of the state park. These parcels may include public or privately owned land that would improve the continuity of existing parklands, provide the most efficient boundary configuration, improve access to the park, provide additional natural and cultural resource protection or allow for future expansion of recreational activities. Parklands that are potentially surplus to the management needs of the DRP are also identified. As additional needs are identified through park use, development, and research, and as land use changes on adjacent property, modification of the park's optimum boundary may be necessary.

Identification of parcels on the optimum boundary map is intended solely for planning purposes. It is not to be used in connection with any regulatory purposes. Any party or governmental entity should not use a property's identification on the optimum boundary map to reduce or restrict the lawful rights of private landowners. Identification on the map does not empower or suggest that any government entity should impose additional or more restrictive environmental land use or zoning regulations. Identification should

not be used as the basis for permit denial or the imposition of permit conditions.

The optimum boundary for Fort Clinch State Park includes 23 separate parcels to the park property. The parks' viewshed is one of its most recognizable assets. As an integral part of this viewshed, the Tiger Islands and Egan's Creek Marsh should be considered for purchase. An additional parcel consisting of the Agricola tract and the old Poggy Plant site are natural extensions of the parks' northwestern boundary. The natural communities on the Agricola parcel continue those in park property and serve as a buffer between the park and the industrial activities in the old Poggy Plant. Acquisition of these parcels would provide opportunities to expand recreational opportunities and allow park staff to manage these areas as part of the larger park property through continued natural resource protection and monitoring of visitor activities and impacts within the park.

At this time, no lands are considered surplus to the needs of the park.



FORT CLINCH STATE PARK

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0 0.25 0.5 1 Miles

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2014

OPTIMUM BOUNDARY MAP

IMPLEMENTATION COMPONENT

The resource management and land use components of this management plan provide a thorough inventory of the park's natural, cultural and recreational resources. They outline the park's management needs and problems, and recommend both short and long-term objectives and actions to meet those needs. The implementation component addresses the administrative goal for the park and reports on the Division of Recreation and Parks (DRP) progress toward achieving resource management, operational and capital improvement goals and objectives since approval of the previous management plan for this park. This component also compiles the management goals, objectives and actions expressed in the separate parts of this management plan for easy review. Estimated costs for the ten-year period of this plan are provided for each action and objective, and the costs are summarized under standard categories of land management activities.

Management Progress

Since the approval of the last management plan for Fort Clinch State Park in 2004, significant work has been accomplished and progress made towards meeting the DRP's management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and the DRP.

Acquisition

- Since the last Unit Management Plan update, the park has acquired Uplands Parcels of the Fort Clinch Aquatic Preserve, including Martins Island and Tiger Islands, which provide critical habitat for the Worthington's Marsh Wren and MacGillivray's Seaside Sparrow. Martin's Islands also serve as nesting sites for the American Bald Eagle and roosting habitat for several bird species including wood storks and osprey. A small primitive campsite has been developed on Tiger Island for outdoor recreational activities.
- The park has worked closely with the Fort Clinch Aquatic Preserve staff identifying additional submerged and upland parcels for future acquisition west of the current park boundary including Egans Creek marsh habitat and spoil islands adjacent to Little Tiger Island, which provide critical habitat for the Worthington's Marsh Wren and MacGillivray's Seaside Sparrow.

Park Administration and Operations

- Volunteer support to the park has increased by 45% over the past 5 fiscal years. Since 2004, more than 172,000 volunteer hours have been contributed to the parks success in providing outstanding visitor services, natural and cultural resource management activities, maintenance of facilities and grounds, and protection of park resources. The park has conducted significant volunteer recruitment efforts throughout the local community and has developed large volunteer teams working together to accomplish significant park goals in visitor services, living history interpretation, cultural resource preservation and park maintenance goals.

- The park is supported by the Friends of Fort Clinch Citizen Support Organization (CSO) who has recently purchased 3 utility vehicles in support of park staff and volunteer park operations and a 3 lb. Parrot Rifle for living history demonstrations and interpretation of Fort Clinch. They have also provided funding for the restoration of a Gatling Gun on display at the park museum building. The CSO also provides significant support to the parks Living History Interpretive program acquiring authentic and replica Civil War interpretive objects for display and use by living history interpreters. The CSO most recently facilitated the acquisition and display of Civil War documents from the Bulger Family to interpret the service of their Great-Great Grandfather, 1st Sgt. George Hughes, who served at Fort Clinch during the Civil War. The CSO has also worked with the park in hosting numerous, park sponsored special events and private special events which are a significant fundraiser to support the CSO's efforts in supporting the park. In 2007, The Friends of Fort Clinch completed a grant to restore all windows and doors within the fort. Efforts are ongoing by volunteer carpentry teams and through contracting, the routine repair and replacement of these fort components. The Friends of Fort Clinch are currently raising funds for the Purchase of a Civilian Conservation Corps (CCC) Bronze Statue to be placed at the Visitor Center area to educate visitors about the valuable role of the CCC in the development of Fort Clinch State Park and the role this program played in the creation of the Florida State Park System.
- The park and US Navy, Kings Bay Naval Base, work in partnership with Fernandina Beach Police department to provide routine homeland security services monitoring the St. Mary's Inlet and adjacent shorelines.
- In 2014, the park invested significant funds for the replacement of a radio communications tower and acquired a high band radio system and associated license to operate within the park which has made significant improvements to overall park communications and operations.
- In 2013, the park acquired equipment to assist with the maintenance and protection of cultural resources including a high lift and chipper, which allow the park to maintain taller historic buildings minimizing contractual repair costs and assisting with tree trimming of the historic canopy road.
- The park serves as the gateway site to the Eastern portion of the Great Florida Birding Trail and has converted a small concession building into an interpretive facility and bird habitat viewing area for birdwatching recreation. This area is heavily visited by park visitors during late spring migration of painted buntings and the pier is a popular site for purple sandpipers.
- The park actively participates in meetings of the Florida Shorebird Alliance, Coastal Wildlife Coordinating Initiative and Sea Turtle workshops which share ideas and resources in the education and protection of coastal habitats and the animals which inhabit them.
- In 2015, the park has entered into a continuing agreement with the US Army Corps Of Engineers on radio telemetry monitoring of the St. Mary's Inlet
- SJRWMD provides annual groundwater monitoring and testing of several abandoned freshwater wells which have been abandoned by the park during conversion to municipal water supply.

- In 2016, the park implemented the Responsible Pier Initiative signage educating fishermen who accidentally hook sea turtles and providing pier nets to safely remove hooks and release the turtles with minimal injury.
- Florida Public Utilities works closely with the park in minimizing trimming of the tree canopy to reduce impacts from salt pruning.
- In 2015, the park acquired a larger boat to support staff operations at Tiger Island, Martins Island and inspection of the Atlantic Fishing Pier.
- In 2011, the park acquired a type 1 black powder magazine for safe handling and storage of black powder used in historic weapons firing demonstrations.

Resource Management

Natural Resources

- The park is one of 33 Indexing Sea Turtle locations throughout the state which provide a baseline foundation for sea turtle nesting data. Park staff and volunteers conduct daily sea turtle monitoring and nesting surveys along 3miles of park shoreline.
- The northern shoreline of the park serves as critical habitat for nesting shorebirds such as the Wilsons Plover. The park actively closes sections of critical nesting habitat and provides education and outreach to park staff and local law enforcement agencies in minimizing beach driving impacts during nesting season and fledging of chicks. Park volunteers are also assisting with public outreach and monitoring of closed areas during portions of the nesting season and high visitor periods to minimize visitor impacts.
- The park's Atlantic shoreline is a significant bird resting habitat for black skimmers, least terns, royal terns, laughing gulls, etc. In 2013, the park increased signage educating visitors in not disturbing resting shorebirds as well as improved boundary signage educating visitors entering through the parks Atlantic and St. Mary's Inlet shorelines prohibiting pets on the beach which may disrupt resting and nesting birds and sea turtle nests.
- The park has planted more than 1,500 native plants in the parks beach parking area and visitor center to develop more natural landscapes and provide native vegetation buffers.
- Five Dune Crossovers totaling over 2,000 linear feet were reconstructed by park staff and volunteers between 2011 and 2015 to direct visitor travel to shorelines preventing manmade paths, which would otherwise damage natural resources and sensitive dune vegetation.
- The park works with the Army Corps of Engineers and the US Navy annually to conduct beach re-nourishment projects and shoreline restoration along the St. Mary's inlet to protect Historic Fort Clinch and adjacent natural areas as well as providing a pipeline corridor for adjacent city beach shoreline sand placement.
- The park staff along with a partnership with the AmeriCorps Florida State Parks service program is actively involved in invasive exotic plant removal and has removed more than 250 gross acres of exotic plants within the park between 2006 and 2016.

- The park has conducted community education and outreach through mailing of letters and educational pamphlets to adjacent landowners east of the park to educate them on highly invasive exotic plants including Brazilian pepper, asparagus fern and Chinese tallow, which are increasing in occurrence on private property and may pose significant impacts to the parks pristine natural communities.
- In 2010, park staff were instrumental in the identification of the first occurrence of Beach Vitex in the State of Florida, an aggressive invasive exotic plant which crowds out native beach vegetation and reduces sea turtle nesting habitat. Staff have also been involved with the Florida Forest Service research on Ambrosia Beatle damage of Red Bay Trees.
- Between 2008 and 2012, the park has installed and established more than 1 mile of boundary fencing to identify and protect the parks natural and cultural resources.
- The park staff and volunteers have implemented erosion control techniques along the 6 mile multi use trail utilizing donated permeable pavers on steep slopes to reduce erosion and root damage.
- Since 2014, the park and researchers are monitoring game cameras for mink, bobcat sightings which have been visibly reduced in number since 2011, and possible feral hog, coyote and deer activity impacts to the park.

Cultural Resources

- Since 2006, The Division has committed more than one million dollars in historic preservation funding for the maintenance and upkeep of Fort Clinch. The park utilizes a majority of this funding for mason work completing tuck and pointing of brickwork, and numerous other historic repair projects on an annual basis. Between 2005-2015 the park contracted for the replacement of the Soldier Barracks handrails, repainting of all replica cannons and metal gun mounts, treating and preserving the enlisted soldiers latrine metal components, repainting structural columns, repainting of doors and windows as well as additional work by park staff repairing medical room flooring, cistern cover repairs, and annual preservation of wood components
- Between 2013 and 2015, park staff and volunteers completed an extensive hand-trimming of more than 7 miles of historic canopy tree line on the park road shoulder which is a major cultural landscape and significant natural and cultural resource within the park.
- In 2013, park staff completed an extensive hardwood vegetation removal project along the entire rampart slope within Historic Fort Clinch, and in 2014, completed waterproofing of the concrete section of the rampart above the kitchen buildings.
- The park is currently under contract for the restoration of a 1937 CCC Bathhouse in the River Campground. This project will include the removal of a 1957 addition, restoration of window and door openings and other structural components, reroofing and replacement of all doors and windows.
- In 2014, the park applied for and was awarded a $350,000 grant in 2015 from the Department of State to repair exploding metal components of four Bastion

gun port openings (4 in each bastion) which are threatening structural integrity of these bastions.

Recreation and Visitor Services

- Over the past 10 years, park attendance has increased 40% and visitation during the 2015 fiscal year has exceeded 300,000 visitors annually for the first time in park history.
- On January 1, 2016, the park has entered into a Visitor Service Agreement with American Parks of Florida, LLC. in order to increase visitor services to the public and free up additional staff for other essential park operations. These new services will include food and beverage services, collection of Fort Entry fees, merchandise sales, seasonal bait and tackle, and refreshments at the Fishing Pier, equipment rental services and vending.
- Fort Clinch State Park is the flagship for Living History Interpretation in Florida and one of the most significant Living History sites in the United States. The Park provides significant interpretive programming to the public on a daily weekly and monthly basis. Each year more than 70,000 visitors experience the Life of a Union Soldier by a staffed living history interpreter within Fort Clinch daily. More than 20 major special events are held within the Fort annually including First Weekend Union Garrisons, First Weekend Confederate Garrisons, Spanish American War Garrisons, World War II Garrisons, as well as a History of the American Soldier Event, Holliday Jollification program, and more. These special events are supported by more than 20 volunteers who provide extensive educational programming and living history interpretation of each of the individual rooms within the fort with period costumes and historically accurate displays and equipment.
- In addition to the above interpretive programming, annually the park conducts approximately 100 guided nature walks on the willow pond trail, 50 guided candlelight fort tours, 30 ranger-led campfire interpretive programs, and 12 recreational skills programs.
- Each year the park hosts a wide variety of community based events and private special events including an annual Free Kids Fishing Clinic hosting more than 500 children, a women's fishing clinic hosting 25 women, the Katie Ride for Life, Reindeer Run, 100 Mile Endurance Run, Concourse D'Elegance, Watermelon Ride, JDRF Ride to Cure Diabetes, Zooma Women's fitness run, Florida State Championship Series Mountain Bike Event, as well as numerous private beach weddings and private special events within the Fort.
- In 2014, the park entered into partnership with Georgia State Parks, cross-marketing parks within close proximity and with similar destinations such as forts, historic sites and coastal parks. The park actively participates with Visit Florida and provides staffing for promotion of Florida State Parks at the I-95 welcome center at the Georgia/Florida line; additional efforts include partnerships with the City of Fernandina Beach, Amelia Island Chamber of Commerce and the Tourism development council sharing brochures. The park is highlighted in the county and city visitors guides as the must see attraction in Nassau County and Fernandina Beach. The park promotes and encourages visitor feedback through Trip Advisor website, which has recently become a

major destination planning tool for families while visiting the area and the park currently has more than 1,800 reviews with a 4.5 star rating and is the #1 destination in Fernandina Beach.

- The park has been undertaking major efforts to enhance the experience for visitors with disabilities as well as a completing a self-assessment for needed modifications to park facilities and use areas to transition all facilities to universal accessibility. Park staff have replaced more than 2,000 linear feet of boardwalk in 5 separate use areas and installed ADA outdoor showers on the 2 main beach use area boardwalks. The park has installed paved parking and accessible walkways at the Visitor Center Picnic Area, West Inlet Use Area, East Inlet Use Area, River Campground, and Ranger Station. In 2015, the park installed 2 fully ADA accessible campsites in the river campground and they are currently working to convert all beach RV campsites to ADA accessible sites. The park has also acquired 2 beach wheelchairs as well one all-terrain powered wheelchair for visitor use. The park has increased accessible programming by installing ramps within the fort buildings to increase accessibility to lower level historic buildings, as well as an accessible video and exhibits in the museum building.
- Since the last Unit Plan Update the park has developed new brochures and park literature including a Revised Park Brochure, History of the Fort Brochure, New Campground Map, Willow Pond Brochure, and a completely revised website layout and text in 2014.
- Between 2008 and 2015, the park updated all intra-park signage at all decision points to include international symbols and larger font for easier understanding by park visitors.
- The park conducts extensive marketing and outreach through media releases statewide, TV promotions and educational programs. Between 2008 and 2015, the park has coordinated extensively with major educational programming stations providing first person living history interpretation which has been featured on PBS, Florida Crossroads, The History Channel, Discovery Channel, and Jacksonville International Airport Advertisements. Most recently the park was featured in Southern Living Magazine in 2015.
- The park added a variety of Value Added Services throughout the park including Television displays installed in the campground restroom foyers to educate park visitors of park services, recreational activities, programs and events as well as cross marketing local state parks in Florida & Georgia. These TV exhibits also contain park guidelines pertaining to common rule violations within the park including pets prohibited on the beach, quiet times, etc. The park has also implemented a visual TV display at the Ranger Station to inform, educate park visitors of possible hazards, safety messages, while reducing excess signage. Hammocks and boardwalk seating platforms have also been installed in campground areas for enjoyment of the scenic vistas offered in these areas.

Park Facilities

Since the last Unit Management Plan update, significant infrastructure improvements have been made throughout the park including:

- A new 6,200 SF Visitor Center Building with food and beverage support kitchen, conference room, merchandising area and new restrooms.
- Renovation of the 1,413 SF CCC Visitor Center building into a museum building with interpretive exhibits, video programming and Civil War collections documents.
- A new 2,233 SF Beach Campground bathhouse, new water and electric utilities in all existing campsites.
- A new 2,172 SF River Campground Bathhouse with replacement of electrical pedestals in all River campsites.
- Six new tent only campsites at the Beach camping area and 2 new family campsites in the River campground. Additionally, 2 River Campground sites were converted to fully accessible sites with improved accessible restroom parking.
- Development of Egans Creek Overlook Boardwalk and parking area with interpretive signage about marsh habitat and lighthouse.
- Replacement of more than 2,000 LF of boardwalk by park staff and volunteers completing all boardwalk upgrades throughout the park.
- In 2007, a major fishing pier renovation was completed including replacement of failing deck spans, repairing damaged pilings and caps, installation of turtle friendly solar led lighting, and renovation of the pier restroom facility. The park is currently completing an additional engineering study for repair and replacement of additional pier damage.
- Completed lead paint and asbestos surveys on all historic buildings and older park facilities.
- The park contracts for monthly maintenance and repair of sewer lift station controls and pumps.

Management Plan Implementation

This management plan is written for a timeframe of ten years, as required by Section 253.034 Florida Statutes. The Ten-Year Implementation Schedule and Cost Estimates (Table 7) summarizes the management goals, objectives and actions that are recommended for implementation over this period, and beyond. Measures are identified for assessing progress toward completing each objective and action. A time frame for completing each objective and action is provided. Preliminary cost estimates for each action are provided and the estimated total costs to complete each objective are computed. Finally, all costs are consolidated under the following five standard land management categories: Resource Management, Administration and Support, Capital Improvements, Recreation Visitor Services and Law Enforcement.

Many of the actions identified in the plan can be implemented using existing staff and funding. However, a number of continuing activities and new activities with measurable quantity targets and projected completion dates are identified that cannot be completed during the life of this plan unless additional resources for these purposes are provided. The plan's recommended actions, time frames and cost estimates will guide the DRP's planning and budgeting activities over the period of this plan. It must be noted that these recommendations are based on the information that exists at the time the plan was prepared. A high degree of

adaptability and flexibility must be built into this process to ensure that the DRP can adjust to changes in the availability of funds, improved understanding of the park's natural and cultural resources, and changes in statewide land management issues, priorities and policies.

Statewide priorities for all aspects of land management are evaluated each year as part of the process for developing the DRP's annual legislative budget requests. When preparing these annual requests, the DRP considers the needs and priorities of the entire state park system and the projected availability of funding from all sources during the upcoming fiscal year. In addition to annual legislative appropriations, the DRP pursues supplemental sources of funds and staff resources wherever possible, including grants, volunteers and partnerships with other entities. The DRP's ability to accomplish the specific actions identified in the plan will be determined largely by the availability of funds and staff for these purposes, which may vary from year to year. Consequently, the target schedules and estimated costs identified in Table 7 may need to be adjusted during the ten-year management planning cycle.

Table 6
Fort Clinch State Park Ten-Year Implementation Schedule and Cost Estimates - Page 119

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal I: Provide administrative support for all park functions.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Continue day-to-day administrative support at current levels.**	Administrative support ongoing	C	**$790,878**
Objective B	**Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.**	Administrative support expanded	C	**$46,071**
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Conduct/obtain an assessment of the park's hydrological needs.**	Assessment conducted	ST, LT	**$4,500**
Action 1	Continue to cooperate with state and federal agencies and researchers regarding hydrological research and monitoring programs within the park, particularly related to freshwater wetlands, groundwater levels, and surface water quality of its associated estuarine water bodies	Cooperation ongoing	UFN	$3,500
Action 2	Continue to monitor, review and comment on proposed land use/zoning changes within lands bordering the park	Monitoring ongoing	C	$1,000
Objective B	**Restore natural hydrological conditions and functions to approximately 1 acres of Coastal Interdunal Swale natural community.**	# Acres restored or with restoration underway	UFN	**$6,000**
Action 1	Assess hydrological impacts (i.e. altered hydroperiod) to the parks interdunal swale wetland community	Assessment completed	UFN	$3,000
Action 2	Determine if ditch block installation could be a useful restoration technique to restore natural hydroperiod within the parks interdunal swale wetlands	Determination completed	UFN	$3,000
Objective C	***Evaluate and mitigate the impacts of soil erosion in the park.***		ST, LT	**$7,000**
Action 1	Develop and implement a Trail Management Plan for the park's recreational trails	Plan developed and implemented	ST, LT	$3,000
Action 2	Assess erosion impacts from coastal erosion, surface water runoff, and recreational uses and implement corrective measures	Assessment completed	LT	$4,000
Goal III: Restore and maintain the natural communities/habitats of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	***Complete a comprehensive floral and faunal survey, and update the park's baseline plant and animal list.***	Survey conducted, list updated	LT	**$5,000**
Action 1	Conduct a comprehensive floral and faunal survey of the new additions to park, specifically Martin's and Big Tiger Islands	Survey conducted	LT	$3,300
Action 2	Continue to update the park's plant and animal lists	Survey ongoing	C	$1,700

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Table 6
Fort Clinch State Park Ten-Year Implementation Schedule and Cost Estimates - Page 120

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal IV: Maintain, improve or restore imperiled species populations and habitats in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	***Develop/Update baseline imperiled species occurrence inventory lists for plants and animals.***	List updated	C	**$3,200**
Action 1	Park and District staff and park volunteers will continue to inventory the park to update imperiled species inventory lists.		C	$3,200
Objective B	***Monitor and document 8 selected imperiled animal species in the park.***	# Species monitored	C	**$88,000**
Action 1	Develop monitoring protocols for 2 selected imperiled animal species including Worthington's marsh wren and Macgillivray's seaside sparrow.	# Protocols developed	ST	$1,000
Action 2	Implement monitoring protocols for 8 imperiled animal species including those listed in Action 1 above and marine turtle species (3), piping plover, Wilson's plover, and least tern.	# Species monitored	C	$87,000
Objective C	***Monitor and document 2 selected imperiled plant species in the park.***	# Species monitored	C	**$4,500**
Action 1	Develop monitoring protocols for 2 selected imperiled plant species including shell-mound prickly pear and pine pinweed.	# Protocols developed	ST	$1,200
Action 2	Implement monitoring protocols for 2 imperiled plant species listed in Action 1 above.	# Species monitored	C	$3,300
Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Annually treat 1 acre of exotic plant species in the park.**	# Acres treated	C	**$60,000**
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	$30,000
Action 2	Implement annual work plan by treating 1 acre in park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented		$30,000
Objective B	***Implement control measures on 3 exotic animal species in the park.***	# Species for which control measures implemented	C	**$12,000**
Action 1	Remove feral hogs and feral cats as necessary.	# Animals removed	C	$10,000
Action 2	Monitor the exotic cactus moth and remove egg sticks from any cacti on which they occur and in particular remove them from the shell-mound prickly pear.	Monitoring ongoing	C	$2,000
Objective C	***Develop and implement measures to prevent the accidental introduction or further spread of invasive exotic plants in the park.***	Measures implemented	C	**$7,000**
Action 1	Prepare written guidelines to prevent the introduction and spread of invasive exotic plants. Provide staff with the tools to implement the guidelines.	Guidelines prepared	C	$7,000

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Table 6
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Goal VI: Protect, preserve, and maintain the cultural resources of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	***Assess and evaluate 20 of 20 recorded cultural resources in the park.***	Documentation complete	LT	**$50,000**
Action 1	Complete 20 assessments/evaluations of archaeological sites.	Assessments complete	LT, ST	$30,000
Action 2	Complete 1 Historic Structures Reports (HSR's) for Combination Building NA00720.	Reports and priority lists completed	LT	$20,000
Objective B	***Compile reliable documentation for all recorded historic and archaeological resources.***	Documentation complete	LT	**$28,000**
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	$3,000
Action 2	Conduct Level 1 archaeological survey for any unsurveyed areas that may be impacted by proposed new developments.	Probability Map completed	ST	$25,000
Objective C	***Bring 7 of 20 recorded cultural resources into good condition.***	# Sites in good condition	LT	**$637,500**
Action 1	Design and implement regular monitoring programs for 20 cultural sites	# Sites monitored	C	$10,000
Action 2	Create and implement a cyclical maintenance program for the park's collection items.	Programs implemented	C	$6,500
Action 3	Implement repair and stabilization of the bastion gun ports for Ft Clinch (NA00080).	Projects completed	LT, ST	$350,000
Action 4	Scan Civil War documents and store archivally.	Projects completed	LT	$3,000
Action 5	Develop and implement a plan to restore the original structure, remove the addition and repair structural cracks of The Latrine (NA00721).	Projects completed	LT	$150,000
Action 6	Develop and implement a plan to demolish The Bathhouse, River Camp BL027023 (NA01287) & establish tent sites.	Projects completed	UFN	$33,000
Action 7	Develop and implement a plan to stabilize the Rear Range Beacon Oil Storage House (NA00983).	Projects completed	UFN	$85,000
Goal VII: Provide public access and recreational opportunities in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain the park's current recreational carrying capacity of 4,120 users per day.**	# Recreation/visitor opportunities	C	**$1,977,196**
Objective B	**Expand the park's recreational carrying capacity by 240 users per day.**	# Recreation/visitor opportunities	ST, LT	**$115,176**
Objective C	**Continue to provide the current repertoire of 20 interpretive, educational and recreational programs on a regular basis.**	# Interpretive/education programs	C	**$100,000**
Objective D	**Develop 4 new interpretive, educational and recreational programs.**	# Interpretive/education programs	ST or LT	**$28,000**

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Goal VIII: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain all public and support facilities in the park.**	Facilities maintained	C	**$2,768,074**
Objective B	**Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.**	Plan implemented	ST, LT	**$75,000**
Objective C	**Improve and/or repair 9 existing facilities as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	LT	**$6,147,000**
Objective D	**Construct 1 mile of trail as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	LT	**$55,440**
Objective E	**Expand maintenance activities as existing facilities are improved and new facilities are developed.**	Facilities maintained	C	**$161,247**

Summary of Estimated Costs		
Management Categories		**Total Estimated Manpower and Expense Cost* (10-years)**
Resource Management		**$912,700**
Administration and Support		**$836,949**
Capital Improvements		**$6,277,440**
Recreation Visitor Services		**$5,149,693**
Law Enforcement Activities	Note: Law enforcement activities in Florida State Parks are conducted by the FWC Division of Law Enforcement and by local law enforcement agencies.	

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Addendum 1—Acquisition History

LAND ACQUISITION HISTORY REPORT

Park Name	Fort Clinch State Park
Date Updated	1/7/2016
County	Nassau County, Florida
Trustees Lease Number	Lease No. 3620 (Original Lease No. 2324)
Current Park Size	2,178.25 acres
Purpose of Acquisition	No purpose of acquisition is given in the first acquisition document.

Acquisition History

Parcel Name or Parcel DM-ID	Date Acquired	Initial Seller	Initial Purchaser	Size in acres	Instrument Type
MDID 3476	7/5/1977	The Nature Conservancy	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees)	861.29	Warranty Deed
MDID367595	9/20/1935	Percy Hunter Neville and Cecil Wert Neville, as the Trustees and last will Testament of Sylvester M. Neville	Florida Board of Forestry	508.882	Trustees Deed
MDID 367600	12/21/1936	Hinton J. Baker and his wife Adfline B. Baker and Frank F. Jennings and His wife Minerm P. Jennings	Florida Board of Forestry	118.523	Deed
MDID 338963	3/24/2003	St. Martin's Island Preserve, LLC	Trustees	112.659	Warranty Deed
MDID 2234	10/1/1967	State Board of Education	Trustees of the Interal Improvement Fund of the state of Florida.	43.031	Deed
MDID 112	12/30/1986	Robert P. Ferreira	Trustees	33.722	Warranty Deed
MDID 144	2/24/1993	William Agricola	Trustees	22.956	Warranty Deed
MDID 145	2/24/1993	J. R. Baker, Inc.	Trustees	22.031	Corporate Warranty Deed

Management Lease

Parcel Name or Lease Number	Date Leased	Initial Lessor	Initial Lessee	Current Term	Expiration Date
Original Lease No. 2324	1/23/1968	Trustees of the Internl Improvement Fund of the State of Florida	Florida Board of Parks and Historic Memeorials	99 years	1/22/2067

Outstanding Issue	Type of Instrument	Brief Description of the Outstanding Issue	Term of the Outstanding Issue
Reverter	Quitclaim Deed	The subject property shall be used for state park purpose; however, if the preperty is not used for state Park purposes it will revert to the grantor, successors or assigns	Perpertuity
Reverter	Indenture	If the subject property is not used for road purposes or discontinued to be used, it will revert to the grantor.	Perpertuity
Reverter	Indenture	If the subject property is not used or discounined to be used, it will revert to the grantor.	Perpertuity

Addendum 2—Advisory Group Members and Report

Fort Clinch State Park
Advisory Group Members

Local Government Representative

The Honorable Robin Lentz,
Mayor
City of Fernandina Beach

Agency Representatives

Heath Alboher, Park Manager
Division of Recreation and Parks
Fort Clinch State Park

Blair Hayman, Regional Biologist
Florida Fish and Wildlife
Conservation Commission

Dean Woehrle, Chair
Nassau County Soil and Water
Conservation District

Mike Wisenbaker, Archaeologist
Florida Department of State
Division of Historical Resources

Erica Hernandez
St. Johns River Water
Management District

Andrea Noel, Manager
Florida Coastal Office
Fort Clinch Aquatic Preserve

Environmental and Conservation Representatives

Elizabeth Guthrie
North Florida Land Trust

Chris Farrell
Audubon Florida

Local Private Property Owner

Richard Scott, Local Resident
Property Owner

Recreational User Group Representatives

Ray Hetchka
Kayak Amelia

Mark Atkins, President
North Florida Bicycle Club

Paul Haydt, Coordinator
East Coast Greenway Alliance

Cultural Resource Organization Representative

Tom Oliver, President
General Duncan Lamonte Clinch
Historical Society

Tourism and Economic Development Representative

Gil Langley, President
Amelia Island
Tourist Development Council

Citizen Support Organization

Don Hughes, President
Friends of Fort Clinch State Park

The advisory group meeting to review the proposed unit management plan (UMP) for Fort Clinch State Park and Fernandina Plaza Historic State Park was held at the Visitor Center at Fort Clinch State Park on March 16, 2017 at 9:00 am.

Len Kreger represented Mayor Robin Lentz. Susan Taylor represented Mark Atkins. Anita Oliver represented Tom Oliver. Dean Woehrle, Mike Wisenbaker, Andrea Noel, and Paul Haydt were not in attendance. All other appointed advisory group members were present, as well as Michael Leary and Kelly Colvin. Attending staff were Clif Maxwell, Dan Pearson, Heath Alboher, Cody Peters, Jason Mahon, Mari Schwabacher, and Tyler Maldonado.

Mr. Maldonado began the meeting by explaining the purpose of the advisory group and reviewing the meeting agenda. He provided a brief overview of the Division of Recreation and Parks' (DRP) planning process. Mr. Alboher summarized public comments received during the previous evening's public hearing. Mr. Maldonado then asked each member of the advisory group to express his or her comments on the plans.

During the two-week public comment period following the advisory group meeting, the DRP received numerous emails from members of the public about the Fort Clinch State Park unit management plan. The major themes of these emails are as follows:

- Local residents emphasized the importance of the fishing pier as a recreational asset at Fort Clinch State Park and urged the Florida Park Service to replace the pier as soon as possible.

- Concerns were raised with the proposed Atlantic beach campground expansion, citing potential impacts to the surrounding natural communities and species habitat.

- Similarly, park visitors expressed apprehension toward the proposed trail from the Atlantic beach campground to the beach parking area and the proposed improvements to the Willow Pond trailhead.

- Members of the public opposed language in the Introduction referring to potential revenue generation and secondary management purposes such as sea oat harvesting and alternative energy.

Summary of Advisory Group Comments

Len Kreger (Vice Mayor, City of Fernandina Beach) stated he had one of their city planners review the management plans, and no glaring issues were found. Mr. Kreger discussed the mosquito ditches that are scheduled for restoration in the management plan. He stated the City is addressing similar issues outside of the park property within its jurisdiction, and he offered technical assistance from the City for stormwater engineering. Mr. Kreger remarked on beach re-nourishment taking place on park property. He recommended DRP should develop sea level rise standards beyond what is stated in the management plan. He stressed the

importance of ensuring a balance between conservation of the park's natural resources and public access for outdoor recreation purposes. Mr. Kreger expressed the willingness of the City to partner with the park on issues of mutual concern. He finished his comments by stating that the fishing pier is a local community asset with a high demand for public recreational access and should be replaced as soon as possible.

Susan Taylor (North Florida Bicycle Club) started by stating that Fort Clinch State Park is a jewel for cycling. She asserted there should more of an effort to promote safety for cyclists, citing there is an issue with cars exceeding the posted speed limit on the park roads. Ms. Taylor suggested more attention should be paid to educating drivers and cyclists about safe usage of the park roads. She supported the proposed trail connecting the beach campground with the beach parking area and expressed a desire to see the current mountain biking trail extended. She acknowledged potential carrying capacity issues associated with bike races and special events. Lastly, Ms. Taylor asked questions concerning the disappearance of bobcats from the park property and the procedures associated with trapping feral cats. It was explained that bobcats may have died off as a result of diseases transmitted by feral cats.

Don Hughes (President, Friends of Fort Clinch) complimented the management plan for its comprehensive scope. He stated the plan seems realistic and reasonable. He spoke on behalf of the park's citizen support organization (CSO) and said there were no concerns with the management plan from the group. However, he commented that the DRP should minimize any impacts to wildlife and the beach dune natural communities from the proposed expansion of the beach campground. Mr. Hughes asked if the bathhouse at the beach campground would be able to accommodate the expansion of the campground, and it was explained that the bathhouse has the capacity to handle the proposed campground expansion.

Ray Hetchka (Kayak Amelia) questioned the secondary purposes and revenue generation language in the management plan. He asked if there was any consideration to allow hunting on the park property. It was explained that hunting will never be allowed at Fort Clinch State Park, and the secondary purposes language will be updated to reflect that it has been determined that secondary purposes cannot be accommodated at the park. Mr. Hetchka wished the DRP good luck with implementing the management plan.

Anita Oliver (General Duncan Lamonte Clinch Historical Society) mentioned that she brought a historical perspective to the group, and she supports the construction of the Civilian Conservation Corps memorial statue on the park property. She stated that she shares the concerns of other advisory group members regarding the balance of protecting the natural resources and providing outdoor recreation opportunities.

Richard Scott (Local Private Property Owner) echoed Mr. Hughes and complimented the comprehensive scope of the management plan. He remarked that Fort Clinch State Park is different than most state parks in that it is largely an urban park in a developing city. He stated there is high demand for outdoor

recreational opportunities at the park. Mr. Scott commented that the park is an exceptional community resource, and he believes the management actions should be sensitive to the balance between conserving natural resources and providing recreational opportunities.

Erica Hernandez (St. Johns River Water Management District) applauded the DRP on the management plan's thorough property analysis. She stated that the diamondback terrapin seemed to be missing from the imperiled species list and should be added if it can be proven that the species has been observed on park property. She suggested the kayaking community should be engaged in order to educate residents about species that use the shoreline for nesting. One of Ms. Hernandez's concerns was associated with the restoration of mosquito ditches. She commented that the management plan has a good explanation of the mosquito ditches' impacts, but there seems to be more discussion of analysis and surveying as opposed to outlining how the issue will be solved. She pointed out that this restoration activity is an unfunded need, and she suggested that if the resources are lacking then the DRP should attempt to cultivate collaborative partnerships with the city, county, and/or non-governmental organizations to leverage funding and technical support. Ms. Hernandez was also concerned with the recreational carrying capacity language in the management plan. She stated there is no explanation or justification for how the DRP came up with its recreational carrying capacity figures, and these figures do not take into account the ecological impact of increasing the recreational carrying capacity of the park. It was explained that the Office of Park Planning website has a link to a document that contains the equations for how recreational carrying capacity is calculated, and an example was given to illustrate which factors go into calculating the figures. She recommended that the Willow Pond trailhead improvements language should be clarified to accurately reflect the DRP's intentions for the area. Ms. Hernandez also provided the DRP with written comments, which can be seen below in the summary of written comments from advisory group members section.

Gil Langley (President, Amelia Island Tourism Development Council) stated that he believes the Florida Park Service does an expectational job at maintaining and preserving its properties. Although he commented that he does not think there is too much tourism occurring, he echoed his peers' acknowledgement of the need to balance the conservation of park resources with the demand for outdoor recreation opportunities. He asked if there a number that the DRP would consider to be the park's maximum recreational carrying capacity. It was stated that the park is nearing its maximum recreational carrying capacity. Mr. Langley mentioned that the addition of 10 RV camping sites at the beach campground seems to be an appropriate expansion. He remarked that the growth in volunteers is at a higher rate than the increase in visitors. He suggested the park should consider incorporating technology such as QR codes and online recordings to help with interpretation of the park's natural and cultural resources. Lastly, he asked about the increasing deer population at the park and how this population growth could be controlled. It was explained that natural predators such as coyotes can help control deer populations, and may cause deer to spend less time in the open, thereby reducing their impacts on sensitive coastal grasslands and beach dunes.

Elizabeth Guthrie (North Florida Land Trust) complimented the DRP on the management plan and said it was a vast improvement over the previous 2004 plan. She stated that her concerns were mostly satisfied after reading the goals and objectives section of the management plan. She asked if the recreational carrying capacity matches the parking capacity. It was explained that if the parking lots fill up, then the park will close the entrance; however, this rarely, if ever, happens at Fort Clinch State Park. Ms. Guthrie supported the management goals associated with the optimum boundary, comprehensive flora and fauna survey, and restoration of mosquito ditches. She appreciated the sea level rise section and suggested that this section should be expanded beyond what is currently included in the management plan.

Blair Hayman (Florida Fish and Wildlife Conservation Commission) stated the management plan is comprehensive and well-written. She appreciated the imperiled species language and supported the imperiled species monitoring management goal. She also suggested the diamondback terrapin should be added to the imperiled species list.

Chris Farrell (Audubon Florida) commented on beach re-nourishment projects and potential impacts to nesting shorebirds. He stated that it should be an important focus to minimize the impacts of beach re-nourishment on nesting shorebird populations and the beach dune natural communities. He suggested the DRP should consider adding imperiled species such as Wilson's plover to the imperiled species list in the management plan. He was concerned that the proposed trail and additions to the beach campground could have detrimental impacts to species and habitat in this area. He asked if public input would be allowed once the specific design and location of the trail is determined. Mr. Farrell supported the optimum boundary map and stated that the Florida Park System is an economic engine for Florida and should receive significant investment to acquire additional conservation lands.

Summary of Written Comments from Advisory Group Members

Erica Hernandez (St. Johns River Water Management District) wrote that education about the sensitive habitats and monitoring of disturbance should be key components in the management of the park. She stated that the Florida Park Service could benefit from more local and regional support from staff with biological backgrounds to ensure that natural resources are protected for the enjoyment of park visitors. She commented that the descriptions of the park's existing conditions are thoughtful and well-described. In addition, the park's geomorphology and natural community descriptions were well-researched and helpful in understanding the complexities around the park. She supported the strong descriptions of the park's historic mosquito ditches as a threat to human health because of the potential to breed mosquitos, and the threat they pose to fresh water environments and upland vegetation with salt water intrusion and artificial draining. She wrote she is concerned about the transparency of the recreational carrying capacity analysis, stating that clearing sensitive beach habitat for campsites, increasing public access through coastal dunes and grasslands, and causing increased breaks in maritime habitat canopy cover for parking lots would be detrimental to natural

community integrity in the park. Lastly, she submitted the park should engage shoreline owners and investigate opportunities for shoreline enhancement at Fernandina Plaza Historic State Park to protect the site, potentially engaging the city, aquatic preserve, and volunteers.

Mike Wisenbaker (Florida Department of State – Bureau of Archaeological Research) thanked the Florida Park Service for giving the Division of Historical Resources (DHR) an opportunity to be part of the advisory group and stated that the Florida Park Service has an excellent handle on its archaeological and historical resources. He urged park staff to implement the cultural resource management goals and objectives as stated in the plans and offered DHR's assistance with cultural resource conservation.

Chris Farrell (Audubon Florida) appreciated that no secondary uses were identified as compatible with the proper management of Fort Clinch State Park. He stated that additional discussion is needed about the expansion of the Atlantic beach campground and the proposed trail to the park road and suggested that stakeholders be convened to discuss any plans that result in habitat loss or degradation. He wrote if sea oat seed collection is considered, it should only be permitted as necessary for conservation purposes and done in a manner that protects beach dune health. Lastly, Mr. Farrell commented that efforts to improve management for shorebirds should be prioritized and recommended additional visitor outreach should be conducted for educational purposes.

Summary of Public Comments

Michael Leary (Local Resident) stated that he is a native resident of Fernandina Beach and has been a fixture at Fort Clinch State Park for decades. He suggested that the park honor the Civilian Conservation Corps by prioritizing conservation and suspending infrastructure development. He expressed his commitment to what is wild and natural, and he voiced his concerns with the seemingly never-ending development of new recreational facilities at the park. He echoed concerns that were voiced in regards to the maximum recreational carrying capacity. He stated that further development at the park would be a disservice to conservation efforts.

Staff Recommendations

The staff recommends approval of the proposed management plans for Fort Clinch State Park and Fernandina Plaza Historic State Park as presented, with the following significant changes:

- All references to sea oat harvesting and alternative energy as secondary management purposes will be removed. The revised language in the Introduction will read as follows:

  > "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

> the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, 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."

- The diamondback terrapin will be added to the text of the imperiled species section in the Resource Management Component. Wilson's plover will be added to the Imperiled Species Table and discussed in the text of the imperiled species section.

- Language will be added to the Land Use Component that states the proposed trail from the Atlantic beach campground to the beach parking area will run along the existing park road and will not traverse through the beach dunes. The proposed Willow Pond trailhead improvements will be clarified to state that the improvements will include one paved ADA space, and the designated parking area will be stabilized (not paved) to address soil erosion issues associated with this location.

- It has been determined that the proposed Atlantic beach campground expansion is appropriate and supports the DRP's mission of providing resource-based recreational opportunities while preserving, interpreting, and restoring natural and cultural resources. Language will be added to the Land Use Component that directs site designs for the proposed Atlantic beach campground to incorporate low-impact development standards and avoid disturbing nesting shorebird habitats.

- Improvements to the park road will be added to the Land Use Component. These improvements will be geared toward enhancing cyclist and pedestrian safety on the park road and will include measures such as shared-lane markings, pedestrian crossings, and signage that prompts drivers to be aware that cyclists have full access to the park road.

Notes on Composition of the Advisory Group

Florida Statutes Chapter 259.032 Paragraph 10(b) establishes a requirement that all state land management plans for properties greater than 160 acres will be reviewed by an advisory group:

> "Individual management plans required by s. 253.034(5), for parcels over 160 acres, shall be developed with input from an advisory group. Members of this advisory group shall include, at a minimum, representatives of the lead land managing agency, co-managing entities, local private property owners, the appropriate soil and water conservation district, a local conservation organization, and a local elected official."

Advisory groups that are composed in compliance with these requirements complete the review of State Park management plans. Additional members may be appointed to the groups, such as a representative of the park's Citizen Support Organization (if one exists), representatives of the recreational activities that exist in or are planned for the park, or representatives of any agency with an ownership interest in the property. Special issues or conditions that require a broader representation for adequate review of the management plan may require the appointment of additional members. The Division's intent in making these appointments is to create a group that represents a balanced cross-section of the park's stakeholders. Decisions on appointments are made on a case-by-case basis by Division of Recreation and Parks staff.

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Addendum 4—Soil Descriptions

3 – Beaches - Beaches consists of narrow strips of nearly level fine sand along the Atlantic Ocean. These areas are inundated with salt water daily at high tide. This material is a mixture of quartz sand and fragments of shells. It is subject to movement by wind and tide and is bare of vegetation.

5 – Fripp fine sand, rolling - This excessively drained, gently rolling to hilly soil is on narrow dune line ridges along the Atlantic Coast. Slopes are smooth to convex and concave. Typically, the surface layer is light grayish brown fine sand four inches thick. The substratum, to a depth of 80 inches or more, is very pale brown fine sand.

9 – Leon fine sand - This nearly level, poorly drained soil is on flatwoods. Slopes are smooth and are 0 to 2 percent. Typically, the surface layer is very dark gray fine sand about seven inches thick. The subsurface layer, to a depth of about 18 inches, is gray fine sand. The subsoil, to a depth of about 31 inches, is black and dark reddish brown fine sand. Separating the upper and lower parts of the subsoil, to a depth of about 37 inches, is a buried subsurface layer of yellowish brown fine sand. The lower part of the subsoil, to a depth of 80 inches or more, is dark brown and black fine sand.

12 – Newhan-Corolla, rarely flooded, fine sands, rolling - These excessively drained and moderate well and somewhat poorly drained, gently rolling to hilly soils are on narrow dune like ridges along the Atlantic Coast. Slopes are convex and concave. Typically, the surface layer of Newhan fine sand is white fine sand about eight inches thick. The underlying material, to a depth of about 80 inches, is very pale brown fine sand. Newhan occurs on the higher elevation with slopes to 80 percent.

17 – Urban land - This urban land consists of areas that are 75 percent or more covered with streets, houses, commercial buildings, parking lots, shopping centers, industrial parks, airports, and related facilities.

19 – Leon fine sand, tidal - This very poorly drained, nearly level soil is on narrow salt marshes bordering the flatwoods. Slopes are smooth and range from 0 to 2 percent. Typically, the surface layer is about 26 inches thick. It is dark gray fine sand in the upper part and very dark gray fine sand in the lower part. The subsoil is 14 inches thick. It is dark grayish brown in the upper part and dark brown in the lower part. The subsurface layer is light gray fine sand three inches thick. The second subsoil is dark brown fine sand 15 inches thick. The substratum is dark olive gray fine sand to a depth of 80 inches or more.

27 – Ridgewood fine sand, 0 to 5 percent slopes - This nearly level and gently sloping, somewhat poorly drained soil is on narrow to broad ridges and on isolated knolls. Slopes are smooth or convex. Typically, the surface layer is gray fine sand about seven inches thick. The subsoil, to a depth of about 24 inches, is light yellowish brown fine sand. The substratum, to a depth of 80 inches or more, is fine sand. It is light yellowish brown in the upper part, pale brown in the next part, and light gray in the lower part.

28 – Tisonia mucky peat, tidal - This poorly drained, nearly level soil occurs in broad tidal marshes. This soil floods daily during high tide. The surface layer is a dark brown mucky peat to approximately 40 inches. Underlying material is a dark olive gray clay to about 65 inches.

30 – Kureb-Resota fine sands, rolling - This excessively drained, nearly level to gently sloping soil is on broad upland ridges. Slopes are smooth. Typically, the surface layer is gray fine sand about five inches thick. The subsurface layer is light brownish gray fine sand about 14 inches thick. The subsoil extends to depths of 80 inches or more. It is strong brown fine sand with tongues of light gray fine sand in the upper part; and yellowish brown, brownish yellow, yellow, and very pale brown fine sand in the lower part.

32 – Aqualfs, loamy - This consists of gently sloping excavation with short steep side slopes from which soil and geologic material have been removed for use in road construction, foundations, septic tank absorption fields, etc. Most areas of this map unit are abandoned, but excavation is continuing in a few place. Those areas that have been excavated below the normal water table usually contain water and where large enough are mapped as water. Loamy aqualfs do not have an orderly sequence of soil layers. They are variable, but usually contain the subsoil and substratum of associated soils.

44 – Corolla fine sand, 2 to 6 percent slopes, rarely flooded - This moderately well and somewhat poorly drained gently sloping to sloping soil is on narrow dune-like ridges along the Atlantic Coast. Slopes are convex and concave. Typically, the surface layer is very pale brown fine sand about ten inches thick. The underlying material to a depth of about 80 inches is pale brown and light yellowish brown fine sand in the upper part; light gray fine sand in the lower part.

Addendum 5—Plant and Animal List

Fort Clinch State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)

PTERIDOPHYTES

Bicolored spleenwort	*Asplenium heterochroum*	
Ebony spleenwort	*Asplenium platyneuron*	
Tuberous sword fern	*Nephrolepis cordifolia* *	
Golden polypody	*Phlebodium aureum*	
Resurrection fern	*Pleopeltis polypodioides* var. *michauxiana*	
Whisk-fern	*Psilotum nudum*	
Tailed bracken	*Pteridium aquilinum* var. *pseudocaudatum*	
Chinese ladder brake	*Pteris vittata* *	
Marsh fern	*Thelypteris palustris Schott* var. *pubescens*	
Virginia chain fern	*Woodwardia virginica*	

GYMNOSPERMS

Red cedar	*Juniperus virginiana*	
Slash pine	*Pinus elliottii*	
Loblolly pine	*Pinus taeda*	

ANGIOSPERMS

MONOCOTS

Broomsedge bluestem	*Andropogon virginicus*	
Sprenger's asparagus-fern	*Asparagus aethiopicus* *	
Longleaf woodoats	*Chasmanthium laxum* var. *sessiliflorum*	
Jamaica swamp sawgrass	*Cladium jamaicense*	
Whitemouth dayflower	*Commelina erecta*	
Spring coralroot	*Corallorhiza wisteriana*	
Durban crowfootgrass	*Dactyloctenium aegyptium* *	
Saltgrass	*Distichlis spicata*	
Green-fly orchid	*Epidendrum conopseum*	
Pinewoods fingergrass	*Eustachys petraea*	
Forked fimbry	*Fimbristylis dichotoma*	
Spiked crested coralroot	*Hexalectris spicata*	MAH
Bighead rush	*Juncus megacephalus*	
Needle rush	*Juncus roemerianus*	
Lesser duckweed	*Lemna aequinoctialis*	
Hairawn muhly	*Muhlenbergia capillaris*	
Woodsgrass; Basketgrass	*Oplismenus hirtellus*	
Bitter panicgrass	*Panicum amarum*	
Torpedo grass	*Panicum repens* *	
Switchgrass	*Panicum virgatum*	
Bahiagrass	*Paspalum notatum* *	
Vaseygrass	*Paspalum urvillei* *	
Philodendron	*Philodendron* sp. *	
White fringed orchid	*Platanthera blephariglottis* var. *conspicua*	CG

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Yellow fringed orchid	*Platanthera ciliaris*	CG
Pickerelweed	*Pontederia cordata*	
Beaksedge	*Rhynchospora* sp.	
Starrush whitetop	*Rhynchospora colorata*	
Dwarf palmetto	*Sabal minor*	
Cabbage palm	*Sabal palmetto*	
Tall nutgrass	*Scleria triglomerata*	
Saw palmetto	*Serenoa repens*	
Earleaf greenbrier	*Smilax auriculata*	
Saw greenbrier	*Smilax bona-nox*	
Laurel greenbrier	*Smilax laurifolia*	
Coral greenbrier	*Smilax walteri*	
Saltmarsh cordgrass	*Spartina alterniflora*	
Sand cordgrass	*Spartina bakeri*	
Marshhay cordgrass	*Spartina patens*	
Spring ladiestresses	*Spiranthes vernalis*	
Spanish moss	*Tillandsia usneoides*	
Bluejacket	*Tradescantia ohiensis*	
Broadleaf cattail	*Typha latifolia*	
Seaoats	*Uniola paniculata*	
Spanish bayonet	*Yucca aloifolia*	
Moundlily yucca	*Yucca gloriosa*	BD
Zephyrlily	*Zephyranthes* sp.	

DICOTS

Sweet acacia	*Acacia farnesiana*	
Slender threeseed mercury	*Acalypha gracilens*	
Sticky jointvetch	*Aeschynomene viscidula*	
Purple false foxglove	*Agalinis purpurea*	
Silktree; Mimosa	*Albizia julibrissin* *	
Slender amaranth	*Amaranthus viridis* *	
Common ragweed	*Ambrosia artemisiifolia*	
Peppervine	*Ampelopsis arborea*	
Devil's walkingstick	*Aralia spinosa*	
Smallflower pawpaw	*Asimina parviflora*	
Crested saltbush	*Atriplex pentandra*	
Silverling	*Baccharis glomeruliflora*	
Groundsel tree; Sea-myrtle	*Baccharis halimifolia*	
Herb-of-grace	*Bacopa monnieri*	
Alabama supplejack	*Berchemia scandens*	
Beggarticks	*Bidens alba*	
False nettle; Bog hemp	*Boehmeria cylindrica*	
Erect spiderling	*Boerhavia erecta*	
Bushy seaside oxeye	*Borrichia frutescens*	
Paper mulberry	*Broussonetia papyrifera* *	
Coastal searocket	*Cakile lanceolata*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
American beautyberry	*Callicarpa americana*	
Hedge false bindweed	*Calystegia sepium* subsp. *limnophila*	
Coastalplain chaffhead	*Carphephorus corymbosus*	
Sugarberry; Hackberry	*Celtis laevigata*	
Spurred butterfly pea	*Centrosema virginianum*	
Common buttonbush	*Cephalanthus occidentalis*	
Partridge pea	*Chamaecrista fasciculata*	
Mexican tea	*Chenopodium ambrosioides* *	
Purple thistle	*Cirsium horridulum*	
Nuttall's thistle	*Cirsium nuttallii*	
Virginsbower	*Clematis virginiana*	
Atlantic pigeonwings	*Clitoria mariana*	
Tread-softly	*Cnidoscolus stimulosus*	
Canadian horseweed	*Conyza canadensis*	
Smooth rattlebox	*Crotalaria pallida* var. *obovata*	
Rabbitbells	*Crotalaria rotundifolia*	
Vente conmigo	*Croton glandulosus*	
Gulf croton; Beach tea	*Croton punctatus*	
Gulf coast swallowwort	*Cynanchum angustifolium*	
Leafless swallowwort	*Cynanchum scoparium*	
Dixie ticktrefoil	*Desmodium tortuosum*	
Poor Joe	*Diodia teres*	
Virginia buttonweed	*Diodia virginiana*	
Common persimmon	*Diospyros virginiana*	
Silverthorn	*Elaeagnus pungens* *	
Tall elephantsfoot	*Elephantopus elatus*	
American burnweed	*Erechtites hieraciifolius*	
Prairie fleabane	*Erigeron strigosus*	
Loquat	*Eriobotrya japonica* *	
Coralbean; Cherokee bean	*Erythrina herbacea*	
Dogfennel	*Eupatorium capillifolium*	
Falsefennel	*Eupatorium leptophyllum*	
Lateflowering thoroughwort	*Eupatorium serotinum*	
Elliott's milkpea	*Galactia elliottii*	
Coastal bedstraw	*Galium hispidulum*	
Southern beeblossom	*Gaura angustifolia*	
Yellow jessamine	*Gelsemium sempervirens*	
Carolina cranesbill	*Geranium carolinianum*	
Pinebarren frostweed	*Helianthemum corymbosum*	
Camphorweed	*Heterotheca subaxillaris*	
Swamp rosemallow	*Hibiscus grandiflorus*	
Innocence; Roundleaf bluet	*Houstonia procumbens*	
Largeleaf marshpennywort	*Hydrocotyle bonariensis*	
Floating marshpennywort	*Hydrocotyle ranunculoides*	
St. Andrew's-cross	*Hypericum hypericoides*	
Dwarf St. John's-wort	*Hypericum mutilum*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
American holly	*Ilex opaca*	
Yaupon	*Ilex vomitoria*	
Tievine	*Ipomoea cordatotriloba*	
Beach morning-glory	*Ipomoea imperati*	
Railroad vine; Bayhops	*Ipomoea pes-caprae* subsp. *brasiliensis*	
Saltmarsh morning-glory	*Ipomoea sagittata*	
Standingcypress	*Ipomopsis rubra*	
Juba's bush	*Iresine diffusa*	
Bigleaf sumpweed	*Iva frutescens*	
Seacoast marshelder	*Iva imbricata*	
Virginia saltmarsh mallow	*Kosteletzkya pentacarpos*	
Woodland lettuce	*Lactuca floridana*	
Lantana; Shrubverbena	*Lantana camara* *	
Deckert's pinweed	*Lechea deckertii*	
Spreading pinweed	*Lechea divaricata*	CG
Hairy pinweed	*Lechea mucronata*	
Virginia pepperweed	*Lepidium virginicum*	
Chinese privet	*Ligustrum sinense* *	
Carolina sealavender	*Limonium carolinianum*	
Canadian toadflax	*Linaria canadensis*	
Coral honeysuckle	*Lonicera sempervirens*	
Seedbox	*Ludwigia alternifolia*	
Seaside primrosewillow	*Ludwigia maritima*	
Marsh seedbox	*Ludwigia palustris*	
Spoon primrosewillow	*Ludwigia spathulata*	
Globefruit primrosewillow	*Ludwigia sphaerocarpa*	
Rose-rush	*Lygodesmia aphylla*	
Rusty staggerbush	*Lyonia ferruginea*	
Southern magnolia	*Magnolia grandiflora*	
Chinaberrytree	*Melia azedarach* *	
Creeping cucumber	*Melothria pendula*	
Noyau vine	*Merremia dissecta* *	
Climbing hempvine	*Mikania scandens*	
Spotted beebalm	*Monarda punctata*	
Indianpipe	*Monotropa uniflora*	
Red mulberry	*Morus rubra*	
Southern bayberry; Wax myrtle	*Myrica cerifera*	
Spatterdock; Yellow pondlily	*Nuphar advena*	
Common eveningprimrose	*Oenothera biennis*	
Seabeach eveningprimrose	*Oenothera humifusa*	
Shell-mound pricklypear	*Opuntia stricta*	CG, CS
Wild olive	*Osmanthus americanus*	
Common yellow woodsorrel	*Oxalis corniculata*	
Florida pellitory	*Parietaria floridana*	
Virginia creeper	*Parthenocissus quinquefolia*	
Purple passionflower	*Passiflora incarnata*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Yellow passionflower	*Passiflora lutea*	
Red bay	*Persea borbonia*	
Oak mistletoe	*Phoradendron leucarpum*	
Turkey tangle fogfruit	*Phyla nodiflora*	
Drummond's leafflower	*Phyllanthus abnormis*	
American pokeweed	*Phytolacca americana*	
English plantain	*Plantago lanceolata*	
Sweetscent	*Pluchea odorata*	
Rosy camphorweed	*Pluchea rosea*	
Paintedleaf	*Poinsettia cyathophora*	
Dotted smartweed	*Polygonum punctatum*	
Rustweed	*Polypremum procumbens*	
Little hogweed	*Portulaca oleracea* *	
Pink purslane	*Portulaca pilosa*	
Black cherry	*Prunus serotina*	
Mock bishopsweed	*Ptilimnium capillaceum*	
Carolina desertchicory	*Pyrrhopappus carolinianus*	
Sand live oak	*Quercus geminata*	
Laurel oak; Diamond oak	*Quercus laurifolia*	
Myrtle oak	*Quercus myrtifolia*	
Live oak	*Quercus virginiana*	
Winged sumac	*Rhus copallinum*	
Carolina wild petunia	*Ruellia caroliniensis*	
Heartwing dock	*Rumex hastatulus*	
Rose-of-Plymouth	*Sabatia stellaris*	
Smallflower mock buckthorn	*Sageretia minutiflora*	
Carolina willow	*Salix caroliniana*	
Tropical sage	*Salvia coccinea*	
Lyreleaf sage	*Salvia lyrata*	
Elderberry	*Sambucus canadensis*	
Canadian blacksnakeroot	*Sanicula canadensis*	
Soapberry	*Sapindus saponaria*	
Perennial glasswort	*Sarcocornia ambigua*	
Brazilian pepper	*Schinus terebinthifolia* *	
Danglepod	*Sesbania herbacea*	
Shoreline seapurslane	*Sesuvium portulacastrum*	
Cuban jute	*Sida rhombifolia*	
Common wireweed	*Sida ulmifolia*	
Gum bully	*Sideroxylon lanuginosum*	
Tough bully	*Sideroxylon tenax*	
Pinebarren goldenrod	*Solidago fistulosa*	
Seaside goldenrod	*Solidago sempervirens*	
Common sowthistle	*Sonchus oleraceus* *	
Florida hedgenettle	*Stachys floridana*	
Pink fuzzybean	*Strophostyles umbellata*	
Wood sage	*Teucrium canadense*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Eastern poison ivy	*Toxicodendron radicans*	
Forked bluecurls	*Trichostema dichotomum*	
Sparkleberry	*Vaccinium arboreum*	
Highbush blueberry	*Vaccinium corymbosum*	
Deerberry	*Vaccinium stamineum*	
Herb-of-the-cross	*Verbena officinalis*	
Sandpaper vervain	*Verbena scabra*	
White crownbeard	*Verbesina virginica*	
Giant ironweed	*Vernonia gigantea*	
Common blue violet	*Viola sororia*	
Beach vitex	*Vitex rotundifolia* *	
Summer grape	*Vitis aestivalis*	
Muscadine	*Vitis rotundifolia*	
Chinese wisteria	*Wisteria sinensis* *	
Hercules-club	*Zanthoxylum clava-herculis*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes

INVERTEBRATES

Beetles

Metallic Wood-boring Beetle	*Acmaeodera tubulus*	MTC
Checkered Beetle	*Chariessa pilosa*	MTC
White Beach Tiger Beetle	*Cicindela dorsalis media*	MUS
Margined Tiger Beetle	*Cicindela marginata*	SAM
Punctured Tiger Beetle	*Cicindela punctulata*	MTC
S Banded Tiger Beetle	*Cicindela trifasciata ascendens*	MTC
Broad-nosed Weevil	*Pandeleteius hilaris*	MTC
Flat-faced Longhorned Beetle	*Ecyrus dasycerus*	MTC
Bumelia Borer	*Plinthocoelium suaveolens*	MTC
Red Bay Ambrosia Beetle	*Xyleborus glabratus* *	MAH

Biting flies

Deer Fly	*Chrysops flavidus*	MTC
Deer Fly	*Chrysops fuliginosus*	SAM
Striped Horse Fly	*Tabanus lineola*	MTC
Horse Fly	*Tabanus maculipennis imitans*	MTC

Wasps and Bees

Mason Wasp	*Ancistrocerus adiabatus*	MTC
Ichneumon Wasp	*Baryceros texanus*	MTC
Sand Wasp	*Bicyrtes quadrifasciata*	MTC
American Bumblebee	*Bombus pennsylvanicus*	MTC
Scoliid Wasp	*Campsomeris plumipes*	MTC
Scoliid Wasp	*Campsomeris quadrimaculata*	MTC
Apoid Wasp	*Cerceris fumipennis*	MTC
Blue Mud Wasp	*Chalybion californicum*	MTC
Ichneumon Wasp	*Coccygomimus aequalis*	MTC
Ichneumon Wasp	*Cryptanura banchiformis*	MTC
Ichneumon Wasp	*Enicospilus purgatus*	MTC
Potter Wasp	*Eumenes fraternus*	MTC
Mason Wasp	*Euodynerus megaera*	MTC
Ichneumon Wasp	*Itoplectis conquisitor*	MTC
Ichneumon Wasp	*Labena grallator*	MTC
Ichneumon Wasp	*Lanugo retentor*	MTC
Potter Wasp	*Leptochilus acolhuus*	MTC
Ichneumon Wasp	*Lymeon orbus*	MTC
Ichneumon Wasp	*Mesostenus thoracicus*	MTC
Paper Wasp	*Mischocyttarus c. cubensis*	MTC
Four-toothed Mason Wasp	*Monobia quadridens*	MTC
Red and Black Mason Wasp	*Pachodynerus erynnis*	MTC
Red Wasp	*Polistes annularis*	MTC
Paper Wasp	*Polistes dorsalis*	MTC
Common Paper Nest Wasp	*Polistes exclamans*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Paper Wasp	*Polistes metricus*	MTC
Ichneumon Wasp	*Polycyrtus neglectus*	MTC
Thread-waisted Wasp	*Prionyx parkeri*	MTC
Black and Yellow Mud Dauber	*Sceliphron caementarium*	MTC
Ichneumon Wasp	*Sphelodon phoxopteridis*	MTC
Ichneumon Wasp	*Therion texanum*	MTC
Ichneumon Wasp	*Thyreodon atricolor*	MTC
Ichneumon Wasp	*Trogomorpha trogiformis*	MTC
Pipe Organ Mud Dauber	*Trypoxylon politum*	MTC
Southern Carpenter Bee	*Xylocopa micans*	MTC
Eastern Carpenter Bee	*Xylocopa virginica*	MTC
Potter Wasp	*Zethus spinipes*	MTC
Grasshoppers		
Green-striped Grasshopper	*Chortophaga viridifasciata*	MTC
Orangewinged Grasshopper	*Paldalophora phoenicoptera*	MTC
Marbled Grasshopper	*Spharagemon marmorata*	MTC
Dragonflies and Damselflies		
Common Green Darner	*Anax junius*	MTC
Great Purple Hairstreak	*Atlides halesus*	MTC
Halloween Pennant	*Celithemis eponina*	MTC
Seaside Dragonlet	*Erythrodiplax berenice*	SAM
Eastern Pondhawk	*Erythemis simplicicollis*	MTC
Little Blue Dragonlet	*Erythrodiplax minuscula*	MTC
Citrine Forktail	*Ischnura hastata*	MTC
Fragile Forktail	*Ischnura posita*	MTC
Rambur's Forktail	*Ischnura ramburii*	MTC
Needham's Skimmer	*Libellula needhami*	MTC
Great Blue Skimmer	*Libellula vibrans*	MTC
Marl Pennant	*Macrodiplax balteata*	SAM
Blue Dasher	*Pachydiplax longipennis*	MTC
Carolina Saddlebags	*Tramea carolina*	MTC
Phantom Darner	*Triacanthagyna trifida*	MTC
Butterflies		
Gulf Fritillary	*Agraulis vanillae*	MTC
Great Southern White	*Ascia monuste*	MTC
Easter Pygmy Blue	*Brephidium pseudofea*	MTC
Henry's Elfin	*Callophrys henrici*	MTC
Queen	*Danaus gilippus*	MTC
Horace's Duskywing	*Erynnis horatius*	MTC
Barred Yellow	*Eurema daira*	MTC
Little Yellow Sulfur	*Eurema lisa*	MTC
Ceranus Blue	*Hemiargus ceraunus*	MTC
Carolina Satyr	*Hermeuptychia sosybius*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Fiery Skipper	*Hylephila phyleus*	MTC
Common Buckeye	*Junonia coenia*	MTC
Clouded Skipper	*Lerema accius*	MTC
Eufala Skipper	*Lerodea eufala*	MTC
Viola's Wood Satyr	*Megisto viola*	MTC
Dainty Sulphur	*Nathalis iole*	MTC
Morning Cloak	*Nymphalis antiopa*	MTC
Ocola Skipper	*Panoquina ocola*	MTC
Salt Marsh Skipper	*Panoquina panoquin*	MTC
Giant Swallowtail	*Papilio cresphontes*	MTC
Eastern Tiger Swallowtail	*Papilio glaucus*	MTC
Palamedes Swallowtail	*Papilio palamedes*	MTC
Spicebush Swallowtail	*Papilio troilus*	MTC
White M Hairstreak	*Parrhasius m-album*	MTC
Cloudless Sulphur	*Phoebis sennae*	MTC
Phaon Crescent	*Phyciodes phaon*	MTC
Pearl Crescent	*Phyciodes tharos*	MTC
Whirlabout	*Polites vibex*	MTC
White Checkered Skipper	*Pyrgus albescens*	MTC
Tropical Checkered Skipper	*Pyrgus oileus*	MTC
Gray Hairstreak	*Strymon melinus*	MTC
Southern Cloudywing	*Thorybes bathyllus*	MTC
Long-tailed Skipper	*Urbanus proteus*	MTC
Red Admiral	*Vanessa atalanta*	MTC
Painted Lady	*Vanessa cardui*	MTC
American Lady	*Vanessa virginiensis*	MTC
Moths		
Polyphemus Moth	*Antheraea polyphemus*	MTC
Io Moth	*Automeris io*	MTC
Cactus Moth	*Cactoblastis cactorum* *	MTC
Silver-spotted Fern Moth	*Callopistria cordata*	MTC
Epione Underwing	*Catocala epione*	MTC
Lead-colored Lichen Moth	*Cisthene plumbea*	MTC
Lichen Moth	*Cisthene subjecta*	MTC
Scarlet-bodied Wasp Moth	*Cosmosoma myrodora*	MTC
Virginia Creeper Sphinx	*Darapsa myron*	MTC
Pink Star Moth	*Derrima stellata*	MTC
Double-lined Doryodes Moth	*Doryodes bistrialis*	MTC
Orange Holomelina Moth	*Holomelina aurantiaca*	MTC
Giant Leopard Moth	*Hypercompe scribonia*	MTC
	Lactura pupula	MTC
Merry Melipotis Moth	*Melipotis jacunda*	MTC
Yellow-edged Pygarctia	*Pygarctia abdominalis*	MTC
White-dot Moth	*Spilosomia dubia*	MTC
Tolype	*Tolype notialis*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Bumelia Webworm Moth	*Urodus parvula*	MTC
Tersa Sphinx	*Xylophanes tersa*	MTC
Mollusks		
Eastern Oyster	*Crassostrea virginica*	EUS
Marsh Periwinkle	*Littoraria irrorata*	SAM
Crinkled Ambersnail	*Succinea campestris*	CIS
FISH		
Yellow Bullhead	*Ameiurus natalis*	BA, CD
Brown Bullhead	*Ameiurus nebulosus*	BA, CD
Sheepshead	*Archosargus probatocephalus*	MUS, EUS
Atlantic Menhaden	*Brevoortia tyrannus*	MUS, EUS
Snook	*Centropomus undecimalis*	EUS
Spotted Seatrout	*Cynoscion nebulosus*	MUS, EUS
Weakfish	*Cynoscion regalis*	MUS, EUS
Ladyfish	*Elops saurus*	MUS, EUS
Gulf Killifish	*Fundulus grandis*	SAM
Eastern Mosquitofish	*Gambusia holbrooki*	CD
Spot Croaker	*Leiostomus xanthurus*	EUS, MUS
Florida Gar	*Lepisosteus platyrhincus*	BA, CD
Redbreast Sunfish	*Lepomis auritus*	BA, CD
Gray Snapper	*Lutjanus griseus*	EUS
Tarpon	*Megalops atlanticus*	MUS, EUS
Southern Kingfish	*Menticirrhus americanus*	MUS
Atlantic Croaker	*Micropogonias undulatus*	MUS, EUS
Striped Mullet	*Mugil cephalus*	MUS, EUS, CD
White Mullet	*Mugil curema*	EUS, MUS
Oyster Toadfish	*Opsanus tau*	MUS, EUS
Southern Flounder	*Paralichthys lethostigma*	MUS, EUS
Black Drum	*Pogonias cromis*	MUS, EUS
Bluefish	*Pomatomus saltatrix*	MUS, EUS
Black Crappie	*Pomoxis nigromaculatus*	BA
Redfish	*Sciaenops ocellata*	MUS, EUS
Spanish Mackerel	*Scomberomorous maculatus*	MUS, EUS
Florida Pompano	*Trachinotus carolinus*	MUS
AMPHIBIANS		
Frogs and Toads		
Florida Cricket Frog	*Acris gryllus dorsalis*	BA, CD
Oak Toad	*Anaxyrus quercicus*	MAH, BA
Southern Toad	*Anaxyrus terrestris*	MAH, BA
Eastern Narrow-mouthed Toad	*Gastrophryne carolinensis*	MAH, BA
Green Treefrog	*Hyla cinerea*	CIS, MAH, BA

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Cope's Gray Treefrog	*Hyla chrysoscelis*	MAH, BA
Barking Treefrog	*Hyla gratiosa*	MAH, BA
Squirrel Treefrog	*Hyla squirella*	CIS, MAH, BA
American Bullfrog	*Lithobates catesbeiana*	BA, CD
Bronze Frog	*Lithobates clamitans*	BA, CD
Pig Frog	*Lithobates grylio*	BA, CD
Southern Leopard Frog	*Lithobates sphenocephala*	CIS, BA, MAH
Spring Peeper	*Pseudacris crucifer*	CIS, BA, MAH
Southern Chorus Frog	*Pseudacris nigrita*	CIS, BA
Little Grass Frog	*Pseudacris ocularis*	CIS, BA, CD
Ornate Chorus Frog	*Pseudacris ornata*	CIS, BA
Eastern Spadefoot Toad	*Scaphiopus holbrookii*	MAH, BA, CD
Salamanders and Sirens		
Dwarf Salamander	*Eurycea quadridigitata*	MAH, BA
Central Newt	*Notophthalmus viridescens louisianensis*	BA, CD
Narrow-striped Dwarf Siren	*Pseudobranchus axanthus axanthus*	BA, CD
Eastern Lesser Siren	*Siren intermedia intermedia*	BA, CD
Greater Siren	*Siren lacertina*	BA, CD
REPTILES		
Crocodilians		
American Alligator	*Alligator mississippiensis*	BA, CD
Turtles		
Florida Softshell Turtle	*Apalone ferox*	BA, CD
Loggerhead Sea Turtle	*Caretta caretta*	MUS, BD
Green Sea Turtle	*Chelonia mydas*	MUS, BD
Leatherback Sea Turtle	*Dermochelys coriacea*	MUS, BD
Gopher Tortoise	*Gopherus polyphemus*	BD, CG
Eastern Mud Turtle	*Kinosternon subrubrum*	BA, CD
Lizards		
Green Anole	*Anolis carolinensis*	MAH
Brown Anole	*Anolis sagrei* *	DV
Six-lined Racerunner	*Aspidoscelis sexlineata*	CG
Mediterranean Gecko	*Hemidactylus turcicus* *	DV
Eastern Glass Lizard	*Ophisaurus ventralis*	MAH
Southeastern Five-lined Skink	*Plestiodon inexpectatus*	MAH, CG
Broad-headed Skink	*Plestiodon laticeps*	MAH
Eastern Fence Lizard	*Sceloporus undulatus*	MAH, CG
Snakes		
Florida Cottonmouth	*Agkistrodon piscivorus conanti*	BA, CD

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Southern Black Racer	*Coluber constrictor priapus*	MAH, CG
E. Diamond-backed Rattlesnake	*Crotalus adamanteus*	MAH, CG
Eastern Mudsnake	*Farancia abacura abacura*	BA, CD
Eastern Hognose Snake	*Heterodon platyrhinos*	MAH, CS
Scarlet Kingsnake	*Lampropeltis elapsoides*	MAH
Eastern Kingsnake	*Lampropeltis getula getula*	MAH
Eastern Coachwhip	*Masticophis flagellum flagellum*	BD, CG
Eastern Coral Snake	*Micrurus fulvius*	MAH
Florida Water Snake	*Nerodia fasciata pictiventris*	BA, CD
Brown Water Snake	*Nerodia taxispilota*	BA, CD
Rough Green Snake	*Opheodrys aestivus*	MAH
Eastern Ratsnake	*Pantherophis alleghaniensis*	MAH
Eastern Corn Snake	*Pantherophis guttatus*	MAH, CG
Dusky Pigmy Rattlesnake	*Sistrurus miliarius barbouri*	MAH, CIS
Peninsula Ribbonsnake	*Thamnophis sauritus sackenii*	MAH, CIS
Eastern Garter Snake	*Thamnophis sirtalis sirtalis*	MAH, CIS

BIRDS

Waterfowl

Wood Duck	*Aix sponsa*	BA, CD, OF
Gadwall	*Anas strepera*	SAM, BA, OF
American Wigeon	*Anas americana*	SAM, OF
Mallard	*Anas platyrhynchos*	SAM, BA, OF
Blue-winged Teal	*Anas discors*	SAM, BA, OF
Northern Shoveler	*Anas clypeata*	SAM, OF
Northern Pintail	*Anas acuta*	SAM, OF
Green-winged Teal	*Anas crecca*	SAM, OF
Redhead	*Aythya americana*	BA, Open Water
Ring-necked Duck	*Aythya collaris*	BA, Open Water
Greater Scaup	*Aythya marila*	OF, Open Water
Lesser Scaup	*Aythya affinis*	OF, Open Water
Common Eider	*Somateria mollissima*	Jetty, Open Water
Harlequin Duck	*Histrionicus histrionicus*	Jetty, Open Water
Surf Scoter	*Melanitta perspicillata*	OF, Open Water
White-winged Scoter	*Melanitta fusca*	OF, Open Water
Black Scoter	*Melanitta americana*	OF, Open Water
Long-tailed Duck	*Clangula hyemalis*	Open Water
Bufflehead	*Bucephala islandica*	Open Water
Hooded Merganser	*Lophodytes cucullatus*	SAM, BA
Red-breasted Merganser	*Mergus serrator*	SAM, Open Water
Ruddy Duck	*Oxyura jamaicensis*	Open Water

New World Quail

Northern Bobwhite	*Colinus virginianus*	CG

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Loons		
Red-throated Loon	*Gavia stellata*	Open Water
Common Loon	*Gavia immer*	OF, Open Water
Grebes		
Pied-billed Grebe	*Podilymbus podiceps*	BA, Open Water
Horned Grebe	*Podiceps auritus*	Open Water
Storm-Petrels		
Wilson's Storm-Petrel	*Oceanites oceanicus*	Open Water
Storks		
Wood Stork	*Mycteria americana*	SAM, OF
Frigatebirds		
Magnificent Frigatebird	*Fregata magnificens*	OF
Boobies and Gannets		
Northern Gannet	*Morus bassanus*	Open Water
Cormorants		
Double-crested Cormorant	*Phalocrocorax auritus*	BA, OF, Jetty
Darters		
Anhinga	*Anhinga anhinga*	BA, SAM
Pelicans		
American White Pelican	*Pelecanus erythrorhynchos*	OF
Brown Pelican	*Pelecanus occidentalis*	MUS, OF
Herons, Egrets, and Bitterns		
American Bittern	*Botaurus lentiginosus*	SAM, OF
Great Blue Heron	*Ardea herodias*	SAM, BA
Great Egret	*Ardea alba*	SAM
Snowy Egret	*Egretta thula*	SAM
Little Blue Heron	*Egretta caerulea*	SAM, BA
Tricolored Heron	*Egretta tricolor*	SAM
Reddish Egret	*Egretta rufescens*	SAM, MUS
Cattle Egret	*Bubulcus ibis*	OF
Green Heron	*Butorides virescens*	BA, CD, SAM
Black-crowned Night-Heron	*Nycticorax nycticorax*	BA, CD, SAM
Yellow-crowned Night-Heron	*Nyctanassa violacea*	BA, CD, SAM
Ibises and Spoonbills		
White Ibis	*Eudocimus albus*	SAM
Glossy Ibis	*Plegadis falcinellus*	SAM

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Roseate Spoonbill	*Platalea ajaja*	SAM
New World Vultures		
Black Vulture	*Coragyps atratus*	OF, MTC
Turkey Vulture	*Cathartes aura*	OF, MTC
Ospreys		
Osprey	*Pandion haliaetus*	SAM, EUS, OF
Hawks, Eagles, and Kites		
Swallow-tailed Kite	*Elanoides forficatus*	OF
Bald Eagle	*Haliaeetus leucocephalus*	SAM, BD, MUS, OF
Northern Harrier	*Circus cyaneus*	SAM, OF
Sharp-shinned Hawk	*Accipiter striatus*	MAH, CG, OF
Cooper's Hawk	*Accipiter cooperi*	MAH, CG, OF
Red-shouldered Hawk	*Buteo lineatus*	MAH, OF
Red-tailed Hawk	*Buteo jamaicensis*	CG, OF
Rails and Coots		
Clapper Rail	*Rallus longirostris*	SAM
Purple Gallinule	*Porphyrio martinicus*	BA
Common Gallinule	*Gallinula galeata*	BA, CD, SAM
American Coot	*Fulica americana*	SAM, BA
Oystercatchers		
American Oystercatcher	*Haematopus palliatus*	BD, SAM
Plovers		
Black-bellied-Plover	*Pluvialis squatarola*	MUS, SAM
American Golden-Plover	*Recurvirostra americana*	MUS
Wilson's Plover	*Charadrius wilsonia*	BD, MUS
Semipalmated Plover	*Charadrius semipalmatus*	MUS, SAM
Piping Plover	*Charadrius melodus*	MUS, SAM
Killdeer	*Charadrius vociferus*	SAM, CG
Sandpipers		
Spotted Sandpiper	*Actitis macularius*	SAM, BA
Solitary Sandpiper	*Tringa solitaria*	BA
Greater Yellowlegs	*Tringa melanoleuca*	SAM
Willet	*Tringa semipalmata*	BD, MUS, SAM
Lesser Yellowlegs	*Tringa flavipes*	SAM
Whimbrel	*Numenius phaeopus*	SAM
Ruddy Turnstone	*Arenaria interpres*	MUS, SAM, Jetty
Red Knot	*Calidris canutus*	MUS
Sanderling	*Calidris alba*	MUS
Dunlin	*Calidris alpina*	MUS, SAM

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Purple Sandpiper	*Calidris maritima*	MUS, Jetty
Least Sandpiper	*Calidris minutilla*	MUS, SAM
Semipalmated Sandpiper	*Calidris pusilla*	MUS, SAM
Western Sandpiper	*Calidris mauri*	MUS
Short-billed Dowitcher	*Limnodromus griseus*	SAM
Wilson's Snipe	*Gallinago delicata*	SAM
Skuas and Jaegers		
South Polar Skua	*Stercorarius maccormicki*	Open Water
Pomarine Jaeger	*Stercorarius pomarinus*	Open Water
Parasitic Jaeger	*Stercorarius parasiticus*	Open Water
Alcids		
Thick-billed Murre	*Uria lomvia*	Open Water
Razorbill	*Alca torda*	Open Water
Gulls, Terns, and Skimmers		
Bonaparte's Gull	*Chroicocephalus philadelphia*	SAM, MUS, OF
Laughing Gull	*Leucophaeus atricilla*	BD, MUS, OF
Franklin's Gull	*Leucophaeus pipixcan*	MUS, OF
Ring-billed Gull	*Larus delawarensis*	MUS, OF
Herring Gull	*Larus argentatus*	MUS, OF
Iceland Gull	*Larus glaucoides*	MUS, OF
Lesser Black-backed Gull	*Larus fuscus*	MUS, OF
Glaucous Gull	*Larus hyperboreus*	MUS, OF
Great Black-backed Gull	*Larus marinus*	MUS, OF
Brown Noddy	*Anous stolidus*	Open Water
Sooty Tern	*Onychoprion fuscatus*	Open Water
Bridled Tern	*Onychoprion anaethetus*	Open Water
Least Tern	*Sternula antillarum*	BD, MUS, OF
Gull-billed Tern	*Gelochelidon nilotica*	SAM, OF
Caspian Tern	*Hydroprogne caspia*	MUS, OF
Black Tern	*Chlidonias niger*	MUS, SAM, OF
Common Tern	*Sterna hirundo*	MUS, OF
Forster's Tern	*Sterna forsteri*	MUS, OF
Royal Tern	*Thalasseus maximus*	BD, MUS, OF
Sandwich Tern	*Thalasseus sandvicensis*	MUS, OF
Black Skimmer	*Rynchops niger*	BD, MUS, OF
Pigeons and Doves		
Rock Pigeon	*Columba livia* *	DV, OF
Eurasian Collared-Dove	*Streptopelia decaocto* *	DV
Mourning Dove	*Zenaida macroura*	MTC
Common Ground-Dove	*Columbina passerina*	CG, CS, DV
Cuckoos		

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Yellow-billed Cuckoo	*Coccyzus americanus*	MAH
Owls		
Eastern Screech-Owl	*Megascops asio*	MAH
Great Horned Owl	*Bubo virginianus*	MAH
Barred Owl	*Strix varia*	MAH
Nightjars		
Common Nighthawk	*Chordeiles minor*	CG, OF
Chuck-will's-widow	*Antrostomus carolinensis*	MAH
Swifts		
Chimney Swift	*Chaetura pelagica*	OF
Hummingbirds		
Ruby-throated Hummingbird	*Archilochus colubris*	MAH, DV
Kingfishers		
Belted Kingfisher	*Megaceryle alcyon*	SAM, BA
Woodpeckers		
Red-headed Woodpecker	*Melanerpes erythrocephalus*	MAH
Red-bellied Woodpecker	*Melanerpes carolinus*	MTC
Yellow-bellied Sapsucker	*Sphyrapicus varius*	MAH
Downy Woodpecker	*Picoides pubescens*	MTC
Northern Flicker	*Colaptes auratus*	CG, CIS, DV
Pileated Woodpecker	*Dryocopus pileatus*	MAH
Falcons and Caracaras		
American Kestrel	*Falco sparverius*	CG, OF
Merlin	*Falco columbarius*	BD, MUS, OF
Peregrine Falcon	*Falco peregrinus*	BD, MUS, OF
Tyrant Flycatchers		
Eastern Wood-Pewee	*Contopus virens*	MAH, CS
Eastern Phoebe	*Sayornis phoebe*	MTC
Vermilion Flycatcher	*Pyrocephalus rubinus*	CG
Great Crested Flycatcher	*Myiarchus crinitus*	CS, MAH
Eastern Kingbird	*Tyrannus tyrannus*	CG
Shrikes		
Loggerhead Shrike	*Lanius ludovicianus*	CG, CS
Vireos		
White-eyed Vireo	*Vireo griseus*	CS, CG, MAH
Blue-headed Vireo	*Vireo solitarius*	MAH

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Red-eyed Vireo	*Vireo olivaceus*	MAH
Crows and Jays		
Blue Jay	*Cyanocitta cristata*	MTC
Fish Crow	*Corvus ossifragus*	MTC
Swallows		
Purple Martin	*Progne subis*	OF
Tree Swallow	*Tachycineta bicolor*	CS, CG, OF
N. Rough-winged Swallow	*Stelgidopteryx serripennis*	BD, CG, OF
Cliff Swallow	*Petrochelidon pyrrhonota*	BD, CG, OF
Barn Swallow	*Hirundo rustica*	DV, OF
Titmice and Chickadees		
Carolina Chickadee	*Poecile carolinensis*	MTC
Tufted Titmouse	*Baeolophus bicolor*	MTC
Nuthatches		
Red-breasted Nuthatch	*Sitta canadensis*	CS
Wrens		
House Wren	*Troglodytes aedon*	CG, CS
Sedge Wren	*Cistothorus platensis*	SAM
Worthington's Marsh Wren	*Cistothorus palustris griseus*	SAM
Carolina Wren	*Thryothorus ludovicianus*	MTC
Gnatcatchers		
Blue-gray Gnatcatcher	*Polioptila caerulea*	MAH
Kinglets		
Ruby-crowned Kinglet	*Regulus calendula*	MTC
Thrushes		
Veery	*Catharus fuscescens*	MAH
Gray-cheeked Thrush	*Catharus minimus*	MAH
Swainson's Thrush	*Catharus ustulatus*	MAH
Hermit Thrush	*Catharus guttatus*	MAH
Wood Thrush	*Hylocichla mustelina*	MAH
American Robin	*Turdus migratorius*	MTC
Mimids		
Gray Catbird	*Dumetella carolinensis*	CS, MAH, CG
Brown Thrasher	*Toxostoma rufum*	CS, CG
Northern Mockingbird	*Mimus polyglottos*	MTC
Starlings		

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
European Starling	*Sturnus vulgaris* *	MTC
Wagtails and Pipits		
American Pipit	*Anthus rubescens*	BD, OF
Waxwings		
Cedar Waxwing	*Bombycilla cedrorum*	MTC, OF
New World Warblers		
Ovenbird	*Seiurus aurocapilla*	MAH
Worm-eating Warbler	*Helmitheros vermivorum*	MAH
Louisiana Waterthrush	*Parkesia motacilla*	CD, BA
Northern Waterthrush	*Parkesia noveboracensis*	CD, BA
Golden-winged Warbler	*Vermivora chrysoptera*	MAH, CG
Blue-winged Warbler	*Vermivora cyanoptera*	MAH
Black-and-white Warbler	*Mniotilta varia*	MAH, DV
Prothonotary Warbler	*Protonotaria citrea*	CD, BA
Tennessee Warbler	*Oreothlypis peregrina*	MAH
Orange-crowned Warbler	*Oreothlypis celata*	MAH
Common Yellowthroat	*Geothlypis trichas*	CG, CIS, BA
Hooded Warbler	*Setophaga citrina*	MAH
American Redstart	*Setophaga ruticilla*	MAH
Cape May Warbler	*Setophaga tigrina*	MAH
Northern Parula	*Setophaga americana*	MAH, BA
Magnolia Warbler	*Setophaga magnolia*	MAH
Yellow Warbler	*Setophaga petechia*	CIS, SAM, CD
Chestnut-sided Warbler	*Setophaga pensylvanica*	MAH, CS
Blackpoll Warbler	*Setophaga striata*	MAH
Black-throated Blue Warbler	*Setophaga caerulescens*	MAH
Palm Warbler	*Setophaga palmarum*	CG, CIS, DV
Pine Warbler	*Setophaga pinus*	MAH, CS
Yellow-rumped Warbler	*Setophaga coronata*	MTC
Yellow-throated Warbler	*Setophaga dominica*	MAH
Prairie Warbler	*Setophaga discolor*	MAH, CS, CG
Sparrows and Allies		
Eastern Towhee	*Pipilo erythrophthalmus*	CG, CS
Chipping Sparrow	*Spizella passerina*	CG, DV
Vesper Sparrow	*Pooecetes gramineus*	CG, CIS, DV
Savannah Sparrow	*Passerculus sandwichensis*	BD, CG, CIS
Nelson's Sparrow	*Ammodramus nelsoni*	SAM
Saltmarsh Sparrow	*Ammodramus caudacutus*	SAM
Macgillivray's Seaside Sparrow	*Ammodramus maritimus macgillivraii*	SAM
Grasshopper Sparrow	*Ammodramus savannarum*	CS, CG
Song Sparrow	*Melospiza melodia*	MAH, CG, CD
Swamp Sparrow	*Melospiza georgiana*	SAM, CD

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
White-throated Sparrow	*Zonotrichia albicollis*	CG, CS
White-crowned Sparrow	*Zonotrichia leucophrys*	CG, CS, DV
Dark-eyed Junco	*Junco hyemalis*	BD, CG, CIS
Tanagers, Cardinals, Grosbeaks and Buntings		
Summer Tanager	*Piranga rubra*	MAH, DV
Northern Cardinal	*Cardinalis cardinalis*	MTC
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	MAH
Blue Grosbeak	*Passerina caerulea*	CG, CS
Indigo Bunting	*Passerina cyanea*	MAH, CG
Painted Bunting	*Passerina ciris*	MAH, CG
Blackbirds and Allies		
Bobolink	*Dolichonyx oryzivorus*	OF
Red-winged Blackbird	*Agelaius phoeniceus*	SAM, CD, BA, DV
Eastern Meadowlark	*Sturnella magna*	CG, CIS
Common Grackle	*Quiscalus quiscula*	MTC
Boat-tailed Grackle	*Quiscalus major*	MTC
Brown-headed Cowbird	*Molothrus ater*	MTC
Finches and Allies		
House Finch	*Haemorhous mexicanus*	CG, DV
American Goldfinch	*Spinus tristis*	MAH, OF
Old World Sparrows		
House Sparrow	*Passer domesticus* *	DV

MAMMALS

Didelphids		
Virginia Opossum	*Didelphis virginiana*	MTC
Insectivores		
Eastern Mole	*Scalopus aquaticus*	MAH, DV
Bats		
Rafinesque's Big-eared Bat	*Corynorhinus rafinesquii*	MAH, OF
Edentates		
Nine-banded Armadillo	*Dasypus novemcinctus* *	MAH, DV
Lagomorphs		
Eastern Cottontail	*Sylvilagus floridanus*	CS, CG, CIS, UC
Marsh Rabbit	*Sylvilagus palustris*	CD, SAM
Rodents		

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Southern Flying Squirrel	*Glaucomys volans*	MAH
Golden Mouse	*Ochrotomys nuttalli*	MAH
Cotton Mouse	*Peromyscus gossypinus*	MAH
Eastern Gray Squirrel	*Sciurus carolinensis*	MAH, DV
Carnivores		
Feral Domestic Dog	*Canis familiaris* *	MTC
Coyote	*Canis latrans* *	MTC
Feral Domestic Cat	*Felis domesticus* *	MTC
Bobcat	*Lynx rufus*	MTC
River otter	*Lutra Canadensis*	SAM, CD
Striped Skunk	*Mephitis mephitis*	MAH, CG
Raccoon	*Procyon lotor*	MTC
Gray Fox	*Urocyon cinereoargenteus*	CG, CS, UC
Black Bear	*Ursus americanus*	MAH
Manatees		
West Indian manatee	*Trichechus manatus*	EUS
Artiodactyls		
White-tailed deer	*Odocoileus virginianus*	MTC
Feral pig	*Sus scrofa* *	MTC
Whales		
Pigmy sperm whale	*Kogia breviceps*	MUS
Bottle-nosed dolphin	*Tursiops truncatus*	MUS, EUS

* Non-native Species

TERRESTRIAL

Beach Dune ..... BD
Coastal Berm ..... CB
Coastal Grassland ..... CG
Coastal Strand ..... CS
Dry Prairie ..... DP
Keys Cactus Barren ..... KCB
Limestone Outcrop ..... LO
Maritime Hammock ..... MAH
Mesic Flatwoods ..... MF
Mesic Hammock ..... MEH
Pine Rockland ..... PR
Rockland Hammock ..... RH
Sandhill ..... SH
Scrub ..... SC
Scrubby Flatwoods ..... SCF
Shell Mound ..... SHM
Sinkhole ..... SK
Slope Forest ..... SPF
Upland Glade ..... UG
Upland Hardwood Forest ..... UHF
Upland Mixed Woodland ..... UMW
Upland Pine ..... UP
Wet Flatwoods ..... WF
Xeric Hammock ..... XH

PALUSTRINE

Alluvial Forest ..... AF
Basin Marsh ..... BM
Basin Swamp ..... BS
Baygall ..... BG
Bottomland Forest ..... BF
Coastal Interdunal Swale ..... CIS
Depression Marsh ..... DM
Dome Swamp ..... DS
Floodplain Marsh ..... FM
Floodplain Swamp ..... FS
Glades Marsh ..... GM
Hydric Hammock ..... HH
Keys Tidal Rock Barren ..... KTRB
Mangrove Swamp ..... MS
Marl Prairie ..... MP
Salt Marsh ..... SAM
Seepage Slope ..... SSL
Shrub Bog ..... SHB
Slough ..... SLO
Slough Marsh ..... SLM
Strand Swamp ..... STS

Wet Prairie ..... WP

LACUSTRINE

Clastic Upland Lake ..... CULK
Coastal Dune Lake ..... CDLK
Coastal Rockland Lake ..... CRLK
Flatwoods/Prairie ..... FPLK
Marsh Lake ..... MLK
River Floodplain Lake ..... RFLK
Sandhill Upland Lake ..... SULK
Sinkhole Lake ..... SKLK
Swamp Lake ..... SWLK

RIVERINE

Alluvial Stream ..... AST
Blackwater Stream ..... BST
Seepage Stream ..... SST
Spring-run Stream ..... SRST

SUBTERRANEAN

Aquatic Cave ..... ACV
Terrestrial Cave ..... TCV

ESTUARINE

Algal Bed ..... EAB
Composite Substrate ..... ECPS
Consolidated Substrate ..... ECNS
Coral Reef ..... ECR
Mollusk Reef ..... EMR
Octocoral Bed ..... EOB
Seagrass Bed ..... ESGB
Sponge Bed ..... ESPB
Unconsolidated Substrate ..... EUS
Worm Reef ..... EWR

MARINE

Algal Bed	MAB
Composite Substrate	MCPS
Consolidated Substrate	MCNS
Coral Reef	MCR
Mollusk Reef	MMR
Octocoral Bed	MOB
Seagrass Bed	MSGB
Sponge Bed	MSPB
Unconsolidated Substrate	MUS
Worm Reef	MWR

ALTERED LANDCOVER TYPES

Abandoned field/Abandoned pasture	AFP
Agriculture	AG
Artificial Pond	AP
Borrow Area	BA
Canal/ditch	CD
Clearcut pine plantation	CPP
Clearing/Regeneration	CL
Developed	DV
Impoundment	IM
Invasive exotic monoculture	IEM
Pasture - improved	PI
Pasture - semi-improved	PSI
Pine plantation	PP
Restoration Natural Community	RNC
Road	RD
Spoil area	SA
Successional hardwood forest	SHF
Utility corridor	UC

MISCELLANEOUS

Many Types of Communities	MTC
Overflying	OF

Addendum 6—Imperiled Species Ranking Definitions

The Nature Conservancy and the Natural Heritage Program Network (of which FNAI is a part) define an element as any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave or other ecological feature. An element occurrence (EO) is a single extant habitat that sustains or otherwise contributes to the survival of a population or a distinct, self-sustaining example of a particular element.

Using a ranking system developed by The Nature Conservancy and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks to each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element occurrences, estimated abundance (number of individuals for species; area for natural communities), range, estimated adequately protected EOs, relative threat of destruction, and ecological fragility.

Federal and State status information is from the U.S. Fish and Wildlife Service; and the Florida Fish and Wildlife Conservation Commission (animals), and the Florida Department of Agriculture and Consumer Services (plants), respectively.

FNAI GLOBAL RANK DEFINITIONS

G1 ..... Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or fabricated factor.

G2 ..... Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

G3 ..... Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.

G4 ..... apparently secure globally (may be rare in parts of range)

G5 ..... demonstrably secure globally

GH ..... of historical occurrence throughout its range may be rediscovered (e.g., ivory-billed woodpecker)

GX ..... believed to be extinct throughout range

GXC ..... extirpated from the wild but still known from captivity or cultivation

G#? ..... Tentative rank (e.g.,G2?)

G#G# ..... range of rank; insufficient data to assign specific global rank (e.g., G2G3)

G#T# ..... rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)

G#Q..... rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q..... same as above, but validity as subspecies or variety is questioned.
GU ..... due to lack of information, no rank or range can be assigned (e.g., GUT2).
G?..... Not yet ranked (temporary)
S1..... Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2..... Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3..... Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
S4..... apparently secure in Florida (may be rare in parts of range)
S5..... demonstrably secure in Florida
SH ..... of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
SX..... believed to be extinct throughout range
SA..... accidental in Florida, i.e., not part of the established biota
SE..... an exotic species established in Florida may be native elsewhere in North America
SN ..... regularly occurring but widely and unreliably distributed; sites for conservation hard to determine
SU ..... due to lack of information, no rank or range can be assigned (e.g., SUT2).
S?..... Not yet ranked (temporary)
N ..... Not currently listed, nor currently being considered for listing, by state or federal agencies.

LEGAL STATUS

FEDERAL

(Listed by the U. S. Fish and Wildlife Service - USFWS)

LE ..... Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species that is in danger of extinction throughout all or a significant portion of its range.
PE ..... Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
LT ..... Listed as Threatened Species. Defined as any species that is likely to become an endangered species within the near future throughout all or a significant portion of its range.

PT ..... Proposed for listing as Threatened Species.
C ..... Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants. Defined as those species for which the USFWS currently has on file sufficient information on biological vulnerability and threats to support proposing to list the species as endangered or threatened.
E(S/A) ..... Endangered due to similarity of appearance.
T(S/A) ..... Threatened due to similarity of appearance.
EXPE, XE..... Experimental essential population. A species listed as experimental and essential.
EXPN, XN .... Experimental non-essential population. A species listed as experimental and non-essential. Experimental, nonessential populations of endangered species are treated as threatened species on public land, for consultation purposes.

STATE

ANIMALS .. (Listed by the Florida Fish and Wildlife Conservation Commission - FWC)

FE ..... Federally-designated Endangered

FT ..... Federally-designated Threatened

FXN..... Federally-designated Threatened Nonessential Experimental Population

FT(S/A) ..... Federally-designated Threatened species due to similarity of appearance

ST..... Listed as Threatened Species by the FWC. Defined as a species, subspecies, or isolated population, which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat, is decreasing in area at a rapid rate and therefore is destined or very likely to become an endangered species within the near future.
SSC..... Listed as Species of Special Concern by the FWC. Defined as a population which warrants special protection, recognition or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance or substantial human exploitation that, in the near future, may result in its becoming a threatened species.

PLANTS .... (Listed by the Florida Department of Agriculture and Consumer Services - FDACS)

LE ..... Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973,as amended.

LT ..... Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

Addendum 7—Cultural Information

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, '*Historic property' or 'historic resource' means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."*

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found at:
http://www.flheritage.com/preservation/compliance/guidelines.cfm

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at: http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Deena S. Woodward
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

Phone: (850) 245-6425

Toll Free: (800) 847-7278
Fax: (850) 245-6435

The criteria to be used for evaluating eligibility for listing in the National Register of Historic Places are as follows:

1) Districts, sites, buildings, structures, and objects may be considered to have significance in American history, architecture, archaeology, engineering, and/or culture if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- **a)** are associated with events that have made a significant contribution to the broad patterns of our history; and/or
- **b)** are associated with the lives of persons significant in our past; and/or
- **c)** embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or
- **d)** have yielded, or may be likely to yield, information important in prehistory or history.

2) Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the *National Register*. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- **a)** a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
- **b)** a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- **c)** a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
- **d)** a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; ora reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
- **e)** a property achieving significance within the past 50 years, if it is of exceptional importance.

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations and additions while preserving those portions or features that convey its historical, cultural or architectural values.

Stabilization is defined as the act or process of applying measures designed to reestablish a weather resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the essential form as it exists at present.

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Addendum 8 —Land Management Review

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MARJORY STONEMAN DOUGLAS BUILDING
3900 COMMONWEALTH BOULEVARD
TALLAHASSEE, FLORIDA 32399-3000

RICK SCOTT
GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

MEMORANDUM

TO: Marianne Gengenbach, Program Administrator
Division of State Lands

FROM: Parks Small, Chief, Bureau of Natural and Cultural Resources
Division of Recreation and Parks

Lew Scruggs, Assistant Chief, Office of Park Planning
Division of Recreation and Parks

SUBJECT: Response to Draft Land Management Review (LMR) Fort Clinch State Park

DATE: March 21, 2013

The Land Management Review draft report provided to DRP determined that management of Fort Clinch State Park by the Division of Recreation and Parks met the two tests prescribed by law. Namely, the review team concluded that the land is being managed for the purposes for which it was acquired and in accordance with the land management plan.

Below are Additional Recommendations and Checklist Findings (items the LMR determined should be further addressed in the management plan update) of the draft LMR report, with our manager's response to each. The responses were prepared via a coordinated effort of the park, district office, and our offices.

PLAN REVIEW

The review team average score indicates a need for acknowledgement of protection and preservation of natural communities, specifically estuarine unconsolidated substrate. Please provide documentation in the management plan.
Managing Agency Response: Agree; The estuarine unconsolidated substrate occurs on properties that were added to the park since the last management plan update. This natural community type will be included in the next management plan update.

The review team average score indicates a need for acknowledgement of natural resources survey/management resources, specifically other habitat management effects monitoring. Please provide documentation in the management plan.
Managing Agency Response: Agree; Additional habitat management effects monitoring will be included in the next management plan update.

The review team average score indicates a need for acknowledgement of the deficiencies related to non-native, invasive and problem species, specifically the prevention and control of pests/pathogens. Please provide documentation in the management plan.
Managing Agency Response: Agree; Discussion of the prevention and control of pests/pathogens will be included in the next management plan update.

The review team average score indicates a need for acknowledgement of restoration of ruderal areas, specifically swales. Please provide documentation in the management plan.
Managing Agency Response: Agree; Additional information on the restoration goals for the swales impacted by mosquito ditching will be included in the next management plan update.

The review team average score indicates a need for acknowledgement of ground water monitoring, specifically water quality and quantity. Please provide documentation in the management plan.
Managing Agency Response: Agree; Additional information on groundwater monitoring will be included in the next management plan update. Staff will continue to enlist assistance of the SJRWMD (or local Water Authority or local health department) to assist the park in water quality/quantity monitoring.

The review team average score indicates a need for acknowledgement of surface water monitoring, specifically water quality. Please provide documentation in the management plan.
Managing Agency Response: Agree; Additional information on surface water monitoring will be included in the next management plan update. Staff will continue to enlist assistance of the SJRWMD (or local Water Authority or local health department) to assist the park in water quality/quantity monitoring.

The review team average score indicates a need for acknowledgement of adjacent property concerns, specifically inholdings/additions and discussion of potential surplus land determination. Please provide documentation in the management plan.
Managing Agency Response: Agree; The Division will revise priorities for inholdings and additions and will include the determination of surplus lands in the next update of the management plan.

FIELD REVIEW
The review team average score indicates a need for acknowledgement of management resources, specifically staff and funding. Please provide documentation in the management plan.
Managing Agency Response: Agree; If it is determined that additional staff and funding are needed at the time of the next management plan revision, it will be included in the plan. However, no new staff can be assigned to this or any other park unit unless they are appropriated

by the Legislature or reassigned from other units. Funding is determined annually by the Florida Legislature, and funds are allocated to the 171 state parks and trails according to priority needs

Thank you for your attention.

/gk

CC: Clif Maxwell, Chief, Bureau of Parks District 2
Brian Fugate, Assistant Chief, Bureau of Parks District 2
Ben Faure, Park Manager, Fort Clinch State Park
Craig Parenteau, Environmental Specialist, Bureau of Parks District 2