

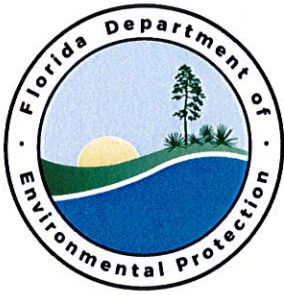
Fort Cooper State Park

APPROVED Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
December 23, 2015





Florida Department of Environmental Protection

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

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

December 23, 2015

Ms. Jennifer Carver
Division of Recreation and Parks
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 525
Tallahassee, Florida 32399-3000

RE: Fort Cooper State Park - Lease #2541

Dear Ms. Carver:

On **December 18, 2015**, the Acquisition and Restoration Council recommended approval of the **Fort Cooper 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 Cooper State Park management plan. The next management plan update is due December 18, 2025.

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,

A handwritten signature in cursive script that reads "Paula L. Allen".

Paula L. Allen
Office of Environmental Services
Division of State Lands

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INTRODUCTION

Fort Cooper State Park is located in Citrus County, approximately two miles southeast of Inverness (see Vicinity Map). Access to the park is from U.S. Highway 41 and Old Floral City Road (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

Fort Cooper State Park was initially acquired on December 23, 1970 with funds from the Land Acquisition Trust Fund (LATF). Currently, the park comprises 734.81 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) holds fee simple title to the park and on June 23, 1971, the Trustees leased (Lease Number 2541) the property to DRP under a 99-year lease. The current lease will expire on June 22, 2070.

Fort Cooper 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 Cooper State Park is to provide Florida residents and visitors with resource-based public outdoor recreational and interpretive opportunities. Lake Holathlikaha and the park's sandhill uplands offer swimming, paddling, fishing, picnicking, hiking, and nature study. A commemorative and interpretive reenactment of the events at Fort Cooper during the Second Seminole War is staged in the park every year.

Park Significance

- The park preserves and interprets the site of the Second Seminole War fort, built in 1836 by Major Mark Anthony Cooper, to protect 380 sick and wounded soldiers of the First Georgia Battalion Volunteers where they survived 16 days, losing only one man, while under siege by over 500 Seminole warriors.
- The park's natural areas provide diverse wildlife habitat, including hardwood hammocks, basin marsh, the 50-acre clearwater Lake Holathlikaha, and a 247-acre area of sandhill.
- The park offers more than five miles of hiking trails with abundant opportunity for bird and wildlife viewing. A trail extension connects the park to the 46-mile multi-use paved Withlacoochee State Trail.

Fort Cooper State Park is classified as a state park in the DRP's unit classification system. In the management of a state park, 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 Cooper 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 2003 approved plan.

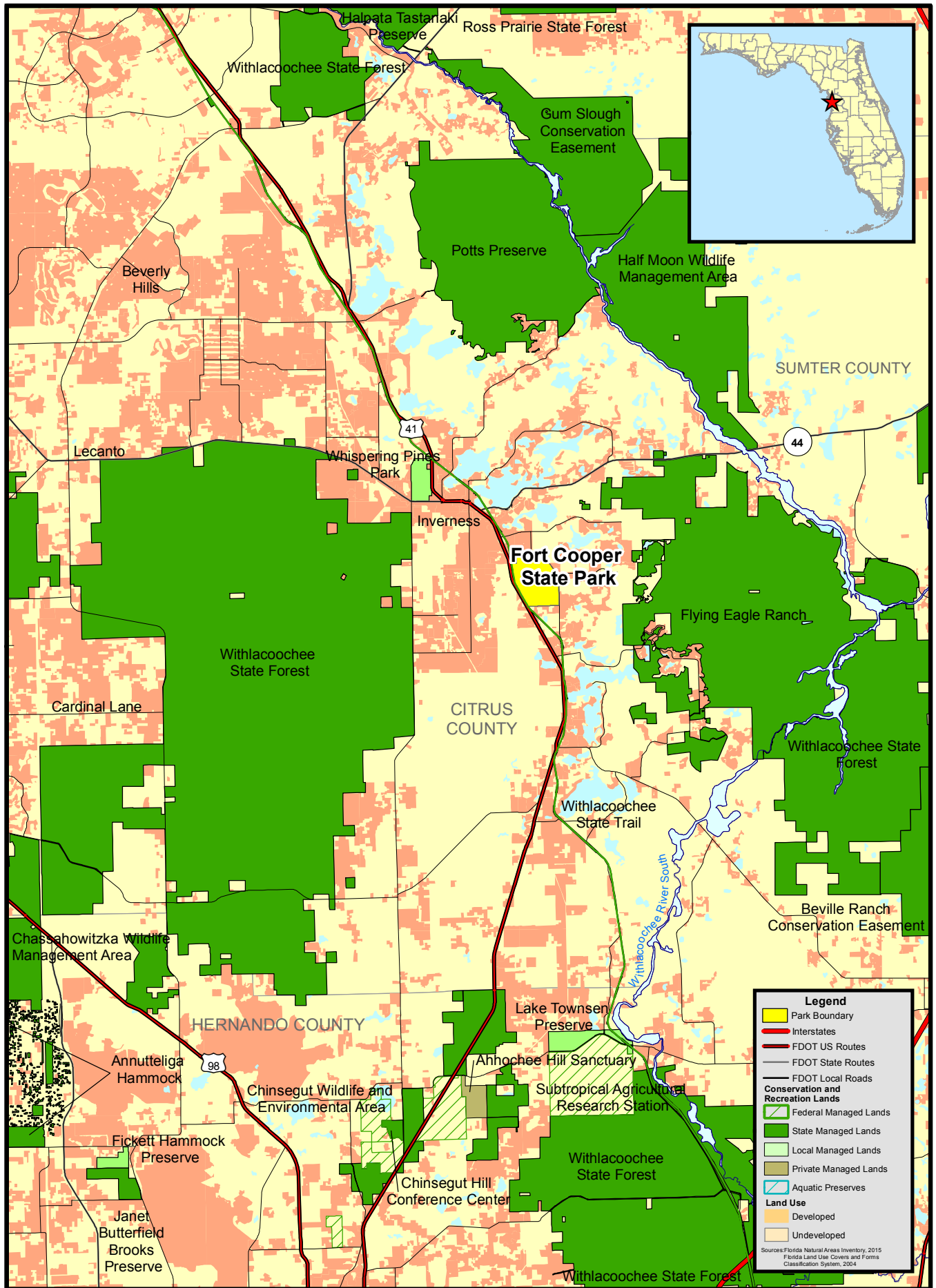
The plan consists of three interrelated components: the Resource Management Component, the Land Use Component and the Implementation Component. The Resource Management Component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management needs and 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.

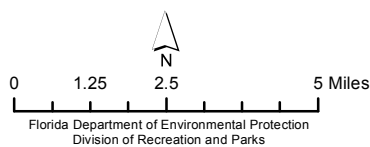
The Implementation Component consolidates the measurable objectives and actions for each of the park's management goals. An implementation schedule and cost estimates are included for each objective and action. Included in this table are (1) measures that will be used to evaluate the DRP's implementation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

In the development of this plan, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of the DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park natural



**FORT COOPER
STATE PARK**

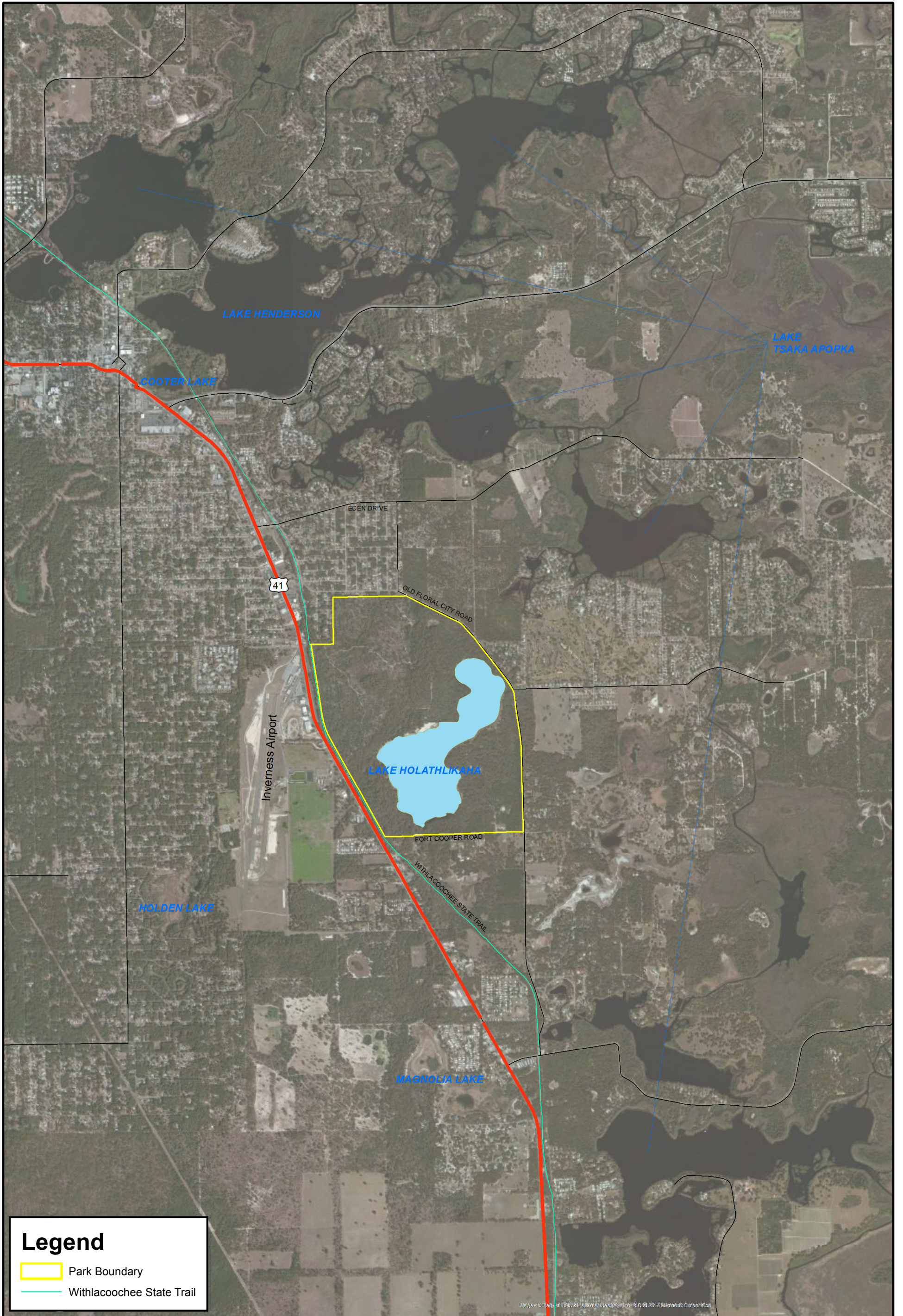


**VICINITY
MAP**

Legend

- Park Boundary
- Interstates
- FDOT US Routes
- FDOT State Routes
- FDOT Local Roads
- Conservation and Recreation Lands**
- Federal Managed Lands
- State Managed Lands
- Local Managed Lands
- Private Managed Lands
- Aquatic Preserves
- Land Use**
- Developed
- Undeveloped

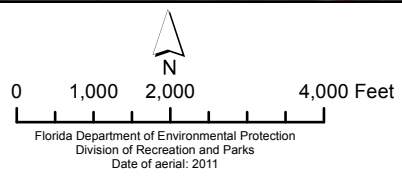
Sources: Florida Natural Areas Inventory, 2015
Florida Land Use Covers and Forms Classification System, 2004



Legend

- Park Boundary
- Withlacochee State Trail

FORT COOPER STATE PARK



REFERENCE MAP

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. 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) are not consistent with this plan.

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 concessionaires, 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.

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 historic sites.

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 Wednesday, July 22 and Thursday, July 23, 2015, respectively. Meeting notices were published in the Florida Administrative Register on Wednesday, July 15, 2015, Volume 41, Issue 136, 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 Cooper 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 not within or adjacent to an 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 DEP's overall mission in ecosystem 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 park values.

The DRP's management goal for cultural resources is to preserve sites and objects that represent Florida's cultural periods and 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.

Management Zone	Acreage	Managed with Prescribed Fire
FC-01	74.37	Y
FC-02	22.48	Y
FC-03	63.14	Y
FC-04	100.84	Y
FC-05	151.20	Y
FC-06	107.95	Y
FC-07	20.96	Y
FC-08	9.16	Y
FC-09	42.50	Y
FC-10	14.85	Y
FC-11	10.85	N
FC-12	89.85	Y

RESOURCE DESCRIPTION AND ASSESSMENT

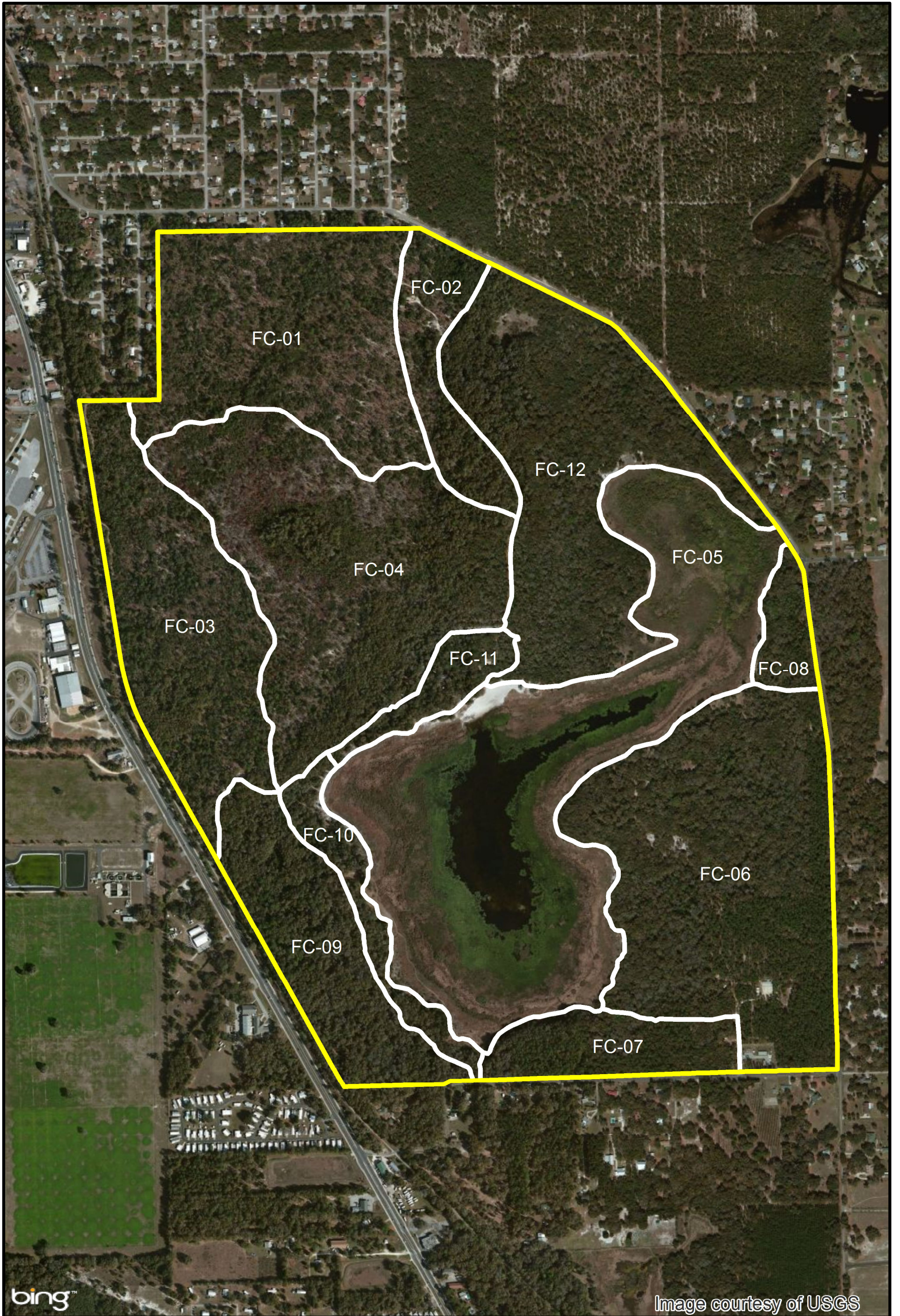
Natural Resources

Topography

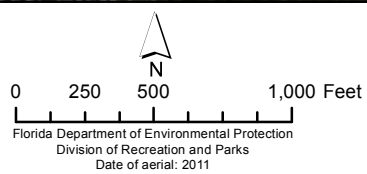
Fort Cooper State Park lies within the Central Physiographic Zone of the state, specifically within the southern portion of the Western Valley and on the western edge of the Tsala Apopka Plain. The Western Valley is an area of low relief and poor drainage containing many swamps, including the Green Swamp 10 miles southeast of the park. The Tsala Apopka Plain is quite notable as a broad, relatively flat region of lower elevations within the Western Valley. Its namesake, Tsala Apopka, is a mosaic of wetlands on the eastern edge of the southern Brooksville Ridge (White 1958; Attardi 1983). Other water bodies within the Tsala Apopka Plain include Lake Panasoffkee, Lake Holathlikaha (also known as Fort Cooper Lake), and numerous smaller lakes. These individual lakes, along with the Withlacoochee and Rainbow Rivers, are remnants of a once much larger, single body of water that existed in the geologic past (White 1958; Attardi 1983).

The Withlacoochee River constitutes the central lowland divide within the Western Valley, and it is the primary drainage basin for the region (White 1958). The uplands that confine the Western Valley include the prominent Brooksville Ridge, situated along the western edge of the valley, and the Sumter and Lake Uplands, located along the eastern side. Given that the Brooksville Ridge is located immediately west of Fort Cooper, the park has topographic attributes of both the Ridge and the Tsala Apopka Plain (White 1970).

Elevations within Fort Cooper State Park range from a high of about 82 feet above mean sea level (msl) in the sandhills on the west side of the park to a low of approximately 24 feet msl along the exposed shoreline of Lake Holathlikaha.



FORT COOPER STATE PARK



MANAGEMENT ZONES MAP

Image courtesy of USGS

Topographic alterations in the park include several small abandoned mine pits, 6 to 10 feet deep, that are holdovers from the historic phosphate era. The pits are scattered within management zone FC-12 north of the lake. There are no other known alterations of any significance.

Geology

Since Fort Cooper is situated on the boundary between the Tsala Apopka Plain and the Brooksville Ridge, its geology has characteristics of both those physiographic features (Knochenmus and Yobbi 2001). Pleistocene-age alluvial sand deposits of varying thickness overlie deeper geologic formations throughout the Tsala Apopka Plain, including the lakebed of Lake Holathlikaha (Florea and Vacher 2006). These sands are generally medium to fine-grained, are light in color, and usually do not contain appreciable amounts of gravel or heavy minerals. The alluvial sands are prone to erosion, and in fact, erosion has shaped the Tsala Apopka Plain into a large, wide, deep valley that cuts into the underlying Alachua Formation and Eocene Limestone (Vernon 1951).

Core samples are not available for the park, but sediments collected nearby indicate that the underlying strata include the Middle Eocene-age Avon Park Formation at depths of 80 to 300 feet, the late Eocene-age Ocala Limestone at depths of 30 to 80 feet, and the Pliocene-age Cypress Head Formation at depths of zero to 30 feet. The Avon Park Formation is composed primarily of cream to brown dolostone; it may also contain organic materials. The Ocala Limestone consists of white to pale orange fossiliferous limestone. The Cypress Head Formation is composed of undifferentiated orange clay-sand, with a variable content of gravel. The main course of the Withlacoochee River sits atop the Ocala uplift and parallels the dominant fracture feature of the area (Vernon 1951).

The uplands of the Brooksville Ridge are capped with insoluble clastic Miocene sediments from the Bone Valley and Alachua Formations. These sediments are more resistant to erosion than are the alluvial sands of the Tsala Apopka Plain (White 1970; Attardi 1983). Miocene-age sands and clays of the Hawthorn Group are also a significant component of the ridge system. This clay layer underlies the entire Brooksville Ridge, but the many karst and fracture features that penetrate the clay provide significant hydraulic connection to the Floridan aquifer below (Jones et al. 1994).

Two small sinkholes formed in the park in the late 1980s, one appearing by the pole barn near the shop after a rainstorm, the other developing just inside the park boundary along Floral City Road. There has been no apparent increase in size of these sinkholes since they initially appeared.

Soils

The Soil Survey of Citrus County, Florida has identified eleven soil types in the park (Pliny et al. 1988), including Adamsville fine sand, Arredondo fine sand, Basinger fine sand, Basinger fine sand-depressional, Candler fine sand, Lake fine sand, Pompano fine sand, Pompano fine sand-depressional, Sparr fine sand, Tavares fine sand, and Terra Ceia-Okeelanta association. Addendum 4 contains detailed

descriptions of these soils. There are no soil conservation or soil erosion issues at the park. Management activities will follow accepted best management practices to monitor and prevent any soil erosion and conserve soil resources on site.

Minerals

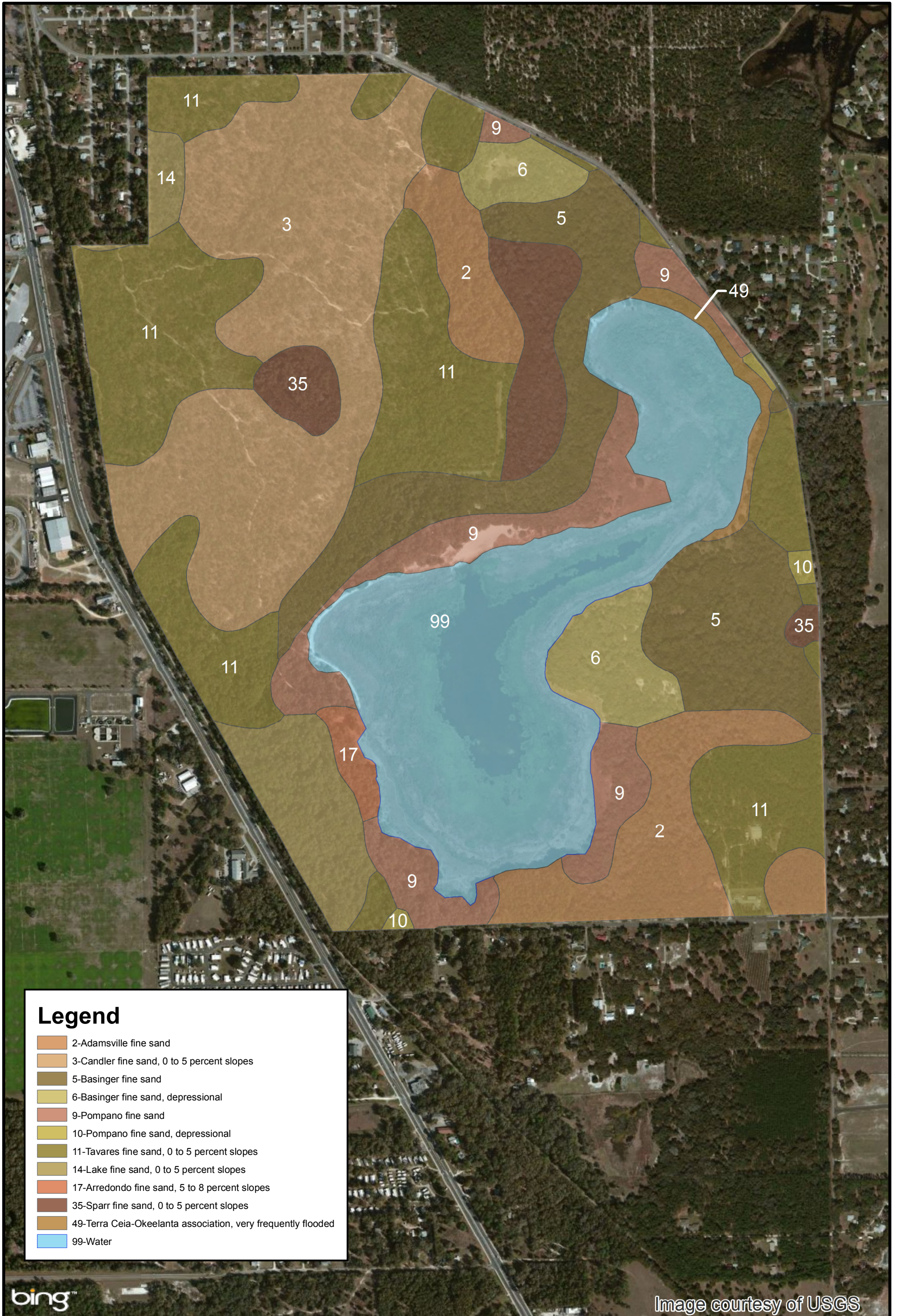
There are no known mineral deposits of commercial value within the park. In the early 1900s, phosphate exploration occurred in what today is the mesic hammock community; however, commercial quality material was not found.

Hydrology

Lake Holathlikaha, which is completely contained within Fort Cooper State Park, is the most prominent hydrological feature in the park and its only major surface water body. It is located on the western boundary of the Tsala Apopka Chain of Lakes in eastern Citrus County. This chain of lakes, which is part of the Withlacoochee River Basin, contains numerous interconnected wetlands that encompass an area of nearly 700 square miles (SWFWMD 2007). Open water in the Tsala Apopka chain, however, only accounts for 10 percent of the entire basin acreage, indicating that a much higher percentage consists of forested wetlands and marshes (Rutledge 1977).

The Tsala Apopka wetlands, including Lake Holathlikaha, are geologic relicts of a former ancestral river (White 1958). The Rainbow River was undoubtedly the head of that ancestral water body, which eventually flowed southward into Tampa Bay through what is currently the Hillsborough River. In fact, existing topographic elevations of the Holathlikaha lakebed clearly reveal a probable southern drainage corridor toward Floral City, as well as a northeastern one toward Davis Lake. However, based on analysis of existing aerial photography (USDA 1944), no functioning surface water connection between these water bodies has existed over the past 75 years.

The Holathlikaha lakebed has experienced very little alteration over the years. One of the few disturbed areas in the lakebed is on the northern shoreline where the park manages a small swimming area. In contrast, water bodies in the Tsala Apopka Chain of Lakes have been extensively modified over the past 120 years with the construction of numerous canals and control structures that link a majority of the lakes in the system (Bradner 1988). These alterations have significantly increased water movement between the Withlacoochee River and the Chain of Lakes, dramatically affecting water levels and water chemistry in both systems. Placement of the control structures began in 1884 with the construction of the Orange State Canal that linked water bodies south of the park near Floral City (SWFWMD 2007). Historically, the structures provided local residents with reliable transportation routes and an abundant water supply for agricultural and mining activities, and they helped to decrease extreme water level fluctuations within the Tsala Apopka Lakes (Trommer et al. 2009).



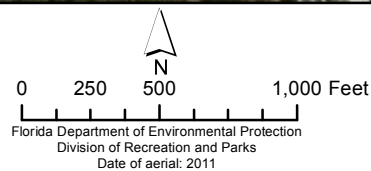
Legend

- 2-Adamsville fine sand
- 3-Candler fine sand, 0 to 5 percent slopes
- 5-Basinger fine sand
- 6-Basinger fine sand, depressional
- 9-Pompano fine sand
- 10-Pompano fine sand, depressional
- 11-Tavares fine sand, 0 to 5 percent slopes
- 14-Lake fine sand, 0 to 5 percent slopes
- 17-Arredondo fine sand, 5 to 8 percent slopes
- 35-Sparr fine sand, 0 to 5 percent slopes
- 49-Terra Ceia-Okeelanta association, very frequently flooded
- 99-Water

bing™

Image courtesy of USGS

FORT COOPER STATE PARK



SOILS MAP

Water Quantity

Citrus County forms the northern boundary of a unique karst area known as the Springs Coast Basin (FDEP 2008). The overconsumption of groundwater resources in this basin or in the Withlacoochee watershed could cause a lowering of water levels in Lake Holathlikaha. Those limits will need to be ecologically based, and designed to reduce the likelihood that lake water levels will decline significantly or that the chemical characteristics of wetland ecosystems will be altered (Yobbi 1992; SWFWMD 1999; Neubauer et al. 2008).

Four major spring complexes, namely Crystal River, Homosassa, Chassahowitzka, and Weeki Wachee, are located within the Springs Coast Basin (Champion and Starks 2001). The combined discharge of these four spring groups is 900 million gallons per day. The groundwater basin that supports the spring groups extends across all of Citrus County (Knochenmus and Yobbi 2001). Two major aquifer recharge areas in the county are the Brooksville Ridge and the expansive Tsala Apopka wetlands, including Lake Holathlikaha. These areas serve as important groundwater sources for the major coastal springs (Jones and Upchurch 1994).

In Citrus County, groundwater flows west from the Withlacoochee River region toward the Gulf of Mexico (Knochenmus and Yobbi 2001; Trommer et al. 2009). Lake Holathlikaha sits atop a portion of the Floridan Aquifer that predominately recharges the Homosassa Springs group; however, the lake is also situated near a groundwater divide between that springshed and Crystal River Springs group.

The Floridan Aquifer is unconfined over much of Citrus County, including the Tsala Apopka Lake region where less permeable clay layers are lacking (Jones and Upchurch 1994). Since the majority of the county lacks an extensive confining layer, it makes sense that the surficial aquifer is also ill defined throughout the region. However, where sandy clay layers in the Brooksville Ridge exist in a local semi-confined condition over the top of the Floridan Aquifer, such as along the western shoreline of Lake Holathlikaha, a limited surficial aquifer may be present (Pliny et al. 1988). In fact, the relatively extreme topographic relief along the west shoreline of Lake Holathlikaha and additional karst evidence suggest that surficial seepage occurred there historically.

The Tsala Apopka Chain of Lakes, and thus Lake Holathlikaha, are directly connected to the Floridan Aquifer. They not only receive water from the aquifer but at times also lose water to it (Faulkner 1973; Wolfe 1990; Jones and Upchurch 1994). The water surface elevation of Lake Holathlikaha in 1895 was 32 feet above msl (USGS 1895), and in 1954 it was at 33 feet NGVD (National Geodetic Vertical Datum) (USGS 1954). At those surface elevations, Lake Holathlikaha would have had a wet perimeter extending outward nearly 186 acres (SWFWMD 2006a). From 2006 to 2011, however, lake levels decreased significantly, with an average NGVD of 25.6 feet and a wet perimeter of nearly 145 acres. This reduction in lake stage is equivalent to about a 25 percent decrease in surface area.

The documentation of Lake Holathlikaha water levels, recorded by park staff at a South West Florida Water Management District (SWFWMD) station (#STA 826

3110), has been relatively continuous from April 2001 to the present. However, the SWFWMD has developed a model that allows water managers to estimate lake levels as far back as 1946 (SWFWMD 2006a). Based on this SWFWMD model, the highest lake level between 1946 and today was 33.1 feet NGVD in April 1960, and the lowest was 20.8 feet NGVD in July 1957. The highest and lowest lake levels actually recorded at #STA 826 3110 were 32.9 feet NGVD in October 2003 and 22.2 feet NGVD in June 2001.

Interestingly, analysis of newly available satellite LIDAR (Light Detection and Ranging) data and of 1960-1967 aerial photography for Citrus County has confirmed that at least some of the SWFWMD model estimates were accurate in that they corroborate the occurrence of a significant high water event at Lake Holathlikaha in 1960 (USDA 1960). Judging from the aerials, sustained high water levels in early 1960 apparently inundated the lakeshore up to at least the 35-foot contour, resulting in a large-scale die-off of hardwoods around the entire perimeter of the lake. During the 5 to 10 year period following the high water event, continuous forest regeneration occurred throughout the affected area.

In 2006, a Low Guidance Level (LGL) was set at 26.7 feet NGVD for Lake Holathlikaha (SWFWMD 2006a). A LGL is defined as the elevation that a lake's water levels are expected to reach or exceed ninety percent of the time on a long-term basis. At the same time, a similarly applied minimum flow and level (MFL) elevation was set for Tsala Apopka Lake. Both had the purpose of protecting these water bodies from significant harm as defined by state law (Section 373.042, Florida Statutes).

Many water management experts acknowledge that the current long-term drought and an increased consumptive use of groundwater have combined to cause a significant lowering of water tables and decreased spring flows all across Florida (Mirti 2001, Swihart 2011; Still 2010). As many as seven known springs within the Southwest Florida Water Management District no longer flow (Champion and Starks 2001). Additionally, water managers can now correlate specific regional drawdowns with shrinking springsheds and declining spring flows (Mirti 2001; Grubbs and Crandall 2007; Grubbs 2011). Given the projected water supply needs for the area, the United States Geological Survey predicts that groundwater levels throughout the state, including those in the Fort Cooper region, will continue to decline (Sepulveda 2002).

Water Quality

Surface water runoff originating outside Fort Cooper State Park is the main cause of decreased water quality in Lake Holathlikaha. Urban development surrounds the park, but the two areas that appear to contribute the greatest amount of contaminated surface water are Old Floral City Road northeast of the park and U.S. Highway 41 immediately west.

At one time, water quality at Lake Holathlikaha may have been similar to that of the Tsala Apopka Chain of Lakes (Attardi 1983). Lake Holathlikaha, however, has long been isolated from those lakes, so it has remained unaffected by water

exchanges that may have taken place recently between the lakes and the Withlacoochee River. The one water quality study known to have taken place at Lake Holathlikaha (FDEP 1994) documented that the lake was moderately impaired because of unidentified contamination sources. The first known instance of high nutrient contamination was in 1985, when the public swimming area was closed temporarily due to elevated bacterial counts (District 2 park files). Continuous water quality monitoring in the public swimming area has occurred since that time, and there have been only a few additional closures. Apparently, water quality at Lake Holathlikaha may vary seasonally, with poorer characteristics appearing in the warmer summer months due to lower oxygen levels. Although lakes within this region tend to be naturally eutrophic, several factors point toward anthropogenic sources of contaminants that may produce eutrophic conditions as well (Jones and Upchurch 1994).

Since October 2002, the park, in cooperation with Florida LAKEWATCH, has been monitoring four basic water quality parameters (nitrogen, phosphorus, biological productivity, and water clarity) at Lake Holathlikaha (LAKEWATCH 2012). Over the 16-year period of record (since 1996), nitrate concentrations have ranged from 0.50 mg/L in June 2006 to 2.35 mg/L in January 1996, but the overall average is 1.05 mg/L (N=219). A brief analysis of available water quality data suggests that the lake has exhibited mesotrophic as well as eutrophic nutrient properties over the past 16 years.

In 1996, the Florida Department of Environmental Protection (FDEP) initiated a formal monitoring program for surface water and groundwater statewide (Maddox et al. 1992; FDEP 2005). This Integrated Water Resource Monitoring Program of Florida's Water Resources uses a comprehensive watershed approach based on natural hydrologic units. It also provides a framework for implementing Total Maximum Daily Load (TMDL) requirements to restore and protect water bodies that are determined to be impaired (Clark and DeBusk 2008). TMDL standards for Lake Holathlikaha have not yet been assigned, nor are there any current plans for establishing them.

Much of the important hydrological information collected, stored, and managed by various agencies can now be accessed through a variety of web-based databases (FDEP 2012a; FDEP 2012b). Additionally, there is an extensive well monitoring database for the Springs Coast and Withlacoochee River Basins. Numerous entities such as FDEP, water management districts, environmental consulting firms, and university researchers are all involved in the monitoring of wells throughout the region. Well monitoring for groundwater quality and background levels occurs at waste management facilities, drinking water contamination sites, and private, residential and public areas. At least 165 wells located within five miles of the park are undergoing various levels of sampling. There are no Very Intense Study Area (VISA) wells within the immediate vicinity of the park; however, FDEP is closely monitoring a known Brownfield site (i.e., defunct industrial/commercial facility with significant contamination potential) located five miles northwest of the park.

Natural Communities

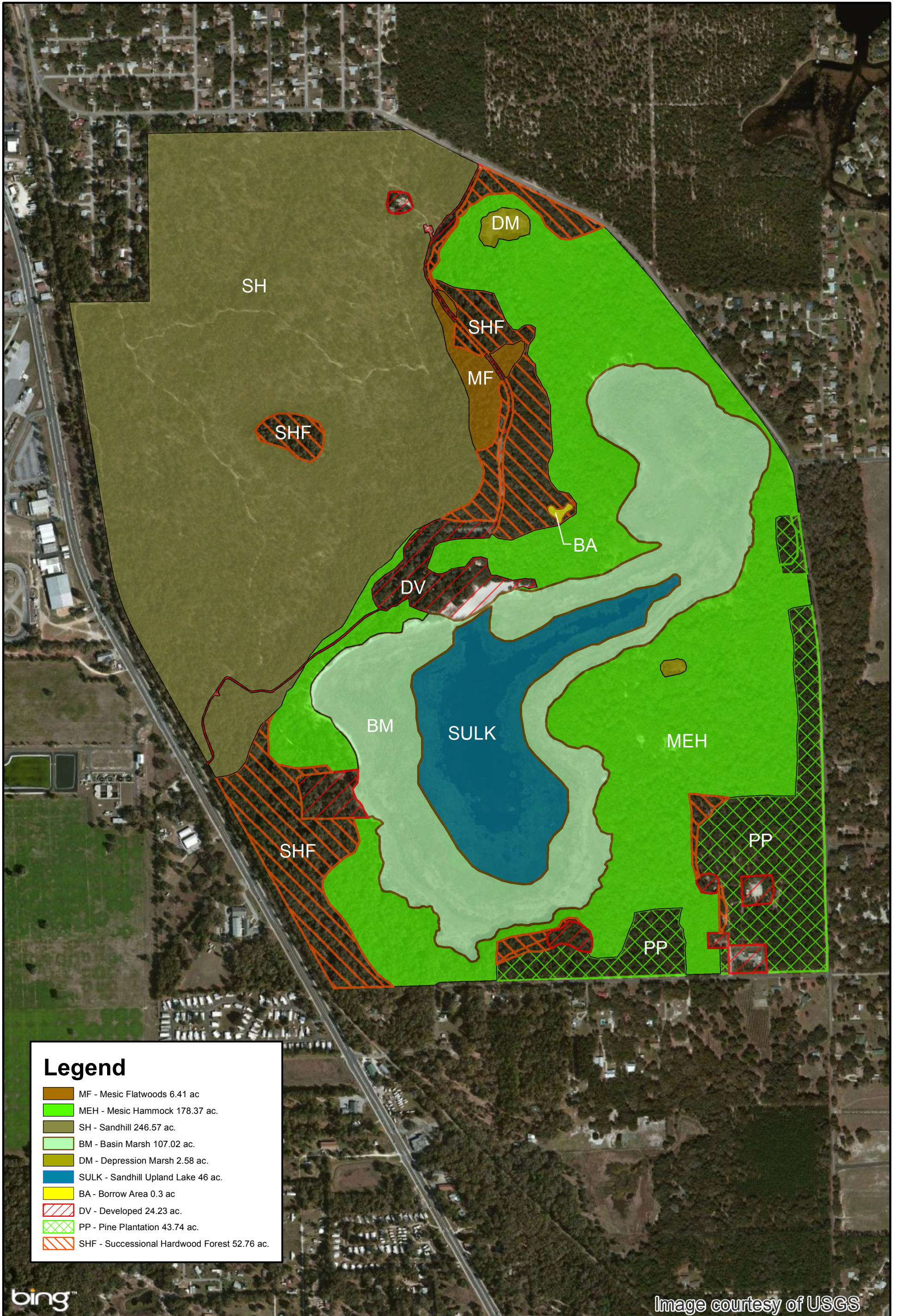
This section of the management plan describes and assesses each of the natural communities found in the state park. It also describes the desired future condition (DFC) of each natural community and identifies the actions that will be required to bring the community to its desired future condition. Specific management objectives and actions for natural community management, exotic species management, and imperiled species management 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 linking natural communities across the landscape.

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

The development of natural community maps for the park was based upon several different resources, including historical and recent aerial photography ranging from 1944 to 2011, General Land Office (GLO) Field Survey Notes from 1849, LIDAR coverage with 1-foot contours, and ground-truthing. The land currently encompassed within Fort Cooper State Park was first surveyed in the mid-nineteenth century. The original survey map (1849) shows a lake bordered by open pine forests, except for the uplands at the northernmost extremity of the lake where a hardwood forest is indicated. With respect to the present-day park boundaries, that early hammock is in portions of sections 22 and 27. The pine forests shown on the survey map would have been sandhill or mesic flatwoods.



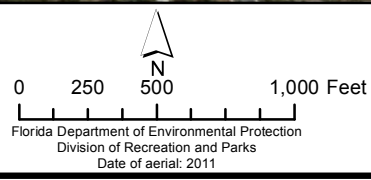
Legend

- MF - Mesic Flatwoods 6.41 ac.
- MEH - Mesic Hammock 178.37 ac.
- SH - Sandhill 246.57 ac.
- BM - Basin Marsh 107.02 ac.
- DM - Depression Marsh 2.58 ac.
- SULK - Sandhill Upland Lake 46 ac.
- BA - Borrow Area 0.3 ac.
- DV - Developed 24.23 ac.
- PP - Pine Plantation 43.74 ac.
- SHF - Successional Hardwood Forest 52.76 ac.

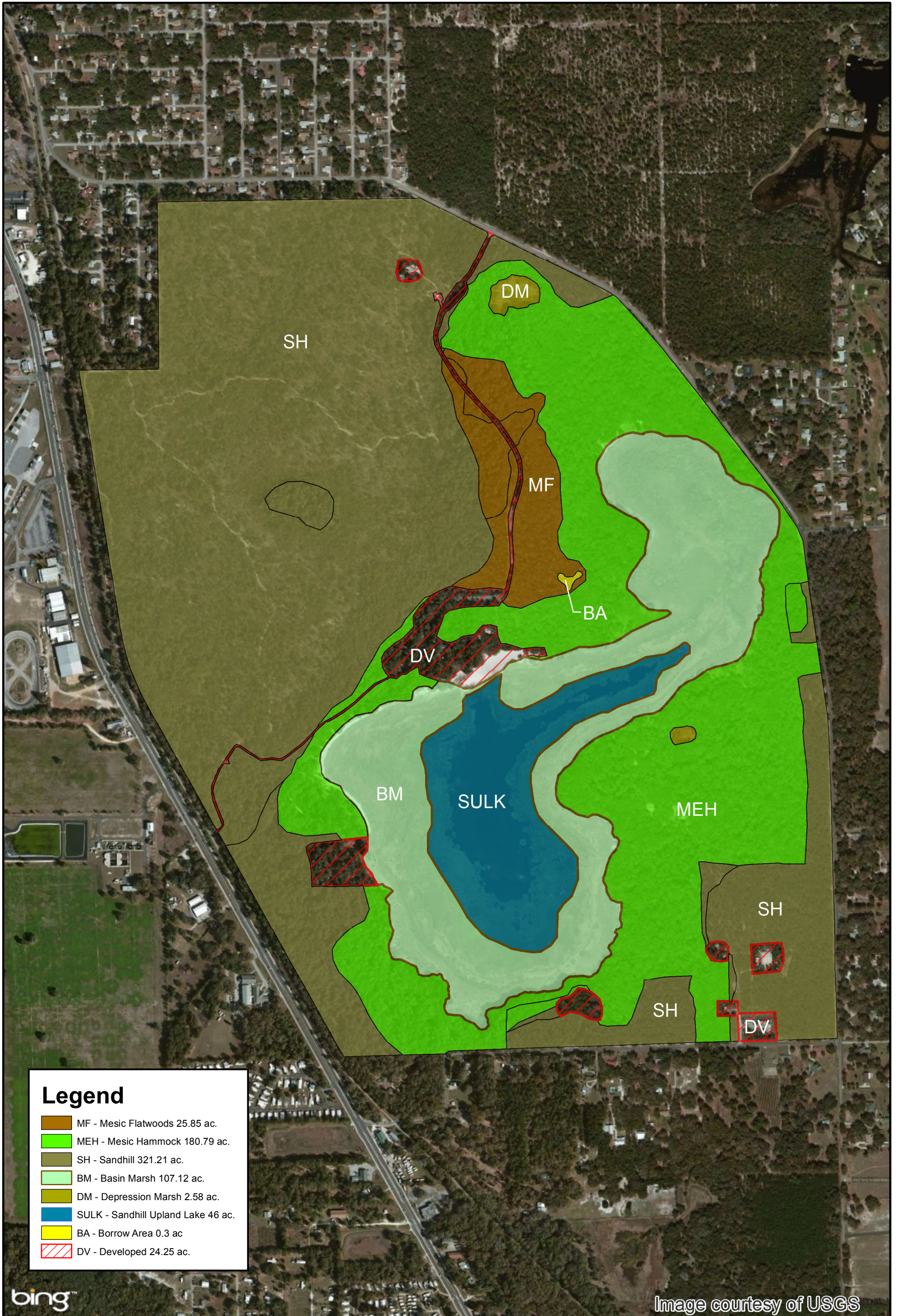
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Image courtesy of USGS









FORT COOPER STATE PARK



NATURAL COMMUNITIES MAP
EXISTING CONDITIONS



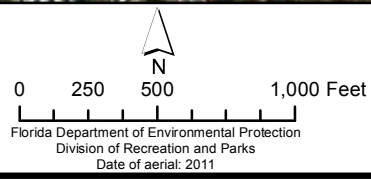
Legend

	MF - Mesic Flatwoods 25.85 ac.
	MEH - Mesic Hammock 180.79 ac.
	SH - Sandhill 321.21 ac.
	BM - Basin Marsh 107.12 ac.
	DM - Depression Marsh 2.58 ac.
	SULK - Sandhill Upland Lake 46 ac.
	BA - Borrow Area 0.3 ac
	DV - Developed 24.25 ac.

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Image courtesy of USGS

FORT COOPER STATE PARK



NATURAL COMMUNITIES MAP
DESIRED FUTURE CONDITIONS

By the time the land was acquired to create Fort Cooper State Park in 1970, substantial vegetative shifts had occurred. The sandhill community was still recognizable in the northwest portion of the park, despite extensive encroachment by shrubs and hardwood trees due to the absence of fire. That same lack of fire had caused hammock vegetation to expand out from around the lake. The expanded hammock had actually absorbed the mesic flatwoods community. The flatwoods' former presence is revealed at several locations today by the persistence of large patches of saw palmetto beneath the dense hardwood canopy, by the scattering of lightered pine stumps throughout the forest, and by the appearance of a few old living longleaf pines projecting above the oaks. On cleared agricultural land in the southeast corner of the park, slash pine trees had been planted in rows in 1966. The mature pines are now in competition with the numerous laurel oaks that have grown up around them.

By 1970, Lake Holathlikaha had also changed, mainly due to extended lower water levels that were apparently caused by drought and by a growing urbanization that had extracted increasing amounts of water from the ground. The shallow northern arm of the lake had become a marsh, and elsewhere in the deeper parts of the lake, what once must have been a relatively narrow fringe of littoral vegetation had broadened considerably. These effects are even more pronounced today.

An awareness of these vegetative shifts over time is useful in understanding the natural community descriptions below, which reflect not only the present distribution of plant associations but also the historic ones.

MESIC FLATWOODS

Desired future Condition: Dominant pines will usually be longleaf pine (*Pinus palustris*). Native herbaceous groundcover should be over at least 50 percent of the area and less than 3 feet in height. Saw palmetto (*Serenoa repens*) will comprise no more than 50 percent of total shrub species cover, and are also less than 3 feet in height. Other shrub species may include gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), runner oak (*Quercus elliotii*), dwarf live oak (*Quercus minima*), shiny blueberry (*Vaccinium myrsinites*), and dwarf huckleberry (*Gaylussacia dumosa*). Shrubs will generally be knee-high or less, and there are few if any large trunks of saw palmetto along the ground. The Optimal Fire Return Interval for this community is 2 to 3 years.

Description and assessment: A relatively limited area of mesic flatwoods lies along the main park drive between the sandhills and the mesic hammock that borders the northeastern portion of Lake Holathlikaha. Johnson (2001) refers to this area as a transition zone between those community types. The distribution of the mesic flatwoods in the park seems to coincide with that of Adamsville fine sand, a somewhat poorly drained soil that occurs at the base of lower slopes in the uplands (Pliny 1988). According to General Land Office (GLO) Field Survey Notes (<http://www.labins.org>) from the 1849 survey conducted by A.H. McCormick, the lands along the current park drive existed as pinelands in 1849. However, the brief notes associated with the surveys did not always make a distinction between mesic flatwoods and sandhill.

Large longleaf pines are still extant in this area, although there is now a nearly closed canopy of live oaks (*Quercus virginiana*) and laurel oaks (*Quercus laurifolia*) over a midstory of saw palmetto. Other remnant species include shiny blueberry, coastal plain staggerbush (*Lyonia fruticosa*), and wiregrass (*Aristida stricta* var. *beyrichiana*). Aerial photos from 1944 and 1951 show this area as being relatively open and lacking a closed canopy, so the takeover by oaks must have occurred between 1951 and 1970. Numerous lightered longleaf pine stumps are scattered within the area. Due to its advanced successional status and the lack of fire for many decades, the mesic flatwoods in the park is considered to be in poor condition. This community has changed so much that the Natural Communities Map depicts it as successional hardwood forest. The ecotone between the mesic flatwoods and the sandhill community to the west is indistinct due to offsite hardwood encroachment in both communities. As prescribed fires burn into the mesic flatwoods from the sandhills, the ecotone should become better defined.

General Management Measures: The initial habitat improvement action in the mesic flatwoods should be the introduction of prescribed fire to localized spots around existing longleaf pines, particularly east of the park drive. The mesic flatwoods strip west of the park drive should be included in burns of adjacent sandhills in management zones FC-02 and FC-04. Additional management measures may include the selective removal of laurel oaks near existing longleaf pines, which should help fire to penetrate the mesic flatwoods community and improve its condition.

MESIC HAMMOCK

Desired Future Condition: Mesic hammock is a well-developed evergreen hardwood and/or palm forest which can occur, with variation, through much of peninsular Florida. The often dense canopy will typically be dominated by live oak (*Quercus virginiana*) with cabbage palm (*Sabal palmetto*) mixed into the understory. Southern magnolia (*Magnolia grandiflora*) and pignut hickory (*Carya glabra*) can be common components in the subcanopy as well. The shrubby understory may be dense or open, tall or short, and will typically be composed of saw palmetto (*Serenoa repens*), beautyberry (*Callicarpa americana*), American holly (*Ilex opaca*), hog plum (*Ximenia americana*), and sparkleberry (*Vaccinium arboreum*). The groundcover may be sparse and patchy but generally contains panicgrasses (*Panicum* spp.), switchgrass (*Panicum virgatum*), sedges, as well as various ferns and forbs. Abundant vines and epiphytes will occur on live oaks and cabbage palms and other subcanopy trees. Mesic hammocks will generally contain sandy soils with organic materials and may have a thick layer of leaf litter at the surface. Mesic hammocks will rarely be inundated and are not considered to be fire-adapted communities and will typically be shielded from fire.

Description and Assessment: The mesic hammock in the park is found on slopes surrounding Lake Holathlikaha. This forest is typically dominated by live oaks, but at higher elevations, southern magnolia and pignut hickory may be predominant. Laurel oaks are also common, and red bays (*Persea borbonia*) were formerly frequent in the mesic hammock. However, laurel wilt disease, beginning in 2011 devastated many mature redbays within the park, and it is likely that the redbay

population as a whole will decline drastically over time. Mesic hammock at the park can be variable, with some areas having few live oaks and an open understory of redbay and sparkleberry with scattered palmetto, and other areas characterized by a live oak canopy over a dense shrub layer of hog plum and saw palmetto.

Research based on the General Land Office (GLO) Field Survey Notes (<http://www.labins.org>) from the 1849 survey conducted by A.H. McCormick verifies the occurrence of hardwood hammock vegetation along the south rim and at the northeast end of Lake Holathlikaha. The hardwoods noted at the northeast end of the lake were actually referred to as "scrub" in the surveyors' field notes, which is probably a reference to mesic hammock dominated by live oak and palmetto. The 1849 survey did not record any hammock along the northern rim of the western half of the lake, but the survey notes were brief and a thin band of mesic hammock could well have been present there.

The mesic hammock currently stretches from the upper end of the lake north through a low trough that ends at a depression marsh. This extended live oak hammock was actually described in the 1849 survey notes and is even drawn on section survey maps. Mesic hammock also extends well to the east and southeast of the lake, roughly corresponding to the area below the 45-foot contour. Inspection of a series of historical aerial photographs shows a relatively closed canopy forest in 1944. During or after 1960, a disturbance event created large openings in the tree canopy. It appears that an extreme high water event may have been responsible for the killing of many of the canopy trees around the lake below the 35-foot contour line. While most of the canopy has since recovered, some of the lower points within the hammock remain relatively open. In general, the mesic hammock is in good to excellent condition.

General Management Measures: Typically, mesic hammocks require little active management. However, there are some significant threats to the mesic hammock at Fort Cooper, including feral hogs (*Sus scrofa*) and invasive exotic plants. The park is currently trapping feral hogs and will continue control efforts. The park is also mapping and treating exotic plants in the mesic hammock, including skunk vine (*Paederia foetida*) and cogongrass (*Imperata cylindrica*).

SANDHILL

Desired Future Condition: The dominant pine of sandhill will usually be longleaf pine (*Pinus palustris*). Herbaceous cover will be 80 percent or greater, typically of wiregrass (*Aristida stricta* var. *beyrichiana*), and is less than 3 feet in height. In addition to groundcover and pines characteristics, there will be scattered individual trees, clumps, or ridges of onsite oak species (usually turkey oaks (*Quercus laevis*), sand post oak (*Quercus margaretta*), and blue-jack oak (*Quercus incana*)). In old growth conditions, sand post oaks will commonly be 150 to 200 years old, and some turkey oaks will be over 100 years old. The optimal fire return interval for this community is 2 to 3 years.

Description and Assessment: The distribution of sandhill in the park largely seems to coincide with that of the Candler fine sand and Tavares fine sand soil types. When the park was acquired in 1970, the sandhill community was in poor condition.

The original longleaf pines had been cut and trees that had grown up as replacements were relatively few in number. Fire had been absent for many years. Hardwood trees and shrubs had proliferated to the extent that they obscured the primeval vista of rolling terrain, which under normal circumstances would have been carpeted with a dense groundcover of grasses and herbaceous plants. Historical aerials from 1944 and 1951 confirm that sandhill had once covered a much larger area of the park, but that by the 1940s, hardwoods had already expanded well into the sandhill from the rim of Lake Holathlikaha.

After acquisition of the park, the Florida Park Service initiated restoration of the sandhill by instituting a program of regular prescribed fire, accompanied by the girdling of oak trees. Visibility increased, and regeneration of pines was evident with a variety of age classes present. However, areas of offsite hardwood species, mainly laurel oaks, began to increase significantly along the park perimeter and internal firebreaks due to the lower fire intensities characteristic of edges of management zones. Laurel oaks also created closed canopy patches in low areas within the sandhill. As a restoration measure, the park contracted out a hardwood removal project in the fall of 2006 to girdle and herbicide offsite hardwoods on a 35-acre tract of sandhill in management zones FC-01, FC-03, and FC-04. At the same time, the perimeter firebreaks along the north and west boundaries were doubled in width to increase security during prescribed burns. Using a combination of fire and supplemental hardwood control, the park has made substantial progress in recreating the original structure of the sandhill forest, although much work remains to be done.

A current threat to the sandhill is cogongrass, which has invaded along the park perimeter. Recent control efforts have been very successful in reducing the coverage of this aggressive exotic. Two native species of trees also appear to be spreading within the sandhill, perhaps due to less intense fire regimes in the recent past. Cabbage palms, not ordinarily found in sandhill, are making an appearance; nearly all of them are young trees, but they appear to be thriving. Encroachment by this species has been observed in sandhill communities in other state parks, such as Wekiwa Springs State Park. The redbay tree is another native that has now become common in the sandhill. This species is intolerant of fire and is burned-down by each prescribed fire, but it resprouts vigorously with multiple stems, giving it a bushy appearance. Most of the larger red bays in the sandhill have succumbed to laurel wilt disease.

Another impact on the sandhill is fire lines and hard firebreaks constructed in the past to suppress fire or to facilitate prescribed burning. Some of the hard breaks may parallel natural firebreaks such as hammock vegetation. Wherever possible, natural firebreaks should be used in the park instead of disked lines, particularly in ecotone areas.

Some areas of sandhill, in the absence of fire, have succeeded to successional hardwood forest, particularly in management zone FC-09. The southeastern edge of management zone FC-04 is still mapped as sandhill, but it has a dense infestation of offsite hardwoods. In these areas, laurel oak is usually dominant, but redbays

and sand live oaks are also present. Longleaf pines and scattered patches of suppressed wiregrass, as well as other herbaceous remnants, often remain on site (Johnson 2001). In shaded areas, the wiregrass generally is much reduced in size and is sparsely distributed, but it can be locally abundant. The remnant patches suggest that wiregrass can withstand prolonged periods of light deprivation. To facilitate the regeneration of sandhill vegetation in these areas, the park will need to rid the zones of second-growth invasive hardwoods.

General Management Measures: The most important management measure for the park's sandhill community is to increase the frequency of prescribed fire. Most of the sandhill zones have been burned recently, but all will need additional burns on a frequent basis to reduce hardwood dominance and stimulate the growth of native groundcover species. Continued chemical and mechanical treatment of laurel oaks and other offsite hardwoods will also be necessary. Future oak removal projects should minimize the amount of large dead fuels left on site near firebreaks. Additional management measures will be the continued survey and treatment of cogongrass in the sandhills, as well as the continued control of feral hogs.

BASIN MARSH

Desired Future Condition: Basin marshes include emergent herbaceous and low shrub species dominating most of the area with an open vista. Trees will be few and if present occur primarily in the deeper portions of the community. There will be little accumulation of dead grassy fuels due to frequent burning; one will be able to see the soil surface through the vegetation when the community is not inundated. Dominant vegetation in basin marsh will include maidencane (*Panicum hemitomon*), cutgrass (*Leersia* sp.), common reed (*Phragmites australis*), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* sp.), buttonbush (*Cephalanthus occidentalis*), St. John's wort (*Hypericum fasciculatum*), and coastalplain willow (*Salix caroliniana*). The optimal fire return interval for this community is 2 to 10 years depending on fire frequency of adjacent communities.

Description and Assessment: As the open water area of Lake Holathlikaha has shrunk, the fringing marsh has steadily encroached, increasing the marsh acreage. Expansion of the basin marsh is greatest during drought periods when water levels in the lake recede. In the autumn of 2000, a greater than three-meter tall "forest" of the giant annual herb, southern amaranth (*Amaranthus australis*), formed a 75-foot wide zone between the marsh and the lake proper. As of 2011, the northern end of the lake had no open water zone and became dominated by woody shrubs and weedy grasses and composites. Other common plants include longbeak beaksedge (*Rhynchospora scirpoides*) and pickerelweed. Past attempts to burn the basin marsh have largely been unsuccessful.

General Management Measures: Management needs of the basin marsh will be contingent on future water levels. Prescribed fires may be useful in thinning clumps of woody shrubs and in reducing the buildup of organic matter. During low water periods, feral hog damage in the basin marsh may increase and extra control measures may be necessary. Monitoring the basin marsh to ensure early detection of exotic plants such as Chinese tallow will also be important.

DEPRESSION MARSH

Desired Future Condition: Depression marsh is characterized as containing low emergent herbaceous and shrub species which will be dominant over most of the area and include open vistas. Trees will be few and if present, will occur primarily in the deeper portions of the community. There will be little accumulation of dead grassy fuels due to frequent burning; one can often see the soil surface through the vegetation when the community is not inundated. Dominant vegetation in basin marsh and depression marsh may include maidencane (*Panicum hemitomon*), panic grasses (*Panicum* spp.), cutgrass (*Leersia* sp.), common reed (*Phragmites australis*), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* sp.), buttonbush (*Cephalanthus occidentalis*), St. John's wort (*Hypericum fasciculatum*), and coastal plain willow (*Salix caroliniana*). The optimal fire return interval for this community is 2 to 10 years depending on fire frequency of adjacent communities.

Description and Assessment: Two depression marshes are located in the park, one at the northern end of the mesic hammock in the northeast corner of the park and the other within the mesic hammock southeast of the lake. Unlike the much larger basin marsh, these small marshes are dry most of the year. More woody species are present, including willow and buttonbush, along with scattered wax myrtle and an occasional laurel oak. Dog fennel (*Eupatorium capillifolium*) and various weedy grasses are also present. Further reductions in the regional water table may lead to additional incursions by hardwoods and eventually cause succession of the depression marshes to mesic hammock.

General Management Measures: Maintenance of the depression marshes in the park will depend greatly on regional water levels. Prescribed fire may be a useful management option for the northern depression marsh, which is on the fringes of the sandhill. Fire may also be used to manage the depression marsh southeast of the lake since it is contiguous with the grassy shorelines of the lake and basin marsh.

SANDHILL UPLAND LAKE

Desired Future Condition: Sandhill upland lake can be described as shallow sandy bottomed lake formed in shallow depressions within sandhill upland communities. Water levels may fluctuate dramatically, including completely drying up only during extreme droughts. Typical vegetation will include emergent, submerged aquatic plants and transitional species along the shoreline. Species include water lilies, sawgrass (*Cladium jamaicense*), pickerelweed (*Pontederia cordata*), meadow beauty (*Rhexia* spp.), St. John's wort (*Hypericum fasciculatum*), yellowed-eyed grass (*Xyris* spp.), hatpins (*Syngonanthus flavidulus*), and spikerush (*Eleocharis* spp.). Impacts such as altered water table or disturbances in adjacent uplands that would cause artificial erosion and an increase in turbidity should be restored.

Description and Assessment: Based on aerial photography from the period of record (1944 through 2011), the open water area of Lake Holathlikaha has fluctuated greatly over time. Water levels of sandhill upland lakes are closely linked with local and regional water table levels. Long-term drought and increased groundwater withdrawals for residential and industrial uses are likely causes of water level

declines in the lake. Frequent contractions of the lakeshore encourage the growth of terrestrial vegetation on the exposed lake bottom. When lake levels rise again, however, the terrestrial vegetation is flooded and dies, adding a considerable volume of biomass to the lake. Additionally, at low stage, the zone of emergent aquatic vegetation extends farther into the lake, only to die during periods of higher water. Consequently, over the years, organics have accumulated in the lake at a high rate. At times, one-fourth to one-third of the original lake surface is obscured by plant growth around the margins. A recent development is the appearance of numerous floating islands consisting of thick mats of organic matter, topped by plants growing to a height of six to eight feet.

Lake Holathlikaha has no boat ramp, but visitors may rent park-owned canoes and paddle boats for use on the lake. Motorized boats have been excluded from the lake since the park was opened to the public in 1977, in part to reduce the chances of an unintentional introduction of invasive exotic species such as hydrilla (*Hydrilla verticillata*) and water hyacinth (*Eichhornia crassipes*). This prohibition was successful for a number of years in preventing the establishment of exotic plants in the lake confirmed by a June 1991 assessment of the lake by personnel from the Bureau of Aquatic Plants detecting no exotic plants present. At some point after that, however, park staff discovered that hydrilla had appeared in the lake near the swimming area. The park has treated this hydrilla repeatedly and it is no longer apparent, at least during the current period of low water.

The dominant aquatic species in the lake are two submergents, southern or bushy naiad (*Najas guadalupensis*) and Illinois pondweed (*Potamogeton illinoensis*). Two other abundant plants are the floating-leaf species, spatterdock (*Nuphar lutea*) and fragrant white water lily (*Nymphaea odorata*). The sandhill upland lake is currently in good condition, although the regionally low water table, if it persists, can be expected to cause an eventual decline.

General Management Measures: Continued control of hydrilla to prevent the infestation from expanding will be a primary management measure for the sandhill upland lake. Additional measures will be to continue to monitor lake levels regularly and to maintain close communications with the SWFWMD in regards to the issuance of water use permits in the region.

ALTERED LANDCOVER TYPES

DEVELOPED

The developed areas include staff residences, maintenance structures, paved roads, and recreational facilities such as campgrounds and picnic areas. A complete list of all the developed areas may be found in the Land Use Component.

Developed areas within the park will be managed in a manner that minimizes their effects on adjacent natural areas. Park staff will regularly check developed areas for the presence of priority invasive exotic plants (FLEPPC Category I and II species) and will remove any that are discovered. Other management measures will include the proper management of stormwater and the use of development guidelines that are compatible with prescribed fire management in adjacent natural areas.

SUCCESSIONAL HARDWOOD FOREST

The two most significant areas of successional hardwood forest in the park are fire-adapted natural communities that have experienced an extended period of fire suppression, the mesic flatwoods along the park drive and the sandhill west of the lake in management zone FC-09. Laurel oaks and other offsite hardwoods that have invaded over the past 60 or more years have overwhelmed both areas. Although adult longleaf pines remain in the canopy, the understory and herbaceous layers have all but disappeared due to shading by hardwoods. Smaller areas of successional hardwood forest occur along the edges of the pine plantations in the southeast part of the park and in the sandhills along the northeast boundary of the park.

The optimal fire return interval for the successional hardwood forest at Fort Cooper should be 2 to 5 years. The application of prescribed fire may not be successful, however, unless some hardwoods are removed first, particularly near existing stands of longleaf pines. The long-term desired future condition for successional hardwood forest is to restore this altered landcover type to the respective previous natural community type. Please refer above to the desired future condition statement for that natural community.

PINE PLANTATION

In 1966, about 45 acres of north Florida slash pines were planted in plantations on former agricultural fields along the southern and eastern boundaries of the park. The pines were thinned in 1989. Most of the pine plantations were likely sandhill at one time, particularly those areas above the 45-foot contour. The optimal fire return interval for these areas should be 2 to 5 years. However, application of prescribed fire there is not advisable until the mature slash pines are thinned and offsite hardwoods removed to reduce fuel loading and ladder fuels. After thinning, longleaf pines may be reintroduced to the area, but complete groundcover restoration will remain a low priority due to the long history of agriculture and silviculture on the site. The long-term desired future condition for pine plantation is to restore this altered landcover type to the respective previous natural community type. Please refer above to the desired future condition statement for that natural community.

BORROW AREA

A small phosphate test pit is located near the nature trail in management zone FC-12. The pit and associated spoil piles likely date back to the time of the phosphate boom period in the late 1800s. Restoration of the pit is not a priority since it has been reclaimed by native vegetation and is considered at this point to be a cultural resource.

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.

Four species of imperiled plants and sixteen species of imperiled animals have been identified at Fort Cooper State Park. *Garberia* (*Garberia heterophylla*) is common in the sandhills and has responded well to recent prescribed fires. It should require little management other than frequent prescribed fire. Likewise, the Florida milkvine (*Matelea floridana*) requires open sunny habitats like sandhills. The Florida crabgrass (*Digitaria floridana*) (ranked by FNAI as a G1, S1 species) was listed for the park in the previous management plan. However, the two specimen vouchers were subsequently identified by the University of South Florida herbarium as the more common slender crabgrass (*Digitaria filiformis*), so there is no longer any documentation for Florida crabgrass at Fort Cooper State Park. Management of the two other imperiled plant species in the park will focus on protection from visitor impacts, since orchids and epiphytes tend to be attractive to plant collectors.

Sherman's fox squirrels (*Sciurus niger shermani*) have declined within the park, perhaps due to the increased isolation of the sandhills in the park from other natural areas. Residential development in the region has greatly limited the ability of wildlife to immigrate into the park from other areas. Some imperiled species, such as the eastern indigo snake (*Drymarchon couperi*), Florida pine snake (*Pituophis melanoleucus mugitus*), and short-tailed snake (*Lampropeltis extenuatum*), lead such secretive lives that it is difficult to estimate population trends. Many of the imperiled bird species do not depend solely upon habitats within the park and may range outside the park.

An imperiled species of special interest to management is the gopher tortoise (*Gopherus polyphemus*), which is a component of the sandhill community and an indicator of the health of that community. The Sherman's fox squirrel, Florida gopher frog, eastern indigo snake, Florida pine snake, and short-tailed snake all depend on a healthy sandhill community. In the absence of fire, hardwood trees will invade the sandhill community, shading out plants required by the tortoise for forage. Burrows of the gopher tortoise provide shelter for a number of other animals. A 1990 population survey by McCoy and Mushinsky, using transects, estimated that there were 1453 active and inactive tortoise burrows in management zones FC-01, FC-03, and FC-04. Zone FC-02 was estimated to contain 143 active and inactive burrows. Subsequent, more complete, surveys by a Florida Park Service biologist (Hingtgen 1994, 1995) counted 442 active and inactive tortoise burrows in Fort Cooper management zones FC-01, FC-03, and FC-04. It is unlikely that the gopher tortoise population declined by 70 percent over four or five years, particularly since burrows persist long after tortoises cease using them. The 23 transects used in zones FC-01, FC-03, and FC-04 by McCoy and Mushinsky covered approximately 5.3 percent of those zones, whereas the Hingtgen surveys covered the entire zones. It is likely that the high variance in the earlier study contributed to an overestimate of the actual burrow numbers. As discussed by both studies, conversion of burrow counts to estimates of tortoise populations is based on debatable assumptions. New methodologies have recently been developed using line transect distance sampling which may likely provide more accurate and statistically valid estimates of gopher tortoise populations (Smith et al. 2009).

Fort Cooper State Park was also one of the study sites used by the University of Florida in research on the upper respiratory tract disease afflicting gopher tortoises. For many years the park was considered to be free of *Mycoplasma agassizii* that is considered to be a causative factor in the disease. *Mycoplasma agassizii* was first detected in a tortoise at Fort Cooper in 2005, and by 2006 it had spread within the population (Brown 2007). A concurrent increase in the number of empty shells was noted in 2006. Similar outbreaks have occurred in other state parks, including Mike Roess Gold Head Branch and Ichetucknee Springs State Parks. While significant mortality can occur, tortoise populations do seem to be able to survive.

Using herp arrays and field notes, the district biological staff has established a database believed to be inclusive for the vertebrate population of the park. For several years, nest boxes were monitored to determine if southeastern kestrels were present; none were observed. It is not known for certain whether the Florida mouse (*Podomys floridanus*) occurs at Fort Cooper, but the park is within the known range of this species.

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						
Garberia <i>Garberia heterophylla</i>			LT		1,6	Tier 1
Florida milkvine <i>Matelea floridana</i>			LE	G2, S2	1,6	Tier 1
Giant air plant <i>Tillandsia utriculata</i>			LE		10	Tier 1
Threebirds orchid <i>Triphora trianthophoros</i>			LT		10	Tier 1
AMPHIBIANS						
Florida gopher frog <i>Lithobates capito</i>	SSC			G3, S3	1,6	Tier 1

Table 2. Imperiled Species Inventory						
Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FWC	USFWS	FDACS	FNAI		
REPTILES						
American alligator <i>Alligator mississippiensis</i>	FT(S/A)	T(S/A)		G5, S4	4,13	Tier 1
Eastern indigo snake <i>Drymarchon couperi</i>	FT	LT		G3, S3	1,6	Tier 1
Gopher tortoise <i>Gopherus polyphemus</i>	ST			G3, S3	1,6,1 3	Tier 3
Florida pine snake <i>Pituophis melanoleucus mugitus</i>	SSC			G4T3, S3	1,6	Tier 1
Short-tailed snake <i>Lampropeltis extenuatum</i>	ST				1,6	Tier 1
BIRDS						
Little blue heron <i>Egretta caerulea</i>	SSC			G5, S4	4,10	Tier 1
Snowy egret <i>Egretta thula</i>	SSC			G5, S3	4,10	Tier 1
Tricolored heron <i>Egretta tricolor</i>	SSC			G5, S4	4,10	Tier 1
Swallow-tailed kite <i>Elanoides forficatus</i>				G5, S2	10	Tier 1
White ibis <i>Eudocimus albus</i>	SSC			G5, S4	4,10	Tier 1
Magnificent frigatebird <i>Fregata magnificens</i>				G5, S1		Tier 1
Florida sandhill crane <i>Grus canadensis pratensis</i>	ST			G5T2T 3, S2S3	4,10	Tier 1
Wood stork <i>Mycteria americana</i>	FT	LT		G4, S2	4,10	Tier 1
Least tern <i>Sterna antillarum</i>	ST			G4, S3	4	Tier 1
MAMMALS						
Sherman's fox squirrel <i>Sciurus niger shermani</i>	SSC			G5T3, S3	1,6	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
- 14 Other

Monitoring Level:

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

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.

The invasive exotic plant species of primary concern at Fort Cooper are cogongrass and skunkvine. Staff members have identified all the invasive exotic plant species known to occur in the park, mapped the infestation sites, and entered them into the statewide invasive exotic plant database maintained by the Florida Park Service. The park is surveyed every two years to update the exotic plant location data. Infestations are treated with herbicides at least annually. The FWC has funded some contract exotic removal, and park and district staffs have treated exotics in the park as well. Chinese tallow (*Sapium sebiferum*) is present in the park, but it is located primarily in the sandhill where it does not thrive well. The park staff has been vigilant in identifying and eliminating other species of invasive exotic plants as they appear. Since the last update of its unit management plan, the park has treated 159 acres of invasive exotic plants.

Perhaps the most difficult aspect of controlling exotic plants at Fort Cooper is the need to treat cogongrass without destroying the native sandhill groundcover. In some places, the cogongrass grows intermingled with wiregrass and other sandhill groundcover species. Because native groundcover is the most difficult part of the sandhill to restore, cogongrass should be sprayed in as precise a manner as possible so that overspray does not kill the wiregrass and other desirable species. Carefully following this procedure can be very difficult and time consuming.

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			
Mimosa <i>Albizia julibrissin</i>	I	2	FC-03
Air potato <i>Dioscorea bulbifera</i>	I	1	FC-01
Hydrilla <i>Hydrilla verticillata</i>	I	2	FC-05
Cogon grass <i>Imperata cylindrica</i>	I	1	FC-03
		2	FC-01, FC-02, FC-08, FC-12
		3	FC-02

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
Japanese climbing fern <i>Lygodium japonicum</i>	I	2	FC-04
Skunkvine <i>Paederia foetida</i>	I	1	FC-01
		2	FC-07, FC-08, FC-09, FC-10, FC-11, FC-12
Chinese tallow tree <i>Sapium sebiferum</i>	I	2	FC-01, FC-04, FC-12
Paper mulberry <i>Broussonetia papyrifera</i>	II	2	FC-10, FC-11

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.

Feral hogs, which are omnivorous and eat plants as well as animals, began to appear at Fort Cooper in 2011. Research has shown that hogs will eat quail and herpetofauna as well as other desirable species (Jolley et al. 2010; Tolleson et al. 1993). The park currently has an active trapping program and will remove feral hogs as needed in the future.

The nine-banded armadillo (*Dasypus novemcinctus*) is also present in the park. Armadillos may cause extensive ground disturbance and are a threat to ground nesting birds and small reptiles and amphibians. If the need arises, staff may

remove armadillos from the park. Feral cats and dogs will also be removed if they appear in the park.

In 2002, the red bay ambrosia beetle (*Xyloborus glabratus*) was first detected in the United States in southeast Georgia. The beetle carries the fungal pathogen (*Raffaelea lauricola*) which it transmits to red bays (*Persea borbonia*) and other species in the Lauraceae family, causing laurel wilt disease and death. The beetle and its associated pathogen spread rapidly, and by 2005 it had appeared in Duval County, Florida (Mayfield and Thomas 2009). By 2011 it has spread to Citrus County and Fort Cooper State Park. Since that time, many of the adult red bays in the park have died. The beetle and laurel wilt have now spread throughout most of Florida and into many of the neighboring states. In most cases the adult red bays are top-killed, but the trees continue to resprout from their roots. It may be that affected plants will continue to survive in shrub form as the remnant tree root systems continue to resprout. At this point, much remains unknown about the long term impacts of this disease on red bays and related species. The park should continue to restrict the movement of firewood into and out of the park and educate visitors about the issue.

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 raccoons, venomous snakes 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.

Some native plant species may also be classified as nuisance species. Lack of adequate fire in the sandhills and mesic flatwoods over the years has allowed offsite hardwood trees, including laurel oak, water oak, black cherry, and sand live oak, to form hammocks in low areas, at the ecotone with the mesic hammock, and along the perimeter firebreaks. Where the moisture gradient was higher, hardwoods have grown rapidly, eliminating fine fuels in the understory, thereby rendering these sites nearly impervious to prescribed fire. At many of these hardwood-sandhill interfaces, a zone of remnant wiregrass can be seen.

The aggressive hardwood removal program at Fort Cooper will continue to target invasive offsite species for removal. Xeric-adapted species such as turkey oak, sand post oak, and bluejack oak will not be girdled. Hardwood removal efforts will concentrate on the periphery of the open sandhills in order to expand the area available for prescribed burning. Control of offsite hardwoods will continue in the core of the sandhills through burning and selective girdling. Staff must take care to avoid creating large areas of heavy fuels that make prescribed burning more difficult and may generate excessive smoke during burns. 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 sandhill community shall be considered a special natural feature. When Europeans first arrived in North America, longleaf pine forests covered approximately 70 million acres of the southeast. The longleaf pines, which grew on rolling sandy terrain, were widely spaced. This arrangement allowed abundant sunlight to reach the ground, encouraging the growth of a profuse and diverse groundcover of grasses and herbs. This vegetative assemblage was maintained by frequent fires. Sandhill plants were adapted to frequent fires and reestablished themselves quickly once the fires had passed through the landscape. A number of ground-dwelling animals were also fire-adapted, and avoided or escaped fires by fleeing beneath the soil surface.

Agriculture and urban development have eliminated most of Florida's sandhills. Only fragments of the original sandhill community remain. Relatively few tracts are available for preservation in a natural condition. Several of these are in the Florida State Park system. In addition to Fort Cooper, significant remnants are protected at Ichetucknee Springs, Mike Roess Gold Head Branch, Blackwater River, and Wekiwa Springs state parks. With proper management, the remnant sandhill community at Fort Cooper State Park, despite its small size, will be a particularly fine example.

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 use in 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 for Fort Cooper State Park. This inventory contains site descriptions and evaluations of site 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: There are five archaeological sites and one linear resource group in the park recorded in the FMSF. Ages of the sites range from pre-historic through early 20th Century. There are two pre-historic sites, Positively Debitage (CI01231) and Ft. Cooper (CI00090). The latter is multi-component and includes prehistoric unspecified Archaic and ceramic periods as well as a Second Seminole War period fort (Baker 1976).

Three sites are from the late 1800s or early 1900s. Lake Holathlikaha Historic Scatter (CI01365) contains scattered concrete block and other structural material. It may be the remains of a citrus crate factory purported to operate in the area in the 1920s. The Lake Holathlikaha Foundation (CI01374) contains what may be a step or other structural remains of a house. Nothing is really known about this site. The Fort Cooper Phosphate Pit (CI01373) was probably dug after 1893. Phosphate deposits (and types) were identified on the 1893 Map of the phosphate fields of Florida (United States Department of Labor and Tucker 1893). The pit is small

enough that it appears to be a test pit for exploring phosphate rather than a mine. Two of the sites, Fort Cooper (CI00090) and Old Military Wagon Trail (CI01366), contain material from the Second Seminole War period. The Fort Cooper site also contains aboriginal pre-Columbian material (Baker 1976). Fort Cooper was built between April 2 and April 18, 1836 by the First Georgia Battalion of Volunteers. Its commander was Major Mark Anthony Cooper. During this time, the fort was continuously under attack by Native Americans. Under orders from General Clinch, Colonel Bankhead arrived at the fort to support Major Cooper. After driving off the attack group, the troops evacuated the fort and united with General Clinch. Subsequently, the fort was used from 1836 to 1841 as a scout post and stopover and for additional Federal campaigns from 1841 to 1842 (FMSF CI00090). The Old Military Wagon Trail (CI01366) is recorded as a resource group. It extends north and south outside the park boundary. Only the portion within the park has been recorded. It currently functions as a hiking trail and the park keeps it cleared of vegetation.

The discovery and protection of Fort Cooper (CI00090) was initiated by Mr. John H. Eden, Jr. who owned the property, researched the location of the fort and was instrumental in state acquisition of the fort to further its protection. During the initial professional archaeological excavation in 1971 he assisted with equipment, labor and lodging (Fryman, 1972; Mike Wisenbaker, pers. comm.).

A predictive model was recently completed for the park. The results of the predictive model indicate that the park interpretive sign for the Old Military Wagon Trail (CI01366) currently misidentifies CI01366 as the trail between Fort Brook and Fort King (Collins et al. 2011). According to an 1837 map (United States, Hans and Macomb 1837), this trail (CI01366) connected Fort Cooper with Fort Drane to the north (currently Marion County) and Fort Dade to the south (currently Pasco County). The trail between Fort Brook and Fort King actually lies east of the park.

Condition Assessment: The current condition of all the sites is good. Sites should be protected from ground disturbance. Fort Cooper (CI00090) and the Old Military Wagon Trail (CI01366) are open areas exposed to mowing and trail maintenance. Extra care should be used to avoid ground disturbance when maintaining these areas. All sites should be protected from looting and other disturbances.

Level of Significance: Fort Cooper State Park contains Fort Cooper (CI00090), a Second Seminole War fort that is listed on the National Register of Historic Places. The site is significant for its association with an armed conflict that expanded the southern frontiers of the United States and led to the forced removal of most Native Americans from Florida, as well as for its archaeological evidence of period fort design and construction. Additional research may reveal that the trail segment in the park (CI01366) is associated with a military road that is significant for the role it played in troop and supply movements between Fort Drane and Fort Dade during the Second Seminole War.

General Management Measures: All cultural sites in the park will be preserved. The Fort Cooper site and the Old Military Wagon Trail could be particularly vulnerable to

impacts from tree fall tip-ups. Avoiding tip-ups to the extent possible should be part of the management measures for both sites. The park should mow these areas in such a way as to avoid soil disturbance as much as possible. In order to protect underground features, the park should strive to prevent woody plants from encroaching on the site.

Staff should attend the Division of Historic Resources' Archaeological Resource Management (ARM) training when the opportunity arises.

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: Fort Cooper State Park has no historic structures.

Condition Assessment: Since there are no historic structures at the park, this section is not applicable.

Level of Significance: Since there are no historic structures at the park, this section is not applicable.

General Management Measures: Since there are no historic structures at the park, this section is not applicable.

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: Fort Cooper State Park has a very small collection. The most significant item in the collection is an oil painting titled "Osceola's Knife Treaty" by Mark Dixon Dodd. This is a preliminary study for a painting by Dodd that he exhibited at the 1930 Chicago World Fair. The painting was donated to Fort Cooper State Park by Dr. Braden Quicksall and was held in custody for the park by John H. Eden until the park facilities were developed.

The park collection contains photographs and newspaper clippings pertaining to the park from the 1970s to the present. There are also some Herty pots and metal turpentine cups, railroad spikes, and modern tin plates. These last items are used for interpretive purposes.

The park's archival collection of articles and photographs occupies about six cubic feet, and the painting is approximately two feet by three feet. The painting and most of the archival material are stored in climate-controlled conditions.

Condition Assessment: The park collection is in good condition. The biggest potential threat to the collection would be a loss of climate control. The park should continue to keep the painting, photographs and paper items under constant climate-controlled conditions. The painting is kept in a locked area when staff members are not present. It was archivally cleaned about 10 years ago, but may need professional appraisal.

Level of Significance: While the collection is small, all of the items relate to the history of the park. Fort Cooper was a Second Seminole War fort. The painting depicts Osceola during the Second Seminole War. Turpentine occurred in the park, and the photographs and newspaper clippings record the history of the park. All of the items are significant to interpretation of the park’s resources.

General Management Measures: The park staff needs to develop a Statement of Interpretation as well as a Scope of Collections Statement. These two documents will serve to guide the park’s interpretative and collections management programs. Items should only be accepted for the collection if they fit within the goals of the Scope of Collection and the park’s interpretive themes. The park also needs an inventory of its collection items. The Dodd painting may need professional appraisal.

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
CI00090 Fort Cooper	Historic 1835-1842 Pre-Columbian	Archaeological Site	NRL	G	P
CI01231 Positively Debitage	Prehistoric/Historic	Archaeological Site	NS	G	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
CI01365 Lake Holathlikaha Historic Scatter	Historic late 19 th to mid 20 th Century	Archaeologic al Site	NE	G	P
CI01366 Old Military Wagon Trail	Historic 1835-1842	Resource Group	NE	G	P
CI01373 Fort Cooper Phosphate Pit	Historic late 1800s to mid 20 th Century	Archaeologic al Site	NE	G	P
CI01374 Lake Holathlikaha Foundation	Historic Unknown	Archaeologic al Site	NE	G	P

Significance:

NRL... National Register listed
 NR National Register eligible
 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 Cooper 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 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 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, 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, and 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: Conduct/obtain an assessment of the park's hydrological restoration needs.

The most significant hydrological feature at Fort Cooper is Lake Holathlikaha. Management of this important water body does not end at the park boundary. As described above, Homosassa and Crystal River, two of the four major spring groups along the Springs Coast, depend on groundwater recharge in the Tsala Apopka Lake region, including Lake Holathlikaha and adjacent uplands, to provide a substantial proportion of their spring flows. Urban communities in the recharge area, including Inverness, Floral City, and Beverly Hills, influence the quality and quantity of groundwater in the region. That groundwater in turn has a significant influence on discharges from these two spring groups. Successful protection of the Homosassa and Crystal River springsheds will require a regional effort that focuses on the sustainable consumptive use of groundwater and on limiting nutrient loading within the surface watershed. The following are hydrological assessment actions recommended for Fort Cooper State Park.

The Division of Recreation and Parks will continue its tradition of close cooperation with state and federal agencies and independent researchers engaged in hydrological research and monitoring programs, both within the park and in the adjacent Tsala Apopka Chain of Lakes and the Homosassa groundwater basin. The DRP will also encourage and facilitate additional research in those areas. The Division will rely upon agencies such as the SWFWMD, USGS, and FDEP to keep it informed about any declines in surface water quality or any suspected contamination of groundwater in the region. Additional cooperative efforts may include facilitating the review and approval of research permits and providing researchers with assistance in the field, including orientation to park resources. Recommendations derived from these monitoring and research activities will be essential to the decision making process during management planning.

The park will continue to participate in the LAKEWATCH program, which functions as an early warning system for detecting declines in water quality. The DRP will continue its support of a continuous, long-term, water quality monitoring program at Lake Holathlikaha. DRP staff will seek to increase the frequency of monitoring of Lake Holathlikaha if changes in water quality or severe lake level fluctuations are noted.

Objective: Restore natural hydrological conditions and functions to approximately 145 acres of sandhill upland lake natural community.

Division staff will address water quality or quantity issues that could cause degradation of the waters of Lake Holathlikaha. Following are hydrological restoration actions recommended for the park.

DRP staff will continue to work closely with the SWFWMD to ensure that MFLs developed in 2006 for Lake Holathlikaha are adequately protective of the resources. The Division will strive to achieve maximum protection for Lake Holathlikaha such that regional groundwater withdrawals do not increase to the point that the lake system suffers significant harm. The DRP will also cooperate closely with the SWFWMD to ensure that there is conscientious implementation of MFLs developed for major springs west of the park that rely on groundwater recharge from the Fort Cooper area.

Park and district staffs will continue to monitor land use or zoning changes within the landscape bordering the park. Major ground disturbances in that area, or the inadequate treatment of runoff from adjacent lands into the park, could cause serious degradation of the lake's water quality. As appropriate, District 2 staff will provide comments to other agencies regarding proposed changes in land use or zoning on neighboring properties when such changes may negatively influence the hydrology of Lake Holathlikaha.

Within the park itself, DRP staff will respond aggressively to any water quality impacts that may stem from the design of park facilities, and will mitigate such impacts using the best available options for remediation. In addition, park staff will continue to inspect Lake Holathlikaha regularly for hydrilla and will promptly treat any infestations discovered.

Natural Communities Management

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

As discussed above, 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.

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.

Objective: Within 10 years, have 330 acres of the park maintained within the optimum fire return interval.

Table 5 contains a list of all fire-dependent natural communities found within the park, their associated acreage and optimal fire return interval, and the annual average target for acres to be burned.

Table 5. Prescribed Fire Management		
Natural Community	Acres	Optimal Fire Return Interval (Years)
Sandhill	247	2-3
Mesic Flatwoods	6	2-3
Basin Marsh	107	2-20
Depression Marsh	3	2-3
Altered Landcover Types		
Pine Plantation	44	-
Successional Hardwood Forest	53	2-
Annual Target Acreage*	100 - 215	
*Annual Target Acreage Range is based on the fire return interval assigned to each burn zone. Each burn zone may include multiple natural communities.		

The park is partitioned into management zones including those designated as burn zones (see Management Zones Table and Map). Prescribed fire is planned for each burn zone at the appropriate interval. The park’s burn plan is updated annually because fire management is a dynamic process. To provide adaptive responses to changing conditions, fire management requires careful planning based on annual and very specific burn objectives. Each annual burn plan is developed to support and implement the broader objectives and actions outlined in this ten-year management plan.

Fire-adapted natural communities present at Fort Cooper include sandhill, mesic flatwoods, depression marsh, and basin marsh. To a limited extent, mesic hammock may be influenced by fire along ecotones. The area identified as mesic flatwoods in the park is currently mapped as successional hardwood forest due to extensive encroachment by offsite hardwoods. Some sections of former sandhill are

also mapped as this altered landcover type. Several areas with planted slash pines, most likely former sandhill community, are currently classified as pine plantation. Due to heavy fuel loading, the pine plantations are not currently considered available for prescribed burning. Thinning of the pine stands will be necessary before the stands can be safely managed with prescribed fire.

The park is divided into 12 contiguous burn zones. These zones are based on the original burn zone system at the park that only included areas planned for prescribed burns. The sandhill community in the park is primarily located in zones FC-01, FC-02, FC-03, and FC-04. These zones have the longest burn history in the park, with the first burns taking place in December 1977. A concerted effort to girdle hardwoods in these zones in the last two decades has opened up these areas and enhanced the ability of the sandhills to carry fire. Extensive improvements were made to the perimeter firebreaks in 2006 to increase safety during prescribed burns. Since a limited amount of intact sandhill is available in the region for wildlife use, it is recommended that the sandhill zones not all be burned during the same year. Recommended fire return intervals for sandhills and other fire-adapted communities in the park generally follow the FNAI guidelines (FNAI 2010). The Fort Cooper sandhills should be burned approximately every two to three years with the goal of reducing hardwood cover, particularly offsite hardwood species. Growing or lightning season fires are preferred unless fuel conditions or other concerns require an occasional dormant season fire.

The mesic flatwoods community that lies east of the sandhills along the park drive occurs within management zones FC-02, FC-04, and FC-12. This area has not traditionally been burned since most management efforts have focused on restoring the sandhills to the west. Although remnant longleaf pines and saw palmetto are scattered through this area, hardwoods dominate much of the community. Extreme care should be used when burning these areas to avoid damaging the roots of the longleaf pines that may have thick layers of duff accumulated around their bases. Initial fires should be winter burns under moderate weather conditions. Duff and heavy fuels should be raked and cut away from the bases of the adult longleaf pines well before burning in the mesic flatwoods. Initial fires should target the more open areas that have retained remnant wiregrass patches and longleaf pines. The annual target acreage for prescribed burning at Fort Cooper is 100 to 215 acres. Unfortunately, the park lacks adequate equipment on site to conduct prescribed fires on its own. However, equipment and qualified burn staff are available from other parts of District 2 to assist with prescribed burning at the park.

Wildlife species in the park that depend upon periodic fires include several imperiled species such as the gopher tortoise, gopher frog, short-tailed snake, and eastern indigo snake. Most of the species found within the sandhills are adapted to fire, and fire is the primary management tool for sandhills and mesic flatwoods.

In order to track fire management activities, 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/experience, backlog zones, if burn objectives have been

met, etc. The database is also used for annual burn planning, which allows 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 Communities Restoration: In some cases, the reintroduction and maintenance of natural processes is not enough to reach the natural community desired future conditions 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. 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.

Following are the natural community/habitat restoration and maintenance actions recommended to create the desired future conditions in the sandhill community.

Objective: Conduct habitat/natural community restoration activities on 5 acres of sandhill community.

The park will undertake the restoration of a 5-acre area of successional hardwood forest in management zone FC-04, with the long-term goal of restoring this altered landcover type to sandhill, the natural community that historically existed there. This will be the highest priority restoration project for the park. Areas specifically targeted for restoration will be those that are adjacent to or surrounded by intact sandhill. Offsite invasive hardwoods such as laurel oaks will be removed through a combination of methods that may include chemical and mechanical treatments in addition to prescribed fire. Park staff will scout the restoration area for remnant groundcover species prior to and after treatments in order to determine the need for supplemental groundcover plantings.

Maintenance activities in the restoration area will primarily be chemical retreatment of offsite hardwood sprouts and the regular and frequent application of prescribed fire. Initially after chemical treatments, the fire frequency for the restoration area should be more frequent than the average maintenance fire return interval for sandhill to help control re-sprouting hardwoods.

Natural Communities Improvement: Improvements are similar to restoration but on a smaller, less intense scale. This typically includes small-scale vegetative management activities or minor habitat manipulation. Following are the natural community/habitat improvement actions recommended at the park.

Objective: Conduct natural community/habitat improvement activities on 37 acres of sandhill community.

In management zones FC-03 and FC-04, certain areas of sandhill have increasing numbers of offsite oaks. About 15 acres of these sandhill areas are targeted for habitat improvements. Of particular concern are concentrations of hardwoods in zone FC-04 along a strip just west of the park drive and in zone FC-03 along the west boundary of the park. These areas need to have some offsite oaks removed by chemical or mechanical means. Treatment along the edges of these increasingly oak dominated areas and around remnant longleaf pines will enable prescribed fires to penetrate further. Any mechanical treatment will need to include immediate chemical treatment of the hardwood stumps to prevent multiple resprouting from root systems. These areas should be burned within six months to a year after treatment. Subsequent maintenance activities will include the retreatment of offsite hardwood sprouts and the regular application of prescribed fire.

A 22-acre area in management zone FC-09 around the Fort Cooper site (CI00090) that was originally sandhill still contains remnant longleaf pine trees. To return the area to a more historically accurate landscape, the park will remove offsite hardwoods from around the remaining longleaf pines. Initially, only those offsite hardwoods that are adjacent to or impinging on the drip line of the longleaf pines will be removed. A combination of chemical and mechanical treatments may also be used. Follow-up maintenance activities will include continued retreatment of offsite hardwood sprouts.

Objective: Conduct natural community/habitat improvement activities on 15 acres of mesic flatwoods community.

Areas of mesic flatwoods along the park drive are becoming increasingly overgrown with offsite hardwoods like laurel oak and water oak. In areas west of the park drive, offsite hardwoods along the ecotone between sandhill and mesic flatwoods will be treated using a combination of chemical and mechanical means. The hardwood treatments will facilitate the spread of prescribed fire from the sandhills into the adjacent flatwoods. East of the park drive, natural community improvement will begin with treatment of offsite hardwoods around remnant longleaf pines, followed by the use of prescribed fire. Offsite hardwoods encroaching on any remnant patches of intact groundcover will be treated as well.

Objective: Conduct natural community/habitat improvement activities on 40 acres of pine plantation.

Pine plantations currently cover most of the southeastern portion of the park. Prior to the planting of slash pines, agricultural fields occupied the area. The plantations

were first thinned in 1989, and they will be thinned again to remove additional offsite pines. It may be possible to include some offsite hardwood removal in this and other zones when the timber harvest is conducted. Post harvest, staff will treat the thinned sites with prescribed fire and underplant the remaining slash pines with longleaf pines. Follow-up activities will include chemical treatment of offsite hardwood sprouts.

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 FFWCC'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: Update baseline imperiled species occurrence inventory lists for plants and animals.

An extensive plant survey was conducted by DRP staff in the recent past. Surveys for imperiled animal species at Fort Cooper State Park have focused primarily on vertebrates. Surveys for potential imperiled invertebrate species are needed to

ensure that all imperiled species are documented. The DRP will enlist the assistance of academic researchers and staff from other agencies during development of species occurrence inventory lists, especially where necessary for certain taxonomic groups.

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

Previous surveys have provided some baseline population estimates for gopher tortoises within the sandhill of the park. Additional surveys using the FWC statewide protocol for monitoring gopher tortoises would be useful to document the current status of the population, especially since exposure to *Mycoplasma agassizii* was documented in 2005. This protocol uses the line transect distance sampling method developed by Smith et. al. (2009).

The eastern indigo snake is of particular concern, not only due to its threatened status, but also due to the limited amount of habitat available at Fort Cooper State Park. The roadways that completely ring the park are also of concern, since eastern indigo snakes have large home ranges and are likely to cross roads during their wanderings. Park staff will continue to report sightings or roadkills of eastern indigo snakes within or adjacent to the park.

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

Park and district staffs will monitor populations of the giant air plant and three-birds orchid. Park operations could potentially affect both of these species. Mapping of extant populations using GPS will be necessary to allow periodic rechecks to verify the status of these species within the park.

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: Annually treat 8 acres of exotic plant species in the park.

The park will treat 8 gross acres of its cogongrass, skunkvine, and Japanese climbing fern populations at least annually. For maximum effectiveness, the park should treat cogongrass in the fall before the first frost, and if possible, treat skunkvine before it fruits and Japanese climbing fern before spores are formed.

Birds appear to be major dispersers of skunkvine fruits. To prevent new infestations from going undetected in the park, it would be advisable for staff to check possible bird roosting areas regularly for the appearance of skunkvine seedlings, especially in the mesic hammock.

Research on the biological control of invasive exotic plants is needed. The discovery of effective biological control agents, particularly for cogongrass and skunkvine, could be especially beneficial to the Fort Cooper exotics control program.

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

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, landscaping debris disposal, logging, fireline 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, landscaping debris or soil from a contaminated area to an exotic free area within the park. Any equipment that is moved from a contaminated area to an exotic free area should be cleaned prior to moving it.

The exotic plant of particular concern for accidental spread at Fort Cooper is cogongrass. Equipment can easily carry rhizomes of this species into non-infested areas and create new infestations. When the park prepares fire lines or mows an area, any equipment used should be cleaned before leaving a cogongrass area and entering a non-infested area.

Objective: Implement control measures on 1 exotic animal species in the park.

The park will continue to remove feral hogs as they are encountered. Prompt removal of hogs will improve park protection of sensitive habitats and species.

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.

A timber management analysis was not conducted for this park since its total acreage is below the 1,000-acre threshold established by Florida Statute as a criterion for considering timber management. Nevertheless, some timber management will be necessary. About 45 acres of north Florida slash pines were planted in the southeastern part of the park in 1966. These pine stands were thinned in 1989, but they now need additional thinning. The DRP will coordinate with the Florida Forest Service to arrange a contract timber harvest for the slash pine plantations. The plantation area has been classified as an altered landcover type due to the long-term nature of the natural community disturbances. Soils found in the plantations indicate that most of the area was likely once sandhill. Other portions may have once been mesic flatwoods or mesic hammock. Additional research will be needed to determine which community types would be appropriate restoration targets. After thinning the slash pine stands, the recommended follow-up management will be to introduce prescribed fire and then plant longleaf pines under the remaining slash pines.

Arthropod Control Plan

Mosquito control plans (i.e., Arthropod Management Plan) are typically proposed by county mosquito control districts when they desire to treat on public lands that are protected by Ch. 388.4111 (CCMCD 2012; FDACS 2012). The current plan for Fort Cooper was finalized in 2010 (District 2 Files).

Cultural Resource Management

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 is implementing the following goals, objectives, and actions, as funding becomes available, to preserve the cultural resources found in Fort Cooper 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, or 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 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 DHR.

Objective: Assess and evaluate 6 of 6 recorded cultural resources in the park.

Park staff will monitor all six cultural sites periodically to ensure that they remain undisturbed. In particular, staff will check the Fort Cooper site (CI00090) regularly to make sure there is no disturbance, looting or erosion occurring. The park will take appropriate action to prevent woody growth from overtaking the site and disturbing the underground features. At the same time, staff will ensure that they do not mow the site too closely or drive over it. The park will check the site's boundary markers annually to verify that their locations are still accurate. The park will regularly check the Old Military Wagon Trail (CI01366) and Lake Holathlikaha Historic Scatter (CI1365) for evidence of soil disturbance and looting. There is no need for the park to prepare any Historic Structures Reports.

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

A predictive model was recently completed for the park. All known cultural sites are currently recorded with the FMSF. If additional sites are found, they will be documented and submitted to the FMSF. Based on results of the predictive model, the DRP should determine if a Level 1 archaeological survey is needed around the fort and old military road sites.

While the State of Florida has conducted two excavations of the Fort Cooper site itself, there has been no systematic survey of the park. Now that a predictive model has been completed for the park, future testing can focus on areas most likely to contain sites. Baker (1976) noted that additional testing could shed light on prehistoric occupation of the lake area, as well as historic Seminole campsites.

The park needs to submit an update of Fort Cooper CI00090 to the FMSF so that the prehistoric component is clearly indicated in the site file records. It also needs to determine if the latrine associated with the fort is located outside the fort walls, in which case, it too should be recorded separately with the FMSF. Excavations of the fort thus far have failed to locate the historically documented blockhouse. The park should compile additional historic data about Fort Cooper and the Old Military Wagon Trail to determine how they relate to other Central Florida forts of the Seminole War era and to the Native Americans that inhabited the area. This information would be valuable in developing an interpretive plan for the park. An important component of document compilation and interpretation is obtaining information on how present day Seminoles view the site. That information should be an integral part of the park's interpretive plan. The park needs to develop and adopt a Statement of Collections that includes a description of the park's interpretive themes.

Additional documentation of the military trails in the area is needed. For example the Old Military Trail (CI01366) interpretive sign contains some misinformation. The sign should be corrected to indicate that the trail connected Fort Cooper to Fort Drane and Fort Dade, not to Fort Brook and Fort King as currently worded. The Fort Brook to Fort King trail is actually located east of the park.

Baker (1976) mentions a pile of limestone that may represent the hearth of a late 19th Century structure. Additional information should be compiled on this, and if the stones can be located again, the site should be recorded with the FMSF.

Objective: Bring 1 of 6 recorded cultural resources into good condition.

All of the cultural sites at Fort Cooper State Park are currently in good condition. To keep the fort and military trail sites in good condition, the park will continue to prevent hardwoods and other woody growth from encroaching on the sites. Mowing and other methods will help keep root growth from damaging the underground features of the fort.

The park needs to describe and adopt a cyclical maintenance program for its collection items, particularly the paper ephemera and the painting by Mark Dixon Dodd. Paper documents can degrade depending on storage conditions and paper quality. The painting may need professional appraisal and assessment for curating.

The park also needs to adopt and implement a regular schedule of visitation to all of its cultural sites to ensure their continued protection. There are no stabilization needs for the park's cultural resources at this time. The landscape around the fort should be evaluated for the possibility of restoring it to the natural community that existed there at the time it was built and in use. Restoration could provide visitors to the fort with a more realistic concept of the historic landscape of the period.

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 DRP considered recommendations of the land management review team and updated this plan accordingly.

Fort Cooper State Park was subject to a land management review on August 24, 2000. The review team made the following determinations:

- 1.** The land is being managed for the purpose for which it was acquired.
- 2.** 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 operations, and management. Additional input is received through public workshops and advisory meetings with 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 described 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 the park's interaction with other facilities.

Existing Use of Adjacent Lands

Fort Cooper State Park is located in south central Citrus County, approximately two miles south of the City of Inverness and four miles north of the unincorporated town of Floral City. The park is surrounded by low- and medium-density residential development. Access to the park is from Old Floral City Road, which parallels the northern and eastern boundaries of the park, and connects to U.S. Highway 41 (U.S. 41) from Eden Drive. Fort Cooper Road, which also connects to U.S. 41, parallels the southern boundary of the park.

Primarily rural and agricultural, Citrus County has a population of approximately 140,000 (U.S. Census, 2013 estimate). Significant population increase in Citrus County occurred between 1980 and 2000, but leveled by 2000. Since 2010, the population in Citrus County has experienced a minor decrease by approximately -1.4 %, versus overall statewide increase by 4%. Residential areas throughout Citrus County consist primarily of low to medium density housing, with a countywide average of 242 persons per square mile. The City of Inverness is an incorporated municipality consisting of approximately 7,100 residents, with land development patterns similar to the remainder of the county.

Within the park's vicinity, significant recreational opportunity is also provided by the Florida Greenways and Trails network. The Withlacoochee State Trail parallels the western boundary of the park and connects to the Coast-to-Coast Connector, a multi-use trail corridor that spans from Titusville to St. Petersburg. Fort Cooper State Park is within close proximity to various components of this network of long-distance trail corridors, each having direct connections to the Withlacoochee State Trail. For example, the Good Neighbor Trail, a 16-mile paved trail connecting the 42-mile Suncoast Trail to the Withlacoochee State Forest, intersects the Withlacoochee State Trail 10 miles from Fort Coper State Park. The Florida National Scenic Trail intersects with the Withlacoochee State Trail within five miles of Fort Cooper State Park and follows the trail corridor for approximately 14 miles. Additionally, the Withlacoochee State Forest bicycling and hiking trails are within 13 miles of Fort Cooper State Park and are accessible via the Withlacoochee State Trail.

Several private campgrounds and RV parks are located within the vicinity of Fort Cooper State Park. The nearest camping on public conservation lands is the Withlacoochee State Forest Campground, approximately 15 miles from the park.

Planned Use of Adjacent Lands

Large portions of the county are designated for conservation. Citrus County land use designations of adjacent properties surrounding the park on the east side of U.S. 41 are for low-intensity coastal and lakes residential. Nearby existing development associated with the City of Inverness on the west side of U.S. 41 is planned for general commercial, transportation (i.e., Inverness Airport), and medium density residential. Fort Cooper State Park, itself, is designated for recreation (Citrus County Comprehensive Plan, Future Land Use Map). A small area of commercial development is also located approximately two miles south of the park entrance on Fort Cooper Road.

Potential future land use changes, such as conversion of adjacent land to more intensive uses, could produce adverse impacts to the park. These impacts could include changes in surface and groundwater quality and quantity, complication of the DRP's prescribed fire management activities, and increased traffic congestion. It will be important for DRP staff to participate in reviews of Comprehensive Plan amendments, proposed zoning changes, and development plans.

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.

Recreation 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. Analyzing the property in these separate 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 park consists of 735 acres, with upland natural communities including sandhill, mesic hammock, and mesic flatwoods, as well as wetland communities including basin marsh, depression marsh, and sandhill upland lake. These natural features and communities provide a variety of recreational and interpretive opportunities for visitors to the park. Day use facilities are situated along the northern shoreline of Lake Holathlikaha. Nature trails extend throughout the park.

Water Area

Lake Holathlikaha is the most prominent hydrological feature and the only major surface water body in Fort Cooper State Park. It is contained entirely within the park boundary. Historically, the lake has offered visitors an ideal location for popular recreational activities such as swimming, boating, and wildlife viewing, but declining water level and increased aquatic vegetation since 2006 has reduced the area of the lake that is accessible for recreation.

Shoreline

Lake Holathlikaha is the primary recreational and aesthetic resource of the park. A lakeside picnic area and a swimming area provide visitor access to the lake. Over the past several years, declining groundwater levels have decreased the open-water area of the lake. Except at the swimming area, direct access to the shoreline is limited since the shoreline is a basin marsh community that is not amenable to active recreational access. Nature trails along the northern and eastern portions of the shoreline provide excellent vistas over the lake.

Natural Scenery

Lakeside vistas and each of the natural communities of the park provide scenery representative of Central Florida's Western Valley. Scenic trails through

the sandhill and mesic hammock near the lake offer opportunities for visitors to view and interpret the park's abundant wildlife.

Significant Natural Features and Habitat

Significant natural features in the park include both hydrological and vegetative elements. The pristine condition of Lake Holathlikaha is important to the interpretation of the natural communities and hydrology of this area. The park's sandhill community on the north side of the lake is a defining feature of the park. The park is an island of natural landscape within an urbanized area, providing refuge for a variety of wildlife.

Archaeological and Historic Features

The historic site of the Second Seminole War fort, Fort Cooper is located in the park. The original fort was constructed and operated between April 2 and April 18, 1836. The First Georgia Battalion of Volunteers held off an attack of several hundred Seminoles throughout that period. Between 1836 and 1841, Fort Cooper was used as a scout post of observation, overnight stop, and watering place. Later, it served as a rendezvous and dispatch post for the respective federal commands engaged in the mop-up campaigns between 1841 and 1842. A nature trail provides access to the fort site from the day use area. An interpretive sign and an offset replication of part of the stockade wall explain the site to visitors. The route of the military road through the Fort Cooper site and the park is marked and interpreted for trail users.

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

The U.S. Army used the Fort Cooper area intermittently between 1836 and 1842. Other uses of the land currently contained by the park boundaries included citrus production and silviculture. Silviculture significantly altered the landscape, especially in the southeast portion of the park where slash pine plantation remains.

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.

The park is designated by Citrus County as recreation land. Although this designation is consistent with the park's intended recreational uses as a state park, long-term resource protection in the park may be enhanced by a re-designation as conservation land on the future land use map. In order to ensure that future developments or land use changes in the existing commercial and

residential areas are planned with optimal sensitivity to the park's resources, the DRP should work with Citrus County to identify the park as conservation land.

Current Recreational Use and Visitor Programs

Fort Cooper State Park recorded 28,915 visitors in Fiscal Year (FY) 2013-2014. By DRP estimates, the park's visitation during FY 2013-2014 contributed \$2.3 million in direct economic impact, the equivalent of adding 33 jobs to the local economy (FDEP 2014).

The recreational activities in the park include hiking, swimming, paddling, primitive camping, fishing, picnicking, and nature observation. Swimming, paddling, and fishing are limited when the water level of Lake Holathlikaha is low. Nature observation, especially bird watching, is popular throughout the year.

The park day use area is located on the northwest side of Lake Holathlikaha and consists of an interpretive area, picnic pavilion, covered barbecue grill, sand volleyball court, recreation hall, and two restroom buildings under the canopy of a mesic hammock. The recreation hall, called the Lakeside Pavilion, is a rustic building equipped with air conditioning, heating, fireplace, and kitchen that accommodates gatherings of up to 47 people.

Interpretation of the park's historical significance is central to the park. During the annual Fort Cooper Days event, the park hosts a reenactment of the Second Seminole War skirmishes that took place at the fort in 1836. Other interpretation of the park's resources is facilitated by the interpretive kiosk in the day use area.

Other Uses

The FWC has maintained a field office for invasive plant management research on a 1.39-acre site in the southeast corner of Fort Cooper State Park since 2010 under a sublease from DRP. This FWC field office is accessed from a separate entrance on Fort Cooper Road.

Otherwise, no uses, other than resource-based recreational opportunity, conservation, and interpretation, are designated at this park.

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 Cooper State Park, all wetlands and floodplain as well as sandhill and known imperiled species habitat have been designated as protected zones. The park's current protected zone is delineated on the Conceptual Land Use Plan.

Existing Facilities

Recreation Facilities

Lake Holathlikaha is the primary recreational and aesthetic resource of the park. The day use area features lakeside picnic pavilions, a cooking shelter, playground, and swimming area with two bathhouses. Access to this use is by the main park road and a paved parking lot that accommodates up to 140 vehicles. Alternatively, users of the Withlacoochee State Trail are able to access the day use area by a paved half-mile long multi-use connector path.

The day use area also offers day rental of a 750-square-foot indoor pavilion, which includes a spacious air-conditioned room for hosting events or meetings and has an attached kitchen. The pavilion overlooks the lake and day use area. It has a maximum occupancy of 47 people.

The Seminole Interpretive Trail consists of three interpretive kiosks, featuring cultural and historical information about the history of the Seminole tribe in the park and throughout the region. The Fort Cooper, Sandhill Loop, and Dogwood trails are three separate nature trails accessible from the Lake Holathlikaha day use area. Combined, these trails offer over four miles of hiking.

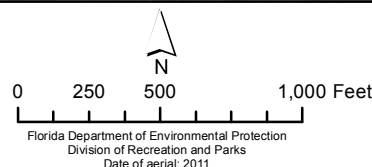
Overnight accommodation is currently only available in the primitive group camp in the southwest portion of the park, accessed from Fort Cooper Road. Potable water and access to portable restrooms is provided at the group camp.

Support Facilities

Support facilities include the ranger station at the entrance of the park, one residence, two volunteer campsites, and standard shop and storage buildings. The two ranger residences are mobile/trailer homes, whereas the park manager's residence is a permanent structure. Shop, maintenance, and storage facilities are accessed from Fort Cooper Road on the south side of the park.



FORT COOPER STATE PARK



BASE MAP

Image courtesy of USGS

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Recreation Facilities

Day Use Area

Picnic Shelters (1)
Cooking Shelter
Bathhouses (2)
Lakeside Pavilion/Recreation Hall
Paved Parking (140 vehicles)

Trails

Fort Cooper Trail (1.5 miles)
Sandhill Loop Trail (2 miles)
Dogwood Trail (0.8 mile)
Withlacoochee State Trail Connector
Path (.5 mile)

Fort Cooper Interpretive Site

Interpretive Kiosks (3)

Primitive Group Camp

Camping Area (30 person capacity)
Portable Restrooms (2)
Potable Water

Support Facilities

Ranger Station
Permanent Residence (1)
Volunteer Campsites (2)
Shop Building
Flammable Storage Shed
Utility Sheds (3)
Pump House
Communications Equipment Shed
Main Park Road (0.7 mile)
Service Roads (0.7 mile)

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, 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/or improved activities and programs are also recommended and discussed below.

Objective: Maintain the park's current recreational carrying capacity of 1,148 users per day.

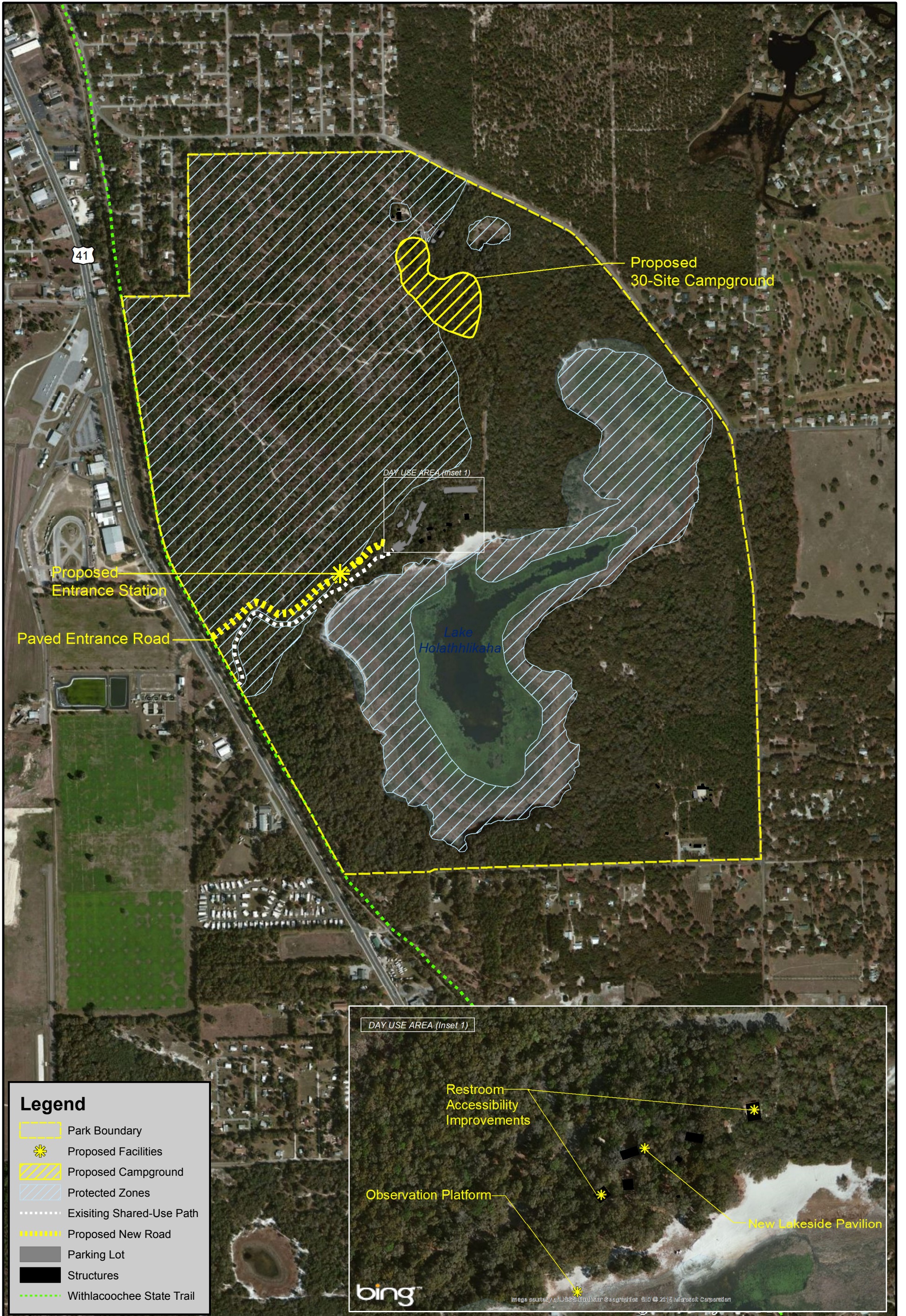
The park will continue to offer the current program of resource-based recreational and educational activities. The primary day use area, hiking trails, group camp, and interpretive areas should be maintained to accommodate the park's current carrying capacity.

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

As the park develops and improves recreation facilities, the park's capacity to accommodate visitors and recreational activity will be expanded accordingly. Some proposed improvements will enhance quality of existing recreational opportunities without expansion of capacity.

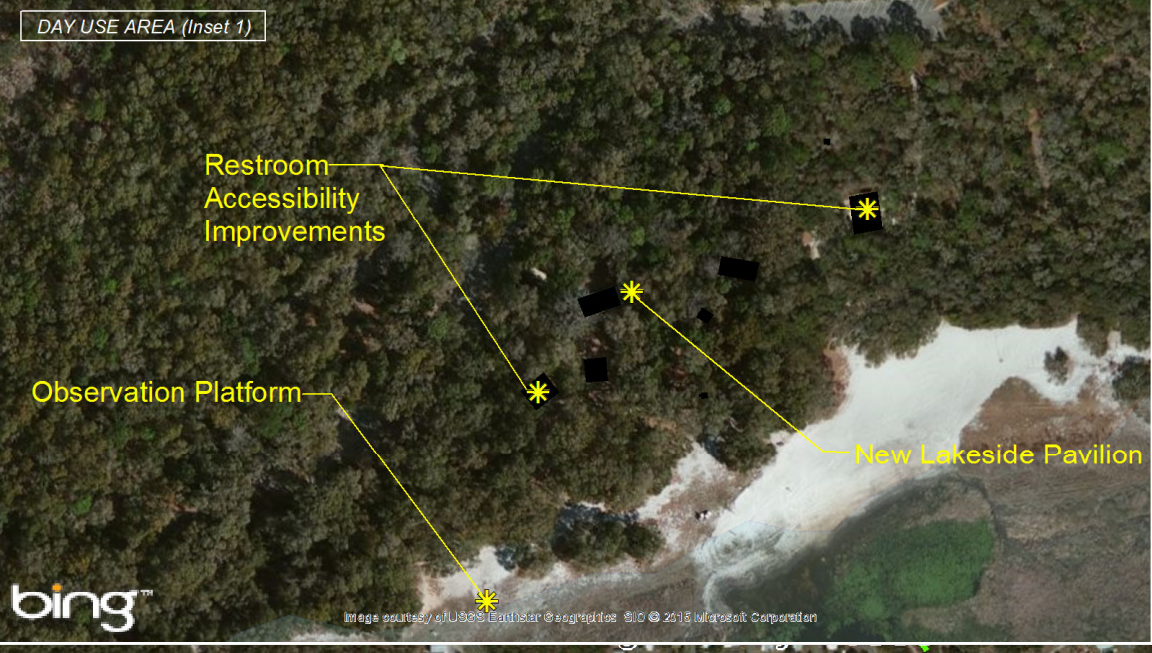
Objective: Expand 1 interpretive, educational, and recreational program.

The Seminole Interpretive Trail should be extended to other areas of the park along existing hiking trails and the scope of subject matter should be expanded to interpret additional natural and cultural resources of the park. Additional kiosks and interpretive signage should be located throughout the park and may interpret the history of settlement in the region, the Seminole Wars, as well as flora and fauna of the area.

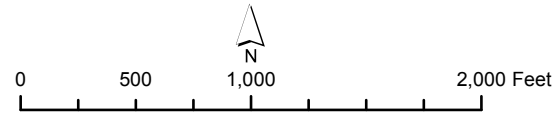


Legend

- Park Boundary
- ★ Proposed Facilities
- Proposed Campground
- Protected Zones
- Existing Shared-Use Path
- Proposed New Road
- Parking Lot
- Structures
- Withlacoochee State Trail



FORT COOPER STATE PARK



CONCEPTUAL LAND USE PLAN

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

Proposed Facilities

Capital Facilities and Infrastructure

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

Proposed capital improvements and land use development at Fort Cooper State Park are intended to enhance visitor attendance and resource-based recreational opportunities.

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, improve the protection of park resources, and streamline the efficiency of park operations. The following are the objectives for facility improvements and development needed to implement the conceptual land use plan for Fort Cooper 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 2 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.

New Lakeside Pavilion

Construction of a new Lakeside Pavilion is recommended to increase the park's capacity to accommodate large group events. The new structure may occupy a footprint larger than the existing structure and should be designed to improve the park's accommodation of special and group events.

Accessibility Improvements to Restrooms

The day use area contains two restrooms. Both are in good condition and accessible by ADA-compliant sidewalks from the parking lots. The interiors of both restrooms require ADA compliance upgrades, such as installment of hand railings and widening of doorways. These improvements should be considered for short-term completion.

Objective: Construct 2 new facilities and a .5-mile road.

Proposed new facilities and land use developments in the park are intended to improve visitor access, enhance attendance, and expand the park's resource-based recreation opportunities.

New Park Entrance from U.S. 41

The current park entrance is located on Old Floral City Road, a rural residential road that connects indirectly to U.S. 41 by way of Eden Road and Fort Cooper Road. When the original land use plan for the park was developed, a railroad line along U.S. 41, parallel to the park's western boundary, precluded access to the park from U.S. 41; however, as the Withlacoochee State Trail has replaced the former railroad, access to the park from U.S. 41 is now feasible. To improve the park's visibility and convenience of visitor access, it is recommended that the park entrance be relocated to U.S. 41. The new entrance road should enter the park near the existing bicycle path that connects the Withlacoochee State Trail to the park's day use parking lot. The new park entrance road should be approximately parallel to the bicycle path. Alignment of the proposed entrance and setback of a new entrance station should be planned to prioritize safe traffic access and egress and to minimize inconvenience on the Withlacoochee State Trail. The new entrance station should be constructed along the road, approximately one-quarter mile from the gate to minimize traffic congestion on U.S. 41. North of the day use area, the existing entrance road will be used to access the new campground in the northeast portion of the park. The existing ranger station and segment of entrance road north of the proposed campground should be restored to sandhill.

Campground

It is recommended that a new standard facility campground be added to the park. The campground should be located north of the primary day use area and Dogwood Trail in the successional hardwood forest. The southern half of the existing entrance road should become the access road to the campground from the day use area. When the new park entrance from U.S. 41 is developed, the portion of the existing park road north of the campground should be closed and the roadbed restored to sandhill. A portion of the existing park road and ranger station should be incorporated into the campground design. The campground should accommodate 30 sites and be designed to accommodate both tents and recreational vehicles, while resulting in minimum impact to the adjacent natural communities. Design elements should include use of permeable paved surfaces, compact layout, preservation of tree canopy, and vegetative buffers between sites.

Observation Platform

An observation platform on Lake Holathlikaha is recommended at the southwest corner of the day use area beach to provide an enhanced view of the lake and surrounding basin marsh. As the shoreline around the lake is shallow and generally inaccessible due to surrounding vegetation, a platform would facilitate access to a point in the lake where the depth is consistently sufficient for fishing and wildlife viewers could gain an elevated vantage point to the north and south portions of the

lake. To preserve the viewshed of the lake's undeveloped shoreline, the structure should be designed to minimize visibility from other points on the shoreline.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Ten-Year Implementation Schedule and Cost Estimates (Table 7) 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 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:

Park Entrance

New Park Entrance from U.S. 41

Camping Area

30-Site Standard Facility Campground

Day Use Area

Lake Holathlikaha Observation Platform

Construction of New Lakeside Pavilion

ADA Compliance Improvement of the Day Use Restrooms

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 should be calculated, according to the specific activity, the activity site, and the park's unit classification (see Table 6).

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 6.

Table 6. Recreational Carrying Capacity						
Activity/Facility	Existing Capacity*		Proposed Additional Capacity		Estimated Recreational Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
Day Use Area**	425	850			425	850
Trails						
Nature/Interpretive	34	136			34	136
Shared Use	20	80			20	80
Lake Holathlikaha						
Paddling	26	52			26	52
Primitive Group Camp	30	30			30	30
Standard Campground			240	240	240	240
TOTAL	535	1,148	240	240	775	1,388
*Existing capacity revised from previous approved plan according to DRP guidelines.						
**Carrying capacity for the Lakeside Pavilion is not included as the facility is used only for special events upon reservation.						

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 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.

At this time, no additional lands have been identified for management as part of the park. No lands are considered surplus to the needs of the park.

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 Cooper State Park in 2003, 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.

Resource Management

Natural Resources

- 196 acres of sandhills have been burned under prescribed management conditions.
- Significant progress has been achieved in the restoration of the sandhill. Thirty-five acres of offsite hardwoods were treated in three resource management zones to reduce hardwood density. 3900 feet of perimeter firelines were doubled in width to increase safety for prescribed burns in wildland/urban interface.
- 159 acres of invasive exotic plants have been treated since 2003.

Cultural Resources

- A predictive archaeological model was completed for the park and all known cultural sites are recorded in the Florida Master Site File.

Recreation and Visitor Services

- The park developed two new annual special events – *Music in the Park* each April, and a Flag Day Celebration each June.

Park Facilities

- Fort Cooper has linked directly to the Withlacoochee State Trail with a paved 10-foot wide connector trail, facilitating access between the trail and park for cyclists and pedestrians.
- In 2012, the Friends of Fort Cooper State Park purchased and constructed a gazebo for the Lake Holathlikaha day use picnic area.
- The Friends of Fort Cooper State Park improved the Lakeside Lodge by finishing the interior and installing insulation in the walls and roof area.

- Park staff developed and improved the Sand Hill Loop Trail and constructed a new trailhead kiosk at its entrance.
- Park staff replaced an aging kiosk in the picnic area and installed the first of four planned interpretive kiosks for the new Seminole Heritage Trail.
- The shop, Lakeside Lodge, cooking shelter, and both restrooms have been improved with new metal roofs.

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. Time frames for completing each objective and action are 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 7
Fort Cooper State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 1 of 4

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	\$77,000
Objective B	Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.	Administrative support expanded	C	\$77,000
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	C	\$7,000
Action 1	Continue LAKEWATCH sampling and coordination with other agencies and researchers regarding hydrological research and monitoring.	Cooperation ongoing	C	\$3,500
Action 2	Continue to monitor, review and comment on proposed land use/zoning changes within lands bordering the park.	Assessment ongoing	C	\$1,500
Action 3	Continue to cooperate with the SWFWMD to ensure MFLs for Lake Holathlikaha are monitored for compliance in order to maintain historic lake levels.	Cooperation ongoing	C	\$2,000
Objective B	Restore natural hydrological conditions and function to approximately 145 acres of sandhill upland lake natural community.	# Acres restored or with restoration underway	LT	\$8,000
Action 1	Develop and implement protocols to monitor and manage visitor access to Lake Holathlikaha.	Protocols implemented	ST	\$6,000
Action 2	Continue to coordinate with and assist FDEP, SWFWMD and independent researchers regarding monitoring of water quality and quantity in Lake Holathlikaha.	Cooperation ongoing	C	\$2,000
Goal III: Restore and maintain the natural communities/habitats of the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Within 10 years have 330 acres of the park maintained within optimal fire return interval.	# Acres within fire return interval target	LT	\$120,000
Action 1	Develop/update annual burn plan.	Plan updated	C	\$10,000
Action 2	Manage fire dependent communities for ecosystem function, structure and processes by burning between 100 - 215 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	\$110,000
Objective B	Conduct habitat/natural community restoration activities on 5 acres of successional hardwood forest (to restore sandhill natural community).	# Acres restored or with restoration underway	LT	\$3,500
Action 1	Develop/update site specific restoration plan.	Plan developed/updated	ST	\$500
Action 2	Implement restoration plan.	# Acres with restoration underway	LT	\$3,000
Objective C	Conduct habitat/natural community improvement activities on 37 acres of sandhill community.	# Acres improved or with improvements underway	LT	\$7,000

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
Fort Cooper State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 2 of 4

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.				
Objective D	Conduct habitat/natural community improvement activities on 15 acres of mesic flatwoods community.	# Acres improved or with improvements underway	LT	\$4,500
Objective E	Conduct habitat/natural community improvement activities on 40 acres of pine plantation.	# Acres improved or with improvements underway	LT	\$1,500
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	Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.	List updated	C	\$2,000
Objective B	Monitor and document 2 selected imperiled animal species in the park.	# Species monitored	C	\$11,000
Action 1	Develop monitoring protocols for 2 selected imperiled animal species including the gopher tortoise and eastern indigo snake.	# Protocols developed	ST	\$500
Action 2	Implement monitoring protocols for 2 imperiled animal species including those listed in Action 1 above.	# Species monitored	C	\$10,500
Objective C	Monitor and document 2 selected imperiled plant species in the park.	# Species monitored	C	\$2,000
Action 1	Develop monitoring protocols for 2 selected imperiled plant species including giant air plant and three-birds orchid.	# Protocols developed	ST	\$500
Action 2	Implement monitoring protocols for 2 imperiled plant species including those listed in Action 1 above.	# Species monitored	C	\$1,500
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 8 acres of exotic plant species in the park.	# Acres treated	C	\$11,000
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	\$4,000
Action 2	Implement annual work plan by treating 8 acres in park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented		\$7,000
Objective B	Implement control measures on 1 exotic and nuisance animal species in the park - feral hogs.	# Species for which control measures implemented	C	\$15,000

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
Fort Cooper State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 3 of 4

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 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 6 of 6 recorded cultural resources in the park.	Documentation complete	LT	\$8,000
Action 1	Complete 6 assessments/evaluations of archaeological sites. Prioritize preservation and stabilization projects.	Assessments complete	LT	\$8,000
Objective B	Compile reliable documentation for all recorded historic and archaeological sites.	Documentation complete	LT	\$13,000
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	\$1,000
Action 2	Conduct Level 1 archaeological survey for 2 priority areas identified by the predictive model.	Survey completed	LT	\$10,000
Action 3	Develop and adopt a Scope of Collections Statement.	Document completed	ST	\$500
Action 4	Continue to gather historic information about Fort Cooper, The Old Military Wagon Trail, and the Seminole battles that occurred in the park.	Project completed	LT	\$1,500
Objective C	Bring 1 of 6 recorded cultural resources into good condition.	# Sites in good condition	LT	\$9,000
Action 1	Design and implement regular monitoring programs for 6 cultural sites.	# Sites monitored	C	\$1,300
Action 2	Create and implement a cyclical maintenance program for each cultural resource.	Programs implemented	C	\$1,200
Action 3	Prevent woody growth from encroaching on the fort site and the old military trail by regular mowing.	Projects completed	C	\$6,500
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 1,148 users per day.	# Recreation/visitor	C	\$77,000
Objective B	Expand the park's recreational carrying capacity by 240 users per day.	# Recreation/visitor	LT	\$80,000
Objective C	Continue to provide the current repertoire of 1 interpretive, educational and recreational programs on a regular basis.	# Interpretive/education programs	C	\$15,000
Objective D	Expand 1 new interpretive, educational, and recreational program.	# Interpretive/education programs	LT	\$15,000

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
Fort Cooper State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 4 of 4

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 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	\$77,000
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	\$30,000
Objective C	Improve and/or repair 2 existing facilities.	# Facilities/Miles of Trail/Miles of Road	LT	\$100,000
Objective D	Construct 2 new facilities and a .5-mile road as identified in the Land Use Component.	# Facilities/Miles of Trail/Miles of Road	UFN	\$720,000
Objective E	Expand maintenance activities as existing facilities are improved and new facilities are developed.	Facilities maintained	C	\$100,000
Summary of Estimated Costs				
Management Categories			Total Estimated Manpower and Expense Cost* (10-years)	
Resource Management			255,000	
Administration and Support			\$154,000	
Capital Improvements			\$1,027,000	
Recreation Visitor Services			\$267,000	
Law Enforcement Activities ¹				
			1 Law enforcement activities in Florida State Parks are conducted by the FWC Division of Law Enforcement and by local law enforcement agencies.	

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Addendum 1—Acquisition History

Fort Cooper State Park Acquisition History

Purpose of Acquisition:

The Board of Trustees of the Internal Improvement Fund (Trustees) of the State of Florida purchased the initial area of Fort Cooper State Park for the use and benefit of the Outdoor Recreational Development Council of the State of Florida.

Sequence of Acquisition:

The initial acquisition of Fort Cooper State Park took place on December 23, 1970, as a result of a purchase of a 734.81-acre property located in Sections 21, 22, 27 and 28; Township 19 South and Range 20 East in Citrus County, Florida. The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) purchased the property from John H. and Betty J. Eden. The Trustees purchased the property for \$351,915, and the purchase was funded under the Land Acquisition Trust Fund (LATF) program.

Title Interest:

The Trustees hold fee simple title to Fort Cooper State Park.

Lease Agreement:

On June 23, 1971, the Trustees leased Fort Cooper State Park to the State of Florida Department of Natural Resources, predecessor in interest to the State of Florida Department of Environmental Protection, Division of Recreation and Parks (DRP), under Lease No. 2541. Lease No. 2541 is a ninety-nine (99)-year lease. This lease is scheduled to expire on June 22, 2070.

According to Lease No. 2541, DRP manages Fort Cooper State Park for the purpose of preserving, improving, developing, operating and maintaining and otherwise managing the property for outdoor recreational, park, conservation and related purposes.

Special Conditions on Use:

Fort Cooper State Park is designated single-use to provide resource-based public outdoor recreation and other park related uses. Uses such as water resource development projects, water supply projects, storm-water management projects, and linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan or the management purposes of the park.

Outstanding Reservations:

There are no known outstanding issues such as deed and other restrictions on the parcels that constitute Fort Cooper State Park.

Management Note:

The Florida Fish and Wildlife Conservation maintains a field office site on a 1.39 acres of Fort Cooper State Park since 2010 under a sublease from DRP. The term of the sublease is coterminous with the term of the lease for the park.

Addendum 2—Advisory Group Members and Report

**Fort Cooper State Park
Advisory Group Members and Report**

Local Government Representatives

Citrus County

Commissioner Scott Carnahan, District 4
Citrus County Board of County
Commissioners

City of Inverness

Honorable Bob Plisted, Mayor
City of Inverness

Hernando County

Honorable James Adkins
Hernando County Board of County
Commissioners

Pasco County

Honorable Ted Schrader
Pasco County Board of County
Commissioners

**Tourist and Economic Development
Council Representatives**

Citrus County

Adam Thomas, Director
Citrus County Visitors & Convention Bureau

Hernando County

Tammy Heon, Coordinator
Hernando County Tourism Development

Pasco County

Ed Caum
Tourism Manager
Pasco County Office of Tourism
Development

Agency Representatives

Harry Mitchell, Manager
Division of Recreation and Parks
Fort Cooper State Park and Withlacoochee
State Trail

Lita Hart, Recreation Coordinator
Florida Forest Service
Withlacoochee State Forest

Tom M. Matthews
Biological Scientist III/Recreation Planner
Florida Fish and Wildlife Conservation
Commission

Mike Wisenbaker, Archeology Supervisor
Bureau of Archeological Research
Division of Historical Resources

**Environmental and Historical
Representatives**

Eileen Riccio, Vice President
Board of Directors
Citrus County Audubon Society

Maryvonne Devensky, Chair
Sierra Club, Suwanee-St. Johns Group

Steve Farnsworth, President
Native Plant Society, Citrus Chapter

Katherine Turner Thompson
Citrus County Historical Society

Recreational User Groups

Cycling

Susan Straley, President
Withlacoochee Riders

Equestrian

Kathy Thompson
Nature Coast Back Country Horsemen

Hiking

Ralph Hancock
Chair & Trail Coordinator
Suncoast Chapter
St. Petersburg, Florida 33704

Citizen Support Organizations

Frank Trepanier, President
Friends of Fort Cooper State Park

Jerry Willert, President
Rails to Trails of the Withlacoochee

Adjacent Landowners

Terry Miller

Robert & Bonnie Norman

Fort Cooper State Park Advisory Group Members and Report

The Advisory Group meeting to review the proposed unit management plan (UMP) for Fort Cooper State Park and Withlacoochee State Trail was held in the Lakeside Pavilion at Fort Cooper State Park on Thursday, July 23, 2015 at 9:00 AM.

Frank DiGiovanni represented Mayor Bob Plisted. Debbie Shaughnessy represented Kathy Thompson. Kimberly Poppke represented Tammy Heon (Hernando County Tourism Development). James Crink represented Frank Trepanier. Dennis Reiland represented Jerry Willert. Commissioner James Adkins, Commissioner Ted Schrader, Tom Matthews, Eileen Riccio, Maryvonne Devensky, Terry Miller, and Robert Norman were not in attendance. Mike Wisenbaker was not in attendance, but submitted written comments. All other appointed Advisory Group members were present.

Attending Division of Recreation and Parks (DRP) staff members were Brian Fugate, Daniel Pearson, Harry Mitchell, Dianne Drye, Lew Scruggs, Ralph Perkins, and Daniel Alsentzer.

Mr. Scruggs began the meeting by explaining the purpose of the Advisory Group and reviewing the meeting agenda. He provided a brief overview of the DRP's planning process and summarized the previous evening's public workshop. Mr. Scruggs then asked each member of the Advisory Group to express his or her comments on the draft plan.

Summary of Advisory Group Comments

Neil Fox (Florida Trail Association) inquired how the proposed campground is projected to affect the park's carrying capacity and how the number of campers per site would be managed. He noted that a high volume of campers within the small proposed area could affect the visitor experience. He additionally asked for clarification on the amenities that would be provided as part of the standard facility campground.

Frank DiGiovanni (City of Inverness) stated that he supports the draft plans for both Fort Cooper State Park and Withlacoochee State Trail. He agrees that accessing Fort Cooper State Park from U.S. Highway 41 would enhance visitation that would benefit the park. Mr. DiGiovanni requests that the DRP address several issues related to the proposed new entrance, including the need for cyclist protection and not compromising trail functionality when creating an entrance that intersects the trail. He stated that the addition of a campground may increase traffic conflicts between trail users and drivers entering/exiting the park. To mitigate safety concerns, he encourages designing the entrance-trail intersection to

Fort Cooper State Park Advisory Group Members and Report

maximize visibility of vehicles and trail users. Mr. DiGiovanni stated that removing natural buffer is not desirable and the entrance/exit approach should maintain as much natural buffer as possible. He further explained that vehicles exiting the park are likely to stack, especially when exiting vehicles make left turns onto U.S. Highway 41. Vehicle stacking will conflict with use of the trail. Mr. DiGiovanni recommends installment of trail crossing signals at Eden Drive, Gobbler Road, Orange Avenue, Turner Camp Road, and at the proposed entrance/exit to Fort Cooper State Park. Additional hazards and nuisances that Mr. DiGiovanni addressed include low-hanging or encroaching vegetation on the trail, pedestrians walking abreast on the trail, waste from pets, pavement disrepair, and unmarked road crossings along the trail. To better promote tourism and economic development around the trails, Mr. DiGiovanni recommends additional wayfinding signage and developing a smartphone application to share community information. He cited Whispering Pines Municipal Park as an example of a popular feature located near the trail, to which a connection should be constructed. He noted that City of Inverness officials desire to work with the DRP to implement a connector trail.

Steve Farnsworth (Native Plant Society) commented that the park's current strategy for sandhill restoration in the pine plantation is not feasible. Mr. Farnsworth noted that the remnant groundcover characteristic of sandhill is diminished. Given the existing conditions, he is concerned that the area will become increasingly populated with hardwoods. He recommends clearcutting the planted slash pines in the southeastern portion of the park and replanting with longleaf pines and wiregrass. Mr. Farnsworth noted that many of the slash pines in this area are over 60 years old and may be especially valuable as timber.

Commissioner Scott Carnahan (Citrus County Board of County Commissioners) affirmed the need to repave the Withlacoochee State Trail and more broadly address safety issues affecting trail users. Commissioner Carnahan agrees that the park and community would benefit from an entrance to Fort Cooper State Park from U.S. Highway 41 and recommends aligning the entrance with the Airport Road intersection. He acknowledges that the additional trail-crossing poses safety concerns for trail users. Commissioner Carnahan supports increased connectivity with county and municipal parks.

Kathy Thompson (Nature Coast Back Country Horsemen) supports the draft plans for both Fort Cooper State Park and the Withlacoochee State Trail. She commends the large-scale volunteer efforts in the park and along the trail. Ms. Thompson recommends allowing volunteers to use their own equipment in order to expand the volunteer program. She acknowledged the potential impacts caused by equipment spreading seeds of exotic-invasive plant species, but suggests that with basic training, volunteers are responsible stewards and significantly reduce the cost of

Fort Cooper State Park Advisory Group Members and Report

resource management and maintenance labor. Additionally, Ms. Thompson commented that without compromising natural communities and user safety, she is interested in greater connectivity between other trails, local parks, and Withlacoochee State Trail.

Katherine Turner Thompson (Citrus County Historical Society) requests that when planning new development, the DRP carefully evaluate potential impacts to cultural resources both in Fort Cooper State Park and along the Withlacoochee State Trail corridor. Ms. Thompson recommends prioritizing management and interpretation of the historic features and archaeological sites that the units offer. She states that the Citrus County Historical Society is able to offer guidance on the history of these cultural resources. Additionally, Ms. Thompson inquired about the status of the Floral City Rest Stop and whether the existing amenities at this location will be kept.

Susan Straley (Withlacoochee Riders) commented that the rural character and well-managed natural communities along the Withlacoochee State Trail corridor should be preserved. She notes the scenic attraction of the rural and natural features. Ms. Straley supports new development that will increase trail users' experiences in scenic settings, such as Whispering Pines Municipal Park. She countered that the proposed new entrance to Fort Cooper State Park will create an additional interruption in the trail's scenic corridor and poses a traffic hazard. Ms. Straley inquired whether the existing park entrance road, which the new entrance proposes to replace, will be demolished and restored to natural community. She noted that restoring the north section of park road is significant to avoid bisecting the park. Ms. Straley recommends considering alternatives to the new entrance and inquired about the level of need. She additionally noted that many trail users do not prioritize the proposed Kabrich Trailhead. She stated that she favors a Floral City Trailhead. Ms. Straley supports upgrades to the Owensboro Trailhead, closure of the Trilby Trailhead, and future connection to the Van Fleet Trail. Additionally, she supports the use of donation boxes and more interpretive programming on wildlife.

James Crink (Friends of Fort Cooper State Park) commented that a campground at Fort Cooper State Park should anticipate the preferences of multiple user groups, including tent campers arriving by bicycle, pop-up campers and other compact trailers, and RVs. Mr. Crink recommends designing the campground to maintain natural vegetation but also include adequate capacity for large vehicles to navigate and also exit the park safely without requiring U-turns on U.S. Highway 41. He agrees that reducing traffic on Old Floral City Road by relocating the park entrance would benefit the adjacent neighborhood. Mr. Crink discussed the value of Lake Holathlikaha and supports the proposed observation deck, but suggests prioritizing restoration of the lake - given its eutrophic characteristics which have resulted from

Fort Cooper State Park Advisory Group Members and Report

nonpoint sources of pollution. Mr. Crink stated that the lake bottom is presently not well-suited for swimming due to algae. He recommends adding lake restoration to the park's resource management plan in order to keep it as a recreational asset of the park and region.

Dennis Reiland (Rails to Trails of the Withlacoochee) supports the draft plans for both Fort Cooper State Park and the Withlacoochee State Trail, but offered recommendations for re-prioritizing new development and trail maintenance. Mr. Reiland stated that many trail users are not in favor of additional traffic crossings/stop signs on the Withlacoochee State Trail. He explained that traffic crossings impede the fast-paced ridership of the trail and are hazardous. For this reason, Mr. Reiland explained that he does not support development of a new park entrance at U.S. Highway 41 and encouraged that the park create an entrance on Fort Cooper Road. Mr. Reiland commends the increased popularity of the trail, but cautions that its carrying capacity is being met or exceeded – such that the trail needs to be widened and additional amenities need to be constructed. Mr. Reiland stated that he does not support the development of a new trailhead at Kabrich, but does support improving the existing Floral City Rest Stop and Parking Area to meet the needs of a new trailhead. He recognizes the need to collaborate with Citrus County Government for this project and identified recent and proposed improvements made by Citrus County that will enhance Floral City's suitability for a trailhead. He supports connecting the trail to Whispering Pines Municipal Park. He supports acquisition of an adjacent developed parcel at the corner of U.S. Highway 41 and Fort Cooper Road. Alternatively, Mr. Reiland recommends use of the Fort Cooper shop area on the south end of the park. Mr. Reiland commented that these sites would be suitable for storage, maintenance, and volunteer staging. Mr. Reiland encourages repavement of the entire Withlacoochee State Trail to improve safety and the quality of the riding and walking experience. He offers volunteer support from the citizen support organization to continue repairing the trail as needed in the interim. Mr. Reiland additionally commented that use agreements and easements have resulted in high volumes of vehicle traffic on the trail, which also reduce the safety of the trail for users and causes undue damage to the asphalt. He notes that the previous management plan includes language to more effectively address vehicle intrusions.

Lita Hart (Florida Forest Service) supports the land use planning and resource management proposed in the draft plans for both Fort Cooper State Park and the Withlacoochee State Trail. Ms. Hart commented that a campground in the park will generate significant recreational interest in the community and attract visitors more widely. She noted the frequency of inquiries received at the Withlacoochee State Forest Visitor Center about camping opportunities in the area, especially with direct access to the Withlacoochee State Trail. Ms. Hart agrees with closing the Trilby

Fort Cooper State Park Advisory Group Members and Report

Trailhead and inquired about plans for the volunteer campsite at Ridge Manor. She stated that the DRP can partner with the Florida Forest Service for development and management of this site. She recommends restricting vehicle access to the Withlacoochee State Trail from Ridge Manor, as she is aware of unauthorized driving on this section. Ms. Hart encourages future connections to the Good Neighbor and Coast to Coast Trails.

Ed Caum (Pasco County Office of Tourism) stated that he is in agreement with the proposals of both plans. Mr. Caum encourages development of wayfinding standards for the Withlacoochee State Trail and stated the significance of wayfinding for enhancing the trail user experience and broadening the scope of recreational opportunity in the region. Likewise, he stated that constructing connector trails to adjacent parks and downtown areas would boost regional economics. Mr. Caum supports development of the Owensboro Trailhead as an alternative to the Trilby Trailhead. Mr. Caum introduced Allen Howell, the Pasco County Metropolitan Planning Organization bicycle/pedestrian planner. Mr. Howell discussed potential connections of Pasco and Hernando County trails to the Withlacoochee State Trail.

Kimberly Poppke (Hernando County Tourism) agrees with the proposed improvements and new developments of draft plans for both Fort Cooper State Park and the Withlacoochee State Trail. She encourages enhanced wayfinding and use of digital applications or social media to exchange updated information about recreational opportunities along the trail. She noted that tourism in the region is growing and the plans for both the park and trail propose improvements that will allow the units to keep up with increased visitor volume.

Adam Thomas (Citrus County Visitors and Convention Bureau) attended the advisory group meeting but did not comment on the draft plans for Fort Cooper State Park or the Withlacoochee State Trail.

Summary of Written Comments

Mike Wisenbaker (Division of Historical Resources, Bureau of Archaeological Research) provided written comments to address cultural resource management at both Fort Cooper State Park and the Withlacoochee State Trail. Mr. Wisenbaker's comments commended the DRP's stewardship and interpretation of the archaeological and historic resources at Fort Cooper State Park. He noted that the draft plan for Fort Cooper State Park refers to six archaeological sites, whereas DHR records list only three archaeological sites and one resource group for the park; explaining that the Ole Military Wagon Trail falls under the site file category of *resource group*. Additionally, Mr. Wisenbaker noted that the site file forms for the

Fort Cooper State Park Advisory Group Members and Report

Lake Holathlikaha Foundation (CI1374) and the Fort Cooper Phosphate Pit (CI1373) have not been submitted to DHR. Mr. Wisenbaker shared with staff, the Fryman Report – a detailed account of archaeological survey work completed at the Fort Cooper site. Mr. Wisenbaker also offered comments on the draft plan for the Withlacoochee State Trail, noting that the DRP has diligently identified and managed the resources along this corridor. He shared detailed notes on the Florida Master Site Files for the trail's resources to resolve a discrepancy in the draft plan. Mr. Wisenbaker additionally recommends citing Archaeology Resources Managed Training (ARM) in the plan to train staff on cultural resource management.

Public Comments

Steve Diez commented that trail maps and smartphone applications should be developed to improve wayfinding along the Withlacoochee State Trail and associate specific locations with GPS waypoints for user safety and general quality of experience. Mr. Diez notes that many of the proposed trail maintenance and development projects recommended are eligible for federal Transportation Alternatives funds, ranging from trail repaving to exotic-invasive species control.

Harry van den Berg discussed the need for Manual on Uniform Traffic Control Devices (MUTCD) compliance in the draft plan for the Withlacoochee State Trail. He noted that most of the trail's crossings do not comply with these standards. Mr. van den Berg recommends removing stop signs from the trail and promoting yielding or stopping of automobile traffic. He commented that vehicular traffic on the trail has been gradually increasing and encourages the DRP to evaluate criteria for allowable uses of the trail by utility companies or maintenance crews. He notes the damage caused to the trail pavement by unauthorized vehicular traffic. Mr. Van den Berg cautioned that degraded asphalt and the presence of vehicles on the trail pose safety hazards for cyclists and pedestrians.

Fort Cooper State Park Advisory Group Members and Report

Staff Recommendations

The staff recommends approval of the proposed management plans for Fort Cooper State Park and Withlacoochee State Trail as presented, with the following significant changes and management actions:

Withlacoochee State Trail Management Plan

- The DRP will continue to work with Citrus, Hernando, and Pasco counties and the City of Inverness to repave the trail and plan for trail connections to adjacent recreational assets.
- Language will be added to the plan to further describe opportunities for connectivity to recreational resources within the vicinity, including linking the Withlacoochee State Trail to Whispering Pines Municipal Park.
- The DRP will conduct assessment of trail conditions to identify and prioritize maintenance needs and associated costs. The DRP will further explore local, state, and federal funding opportunities for repaving and repair of the Withlacoochee State Trail.
- Language will be added to the unit management plan for the Withlacoochee State Trail to plan for design of safe and MUTCD-compliant trail crossings at road and driveway intersections. The initial phase of the assessment may be included in the maintenance needs assessment mentioned above.
- Language will be revised in the 2015 draft plan that addresses vehicle intrusions to appropriately match language in the 2003 approved unit management plan for the Withlacoochee State Trail.
- The DRP will revise its description of cultural resources in the plans for both Fort Cooper State Park and the Withlacoochee State Trail according to comments provided by DHR.
- Language will be added to reference ARM training for DRP staff in the cultural resource management section of the Resource Management Component for the Withlacoochee State Trail.
- Despite past efforts, DRP was unable to acquire land for trailhead parking in Floral City. The DRP encourages efforts by Citrus County to develop parking in Floral City that would support public access to the trail.

Fort Cooper State Park Advisory Group Members and Report

Fort Cooper State Park Management Plan

- The DRP has received recommendations from members of the public and advisory group to align the proposed new park entrance with the intersection of U.S. Highway 41 and Airport Road. The proposed new park entrance cannot be aligned with Airport Road because of the additional length of the park road that would require and the resulting disturbance of the protected sand hill natural community. Alignment of the proposed entrance will be planned to prioritize safe traffic access and egress and to minimize inconvenience on the Withlacoochee State Trail.
- DRP staff reviewed and revised the scale and location of the proposed 30-site standard camping area (see attached Conceptual Land Use Plan). Additional area is now included in the proposed development area, incorporating a portion of the park road and the ranger station, both of which can be incorporated into the camping area design. These changes will enhance the quality of the development and reduce the impact on natural areas of the park.

Additional revisions were made throughout the document to address editorial corrections, consistency of spellings and notations, and other minor corrections.

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. DRP’s intent in making these appointments is to create a group

**Fort Cooper State Park
Advisory Group Members and Report**

that represents a balanced cross-section of the park's stakeholders. Decisions on appointments are made on a case-by-case basis by DRP staff.

Addendum 3—References Cited

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Addendum 4 – Soil Descriptions

Fort Cooper State Park Soil Descriptions

(2) Adamsville fine sand – This soil is nearly level and somewhat poorly drained. It is on low ridges in the coastal swamps and on the flatwoods and is at the base of the lower slopes on the uplands. This soil is in a transitional position in the drainage pattern. It gradually releases water to more poorly drained soil in natural drainage paths, swamps, ponds, and marshes. The mapped areas are irregular in shape or somewhat circular and range from about five to 150 acres. The slopes are two percent or less.

Typically, the surface layer is dark grayish brown fine sand about seven inches thick. The underlying material to a depth of 80 inches is light yellowish brown and very pale brown fine sand.

Included with this soil in mapping are areas of Basinger, Myakka, Pompano, and Tavares soils. Also included are small areas of soils that are similar to Adamsville soil and have limestone boulders or bedrock in the profile. The included soils make up less than 20 percent of the map unit.

The water table is between depths of 20 and 40 inches for two to six months. It may rise to a depth of less than 20 inches for two weeks during very wet weather. During dry seasons, the water table generally recedes to a depth of more than 40 inches. Internal drainage is slow. Permeability is rapid. The available water capacity is very low. Reaction ranges from very strongly acid to mildly alkaline. Natural fertility is low.

(3) Candler fine sand, 0 to 5 percent slopes – This soil is nearly level to gently sloping and excessively drained. It is on uneven side slopes and convex ridgetops on the uplands. Mapped areas range from four to about 2,000 acres.

Typically, the surface layer is dark grayish brown fine sand about four inches thick. The subsurface layer, to a depth of 72 inches, is very pale brown or light yellowish brown fine sand. The next layer to a depth of 80 inches or more is very pale brown fine sand that has yellowish brown loamy fine sand lamellae.

Included with this soil in mapping are areas of Adamsville, Apopka, Arredondo, Astatula, Lake and Tavares soils. The included soils make up less than 20 percent of the map unit.

The water table is more than 80 inches below the surface throughout the year. Permeability is rapid. The available water capacity is very low or low. The soil is very droughty during periods of low rainfall. If the surface is protected by a vegetative cover, rain is rapidly absorbed and runoff is slow. If the vegetative cover is weakened or disturbed, wind and water erosion is a hazard on the more sloping areas. Natural fertility is low or very low.

(5) Basinger fine sand – This soil is nearly level and poorly drained. It is in poorly defined drainage ways and sloughs throughout the county. The mapped areas are irregular in shape, following the local drainage patterns. These areas range from five to about 100 acres. The slopes are less than two percent. Typically, the surface layer is black fine sand to three inches. The subsurface

Fort Cooper State Park Soil Descriptions

layer, to a depth of eight inches, is light gray fine sand. The next layer, to a depth of 24 inches, is a mixture of light brownish gray subsurface material and dark reddish brown and dark brown subsoil material. The substratum to a depth of 80 inches or more is light gray and white fine sand.

Included with this soil in mapping are small areas of Eau Gallie, Immokalee, Myakka, and Pompano soils. Also included are small areas of soils that are similar to Basinger soil but have limestone bedrock at a depth of 65 inches or more. These similar soils mainly are in the coastal and extreme eastern parts of the county. The included soils makeup about 25 percent of the map unit.

The water table is at a depth of less than 10 inches for two to six months. During dry seasons, it recedes to a depth of 30 inches or more. Internal drainage is slow. Permeability is rapid. The available water capacity is low. Reaction ranges from extremely acid to neutral. Natural fertility is low.

(6) Basinger fine sand, depressional – This soil is nearly level and poorly drained. It is in depressions and is adjacent to some bodies of water. The mapped areas are irregular in shape, long and narrow, or nearly circular and range from three to 50 acres. The slopes are less than two percent.

Typically, the surface layer is black fine sand five inches thick. The subsurface layer, to a depth of 24 inches, is light gray fine sand. The next layer, to a depth of 36 inches, is a mixture of gray subsurface material and dark brown and light brown subsoil material. The substratum, to a depth of 80 inches, is light gray sand.

Included with this soil in mapping are small areas of Adamsville, Eau Gallie, Immokalee, Myakka, and Tavares soils. Also included are a few small areas of soils that are similar to Basinger soil but have scattered limestone boulders at a depth of 60 inches or more and also a few depressional areas of soils on the upland ridges that are ponded about once in six years. The included soils make up less than 20 percent of the map unit.

This soil is ponded for a period of three to nine months. In slightly elevated positions around the margins of the ponded areas, the water table is within 10 inches of the surface, and these areas are ponded in years of heavy rainfall. In dry periods, the water table recedes to a depth of 10 inches or more. Permeability is very rapid. The available water capacity is low. Reaction ranges from extremely acid to mildly alkaline. Natural fertility is low.

(9) Pompano fine sand – This soil is nearly level and poorly drained. It is adjacent to poorly defined drainage-ways and in broad, flat, low areas countywide. Mapped areas are irregular in shape, long and narrow, or nearly circular, ranging from five to 200 acres. Slopes are less than two percent.

Typically, the surface layer is black fine sand about five inches thick. Underlying material, to a depth of 80 inches, is light brownish gray and light gray fine sand.

Fort Cooper State Park Soil Descriptions

Small areas of Adamsville and Basinger soils are included in maps of this area. Also included are soils similar to Pompano soil but having an organic layer two to six inches thick; soils having a surface layer more than 20 inches thick; and soils having a sandy loam subsoil layer at a depth of more than 40 inches. The included soils make up less than 20 percent of the map unit.

The water table is within 10 inches of the surface layer for two to six months. It is more than 30 inches below the surface during extended dry periods. This soil has slow internal drainage. Permeability is rapid, and runoff is slow. The available water capacity is very low. Reaction ranges from very strongly acid to mildly alkaline. Natural fertility is low.

(10) Pompano fine sand, depressional – This soil is nearly level and poorly drained. It is in depressions on the flatwoods and in the river valley lowland parts of the county. The mapped areas are irregular in shape or somewhat circular and range from about five to 150 acres. The slopes are two percent or less.

Typically, the surface layer is a dark gray fine sand about nine inches thick. The underlying material to a depth of 80 inches or more is light brownish gray, gray, and light gray fine sand.

Included with this soil in mapping are small areas of Adamsville, Basinger, Eau Gallie, Kanapaha, and Tavares soils. The included soils make up less than 20 percent of the map unit.

This soil is ponded for three to nine months. In slightly elevated positions around the margins of the ponded areas, the water table is within 10 inches of the surface, and these areas are ponded in years of heavy rainfall. The water table is rarely at a depth of more than 10 inches. Permeability is rapid. The available water capacity is very low. Reaction ranges from very strongly acid to mildly alkaline. Natural fertility is low or very low.

(11) Tavares fine sand, 0 to 5 percent slopes – This soil is nearly level to gently sloping and moderately well drained. It is on knolls and ridges throughout the county and on lower ridges on the uplands. The mapped areas are long and narrow or somewhat circular and range from about five to 200 acres. The slopes are five percent or less.

Typically, this soil is fine sand throughout. The surface layer is dark grayish brown about three inches thick. The upper part of underlying material, to a depth of 63 inches, is very pale brown. The lower part to a depth of 80 inches is white. The water table is between depths of 40 and 72 inches for up to six months. Permeability is rapid or very rapid. The available water capacity is very low. The soil becomes droughty during periods of low rainfall. Reaction ranges from extremely acid to medium acid in the surface layer and from very strongly acid to medium acid in the other layers. Natural fertility is low.

Fort Cooper State Park Soil Descriptions

(14) Lake fine sand, 0 to 5 percent slopes – This soil is nearly level to gently sloping and excessively drained. It is on the upland ridges. Typically, the surface layer is dark brown fine sand about seven inches thick. The underlying material to a depth of 80 inches or more is yellowish brown and brownish yellow fine sand.

The water table is more than 80 inches below the surface throughout the year. Internal drainage is rapid. The available water capacity is low or very low. Reaction is very strongly acid or strong acid except where lime has been applied. Natural fertility is low.

(17) Arredondo fine sand, 5 to 8 percent slopes – This soil is moderately sloping and well drained. It is on the side slopes of the upland ridges. The mapped areas are irregular in shape and are generally less than 50 acres.

Typically, the surface layer is very dark gray fine sand three inches thick. The subsurface layer, to a depth of 54 inches, is light yellowish brown, brownish yellow, and very pale brown fine sand. The upper part of the subsoil, to a depth of 57 inches, is strong brown loamy fine sand.

The water table is more than 72 inches below the surface throughout the year. In a few areas, a perched water table is on the top of the subsoil for less than two days following intense rains. Rain is rapidly absorbed if the surface layer is protected by vegetation. A moderate erosion hazard exists on unprotected areas as a result of runoff during heavy rains. Permeability is rapid in the sandy layers and moderate in the loamy layers. The soil is droughty during periods of low rainfall. Reaction ranges from very strongly acid to medium acid except where lime has been applied. Natural fertility is moderate to low.

(35) Sparr fine sand, 0 to 5 percent slopes – This soil is nearly level to gently sloping and somewhat poorly drained. It is in seasonally wet areas on the upland ridges, at the base of some sloping areas, and near some poorly drained areas. The slopes are smooth and slightly concave.

Typically, the surface layer is grayish brown fine sand eight inches thick. The subsurface layer, to a depth of 50 inches, is brown, pale brown, and very pale brown fine sand. The upper part of the subsoil, to a depth of 59 inches, is light yellowish brown fine sandy loam. The middle part, to a depth of 70 inches, is light yellowish brown sandy clay loam. The lower part to a depth of 80 inches is light brownish gray sandy clay loam. Mottles of brown, red, yellow, and gray occur from a depth of about 20 to 80 inches.

The water table is at a depth of 2.5 to 3.5 feet for periods of one to four months. Permeability is rapid in the sandy surface and subsurface layers and slow in the subsoil. Runoff is slow. The available water capacity is low to moderate. Natural fertility is low.

(49) Tierra Ceia-Okeelanta association, frequently flooded – This association consists of nearly level, very poorly drained, organic soils. These soils are along the edges of freshwater river and lakes. Tierra Ceia soil is

Fort Cooper State Park Soil Descriptions

adjacent to open water and are bounded on the inland side by Okeelanta soil. Okeelanta soil is adjacent to the upland areas.

Typically, Terra Ceia soil has a surface layer of black muck about 10 inches thick. Below that layer, black and dark reddish brown muck extends to a depth of 80 inches or more. Typically, Okeelanta soil has a surface layer of black muck about 10 inches thick. Below that layer, dark brown muck extends to a depth of about 27 inches. The underlying material to depth of 65 inches is light gray fine sand.

During low tide, the soils in this association are covered by shallow water from the adjacent freshwater rivers. The floodwaters are not saline as they come from the freshwater streams and rivers. Floodwaters are generally two to three feet above the surface at high tide. The flooding recedes as the tide recedes and allows discharge of the river. Flooding fluctuates daily.

Addendum 5—Plant and Animal List

Fort Cooper State Park

Plants

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

Spleenwort	<i>Asplenium</i> sp.	
Ebony spleenwort	<i>Asplenium platyneuron</i>	
Japanese climbing fern	<i>Lygodium japonicum</i> *	
Widespread polypody	<i>Pecluma dispersa</i>	
Comb polypody	<i>Pecluma ptilodon</i> var. <i>bourgeauana</i>	
Resurrection fern.....	<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>	
Whisk-fern.....	<i>Psilotum nudum</i>	
Tailed bracken.....	<i>Pteridium aquilinum</i> var. <i>pseudocaudatum</i>	
Chinese ladder brake	<i>Pteris vittata</i> *	
Ovate marsh fern	<i>Thelypteris ovata</i>	
Netted chain fern.....	<i>Woodwardia areolata</i>	

GYMNOSPERMS

Red cedar	<i>Juniperus virginiana</i>	
Sand pine	<i>Pinus clausa</i>	
Slash pine	<i>Pinus elliotii</i>	
Longleaf pine	<i>Pinus palustris</i>	
Florida arrowroot; Coontie	<i>Zamia pumila</i>	

ANGIOSPERMS

MONOCOTS

Florida bluestem.....	<i>Andropogon floridanus</i>	
Bushy bluestem.....	<i>Andropogon glomeratus</i> var. <i>hirsutior</i>	
Bushy bluestem.....	<i>Andropogon glomeratus</i> var. <i>pumilus</i>	
Splitbeard bluestem	<i>Andropogon ternarius</i>	
Broomsedge bluestem	<i>Andropogon virginicus</i>	
Nodding nixie	<i>Apteria aphylla</i>	
Woollysheath threeawn	<i>Aristida lanosa</i>	
Arrowfeather threeawn.....	<i>Aristida purpurascens</i>	
Wiregrass	<i>Aristida stricta</i> var. <i>beyrichiana</i>	
Big carpetgrass	<i>Axonopus furcatus</i>	
Australian beardgrass.....	<i>Bothriochloa bladhii</i> *	
King ranch bluestem	<i>Bothriochloa ischaemum</i> var. <i>songarica</i>	
Watergrass	<i>Bulbostylis barbata</i> *	
Capillary hairsedge	<i>Bulbostylis ciliatifolia</i>	
Ware's hairsedge	<i>Bulbostylis warei</i>	
Pindo palm; Jelly palm	<i>Butia capitata</i> *	
Florida scrub roseling	<i>Callisia ornata</i>	

* Non-native species

**Fort Cooper State Park
Plants**

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Coastal sandbur	<i>Cenchrus spinifex</i>	
Longleaf woodoats	<i>Chasmanthium laxum</i> var. <i>sessiliflorum</i>	
Jamaica swamp sawgrass	<i>Cladium jamaicense</i>	
Whitemouth dayflower	<i>Commelina erecta</i>	
Wiry flatsedge	<i>Cyperus filiculmis</i>	
Fragrant flatsedge	<i>Cyperus odoratus</i>	
Variable witchgrass	<i>Dichantherium commutatum</i>	
Cypress witchgrass	<i>Dichantherium dichotomum</i>	
Cypress witchgrass	<i>Dichantherium ensifolium</i>	
Eggleaf witchgrass	<i>Dichantherium ovale</i>	
Hemlock witchgrass	<i>Dichantherium portoricense</i>	
Southern crabgrass.....	<i>Digitaria ciliaris</i>	
Slender crabgrass	<i>Digitaria filiformis</i>	
Air-potato.....	<i>Dioscorea bulbifera</i> *	
Spikerush	<i>Eleocharis</i> sp.	
Green-fly orchid	<i>Epidendrum conopseum</i>	
Elliott's lovegrass.....	<i>Eragrostis elliotii</i>	
Centipedegrass	<i>Eremochloa ophiuroides</i> *	
Pinewoods fingergrass	<i>Eustachys petraea</i>	
Slender fimbry	<i>Fimbristylis autumnalis</i>	
Southern umbrellasedge	<i>Fuirena scirpoidea</i>	
Bearded skeletongrass	<i>Gymnopogon ambiguus</i>	
Toothpetal false reinorchid	<i>Habenaria floribunda</i>	
Sweet tanglehead	<i>Heteropogon melanocarpus</i> *	
Cogongrass.....	<i>Imperata cylindrica</i> *	
Carolina redroot	<i>Lachnanthes carolina</i>	
Southern cutgrass	<i>Leersia hexandra</i>	
Smallflower halfchaff sedge.....	<i>Lipocarpa micrantha</i>	
Hairawn muhly.....	<i>Muhlenbergia capillaris</i>	
Southern waternymph	<i>Najas guadalupensis</i>	
Basketgrass	<i>Oplismenus</i> sp.	
Woodsgrass; Basketgrass	<i>Oplismenus hirtellus</i>	
Cuban bulrush.....	<i>Oxycaryum cubense</i> *	
Beaked panicum	<i>Panicum anceps</i>	
Maidencane	<i>Panicum hemitomon</i>	
Switchgrass	<i>Panicum virgatum</i>	
Egyptian paspalidium	<i>Paspalidium geminatum</i>	
Blue crowngrass	<i>Paspalum caespitosum</i>	
Bahiagrass.....	<i>Paspalum notatum</i> *	
Bahiagrass.....	<i>Paspalum notatum</i> var. <i>saurae</i> *	
Thin paspalum	<i>Paspalum setaceum</i>	
Seashore paspalum.....	<i>Paspalum vaginatum</i>	
Florida needlegrass	<i>Piptochaetium avenacioides</i>	
Pickerelweed.....	<i>Pontederia cordata</i>	
Illinois pondweed.....	<i>Potamogeton illinoensis</i>	

* Non-native species

Fort Cooper State Park

Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Bunched beaksedge	<i>Rhynchospora cephalantha</i>	
Starrush whitetop	<i>Rhynchospora colorata</i>	
Giant whitetop	<i>Rhynchospora latifolia</i>	
Sandyfield beaksedge.....	<i>Rhynchospora megalocarpa</i>	
Longbeak beaksdege.....	<i>Rhynchospora scirpoides</i>	
Cabbage palm	<i>Sabal palmetto</i>	
American cupscale	<i>Sacciolepis striata</i>	
Bulltongue arrowhead	<i>Sagittaria lancifolia</i>	
Broadleaf arrowhead	<i>Sagittaria latifolia</i>	
Little bluestem	<i>Schizachyrium scoparium</i>	
Florida feathershank	<i>Schoenocaulon dubium</i>	
Softstem bulrush.....	<i>Schoenoplectus tabernaemontani</i>	
Fringed nutrush.....	<i>Scleria ciliata</i>	
Tall nutgrass.....	<i>Scleria triglomerata</i>	
Saw palmetto.....	<i>Serenoa repens</i>	
Yellow bristlegrass	<i>Setaria parviflora</i>	
Earleaf greenbrier	<i>Smilax auriculata</i>	
Sarsaparilla vine.....	<i>Smilax pumila</i>	
Yellow indiagrass	<i>Sorghastrum nutans</i>	
Lopsided indiagrass.....	<i>Sorghastrum secundum</i>	
Sand cordgrass	<i>Spartina bakeri</i>	
Marshhay cordgrass	<i>Spartina patens</i>	
Smutgrass.....	<i>Sporobolus indicus</i> *	
West Indian dropseed.....	<i>Sporobolus indicus</i> var. <i>pyramidalis</i> *	
Pineywoods dropseed.....	<i>Sporobolus junceus</i>	
St. Augustinegrass.....	<i>Stenotaphrum secundatum</i>	
Bartram's airplant.....	<i>Tillandsia bartramii</i>	
Ballmoss	<i>Tillandsia recurvata</i>	
Spanish moss.....	<i>Tillandsia usneoides</i>	
Giant air plant.....	<i>Tillandsia utriculata</i>	MEH
Longleaf spiderwort	<i>Tradescantia roseolens</i>	
Tall redtop.....	<i>Tridens flavus</i>	
Threebirds.....	<i>Triphora trianthophoros</i>	MEH
Broadleaf cattail	<i>Typha latifolia</i>	
Spanish bayonet.....	<i>Yucca aloifolia</i>	
Adam's needle.....	<i>Yucca filamentosa</i>	

DICOTS

Red maple	<i>Acer rubrum</i>
Hammock snakeroot	<i>Ageratina jucunda</i>
Silktree; Mimosa	<i>Albizia julibrissin</i> *
Southern amaranth.....	<i>Amaranthus australis</i>
Common ragweed.....	<i>Ambrosia artemisiifolia</i>
Bastard false indigo	<i>Amorpha fruticosa</i>

* Non-native species

Fort Cooper State Park

Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Clusterspike false indigo	<i>Amorpha herbacea</i>	
Peppervine	<i>Ampelopsis arborea</i>	
Devil's walkingstick	<i>Aralia spinosa</i>	
Dutchman's-pipe	<i>Aristolochia</i> sp.	
Florida indian plantain	<i>Arnoglossum floridanum</i>	
Florida milkweed	<i>Asclepias feayi</i>	
Pinewoods milkweed	<i>Asclepias humistrata</i>	
Velvetleaf milkweed	<i>Asclepias tomentosa</i>	
Butterflyweed	<i>Asclepias tuberosa</i>	
Whorled milkweed	<i>Asclepias verticillata</i>	
Slimleaf pawpaw	<i>Asimina angustifolia</i>	
Bigflower pawpaw	<i>Asimina obovata</i>	
Smallflower pawpaw	<i>Asimina parviflora</i>	
Dwarf pawpaw	<i>Asimina pygmaea</i>	
Netted pawpaw	<i>Asimina reticulata</i>	
Bearded milkvetch	<i>Astragalus villosus</i>	
Smooth yellow false foxglove ...	<i>Aureolaria flava</i>	
Silverling	<i>Baccharis glomeruliflora</i>	
Groundsel tree; Sea-myrtle.....	<i>Baccharis halimifolia</i>	
Blue waterhyssop	<i>Bacopa caroliniana</i>	
Herb-of-grace	<i>Bacopa monnieri</i>	
Coastalplain honeycombhead ...	<i>Balduina angustifolia</i>	
Pineland wild indigo	<i>Baptisia lecontei</i>	
Florida greeneyes	<i>Berlandiera subacaulis</i>	
Beggarticks; Romerillo	<i>Bidens alba</i>	
Burrmarigold.....	<i>Bidens laevis</i>	
False nettle; Bog hemp.....	<i>Boehmeria cylindrica</i>	
Red Spiderling; Wineflower	<i>Boerhavia diffusa</i>	
American beautyberry	<i>Callicarpa americana</i>	
Hedge false bindweed	<i>Calystegia sepium</i> subsp. <i>limnophila</i>	
Trumpet creeper.....	<i>Campsis radicans</i>	
Coastalplain chaffhead.....	<i>Carphephorus corymbosus</i>	
Vanillaleaf	<i>Carphephorus odoratissimus</i>	
Pineland purple	<i>Carphephorus odoratissimus</i> var. <i>subtropicanus</i>	
American hornbeam	<i>Carpinus caroliniana</i>	
Pignut hickory	<i>Carya glabra</i>	
Madagascar periwinkle	<i>Catharanthus roseus</i> *	
New Jersey tea.....	<i>Ceanothus americanus</i>	
Littleleaf buckbrush.....	<i>Ceanothus microphyllus</i>	
Sugarberry; Hackberry	<i>Celtis laevigata</i>	
Spadeleaf	<i>Centella asiatica</i>	
Spurred butterfly pea	<i>Centrosema virginianum</i>	
Common buttonbush.....	<i>Cephalanthus occidentalis</i>	
Partridge pea	<i>Chamaecrista fasciculata</i>	
Pillpod sandmat	<i>Chamaesyce hirta</i>	

* Non-native species

**Fort Cooper State Park
Plants**

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Hyssopleaf sandmat	<i>Chamaesyce hyssopifolia</i>	
White fringetree	<i>Chionanthus virginicus</i>	
Camphortree.....	<i>Cinnamomum camphora</i> *	
Purple thistle.....	<i>Cirsium horridulum</i>	
Nuttall's thistle	<i>Cirsium nuttallii</i>	
Sour orange.....	<i>Citrus x aurantium</i> *	
Lemon	<i>Citrus x limon</i> *	
Netleaf leather-flower.....	<i>Clematis reticulata</i>	
Turk's-turban	<i>Clerodendrum indicum</i> *	
Atlantic pigeonwings	<i>Clitoria mariana</i>	
Tread-softly	<i>Cnidocolus stimulosus</i>	
Flowering dogwood	<i>Cornus florida</i>	
Lanceleaf rattlebox	<i>Crotalaria lanceolata</i> *	
Smooth rattlebox	<i>Crotalaria pallida var. obovata</i> *	
Rabbitbells.....	<i>Crotalaria rotundifolia</i>	
Showy rattlebox	<i>Crotalaria spectabilis</i> *	
Silver croton	<i>Croton argyranthemus</i>	
Rushfoil.....	<i>Croton michauxii</i>	
Marsh parsley	<i>Cyclosporum leptophyllum</i>	
Leafless swallowwort	<i>Cynanchum scoparium</i>	
Summer farewell	<i>Dalea pinnata</i>	
Western tansymustard	<i>Descurainia pinnata</i>	
Zarabacoa comun	<i>Desmodium incanum</i>	
Carolina ponyfoot	<i>Dichondra carolinensis</i>	
Poor Joe.....	<i>Diodia teres</i>	
Virginia buttonweed	<i>Diodia virginiana</i>	
Common persimmon	<i>Diospyros virginiana</i>	
Oblongleaf twinflower.....	<i>Dyschoriste oblongifolia</i>	
Tall elephantsfoot	<i>Elephantopus elatus</i>	
Oakleaf fleabane.....	<i>Erigeron quercifolius</i>	
Prairie fleabane	<i>Erigeron strigosus</i>	
Dogtongue wild buckwheat	<i>Eriogonum tomentosum</i>	
Baldwin's eryngo	<i>Eryngium baldwinii</i>	
Coralbean; Cherokee bean	<i>Erythrina herbacea</i>	
Dogfennel.....	<i>Eupatorium capillifolium</i>	
Yankeeweed	<i>Eupatorium compositifolium</i>	
Roundleaf thoroughwort	<i>Eupatorium rotundifolium</i>	
Lateflowering thoroughwort.....	<i>Eupatorium serotinum</i>	
Cottonweed	<i>Froelichia floridana</i>	
Elliott's milkpea	<i>Galactia elliotii</i>	
Soft milkpea	<i>Galactia mollis</i>	
Eastern milkpea	<i>Galactia volubilis</i>	
Bedstraw	<i>Galium sp.</i>	
Caribbean purple everlasting	<i>Gamochaeta antillana</i>	

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Fort Cooper State Park

Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Pennsylvania everlasting.....	<i>Gamochaeta pensylvanica</i>	
Garberia.....	<i>Garberia heterophylla</i>	SH
Southern beeblossom.....	<i>Gaura angustifolia</i>	
Yellow jessamine.....	<i>Gelsemium sempervirens</i>	
Carolina cranesbill.....	<i>Geranium carolinianum</i>	
Prostrate globe amaranth.....	<i>Gomphrena serrata</i> *	
Spanish daisy.....	<i>Helenium amarum</i>	
Pinebarren frostweed.....	<i>Helianthemum corymbosum</i>	
Florida scrub frostweed.....	<i>Helianthemum nashii</i>	
Camphorweed.....	<i>Heterotheca subaxillaris</i>	
Coastalplain hawkweed.....	<i>Hieracium megacephalon</i>	
Bluet.....	<i>Houstonia</i> sp.	
Innocence; Roundleaf bluet.....	<i>Houstonia procumbens</i>	
Manyflower marshpennywort....	<i>Hydrocotyle umbellata</i>	
St. Andrew's-cross.....	<i>Hypericum hypericoides</i>	
Tropical bushmint.....	<i>Hyptis mutabilis</i> *	
Carolina holly; Sand holly.....	<i>Ilex ambigua</i>	
Dahoon.....	<i>Ilex cassine</i>	
American holly.....	<i>Ilex opaca</i>	
Yaupon.....	<i>Ilex vomitoria</i>	
Carolina indigo.....	<i>Indigofera caroliniana</i>	
Man-of-the-earth.....	<i>Ipomoea pandurata</i>	
Cypressvine.....	<i>Ipomoea quamoclit</i> *	
Piedmont marshelder.....	<i>Iva microcephala</i>	
Sandspur.....	<i>Krameria lanceolata</i>	
Virginia dwarfdandelion.....	<i>Krigia virginica</i>	
Grassleaf lettuce.....	<i>Lactuca graminifolia</i>	
Lantana; Shrubverbena.....	<i>Lantana camara</i> *	
Virginia pepperweed.....	<i>Lepidium virginicum</i>	
Hairy lespedeza.....	<i>Lespedeza hirta</i>	
Shortleaf gayfeather.....	<i>Liatris tenuifolia</i>	
Shortleaf gayfeather.....	<i>Liatris tenuifolia</i> var. <i>quadriflora</i>	
Gopher apple.....	<i>Licania michauxii</i>	
Canadian toadflax.....	<i>Linaria canadensis</i>	
Florida yellow flax.....	<i>Linum floridanum</i>	
Sweetgum.....	<i>Liquidambar styraciflua</i>	
Narrowleaf gromwell.....	<i>Lithospermum incisum</i>	
Skyblue lupine.....	<i>Lupinus diffusus</i>	
Rose-rush.....	<i>Lygodesmia aphylla</i>	
Rusty staggerbush.....	<i>Lyonia ferruginea</i>	
Wild bushbean.....	<i>Macroptilium lathyroides</i>	
Southern magnolia.....	<i>Magnolia grandiflora</i>	
Sweetbay.....	<i>Magnolia virginiana</i>	
Florida milkvine.....	<i>Matelea floridana</i>	SH
Black medick.....	<i>Medicago lupulina</i> *	

* Non-native species

Fort Cooper State Park

Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Chinaberrytree	<i>Melia azedarach</i> *	
White sweetclover	<i>Melilotus albus</i> *	
Creeping cucumber	<i>Melothria pendula</i>	
Noyau vine	<i>Merremia dissecta</i>	
Florida Keys hempvine	<i>Mikania cordifolia</i>	
Climbing hempvine	<i>Mikania scandens</i>	
Sensitive brier	<i>Mimosa quadrivalvis</i> var. <i>angustata</i>	
Powderpuff	<i>Mimosa strigillosa</i>	
Partridgeberry	<i>Mitchella repens</i>	
Swamp hornpod	<i>Mitreola sessilifolia</i>	
Spotted beebalm	<i>Monarda punctata</i>	
Red mulberry	<i>Morus rubra</i>	
Southern bayberry; Wax myrtle	<i>Myrica cerifera</i>	
Spatterdock; Yellow pondlily	<i>Nuphar advena</i>	
American white waterlily	<i>Nymphaea odorata</i>	
Big floatingheart	<i>Nymphoides aquatica</i>	
Seabeach eveningprimrose	<i>Oenothera humifusa</i>	
False gromwell	<i>Onosmodium virginianum</i>	
Pricklypear	<i>Opuntia humifusa</i>	
Wild olive	<i>Osmanthus americanus</i>	
Common yellow woodsorrel	<i>Oxalis corniculata</i>	
Coastalplain palafox	<i>Palafoxia integrifolia</i>	
Coastalplain nailwort	<i>Paronychia herniarioides</i>	
Pineland nailwort	<i>Paronychia patula</i>	
Rugel's nailwort	<i>Paronychia rugelii</i>	
Virginia creeper	<i>Parthenocissus quinquefolia</i>	
Purple passionflower	<i>Passiflora incarnata</i>	
Buckroot	<i>Pedimelum canescens</i>	
Manyflower beardtongue	<i>Penstemon multiflorus</i>	
Red bay	<i>Persea borbonia</i>	
Silk bay	<i>Persea borbonia</i> var. <i>humilis</i>	
Florida phlox	<i>Phlox floridana</i>	
Florida false sunflower	<i>Phoebanthus grandiflorus</i>	
Oak mistletoe	<i>Phoradendron leucarpum</i>	
Turkey tangle fogfruit	<i>Phyla nodiflora</i>	
Chamber bitter	<i>Phyllanthus urinaria</i> *	
American pokeweed	<i>Phytolacca americana</i>	
Pitted stripeseed	<i>Piriqueta cistoides</i> subsp. <i>caroliniana</i>	
Narrowleaf silkgrass	<i>Pityopsis graminifolia</i>	
Rosy camphorweed	<i>Pluchea baccharis</i>	
Rosy camphorweed	<i>Pluchea rosea</i>	
Showy milkwort	<i>Polygala violacea</i>	
Tall jointweed	<i>Polygonella gracilis</i>	
October flower	<i>Polygonella polygama</i>	
Largeflower jointweed	<i>Polygonella robusta</i>	

* Non-native species

**Fort Cooper State Park
Plants**

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Hairy smartweed	<i>Polygonum hirsutum</i>	
Mild waterpepper	<i>Polygonum hydropiperoides</i>	
American plum	<i>Prunus americana</i>	
Carolina laurelcherry	<i>Prunus caroliniana</i>	
Black cherry.....	<i>Prunus serotina</i>	
Flatwoods plum; Hog plum.....	<i>Prunus umbellata</i>	
Wild coffee	<i>Psychotria nervosa</i>	
Blackroot	<i>Pterocaulon pycnostachyum</i>	
Carolina desertchicory	<i>Pyrrhopappus carolinianus</i>	
Chapman's oak.....	<i>Quercus chapmanii</i>	
Sand live oak	<i>Quercus geminata</i>	
Bluejack oak	<i>Quercus incana</i>	
Turkey oak	<i>Quercus laevis</i>	
Laurel oak; Diamond oak	<i>Quercus laurifolia</i>	
Sand post oak	<i>Quercus margaretta</i>	
Dwarf live oak	<i>Quercus minima</i>	
Myrtle oak	<i>Quercus myrtifolia</i>	
Water oak	<i>Quercus nigra</i>	
Live oak	<i>Quercus virginiana</i>	
Carolina buckthorn.....	<i>Rhamnus caroliniana</i>	
Pale meadowbeauty	<i>Rhexia mariana</i>	
Winged sumac.....	<i>Rhus copallinum</i>	
Michaux's snoutbean	<i>Rhynchosia michauxii</i>	
Dollarleaf.....	<i>Rhynchosia reniformis</i>	
Rough Mexican clover.....	<i>Richardia scabra</i> *	
Southern marsh yellowcress.....	<i>Rorippa teres</i>	
Sand blackberry	<i>Rubus cuneifolius</i>	
Southern dewberry	<i>Rubus trivialis</i>	
Blackeyed Susan	<i>Rudbeckia hirta</i>	
Carolina wild petunia.....	<i>Ruellia caroliniensis</i>	
Rose-of-plymouth	<i>Sabatia stellaris</i>	
Carolina willow	<i>Salix caroliniana</i>	
Azure blue sage.....	<i>Salvia azurea</i>	
Lyreleaf sage	<i>Salvia lyrata</i>	
American elder; Elderberry	<i>Sambucus nigra</i> subsp. <i>canadensis</i>	
Canadian blacksnakeroot	<i>Sanicula canadensis</i>	
Sassafras	<i>Sassafras albidum</i>	
Florida scrub skullcap.....	<i>Scutellaria arenicola</i>	
Maryland wild sensitive plant.....	<i>Senna marilandica</i>	
Coffeeweed; Sicklepod	<i>Senna obtusifolia</i>	
Whitetop aster; Dixie aster	<i>Sericocarpus tortifolius</i>	
Bladderpod	<i>Sesbania vesicaria</i> *	
Common wireweed	<i>Sida ulmifolia</i>	
Florida bully	<i>Sideroxylon reclinatum</i>	
Rufous Florida bully	<i>Sideroxylon rufohirtum</i>	

* Non-native species

**Fort Cooper State Park
Plants**

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Tough bully	<i>Sideroxylon tenax</i>	
Kidneyleaf rosinweed	<i>Silphium compositum</i>	
Chapman's goldenrod	<i>Solidago odora</i> var. <i>chapmanii</i>	
Wand goldenrod	<i>Solidago stricta</i>	
Queensdelight	<i>Stillingia sylvatica</i>	
Coastalplain dawnflower	<i>Stylisma patens</i>	
Scaleleaf aster	<i>Symphyotrichum adnatum</i>	
Climbing aster	<i>Symphyotrichum carolinianum</i>	
Eastern silver aster	<i>Symphyotrichum concolor</i>	
Rice button aster	<i>Symphyotrichum dumosum</i>	
Wood sage	<i>Teucrium canadense</i>	
Eastern poison ivy	<i>Toxicodendron radicans</i>	
Forked bluecurls	<i>Trichostema dichotomum</i>	
Clasping Venus' looking-glass ...	<i>Triodanis perfoliata</i>	
Winged elm	<i>Ulmus alata</i>	
American elm	<i>Ulmus americana</i>	
Eastern purple bladderwort	<i>Utricularia purpurea</i>	
Sparkleberry	<i>Vaccinium arboreum</i>	
Highbush blueberry	<i>Vaccinium corymbosum</i>	
Shiny blueberry	<i>Vaccinium myrsinites</i>	
Deerberry	<i>Vaccinium stamineum</i>	
Tall ironweed	<i>Vernonia angustifolia</i>	
Walter's viburnum	<i>Viburnum obovatum</i>	
Rusty blackhaw	<i>Viburnum rufidulum</i>	
Vetch	<i>Vicia</i> sp.	
Summer grape	<i>Vitis aestivalis</i>	
Muscadine	<i>Vitis rotundifolia</i>	
Calloose grape	<i>Vitis shuttleworthii</i>	
Tallow wood; Hog plum	<i>Ximenia americana</i>	
Hercules-club	<i>Zanthoxylum clava-herculis</i>	
Viperina	<i>Zornia bracteata</i>	

**Fort Cooper State Park
Animals**

Primary Habitat Codes

Common Name

Scientific Name

(for all species)

INVERTEBRATES

Beetles

S-Banded Tiger Beetle *Cincindella trifasciata* SULK

Dragonflies

Halloween Pennant..... *Celithemis eponina*MTC

Butterflies and Skippers

Gulf Fritillary *Agraulis vanillae*MTC

Zebra Swallowtail..... *Eurytides marcellus*MTC

Pipe-vine Swallowtail *Battus philenor*.....MTC

Palamedes Swallowtail..... *Papilio palamedes*.....MTC

Spicebush Swallowtail..... *Papilio troilus*MTC

Cloudless Sulfur *Phoebis sennae*MTC

Soldier..... *Danaus eresimus*.....MTC

FISH

Bowfin *Amia calva*..... SULK

Everglades Pygmy Sunfish..... *Elassoma evergladei* SULK

Bluespotted Sunfish..... *Enneacanthus gloriosus*..... SULK

Lake Chubsucker..... *Erimyzon sucetta*..... SULK

Swamp Darter *Etheostoma fusiforme* SULK

Golden Topminnow..... *Fundulus chrysotus*..... SULK

Lined Topminnow *Fundulus lineolatus*..... SULK

Mosquitofish *Gambusia affinis*..... SULK

Least Killifish *Heterandria formosa* SULK

Flagfish..... *Jordanella floridae* SULK

Warmouth..... *Lepomis gulosus*..... SULK

Bluegill *Lepomis macrochirus* SULK

Dollar Sunfish *Lepomis marginatus*..... SULK

Readear Sunfish..... *Lepomis microlophus* SULK

Bluefin Killifish *Lucania goodei* SULK

Sailfin Molly..... *Poecilia latipinna* SULK

Black Crappie *Pomoxis nigromaculatus* SULK

Fort Cooper State Park

Animals

Primary Habitat Codes

Common Name

Scientific Name

(for all species)

AMPHIBIANS

Frogs and Toads

Southern Cricket Frog.....	<i>Acris gryllus</i>	BM
Oak Toad.....	<i>Anaxyrus quercicus</i>	SH
Southern Toad.....	<i>Anaxyrus terrestris</i>	MTC
Eastern Narrow-mouthed Toad ...	<i>Gastrophryne carolinensis</i>	MTC
Green Treefrog.....	<i>Hyla cinerea</i>	MTC
Barking Treefrog.....	<i>Hyla gratiosa</i>	MEH, SHF
Gopher Frog.....	<i>Lithobates capito</i>	SH
Eastern Spadefoot Toad.....	<i>Scaphiopus holbrookii</i>	MEH, SH
Pig Frog.....	<i>Lithobates grylio</i>	BM, SULK
Southern Leopard Frog.....	<i>Lithobates sphenoccephalus</i>	BM, SULK

Sirens

Eastern Lesser Siren.....	<i>Siren intermedia intermedia</i>	SULK
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REPTILES

Crocodylians

American Alligator.....	<i>Alligator mississippiensis</i>	BM, SULK
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Turtles

Florida Softshell Turtle.....	<i>Apalone ferox</i>	SULK
Gopher Tortoise.....	<i>Gopherus polyphemus</i>	SH
Striped Mud Turtle.....	<i>Kinosternon baurii</i>	SULK
Peninsula Cooter.....	<i>Pseudemys peninsularis</i>	SULK
Eastern Musk Turtle; Stinkpot.....	<i>Sternotherus odoratus</i>	SULK
Yellow-bellied Slider.....	<i>Trachemys scripta scripta</i>	SULK

Lizards

Green Anole.....	<i>Anolis carolinensis</i>	MEH, SHF
Brown Anole.....	<i>Anolis sagrei</i> *.....	MTC
Six-lined Racerunner.....	<i>Aspidoscelis sexlineata</i>	SH
Eastern Glass Lizard.....	<i>Ophisaurus ventralis</i>	MTC
Peninsula Mole Skink.....	<i>Plestiodon egregius onocrepis</i>	SH
Southeastern Five-lined Skink.....	<i>Plestiodon inexpectatus</i>	MEH, SHF
Eastern Fence Lizard.....	<i>Sceloporus undulatus</i>	SH
Ground Skink.....	<i>Scincella lateralis</i>	MEH, SHF

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Fort Cooper State Park

Animals

Primary Habitat Codes

Common Name

Scientific Name

(for all species)

Snakes

Florida Cottonmouth.....	<i>Agkistrodon piscivorus conanti</i>	BM, SULK
Southern Black Racer	<i>Coluber constrictor priapus</i>	MTC
Eastern Coachwhip.....	<i>Coluber flagellum flagellum</i>	SH
East. Diamond-backed Rattlesnake	<i>Crotalus adamanteus</i>	MTC
Eastern Indigo Snake	<i>Drymarchon couperi</i>	MTC
Eastern Mud Snake	<i>Farancia abacura abacura</i>	BM, SULK
Southern Hognose Snake.....	<i>Heterodon simus</i>	SH
Scarlet Kingsnake	<i>Lampropeltis elapsoides</i>	SH
Short-tailed Snake	<i>Lampropeltis extenuatum</i>	SH
Eastern Coral Snake.....	<i>Micrurus fulvius</i>	MTC
Florida Water Snake.....	<i>Nerodia fasciata pictiventris</i>	BM
Rough Green Snake	<i>Opheodrys aestivus</i>	MEH, SHF
Eastern Rat Snake	<i>Pantherophis alleghaniensis</i>	MTC
Eastern Corn Snake	<i>Pantherophis guttatus</i>	MTC
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	SH
Northern Florida Swamp Snake ...	<i>Seminatrix pygaea pygaea</i>	BM
Dusky Pigmy Rattlesnake	<i>Sistrurus miliarius barbouri</i>	MTC
Florida Crowned Snake	<i>Tantilla relicta</i>	SH
Eastern Garter Snake	<i>Thamnophis sirtalis sirtalis</i>	MEH, SHF

BIRDS

Waterfowl

Wood Duck	<i>Aix sponsa</i>	SULK, BM
Mallard.....	<i>Anas platyrhynchos</i>	SULK, BM
Ring-necked Duck.....	<i>Aythya collaris</i>	SULK

Partridges, Grouse, and Turkeys

Ring-necked Pheasant	<i>Phasianus colchicus</i> *	MTC
Wild Turkey	<i>Meleagris gallopavo</i>	SH, MEH

New World Quails

Northern Bobwhite	<i>Colinus virginianus</i>	SH
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Loons

Common Loon	<i>Gavia immer</i>	SULK, OF
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Grebes

Pied-billed Grebe	<i>Podilymbus podiceps</i>	SULK
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Cormorants

Double-crested Cormorant	<i>Phalacrocorax auritus</i>	SULK
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* Non-native species

**Fort Cooper State Park
Animals**

Primary Habitat Codes

Common Name

Scientific Name

(for all species)

Anhingas

Anhinga *Anhinga anhinga* SULK

Frigatebirds

Magnificent Frigatebird *Fregata magnificens* OF

Herons and Egrets

Great Blue Heron *Ardea herodias* BM, SULK

Great Egret *Ardea alba* BM, SULK

Snowy Egret *Egretta thula* BM, SULK

Little Blue Heron *Egretta caerulea* BM, SULK

Tricolored Heron *Egretta tricolor* BM, SULK

Cattle Egret *Bubulcus ibis* BM, OF

Green Heron *Butorides virescens* BM, SULK

Ibises

White Ibis *Eudocimus albus* BM, SULK

Storks

Wood Stork *Mycteria americana* BM, SULK, OF

New World Vultures

Black Vulture *Coragyps atratus* MTC, OF

Turkey Vulture *Cathartes aura* MTC, OF

Hawks, Eagles, and Kites

Osprey *Pandion haliaetus* SULK, OF

Swallow-tailed Kite *Elanoides forficatus* OF

Bald Eagle *Haliaeetus leucocephalus* SULK, OF

Sharp-shinned Hawk *Accipiter striatus* MEH, SHF

Cooper's Hawk *Accipiter cooperi* MEH, SHF

Red-shouldered Hawk *Buteo lineatus* MTC, OF

Red-tailed Hawk *Buteo jamaicensis* SH, OF

Falcons

American Kestrel *Falco sparverius* SH

Rails and Coots

Purple Gallinule *Poryphyryula martinica* BM

Common Moorhen *Gallinula chloropus* BM

American Coot *Fulica americana* BM, SULK

Cranes

Sandhill Crane *Grus canadensis* BM, OF

* Non-native species

**Fort Cooper State Park
Animals**

Primary Habitat Codes	Common Name	<i>Scientific Name</i>	(for all species)
Plovers			
	Killdeer.....	<i>Charadrius vociferus</i>	BM
Sandpipers			
	Ruddy Turnstone	<i>Arenaria interpres</i>	BM
	Common Snipe	<i>Gallinago gallinago</i>	BM
	American Woodcock	<i>Scolopax minor</i>	BM
Gulls and Terns			
	Herring Gull	<i>Larus argentatus</i>	SULK, OF
	Least Tern	<i>Sterna antillarum</i>	SULK, OF
Doves			
	Mourning Dove	<i>Zenaida macroura</i>	MTC
	Common Ground-Dove	<i>Columbina passerina</i>	SH
Cuckoos			
	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	MEH, SHF
Barn-Owls			
	Barn Owl	<i>Tyto alba</i>	MTC
Owls			
	Eastern Screech-Owl	<i>Otus asio</i>	SH, MEH, SHF
	Barred Owl.....	<i>Strix varia</i>	MEH, SHF
Nightjars			
	Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	MEH, SHF
Hummingbirds			
	Ruby-throated Hummingbird	<i>Archilochus colubris</i>	MTC
Kingfishers			
	Belted Kingfisher	<i>Ceryle alcyon</i>	SULK
Woodpeckers			
	Redheaded Woodpecker	<i>Melanerpes erythrocephalus</i>	SH
	Red-bellied Woodpecker.....	<i>Melanerpes carolinus</i>	MTC
	Downy Woodpecker.....	<i>Picoides pubescens</i>	MTC
	Hairy Woodpecker.....	<i>Picoides villosus</i>	SH, MF
	Northern Flicker.....	<i>Colaptes auratus</i>	SH
	Pileated Woodpecker	<i>Dryocopus pileatus</i>	MEH, SHF

* Non-native species

Fort Cooper State Park
Animals

Primary Habitat Codes Common Name	Scientific Name	(for all species)
Tyrant Flycatchers		
Eastern Wood Pewee	<i>Contopus virens</i>	SH
Eastern Phoebe	<i>Sayornis phoebe</i>	MTC
Great Crested Flycatcher.....	<i>Myiarchus crinitus</i>	MTC
Shrikes		
Loggerhead Shrike	<i>Lanius ludovicianus</i>	SH
Vireos		
White-eyed Vireo	<i>Vireo griseus</i>	MTC
Yellow-throated Vireo	<i>Vireo flavifrons</i>	SH
Blue-headed Vireo	<i>Vireo solitarius</i>	MEH, SHF
Red-eyed Vireo.....	<i>Vireo olivaceus</i>	MEH, SHF
Crows and Jays		
Blue Jay	<i>Cyanocitta cristata</i>	MTC
American Crow	<i>Corvus brachyrhynchos</i>	MTC
Fish Crow	<i>Corvus ossifragus</i>	MTC
Swallows		
Purple Martin.....	<i>Progne subis</i>	OF
Tree Swallow.....	<i>Tachycineta bicolor</i>	OF
Tits and Allies		
Carolina Chickadee.....	<i>Poecile carolinensis</i>	MTC
Tufted Titmouse	<i>Baeolophus bicolor</i>	MTC
Wrens		
Carolina Wren	<i>Thryothorus ludovicianus</i>	MTC
House Wren	<i>Troglodytes aedon</i>	BM, SH, MEH
Winter Wren.....	<i>Troglodytes hiemalis</i>	BM, MEH
Kinglets		
Ruby-crowned Kinglet.....	<i>Regulus calendula</i>	MTC
Old World Warblers and Gnatcatchers		
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	MTC
Thrushes		
Eastern Bluebird	<i>Sialia sialis</i>	SH
Veery	<i>Catharus fuscescens</i>	MEH, SHF
Gray-cheeked Thrush	<i>Catharus minimus</i>	MEH, SHF
Hermit Thrush	<i>Catharus guttatus</i>	MEH, SHF
Wood Thrush.....	<i>Hylocichla mustelina</i>	MEH, SHF
American Robin	<i>Turdus migratorius</i>	MTC, OF

Fort Cooper State Park
Animals

Primary Habitat Codes

Common Name	<i>Scientific Name</i>	(for all species)
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Mockingbirds and Thrashers

Gray Catbird	<i>Dumetella carolinensis</i>	MTC
Northern Mockingbird	<i>Mimus polyglottos</i>	MTC
Brown Thrasher	<i>Toxostoma rufum</i>	MTC

Starlings

European Starling	<i>Sturnus vulgaris</i> *	DV, OF
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Waxwings

Cedar Waxwing	<i>Bombycilla cedrorum</i>	MTC
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New World Warblers

Ovenbird	<i>Seiurus aurocapilla</i>	MEH, SHF
Black-and-white Warbler	<i>Mniotilta varia</i>	MEH, SHF
Prothonotary Warbler	<i>Protonotaria citrea</i>	BM
Common Yellowthroat	<i>Geothlypis trichas</i>	BM, DM
Hooded Warbler	<i>Setophaga citrina</i>	MEH, SHF
American Redstart	<i>Setophaga ruticilla</i>	MEH, SHF
Northern Parula	<i>Setophaga americana</i>	MTC
Magnolia Warbler	<i>Setophaga magnolia</i>	MEH, SHF
Black-throated Blue Warbler	<i>Setophaga caerulescens</i>	MEH, SHF
Palm Warbler	<i>Setophaga palmarum</i>	SH, DV
Pine Warbler	<i>Setophaga pinus</i>	SH, MF, PP
Yellow-rumped Warbler	<i>Setophaga coronata</i>	MTC
Yellow-throated Warbler	<i>Setophaga dominica</i>	MEH
Prairie Warbler	<i>Setophaga discolor</i>	SH, MEH

Tanagers

Summer Tanager	<i>Piranga rubra</i>	SH
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Sparrows and Allies

Eastern Towhee	<i>Pipilo erythrophthalmus</i>	SH, MF
Bachman's Sparrow.....	<i>Peucaea aestivalis</i>	SH
Chipping Sparrow	<i>Spizella passerina</i>	SH, DV

Cardinals, Grosbeaks and Buntings

Northern Cardinal	<i>Cardinalis cardinalis</i>	MTC
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Blackbirds and Allies

Red-winged Blackbird	<i>Agelaius phoeniceus</i>	BM, OF
Rusty Blackbird	<i>Euphagus carolinus</i>	BM
Common Grackle	<i>Quiscalus quiscula</i>	MTC
Boat-tailed Grackle	<i>Quiscalus major</i>	BM
Baltimore Oriole.....	<i>Icterus galbula</i>	MEH, SHF

* Non-native species

Fort Cooper State Park

Animals

Primary Habitat Codes

Common Name

Scientific Name

(for all species)

Finches and Allies

American Goldfinch *Carduelis tristis*MTC

Old World Sparrows

House Sparrow *Passer domesticus* *DV

MAMMALS

Didelphids

Virginia Opossum *Didelphis virginiana*MTC

Insectivores

Eastern Mole *Scalopus aquaticus*SH

Edentates

Nine-banded Armadillo *Dasypus novemcinctus* *MTC

Lagomorphs

Eastern Cottontail *Sylvilagus floridanus*MTC

Marsh Rabbit *Sylvilagus palustris*BM

Rodents

Southeastern Pocket Gopher *Geomys pinetis*SH

Southern Flying Squirrel *Glaucomys volans* SH, MEH

Eastern Woodrat *Neotoma floridana* MEH, SHF

Golden Mouse *Ochrotomys nuttalli*MEH

Cotton Mouse *Peromyscus gossypinus*SH, MEH, SHF

Norway Rat *Rattus norvegicus* *MTC

Eastern Gray Squirrel *Sciurus carolinensis*MEH, SHF, DV

Sherman's Fox Squirrel *Sciurus niger shermani*SH

Carnivores

Coyote *Canis latrans* *MTC

River Otter *Lutra canadensis*BM, SULK

Bobcat *Lynx rufus*MTC

Striped Skunk *Mephitis mephitis*SH

Raccoon *Procyon lotor*MTC

Gray Fox *Urocyon cinereoargenteus*MTC

Red Fox *Vulpes vulpes* *MTC

Artiodactyls

White-tailed Deer *Odocoileus virginianus*MTC

* Non-native species

Addendum 6—Imperiled Species Ranking Definitions

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.

ENAL 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)

Imperiled Species Ranking Definitions

- 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

Imperiled Species Ranking Definitions

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

Imperiled Species Ranking Definitions

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

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised March 2013)

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.

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised March 2013)

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

Eligibility Criteria for National Register of Historic Places

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; or
 - e) a 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
 - f) a property achieving significance within the past 50 years, if it is of exceptional importance.

Preservation Treatments as Defined by Secretary of Interior's Standards and Guidelines

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.