

Econfina River State Park

Approved Unit Management Plan

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Recreation and Parks
October 2018**



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Econfina River State Park

Introduction

Spectacular vistas nestled in a corner of untouched wilderness

49

Econfina River State Park protects 49 hammock islands along the vast marsh coastline within the park.

Surrounded by large and unspoiled tracts of conservation land, including the Big Bend Wildlife Management Area, the park is part of a network of public lands that stretches for nearly 200 miles along the Gulf of Mexico. These ecosystems support robust aquatic and terrestrial wildlife populations, including important commercial fisheries.

The purpose of Econfina River State Park is to provide access to outstanding recreation opportunities in a pristine section of Florida's Big Bend coastline. The park also supports the conservation and protection of irreplaceable natural and cultural resources along the Gulf of Mexico.



In the 1860s, Confederate deserters camped along the banks of the Econfina River during the Civil War. Pledged to assist Union blockade ships, these individuals utilized the river to deliver Confederate prisoners, contraband, fresh provisions and information to Federal gunboats. During the Great Depression the river was a source of mullet, which was salted, packed in barrels and then swapped or bartered for other food products. Fish camps have successfully operated on the Econfina since 1931.

The Econfina River empties into the Gulf of Mexico 2.2 miles south of the park's boat ramp. This small blackwater river winds for 43 miles and drains nearly 300 square miles of rural land. The park's marshes and wetlands serve as a filter that protects marine nurseries from pollution. These marshes and wetlands form coastal food webs that provide sanctuary and an abundance of food and nutrients to a great many species.

This park and its neighbors, Big Bend Seagrasses Aquatic Preserve to the south and St. Marks National Wildlife Refuge to the west, combine to protect one of the last stretches of unspoiled coastline in Florida. Visitors may observe many varieties of oak, saw palmetto, St. John's wort, yaupon holly, cabbage palm, bald cypress, red cedar, swamp tupelo and saw grass as well as Florida black bear, white-tailed deer, blue herons and egrets, bald eagle, marsh hawk, otter and bobcat. The park is an exceptional location to study the changing ecology of coastal marshlands through observing the rate of marsh migration and the expansion of mangrove populations northward.

INTRODUCTION

Econfina River State Park is located in Taylor County (see Vicinity Map). Access to the park is from County Road 14 off U.S. Highway 98 (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

The park was initially acquired on December 24, 1987 with funds from the Save Our Coast (SOC) program. Currently, the park comprises 5,031.37 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park, and on March 23, 1989, the Trustees leased (Lease Number 3540) the property to DRP under a fifty-year lease. The current lease will expire on March 23, 2039.

Econfina River 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). A legal description of the park property can be made available upon request to the Department of Environmental Protection.

Purpose and Significance of the Park

The purpose of Econfina River State Park is to provide access to outstanding recreation opportunities in a pristine section of Florida's Big Bend coastline. The park also supports the conservation and protection of irreplaceable natural and cultural resources along the Gulf of Mexico.

Park Significance

- Surrounded by large and unspoiled tracts of conservation land, including the Big Bend Wildlife Management Area, the park is part of a network of public lands that stretches for nearly 200 miles along the Gulf of Mexico.
- The park's extensive and exceptional hydric hammock and salt marsh communities are part of a large swath of inundated coastal lowlands. These ecosystems support robust aquatic and terrestrial wildlife populations, including important commercial fisheries.
- The park represents one of the largest populations of the Florida corkwood (*Leitneria floridana*) on public lands. Other imperiled species present in the park include Needle palm (*Rhapidophyllum hystrix*), Wood stork (*Mycteria Americana*) and Marian's marsh wren (*Cistothorus palustris marianae*)
- Native Americans lived and hunted along the Econfina River for thousands of years and constructed several middens, a burial mound, and a quarry site here. In the 1860s, Confederate deserters sought refuge along the Econfina River, where they supported the Union blockade.
- The park's high-quality outdoor recreational activities include cycling, boating, paddling, fishing, hiking, horseback riding and wildlife viewing.

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

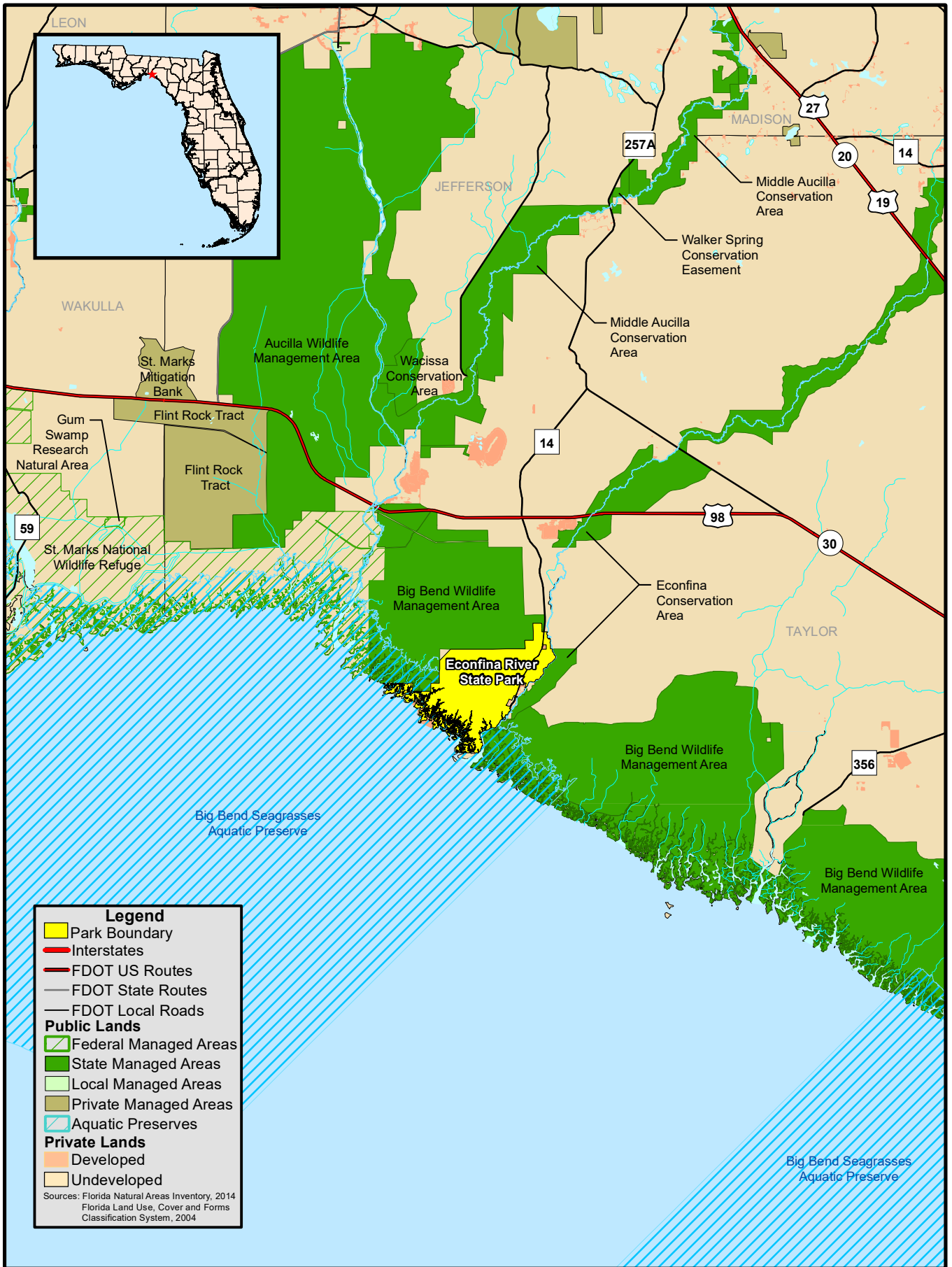
Purpose and Scope of the Plan

This plan serves as the basic statement of policy and direction for the management of Econfina River State Park 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 2006 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, and 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.



Legend

- Park Boundary
- Interstates
- FDOT US Routes
- FDOT State Routes
- FDOT Local Roads

Public Lands

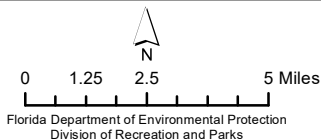
- Federal Managed Areas
- State Managed Areas
- Local Managed Areas
- Private Managed Areas
- Aquatic Preserves

Private Lands

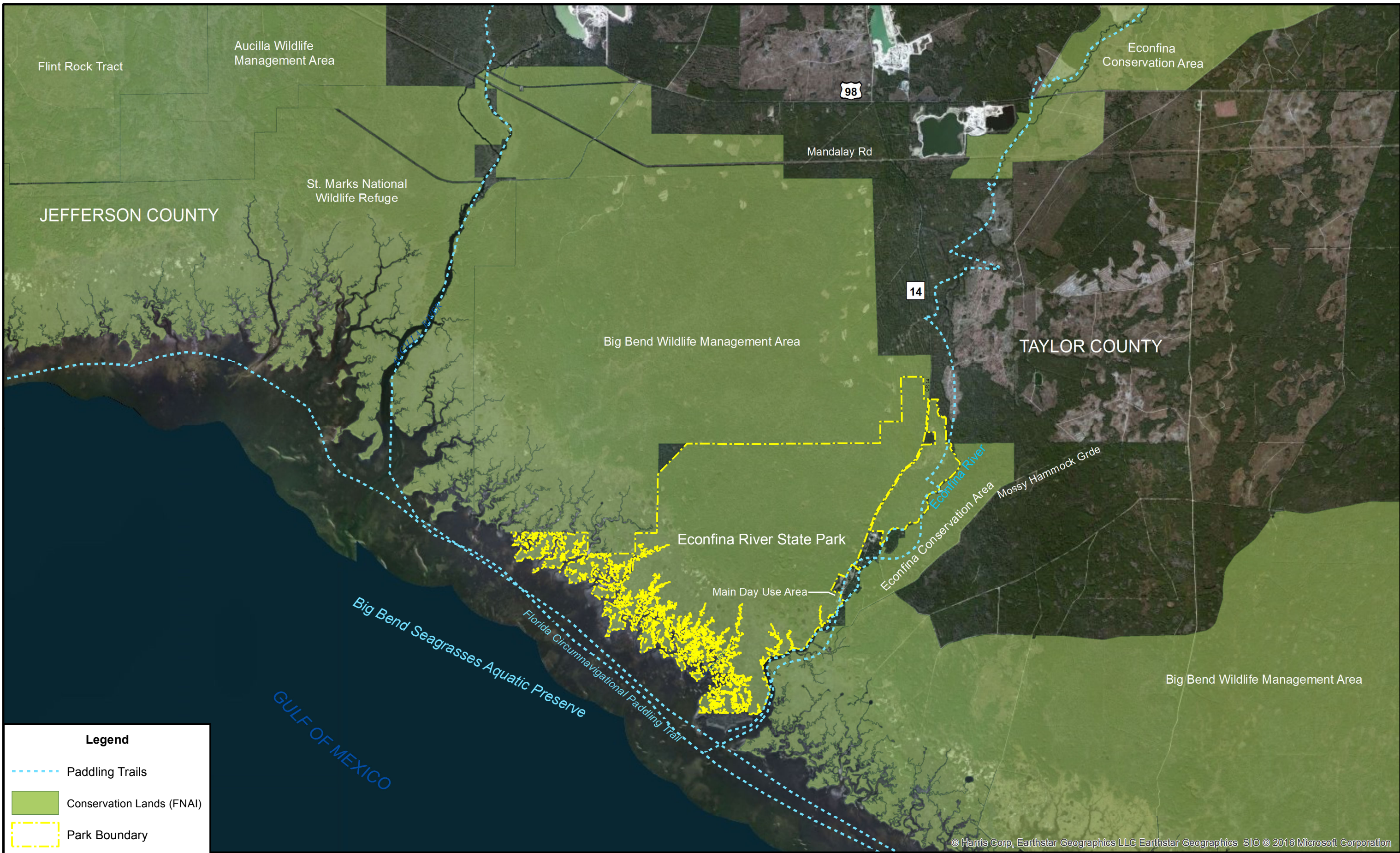
- Developed
- Undeveloped

Sources: Florida Natural Areas Inventory, 2014
Florida Land Use, Cover and Forms Classification System, 2004

**ECONFINA RIVER
STATE PARK**



**VICINITY
MAP**



Legend

- - - - - Paddling Trails
- Conservation Lands (FNAI)
- Park Boundary

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

In 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 DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, it was determined that timber management could be accommodated in a manner that would be compatible and not interfere with the primary purpose of resource-based outdoor recreation and conservation. This compatible secondary management purpose is addressed in the Resource Management Component of the plan.

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 or the management purposes of the park.

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 timber management would be appropriate at this park as additional sources of revenue for land management since it they are compatible with the park's primary purpose of resource-based outdoor recreation and conservation.

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.

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

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

Park Management Goals

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

- Provide administrative support for all park functions.
- Protect water quality and quantity in the park, restore hydrology to the extent feasible and maintain the restored condition.
- Restore and maintain the natural communities/habitats of the park.
- Maintain, improve or restore imperiled species populations and habitats in the park.
- Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.

- Protect, preserve and maintain the cultural resources of the park.
- Provide public access and recreational opportunities in the park.
- Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.

Management Coordination

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

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

Public Participation

DRP provided an opportunity for public input by conducting a public workshop and an Advisory Group meeting to present the draft management plan to the public. These meetings were held on May 3, 2018 and the advisory group meeting was held on May 4, 2018, respectively. Meeting notices were published in the Florida Administrative Register on April 23, 2018 in Vol. 44/79, 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

Econfina River State Park is not within an Area of Critical State Concern as defined in Section 380.05, Florida Statutes, and it is not presently under study for such designation. The park is a component of the Florida Greenways and Trails System, administered by the Department's Office of Greenways and Trails.

All waters within the park have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302, Florida Administrative Code. Surface waters in this park are also classified as Class III waters by the Department. This park is within or adjacent to Big Bend Seagrasses Aquatic Preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

Introduction

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

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

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

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

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

Management Zone	Acreage	Managed with Prescribed Fire	Contains Known Cultural Resources
ER-1	149.2	N	N
ER-2	359.5	Y	Y
ER-3	190.7	N	Y
ER-4	1094.6	N	Y
ER-5	1654.8	N	Y
ER-6	1079.7	N	Y

Resource Description and Assessment

Natural Resources

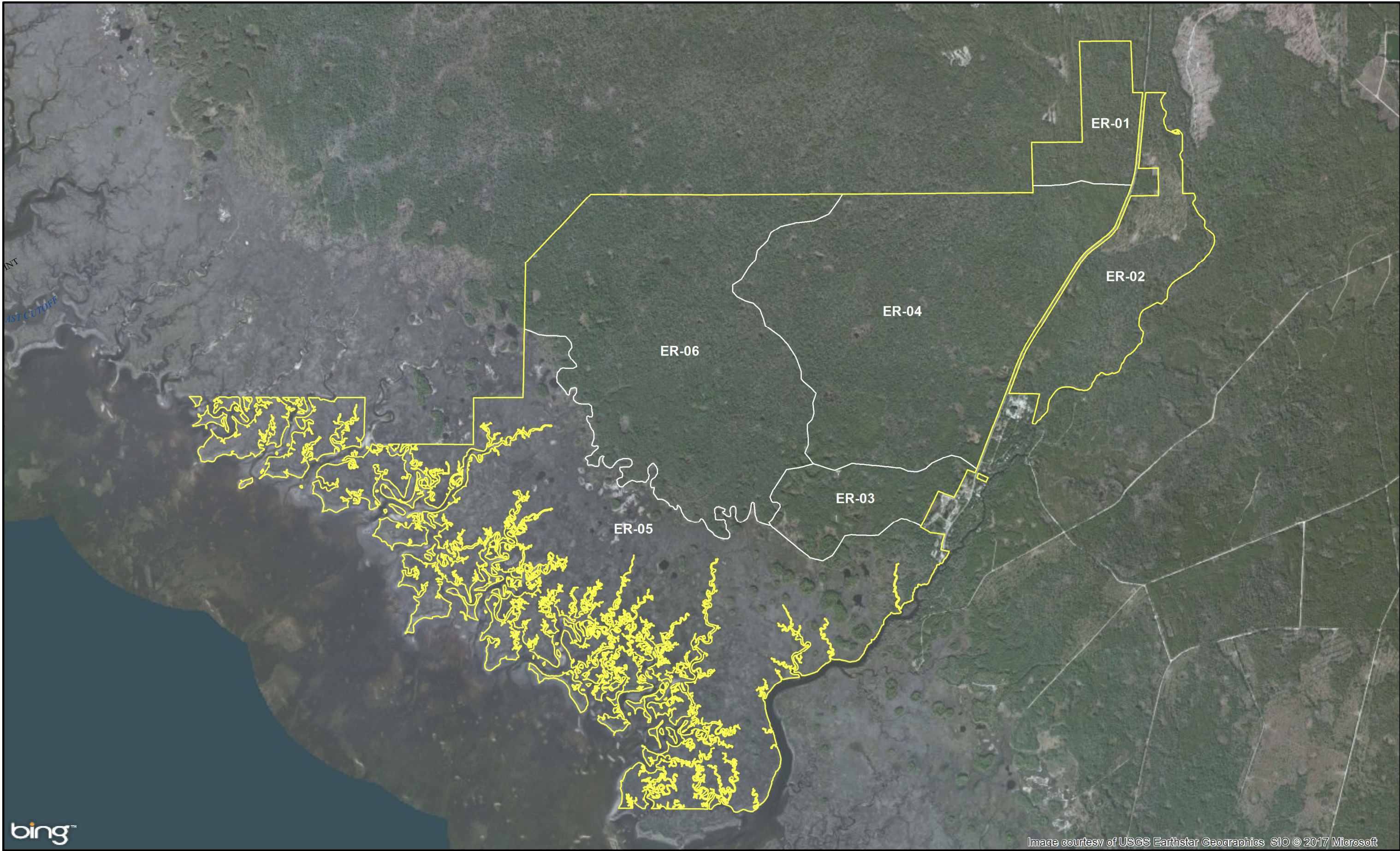
Topography

Econfina River State Park is a low elevation, level expanse of land occupying a portion of the Gulf Coastal Lowlands. Only about 10% of this property rises above the 8-foot contour. As such, the majority of the park retains surface water, especially following rains, and is seasonally inundated so that it exhibits wetland character for at least part of a typical year. From the maximum elevation of about 12 feet above sea level at the park’s most northerly extent along County Highway 14, the land gradually slopes down toward the Gulf of Mexico so that one may pass from disturbed mesic flatwoods, through mesic hammock, then hydric hammock, to a wide expanse of coastal salt marshes fringing the gulf waters. This salt marsh is drained by multiple tidal creeks, some fed by marsh lakes and pools of presumably sinkhole origin, and is interspersed with numerous habitat islands of varying sizes. With a difference of only several feet or less from the surrounding marsh, these island soils are sufficiently drained to support hammocks dense with trees and shrubs not found in the waterlogged, brackish substrate. The exceedingly gentle slope of the Apalachee Bay sea floor results in this region’s coastline being very low energy and not shaped by strong wave action. Therefore, sandy beaches are absent and the salt marshes gradually give way to the open waters of the Gulf of Mexico. This general pattern of islands scattered within a flat, flooded landscape is repeated at slightly higher elevation just up from the edge of the salt marsh in which sandy islands supporting xeric vegetation occupy discrete patches in a matrix of hydric hammock. The Econfina River flows along most of the eastern boundary, interrupted by the privately-owned land at the Econfina Landing community, and drains much of the park.

Geology

The park is situated on the surface of an ancient marine terrace within the Gulf Coastal Lowlands. The gradual rise and retreat of the sea level during the Pleistocene epoch alternately flooded and exposed the substrate, shaping a step-like series of marine terrace formations. The park occurs on the Silver Bluff Terrace, which is the lowest lying of these terraces. Taylor County geology is dominated by 2 major strata, the Ocala and Suwannee limestone layers. Formed during the

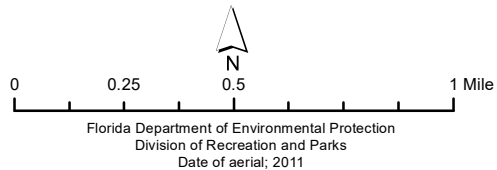
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ECONFINA RIVER STATE PARK



MANAGEMENT ZONES MAP

Oligocene epoch, Suwannee limestone comprises most of western Taylor County's uppermost stratum, where the park is located. Here, this stratum extends from surface outcrops to about 30 feet below the surface. The topmost surface of this limestone is highly eroded, containing numerous solution pipes, holes, small caves, sinks, and pinnacles. Although some of these features may be observable on park property, most are hidden from view by in-filling with younger, unconsolidated sands and clayey sands. In shallower spots of the Econfinia River, the Suwannee limestone bed is visible and forms shoals separating deeper pools. Ocala limestone, formed during the Eocene epoch, underlies the Suwannee stratum and is an important unit of the Floridan Aquifer system.

Soils

There are 4 principal soil types present in the park (see Soils Map). The highest elevations in the northeastern corner, extending along Highway 14 to the Econfinia Landing community, are underlain by the Wekiva-Tooles, depressional-Tennille complex, which rarely floods. This classification includes various proportions of all 3 soils identified as part of the complex, with each possessing somewhat different properties. Permeability for Wekiva and Tooles is moderately slow and slow, respectively, in the subsoil, and permeability for Tennille is rapid throughout the profile. Water capacity for all 3 types is low, depth class for the 3 types varies from very shallow to deep, and the drainage class for the 3 types is poorly to very poorly drained. The parent material includes sandy and loamy sediments overlying limestone, which exists at a depth of 5 to 75 inches where present for an overall average depth of 33 inches. The vast majority of the hydric hammock plus the bottomland forest is underlain by the Wekiva-Tennille-Tooles complex, which floods occasionally. This complex is composed of the same 3 types, possessing comparable properties as the previous complex, but the proportion of each type of this complex differs with a resulting effect on overall complex properties. The depth range to bedrock is comparable, but the average depth is 24 inches. Leon fine sand underlies a relatively small region discontinuously a short distance to the west and southwest of Econfinia Landing. This soil type rarely experiences flooding, although its very low elevation and position close to the river and Gulf of Mexico dictate that portions of it underlie wetlands; however, other portions are slightly higher and occur as islands scattered within the salt marsh. This soil type is derived from sandy marine sediments with no bedrock present within a depth of 80 inches. With very different properties in the topmost layers, Bayvi soils underlie the salt marsh expanse and contain a very high organic content, with black muck in the surface layer and black mucky loamy sand in the subsurface layer. However, the Bayvi soils have a roughly comparable relationship with the bedrock layer as the 2 complexes described above; the depth to bedrock ranges from 4 to 68 inches with an overall average depth of 38 inches.

Given the gentle relief of this park's landscape, progressive erosion of the majority of soils underlying the natural communities is not a significant problem at this time. The main exception would be along the river shoreline from the wave action resulting from boat wake; the main remedy for this issue would be to maintain low wake zones though this would be difficult to enforce given the relative isolation of the area away from the boat ramp and parking lot. Erosion occurring from tropical

storms and hurricanes can be considerable though impossible to fully prevent. The best insurance against this damage would be through the preservation of the salt marsh habitat against degradation so that it can buffer storm surge intensity from upland areas. This is a wider goal for the park's conservation of natural resources. Erosion of the artificial raised roadways and developed area near the boat ramp are issues for protecting the integrity of the park facilities and infrastructure. Possible remedies for the raised road network are addressed in the hydrological management section.

Minerals

There are no known records of commercial limestone mining on park property other than for the purpose of local roadbed construction. In one location adjacent to a large borrow pit just off the eastern shoulder of Highway 14, a cluster of large limestone boulders are strewn across a small area about one quarter acre in size. Within this area, a small, water-filled pit lies adjacent to these boulders; this pit is presumably the location from which the boulders were extracted, though specific records associated with this particular activity are not known. It should be noted that limestone and dolomite mining projects have occurred and are ongoing throughout Taylor County. In fact, active mining enterprises are located a short distance north of the park and within the drainage area of the Econfina River.

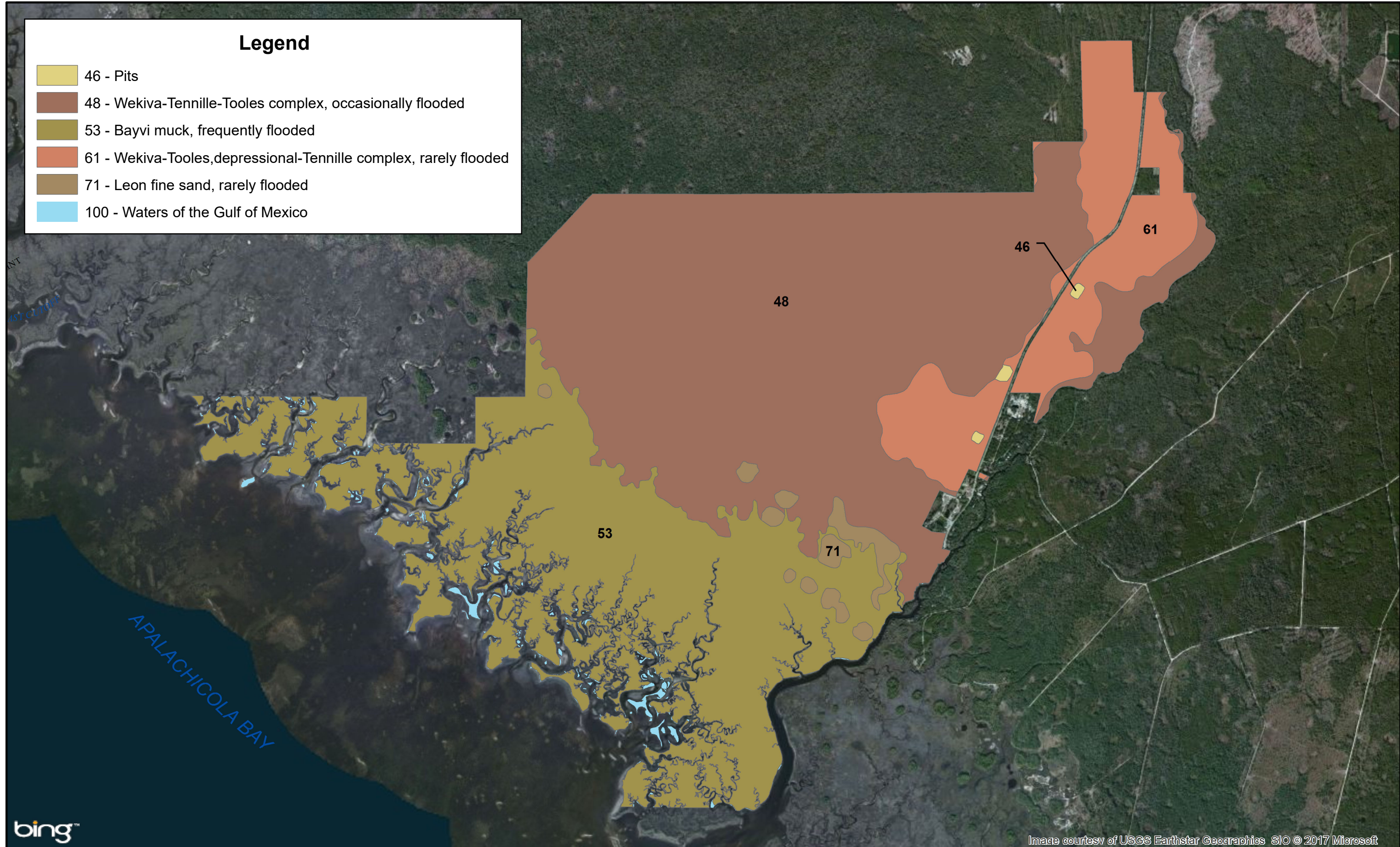
Hydrology

The bulk of Taylor County's consumptive water is drawn from near-surface limestone layers of the Floridan Aquifer. The upper reaches of this aquifer locally correspond to the Suwannee Limestone stratum that extends to about 30 feet below the surface. The shallow, sandy soils commonly contain freshwater which is hydrologically continuous with the underlying limestone. Domestic wells near the coast are typically drilled into the limestone to depths of 10 to 80 feet, though some deeper wells in excess of 100 feet reach the Ocala Limestone. Locally, the portion of the Floridan Aquifer containing potable water may attain a thickness in excess of 500 feet. Groundwater recharge results from significant rainfall received by this region of the state, which averages about 52 inches annually in northeastern Taylor County. Some degree of local recharge occurs in the vicinity of the park, but most flows from precipitation inputs from neighboring Lafayette, Suwannee, and Madison Counties.

The potentiometric surface for a landscape refers to a hypothetical surface signifying the water table in an unconfined aquifer and, as such, it represents the height to which groundwater would rise if not contained within a confined aquifer. The slope of the potentiometric surface determines the direction of groundwater flow from higher to lower elevations and pressures and is referred to as the hydraulic gradient. Several miles inland from the park property, the potentiometric surface lies about 10 feet below the surface and groundwater flows along the hydraulic gradient toward the mouth of the Econfina River, where the depth to the potentiometric surface is zero. At locations along the way where the potentiometric surface is higher than the terrain's elevation, groundwater discharges from the substrate as springs and seeps, which occur at multiple points across the park.

Legend

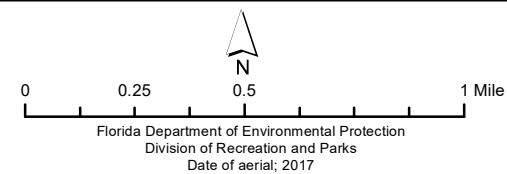
- 46 - Pits
- 48 - Wekiva-Tennille-Tooles complex, occasionally flooded
- 53 - Bayvi muck, frequently flooded
- 61 - Wekiva-Tooles,depressional-Tennille complex, rarely flooded
- 71 - Leon fine sand, rarely flooded
- 100 - Waters of the Gulf of Mexico



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ECONFINA RIVER STATE PARK



SOILS MAP

The most well-developed spring on this property is Milnor Spring, an intermittently flowing spring with a bowl about 20 yards wide and less than 15 feet deep. Divers entering the spring bowl during a no-flow period found the vent impassable and obstructed with submerged logs. Water sporadically flows from the spring to the river for about 400 yards. Given the intermittent flow, this run is often dry, but does support an assemblage of swamp vegetation, including a stand of bald cypress trees.

The principal surface hydrological feature in this locality is the Econfina River flowing along the property's eastern boundary. The Econfina River begins at the Taylor-Madison county line in the swamps of San Pedro Bay. It winds for 43 miles in a southwesterly direction across Taylor County and empties into the Gulf of Mexico. This blackwater river drains about 299 square miles of rural area comprised mainly of low elevation woodland communities.

The Econfina River is rather small relative to other prominent rivers across the state. At its upper reaches, it has an average flow of 135 cubic feet per second. The river remains narrow and creek-like along most of its course down to a few hundred yards upstream of the Econfina Landing community, where it widens to 75 to 100 feet. Progressing downstream, the river continues to broaden, attaining a width of 600 feet at the most southerly extent of the park property about 1.6 miles southwest of Econfina Landing. After flowing for a distance of about 0.6 miles, the river mouth, widening to about 1500 feet, opens at its terminus and flows into the Gulf of Mexico. The 1990 DNR Florida Rivers Assessment report listed the Econfina River as having good water quality.

A variety of wetland and lacustrine communities may be found throughout the park, including salt marsh, basin marsh, basin swamp, floodplain swamp, hydric hammock, marsh lake, and sinkhole lake. Given the low relief of the property, much of the terrain is prone to inundation with typical hydroperiod dependent on multiple factors, such as distance from the coast and the river, soil character, and local drainage capability. Significant rainfall events, even within the normal range of intensity, can render large areas of the property inaccessible for extended periods. Access roads traversing the hydric hammock along the northern boundary and through the park's north central portion are especially vulnerable to flooding, though local pooling in road beds and ruts may occur in many locations throughout the park. In the event that tropical storms impact this area, the heavy rainfall and associated storm surge can cause widespread flooding, preventing access to the park.

The most significant impact to the original hydrological functioning of this property has resulted from the construction of one-lane, dirt track access roads throughout the park. Given the frequent flooding of large areas, vehicular access through the hydric hammock and marshes was only made possible by the construction of raised roadbeds, typically using fill material excavated from the immediate locality. As a result, there are numerous ditches and small borrow pits occurring adjacent to these road beds that are usually filled with surface water. In the vicinity of the paved, 2-lane Highway 14, which provides the principal access route to the park

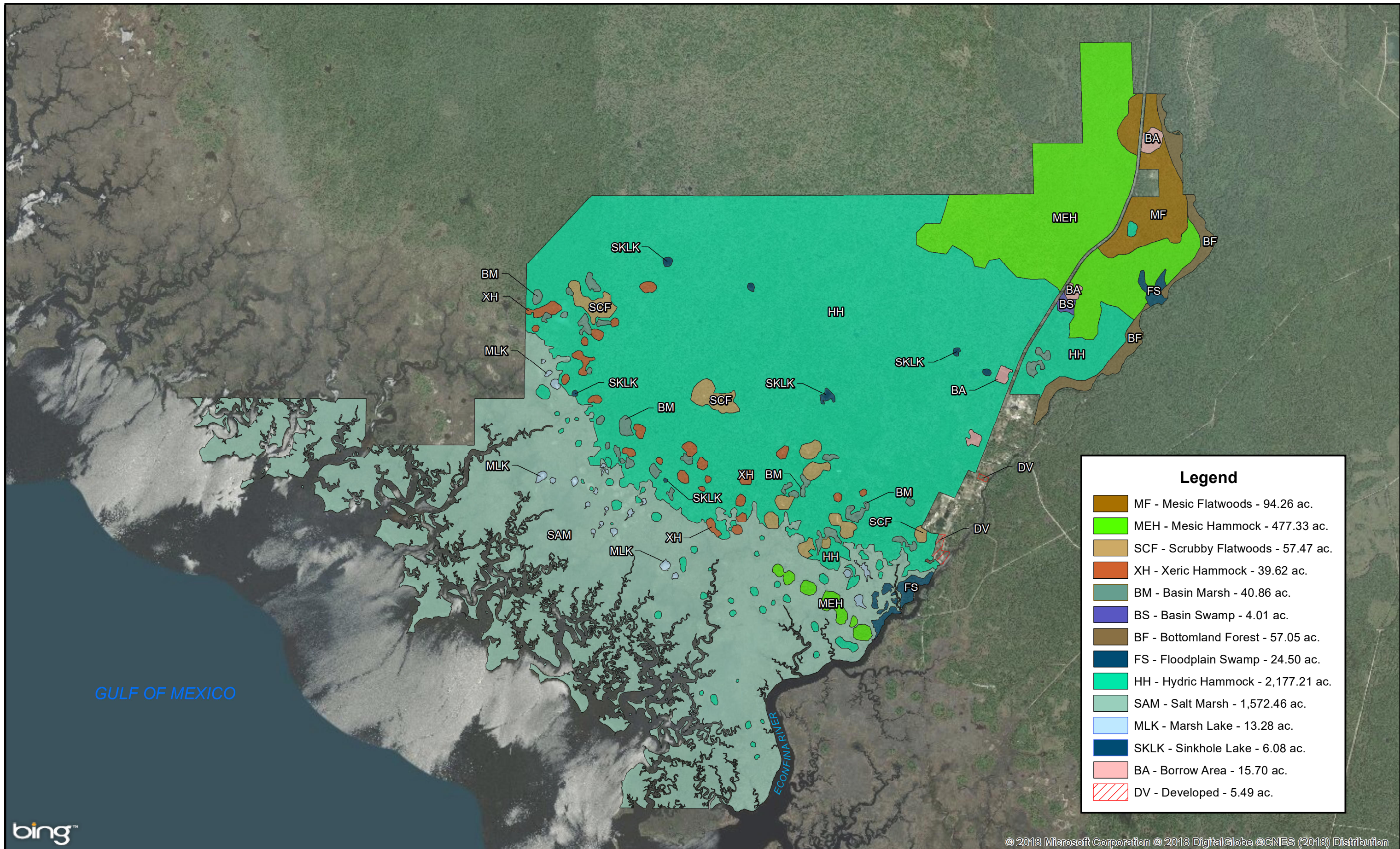
and Econfina Landing, one may observe large borrow pits that are the size of small lakes.

The raised roadbeds have changed the pattern of surface water flow across the landscape, most significantly affecting the hydric hammock and small extensions of the salt marsh north of these roadbeds. While the beds obviously keep the roads dry enough to drive over and retain tire traction, they also block the movement of freshwater downslope toward the salt marsh and gulf. At select points, usually along creeks or other higher flow areas, culverts were installed to facilitate drainage. From a combination of inadequate flow capacity and aging structures, a number of these culvert crossings are in poor shape and must be regularly repaired by park staff in order to keep them functional and the roadway passable. Erosion around the culvert structures themselves is a continual process following storms such that fill material must be added. Two crossings in particular (one crossing a creek draining the hydric hammock just west of the boat ramp area, and another breaching the road bed through a small section of salt marsh) are completely washed out and may only be driven across during low flow periods. Problematic crossings are in significant need of upgrades or replacement with low water crossings (LWC), as appropriate for the particular situation. For example, LWCs would only be practical in drainages with predominantly freshwater flow since salt water would quickly degrade vehicle undercarriages. A report analyzing the needs and potential solutions was written for the park by a local hydrological expert in 2014 (for details, see the hydrological management section).

Natural Communities

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

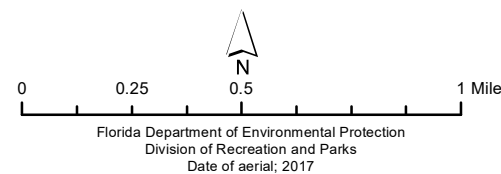
The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI 2010). The premise of this system is that physical factors such as climate, geology, soil, hydrology, and fire frequency generally determine the species composition of an area, 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--2 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.



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ECONFINA RIVER STATE PARK



NATURAL COMMUNITIES MAP

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-dependent communities, ongoing control of non-native plant and animal species, maintaining natural hydrological functions (including historic water flows and water quality), preserving a community's biodiversity and vegetative structure, protecting viable populations of plant and animal species (including those that are imperiled or endemic), and preserving intact ecotones that link natural communities across the landscape.

The park contains 12 distinct natural communities, as well as 1 altered landcover type (see Natural Communities Map). A list of known plants and animals occurring in the park is contained in Addendum 5.

Basin Marsh

Desired Future Condition: Basin marshes include emergent herbaceous and low shrub species dominating most of the area. Trees will be few, and if present, occur primarily on the margins; this community typically has an open vista. There may be little accumulation of dead grassy fuels due to frequent burning (depending on the size of this community and whether it is surrounded by pyric community types); one may be able to see the soil surface through the vegetation when the community is not inundated. Dominant vegetation in a basin marsh may include sawgrass (*Cladium jamaicense*), maidencane (*Panicum hemitomon*), cutgrass (*Leersia* spp.), common reed (*Phragmites australis*), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* spp.), buttonbush (*Cephalanthus occidentalis*), St. John's wort (*Hypericum fasciculatum*), and coastalplain willow (*Salix caroliniana*).

Description and Assessment: There are a number of basin marshes present in a variety of locations throughout the hydric hammock, and they are in generally good condition overall. Interestingly, they are all located within a relatively short distance of either the main salt marsh or the Econfina River, which is likely reflective of the relatively short path to these large water features and the abundant source populations they contain (especially sawgrass). Those indicated on the natural community map are the larger examples resolvable in aerial photography; there are uncounted smaller herbaceous dominated pools not readily apparent that are too limited in size to form a canopy opening. Given the prevalence of past excavation across the park for road fill material, many of these are likely impacted, or perhaps even derived from these activities. Except for larger ponds with particularly regular boundaries and those proximal to Highway 14 that are mapped as borrow pits, these marshes possess the more irregular outlines expected of natural features. Observations indicate that some basin marshes are entirely occupied by herbaceous plants, but others display a definite zonation pattern of a proportionately small area of open water near the center, herbaceous coverage along the shallows (dominated by sawgrass), and a scattering of trees and shrubs along the transition zone to the hydric hammock (tupelo [*Nyssa* spp.], sweet gum [*Liquidambar styraciflua*], cabbage palm [*Sabal palmetto*], and dahoon holly [*Ilex cassine* var. *cassine*]).

General Management Measures: Hog control and surveillance for exotic plants will be the primary management measures for this community. Since hogs often disturb the soil and vegetation as they forage for food items, they can cause substantial damage to the transitional and shallow water habitat along the fringes of the basin marshes.

Basin Swamp

Desired Future Condition: Basin swamps are forested basin wetlands that are highly variable in size, shape, and species composition and typically will have an extended hydroperiod of 200-300 days. While mixed-species canopies are common, the dominant trees tend to be pond cypress (*Taxodium ascendens*) and swamp tupelo (*Nyssa sylvatica* var. *biflora*). Other canopy species can include slash pine (*Pinus elliottii*), red maple (*Acer rubrum*), dahoon holly, sweetbay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), and sweetgum. Depending upon fire history and hydroperiod, the understory shrub component can be extensive or concentrated around the perimeter. Shrub species can include a variety of species including Virginia willow (*Itea virginica*), swamp dogwood (*Cornus foemina*), wax myrtle (*Myrica cerifera*), and titi (*Cyrilla racemiflora*). The herbaceous component will also be variable and may include a wide variety of species such as maidencane, ferns, arrowheads (*Sagittaria* spp.), lizard's tail (*Saururus cernuus*), false nettle (*Boehmeria cylindrica*), and sphagnum moss (*Sphagnum* spp.). Soils will often be an acidic, nutrient-poor peat overlying a clay lens or other impervious layer.

Description and Assessment: One basin swamp was mapped along the eastern fringe of Highway 14 about one mile above the outskirts of development associated with the Econfina Landing community. This swamp occurs near the transition between the mesic and hydric hammock natural communities. From the highway, one may peer into this community between trunks of pond cypress and swamp tupelo. Its basin is often filled with standing water. The majority of trees appear to be quite young and thin in diameter, with a few medium-sized trees scattered among the others. Past timbering operations had cut all the mature trees from this highly accessible stand, which is now in fair condition as it does retain many of the regular elements of this community type, albeit with smaller stature. Species include pond cypress, swamp tupelo, slash pine, red maple, swamp bay (*Persea palustris*), sweet bay, netted-chain-fern (*Woodwardia areolata*), poison ivy (*Toxicodendron radicans*), Spanish moss (*Tillandsia usneoides*), coastalplain willow, giant cane (*Arundinaria gigantea*), wax myrtle, St. John's wort (*Hypericum* spp.), sawgrass, lizard's tail, smooth waterhyssop (*Bacopa monnieri*), buttonbush, and green arrow arum (*Peltandra virginica*).

In the more isolated portions far from the access roads, there are almost certainly other stands of this community in the mesic hammock that collect local flows of surface water not contiguous with drainage pathways to the river or salt marsh. However, the canopy signature from available higher resolution aerial photography will not allow them to stand out as prominently as the water features or clearings. Additional survey work for other examples of this community throughout the park is needed.

General Management Measures: Hog control and surveillance for exotic plants should be the primary management measures for this community.

Bottomland Forest

Desired Future Condition: Bottomland forest is a low-lying, mesic to hydric community prone to periodic flooding. Vegetation will consist of a mature closed canopy of deciduous and evergreen trees. Overstory species may include sweetgum, sweetbay, loblolly bay, water oak (*Quercus nigra*), live oak (*Quercus virginiana*), swamp chestnut oak (*Quercus michauxii*), loblolly pine (*Pinus taeda*), and spruce pine (*Pinus glabra*). Red maple and bald cypress (*Taxodium distichum*) are occasionally present. The understory may be open or dense and often includes wax myrtle, dwarf palmetto (*Sabal minor*), and swamp dogwood. Presence of groundcover will be variable and may consist of witchgrass (*Dicanthelium* spp.) and various sedges (*Carex* spp.).

Description and Assessment: The bottomland forest occurs as a strip running along the shoreline of the Econfina River. While in most years, it will be temporarily inundated by floodwaters of the river during high water events, these waters will recede in a short enough time so that oxygen-poor saturated soils do not allow a floodplain swamp to develop in these areas. In fact, while the whole park has flat terrain in comparison to many other regions of north Florida, this section of the park has the highest elevation sufficient to support mesic flatwoods and mesic hammock. Thus, the grade extending from these more interior community types to the river is sufficient to promote adequate drainage so that wetland conditions are not present. The bottomland forest is in good condition and appears to have undergone more limited human-influenced alteration than other areas of the park. While some degree of timbering must have occurred here in past decades, it must have been limited enough in recent history to permit some mature trees of impressive dimensions to survive into the present day. Representative plant species found in this community include live oak, cabbage palm, water oak, American holly (*Ilex opaca*), sweet gum, southern magnolia (*Magnolia grandiflora*), slash pine, saw palmetto (*Serenoa repens*), sparkleberry (*Vaccinium arboreum*), highbush blueberry (*Vaccinium corymbosum*), wax myrtle, muscadine (*Vitis rotundifolium*), giant cane, bushy bluestem (*Andropogon glomeratus*), slender wood oats (*Chasmantium laxum*), sedge, witchgrass, and resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*).

General Management Measures: Hog control and surveillance for exotic plants will be the primary management measures for this community. Since hogs often disturb the soil and vegetation as they forage for food items, they can cause substantial damage to the shoreline and shallow water habitat along the fringes of the Econfina River. Also, given the narrow dimensions of this community type, it should continue to be protected from visitor impacts by preventing the establishment of walking trails through this stand.

Floodplain Swamp

Desired Future Condition: Floodplain swamp will be a frequently or permanently flooded community in low-lying areas along streams and rivers. Soils will consist of

a mixture of sand, organics, and alluvial materials. The closed canopy will typically be dominated by bald cypress but commonly includes tupelo species (*Nyssa* spp.) as well as water hickory (*Carya aquatica*), red maple, and overcup oak (*Quercus lyrata*). Tree bases are typically buttressed. Understory and groundcover will typically be sparse.

Description and Assessment: On park property, floodplain swamp only occurs in 2 relatively limited areas in good condition along the Econfina River: an area receiving occasional drainage from Milnour Spring in the vicinity of the mesic hammock, and a set of wooded patches intersected with strands of marsh occurring above the extent of regular tidal fluctuation from the gulf that allows a predominantly freshwater influence. The former site is supplied by the spring that flows intermittently (at least at present), though its flow appears to be substantial enough over the long term to maintain a gentle slough. Surface water is often present in this strip, allowing growth of appreciably-sized bald cypresses and other swamp vegetation. The latter site occurs about one half-mile downstream from the Econfina Landing community and is not accessible from the land. Wake from passing boats can provide enough of a current to promote some degree of erosive pressure on the underlying substrate. Saltwater intrusions from higher than average pulses of gulf water resulting from tropical storms or other sources provide another potential, though natural, stressor on this community. Representative plant species include bald cypress, pond cypress, tupelo, cabbage palm, southern magnolia, southern red cedar (*Juniperus silicicola*), American holly, sweet gum, swamp bay, wax myrtle, groundsel tree (*Baccharis halimifolia*), giant cane, corkwood (*Leitneria floridana*), green arrow arum, pickerelweed, and sedge (*Carex* spp.).

General Management Measures: This area should be surveyed periodically for exotic vegetation in order to prevent the introduction of any infestations to this area. Fortunately, no exotic plants have yet been found in this location.

Hydric Hammock

Desired Future Condition: Hydric hammock is characterized with a closed canopy, evergreen hardwood and palm forest with a variable understory and with a sparse to moderate ground cover of grasses and ferns. Typical canopy species will include laurel oak, cabbage palm, live oak, sweetbay, swamp tupelo, American elm (*Ulmus americana*), red maple, and other hydrophytic tree species. Soils will be poorly drained with a normal hydroperiod seldom over 60 days per year. Fire occurrence will be rare depending upon several factors including the adjacent community type. Red cedar is not tolerant of fire and the presence of mature individuals may indicate a long Fire Return Interval.

Description and Assessment: The hydric hammock as found at this park represents one of the largest preserved examples of this community type in the state park system. It is generally a closed canopy forest of mostly hardwood species occasionally interspersed with mature slash pines. Surface water is very abundant so that most of the soil is either inundated or at least saturated with moisture. The variable microtopography of the ground surface is usually slightly undulated so that

one can only walk short distances on raised ground until encountering numerous pools of standing water. The calcareous geology of this community is readily apparent by the shallow and occasionally exposed limestone commonly observed. The understory vegetation is variable so that denser aggregations generally occur on slightly elevated substrates. Where light interception through the canopy is sufficient, sawgrass may grow in scattered clumps among the water pools among the overstory and midstory trees and shrubs. Given the large extent of this community type and its distance from pyric communities, it has not burned in recent decades and fire appears to be a very rare event, if at all during historical times. This is supported by the abundance and large size of red cedars within this community, which, given their intolerance to burning, serves as an indicator of very low fire frequency in recent times (FNAI 2010). Common plant species in this community include live oak, slash pine, cabbage palm, red cedar, water oak, laurel oak, red maple, green ash (*Fraxinus pennsylvanica*), sugarberry (*Celtis laevigata*), sweet gum, swamp chestnut oak, swamp tupelo, sweet bay, water oak, southern magnolia, loblolly pine, American elm, American holly, swamp bay, saw palmetto, yaupon (*Ilex vomitoria*), wax myrtle, sawgrass, maidencane, poison ivy, peppervine (*Ampelopsis arborea*), Virginia creeper (*Parthenocissus quinquefolia*), lizard's tail, and various ferns.

The coastal influence increases as one approaches the edge of the salt marsh and the southerly extents of the numerous small creeks draining the interior with concomitant increases in the size and density of cabbage palms, along with other more salt tolerant plant species. The coastal variant of hydric hammock assumes a more faithful expression of the ideal description on many of the scattered islands that dot the landscape of the salt marsh expanse. While vegetation associations vary on these islands according to elevation of the substrate, area of the island, depth of the surrounding marshes and creeks, and distance to the river and gulf, the coastal hydric hammock commonly forms an ecotonal strip between the saline soils of the marsh and the more sheltered insular interior. Plant species distributed in these strips are limited by their degree of salinity tolerance and are frequently dominated by cabbage palms, live oaks, and red cedars. Interiors may be wholly dominated by coastal hydric hammock on lower profile rises, drier and oak dominated on higher rises, with or without a scattering of slash pines, or some combination of these assemblages.

Overall, the hydric hammock is in good to fair condition, due in part to the long history of alteration and economic utilization in localized areas. As mentioned in the Hydrology section, raised road beds were constructed to penetrate the property and connect many of the upland patches (e.g. Bird Island, Clark Island, Boar Island) arrayed throughout the Hydric Hammock. In concert with the excavated depressions and ditches for road fill, this has changed the pattern of surface water flow across this community. In addition, some commercial harvesting of palm trees took place in the 1980s for landscaping purposes; remnant holes are still observable, though these areas are generally concentrated near the access roads. As with other natural communities in the park, hog damage to the vegetation and soil surface can be substantial where they have foraged for food items. Areas

farther from the road beds, logged areas (primarily the upland patches), and developed features are generally in better condition.

General Management Measures: Given the substantial hydrological alterations affecting this community, various restoration projects would be instrumental in improving the ecological condition of the hydric hammock. This would be a long-term endeavor, progressing in stages and extending beyond the next planning cycle. The most immediate restoration need would be to upgrade or replace portions of the raised road beds that cross the creeks draining areas to the north. Remedies would be case dependent with aging culverts and washouts either replaced with newer structures or installing low water crossings where possible. Hog control efforts will continue to reduce the population size and their associated disturbance. Surveillance for exotic plants should also continue so that potential infestations may be located and eradicated as soon as possible before they become problematic.

Marsh Lake

Desired Future Condition: The marsh lake is a discrete water body that is small in relation to the surrounding marsh community. The open water zone may contain floating aquatic plants which may be loosely organized into bands of similar vegetation types or it may be completely lacking in significant plant cover. These depressions generally result from either (1) solution holes forming in the underlying limestone leading to surface sands slumping into the typically circular depressions, or (2) from wave and wind scour that causes the depression to slowly deepen with erosive processes when sea level was higher so that seasonal or permanent inundation persists when sea level drops. Water primarily derives from runoff originating in the surrounding community flowing into the depression instead of any significant groundwater recharge processes.

Description and Assessment: Among the islands along the southern portion of the park property, there are several marsh lakes scattered throughout the expansive salt marsh. These water bodies are likely formed as a result of the dissolution of underlying limestone layers and possess waters too deep to be colonized by the surrounding salt marsh vegetation. As evidenced by aerial photography, they often receive water flow from small creeks draining the localized area of the marsh. Many of them are isolated and are not readily accessible by foot or by boat. Representative plants include sawgrass, coastalplain willow, wax myrtle, buttonbush, maidencane, pickerelweed, bulrush (*Scirpus* spp.), starrush whitetops (*Rhynchospora colorata*), and cattails (*Typha* spp.).

General Management Measures: Where accessible, the marsh lakes should be monitored periodically for infestation by exotic plants. No other specific measures are recommended.

Mesic Flatwoods

Desired Future Condition: Within mesic flatwoods in north Florida, dominant pines will usually be longleaf pine (*Pinus palustris*). Native herbaceous groundcover will exceed at least 50% of the area and be less than 3 feet in height. Saw palmetto will

comprise no more than 50% 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*), running 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 2-5 years.

Description and Assessment: The mesic flatwoods are located in the northeastern corner of the park with the vast majority occurring east of Highway 14 in the upper portion of zone 2; a small extension of this community also occurs just across the highway in zone 1. This community had been used intensively for timber production prior to the establishment of the state park, and it has been logged at least twice. This stand was clear-cut in the 1980s and replanted in plantation fashion with slash pines. Given its ruderal character in recent years, it has been subject to restoration efforts over the past decade in order to reintroduce prescribed fire and gradually transform the vegetative composition and structure toward its desired future condition. The slash pines were planted at a density of 350-400 trees per acre, and the absence of burning over the past 3 decades has allowed for off-site woody trees and shrubs to establish in the understory, gradually reducing the abundance of herbaceous groundcover plants. Efforts have already been undertaken toward reintroducing prescribed fire to this stand. Slash pines were thinned in 2010 so that the density of pines is now about 30-50 trees per acre; woody groundcover has also been reduced via mechanical treatment. A fireline infrastructure has been created in order to contain the fire and minimize the chance of spread to other parcels. This stand is now ready for its first burning, which will reduce the understory's woody biomass. The burn will occur at the next opportunity during the non-growing growing season. Representative plant species in this community include slash pine, loblolly pine, laurel oak, water oak, live oak, gallberry, yaupon, cabbage palm, saw palmetto, fetterbush (*Lyonia lucida*), shiny blueberry, sand blackberry (*Rubus cuneifolius*), broomsedge bluestem (*Andropogon virginicus*), narrowleaf silkgrass (*Pityopsis graminifolia*), St. John's wort, wiregrass (*Aristida stricta*), common blue violet, dogfennel, and bracken fern (*Pteridium aquilinum*).

General Management Measures: Hog control and surveillance for exotic plants should continue for this community. Preparation for and execution of prescribed fire operations will proceed for the mesic flatwoods stand in zone 2, as mentioned above. Since mesic flatwoods acreage occurs just to the west across the highway that is also in a similar state as the zone 2 stand (prior to fire preparations), this area will also need to undergo restoration efforts. An action plan should be drafted that is modeled on the zone 2 plan. For this park, it was determined that limited harvesting of selective timber products could be accommodated in a manner that would be compatible and not interfere with the primary purpose of resource-based outdoor recreation and conservation.

Mesic Hammock

Desired Future Condition: Mesic hammock is a well-developed evergreen hardwood forest with an often-dense canopy that typically includes live oak, southern

magnolia, and pignut hickory (*Carya glabra*), among others. The shrubby understory may be dense or open, tall or short, and will typically be composed of saw palmetto, American beautyberry (*Callicarpa americana*), American holly, gallberry, and sparkleberry. The groundcover may be sparse and patchy but generally contains panicgrasses (*Panicum* spp.), sedges, as well as various ferns and forbs. Abundant vines and epiphytes may occur on live oaks and other 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 are rarely inundated, and they are not considered to be fire-adapted.

Description and Assessment: As elevation gradually increases toward the northeastern corner of the park, the extent and frequency of flooding declines such that the hydric hammock transitions into a mesic hammock. Hydric hammocks typically experience long periods of inundation with standing water so that vegetation must adapt to these soggy conditions and the lower available oxygen that accompanies them. However, soils underlying mesic hammocks are wet enough to provide favorable growing conditions to the plants in this community yet are well-drained enough to prevent widespread inundation. As conditions in this community type do not promote fire, mesic hammocks usually support an overstory canopy that casts significant shade upon the vegetative layers below. Tall trees are replaced via gap dynamics, whereby fallen trees open up space in the canopy; sunlight initiates competition among smaller trees or saplings in the gap to overtop others and replace the fallen tree's position in the canopy. The shade, abundant moisture, and restriction of free air movement by the woody plants' structure provides for slightly cooler, more humid microclimatic conditions. Leaf litter decay is slow enough in the autumn to permit a persistent blanket over the ground, further enhancing soil moisture availability to plants. The major ecosystem driver between the strip of bottomland forest along the Econfina River and this stand of mesic hammock is that the former is often seasonally inundated by floodwaters for relatively short periods, and the plants in this community must be able to cope with this stressor in order to thrive. This community is in good ecological condition and common species observed here include southern magnolia, live oak, pignut hickory, swamp chestnut oak, American holly, water oak, red bay, red buckeye (*Aesculus pavia*), cabbage palm, saw palmetto, yaupon, sparkleberry, wax myrtle, giant cane, slender woodoats, wild sarsaparilla (*Smilax pumila*), cross vine (*Bignonia capreolata*), and resurrection fern.

General Management Measures: No specific restoration measures are necessary for this community type. As with other areas of the park, hog damage does occur to the plants and soil as they forage. Hogs can substantially disturb localized areas, forming a mosaic of damaged zones across the landscape over time. Hog control efforts will continue in order to reduce the population size and their associated disturbance. Surveillance for exotic plants should also continue so that potential infestations may be located and eradicated as soon as possible before they become problematic.

Salt Marsh

Desired Future Condition: Salt marsh is a largely herbaceous community that occupies the portion of the coastal zone affected by tides and seawater yet protected from large waves. Salt marsh typically will have distinct zones of vegetation dependent on water depth and tidal fluctuations. Saltmarsh cordgrass (*Spartina alterniflora*) will dominate the seaward edge most frequently inundated by tides. Needle rush (*Juncus roemerianus*) will dominate the higher, less frequently flooded areas. Other characteristic species include Carolina sea lavender (*Limonium carolinianum*), perennial saltmarsh aster (*Symphotrichum tenuifolium*), wand loosestrife (*Lythrum lineare*), and marsh fimbry (*Fimbristylis spadicea*). Further from the seawater, an assemblage of salt-tolerant shrubs may be present, including groundsel tree, saltwater falsewillow (*Baccharis angustifolia*), bigleaf sumpweed (*Iva frutescens*), and Christmasberry (*Lycium carolinianum*). Soil salinity and flooding will be the 2 major environmental factors influencing the distribution of salt marsh vegetation. While there is little data on natural fire frequency in salt marshes, this community will likely burn sporadically, and with a mosaic pattern (given the patchiness of fuels intermixed with deeper waters and barren salt flats).

Description and Assessment: The salt marsh occurs primarily as a vast expanse in the park's most southerly reaches, but it also extends slender fingers into adjacent communities. This marsh occurs between the Gulf of Mexico and the hydric hammock to the north; a multitude of islands are distributed along its northern band where soil patches rise enough above the brackish surface water to provide for the growth of trees and shrubs. This salt marsh is one portion of a much larger regional zone extending from Wakulla County along the Apalachee Bay down to Pasco County. The marsh is tremendously important to the lands and waters on either side, as it forms an extraordinarily rich and productive estuarine habitat that serves as a vital nursery to many aquatic species. Some of these are extremely valuable to the economy as food resources, especially those that live their adult lives in deeper gulf waters. For lands lying inland of this community, the salt marsh also serves as an important buffer against the effects of tropical storms, especially storm surges. Given its remote location away from dense population centers or ports, as well as the difficulty of penetrating its interior, the salt marsh is in very good condition. Representative plant species that may be found in this community include needle rush, salt meadow cordgrass (*Spartina patens*), gulf cordgrass, Christmasberry, saltgrass (*Distichlis spicata*), saltwort, sawgrass, smooth waterhyssop, bigleaf sumpweed, and sea oxeye (*Borrichia frutescens*).

General Management Measures: Park staff should monitor this community for exotic plant species to ensure that no infestations are occurring along its periphery. They should also monitor for any signs of disturbance to the substrate or evidence of accelerated erosion that may result from human activity.

Scrubby Flatwoods

Desired Future Condition: Slash pines will be the dominant tree in North Florida barrier island scrubby flatwoods; mature sand pines (*Pinus clausa*) typically are lacking. There will be a diverse shrubby understory, often with patches of bare white sand. A scrub-type oak "canopy" will vary in height from 3-8 feet, and a

variety of oak age classes/heights will be present. Dominant shrubs will include sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*), Chapman's oak (*Quercus chapmanii*), saw palmetto, rusty staggerbush (*Lyonia ferruginea*), and tarflower (*Bejaria racemosa*). Cover by herbaceous species will often be well below 40%. The Optimal Fire Return Interval for this community will be regionally variable.

Description and Assessment: The park's scrubby flatwoods are in fair condition and occur as relatively small, discrete habitat patches (e.g. Clark Island, Boar Island, Bird Island) that are distributed along the southern to southeastern band of the hydric hammock, proximal to the salt marsh. They are arrayed in a roughly analogous fashion to the true islands scattered among this large expanse of salt marsh; given sufficient time, and with a slightly elevated sea level, their appearance would eventually mimic those of the islands. With sandy soils and a higher elevation than the surrounding hydric hammock, these flatwoods drain far more thoroughly and quickly, and offer far less soil moisture to the vegetation. These drier conditions support a flora with a much scrubbier character, so that for the majority of plant species unable to tolerate the saturated conditions between these habitat patches, these islands would truly function as water-bound islands with a corresponding restriction of migration and gene flow between them. Logging operations have impacted these scrubby flatwoods patches in the past, as slash pine replanting followed the last harvesting in the 1980s. As evidenced by small pits and other ground disturbances in this community, the substrate was also used for road fill to build and maintain the raised road beds that connect these habitat patches. The midstory and understory vegetation is composed of relatively common plant species, especially those able to tolerate disturbance pressures. As a matter of fact, these layers strongly resemble the xeric hammocks in terms of species composition, with the chief difference being the presence of slash pines in the canopy of the scrubby flatwoods. Fire is exceedingly rare on these islands since they are small and isolated from other pyric communities; presumably, they would naturally burn on a similar frequency with offshore barrier islands (only when ignited by very sporadic lightning strikes). Given their proximity to the coast, disturbance from storm surge and wind throw resulting from infrequent tropical storms would be a comparable, or likely greater, influence on community dynamics in the absence of human activity. Some of the representative plant species include slash pine, live oak, sand live oak, myrtle oak, red bay, gallberry, sparkleberry, wax myrtle, yaupon, saw palmetto, rusty staggerbush, sparkleberry, Darrow's blueberry, St. John's wort, broom sedge, arrowfeather threeawn (*Aristida purpurescens*), greenbrier (*Smilax* spp.), and deer lichen (*Cladina* spp.).

General Management Measures: Hog control and surveillance for exotic plants will be the primary management measures for this community. Since fire is extremely unlikely to spread from the surrounding hydric hammock, given its inundation and absence of conditions favoring the spread of fire, lightning strikes that rarely ignite and burn the habitat patch would presumably reflect the natural rate at which these stands would burn in isolation.

Sinkhole lake

Desired Future Condition: Sinkhole lakes can be described as relatively permanent and often deep lakes characterized by clear water. These lakes have a high mineral content and occupy depressions within a limestone substrate. Vegetative cover may range from non-existent to a fringe of emergent species, to complete coverage with floating plants. Typical plant species include smartweed (*Polygonum hydropiperoides*), duckweed (*Lemna* spp.), bladderwort (*Utricularia* spp.), and rushes (*Juncus* spp.).

Description and Assessment: There are 7 sinkhole lakes depicted on the natural communities map, with most of them in relatively isolated areas away from the access roads. These lakes are visible on aerial photographs, and for the most part are free of herbaceous vegetation. While there are 2 very small sinkhole lakes present close to the salt marsh, and almost certainly have some degree of brackish influence, the other 5 are farther away and are likely to hold freshwater. Given their relatively irregular shorelines and distance from access roads (except for one close to a borrow pit by the highway), they are likely derived from the dissolution of underlying limestone layers. Vegetation occurring along their shorelines in shallow waters includes sawgrass and soft rush (*Juncus effusus*); duckweed may be present on the surface of the water.

General Management Measures: Hog control and surveillance for exotic plants will be the primary management measures for this community. Since hogs often disturb the soil and vegetation as they forage for food items, they can cause substantial damage to the transitional and shallow water habitat along the fringes of sinkhole lakes. Also, they should be protected and monitored to ensure that nearby soil disturbances do not lead to erosion and siltation, and that any potential pollution sources do not contaminate these connections to the aquifer.

Xeric Hammock

Desired Future Condition: Vegetation will consist of a low closed canopy dominated by live oak, which provides shady conditions below. Typical plant species may also include Chapman's oak and laurel oak. Sand pine, slash pine, or longleaf pine may also be a minor component. Understory species will include saw palmetto, fetterbush, myrtle oak, and yaupon holly. A sparse groundcover layer of wiregrass and other herbaceous species may exist but will typically be absent. A continuous leaf litter layer may be present.

Description and Assessment: As noted above, this community type resembles scrubby flatwoods in terms of species composition, with the exception that it lacks a scattered overstory of slash pines. In the absence of pines, one structural difference is that live oaks and sand live oaks have the opportunity to grow taller and broader to form a fuller canopy, which casts more shade on the understory. However, since these patches appear to occur on smaller habitat islands than the scrubby flatwoods, any difference in distribution between these communities may result primarily from economic considerations; managers may decide that they are not worth the trouble of establishing and maintaining as timber stands, resulting in a divergent land use history. Also, the larger oak canopy trees may result from a lesser extent of disturbance from timbering and road fill excavation. Overall, this

community type is considered to be in fair condition. The habitat patches not readily accessible from the raised road bed system were not scouted in preparation for this plan, but their considerable isolation may have afforded them a buffer against some degree of anthropogenic disturbance pressure, and thus they may have been better preserved (though they would still be vulnerable to tropical storm disturbance). In the future, a biological survey of less accessible habitats may uncover rare biota not known to occur in this park. Representative plant species include live oak, sand live oak, laurel oak, myrtle oak, saw palmetto, beautyberry, yaupon, wax myrtle, sparkleberry, blueberry species, dwarf huckleberry, St. John's wort, Spanish moss, and resurrection fern.

General Management Measures: Hog control and surveillance for exotic plants will be the primary management measures for this community. No other specific actions are planned for these habitat patches.

Developed

Desired Future Condition: The developed areas within the park will be managed to minimize the effect of disturbance on adjacent natural areas. Surveillance for exotic plants will continue to ensure that none of these pest species establish infestations in this area, which currently lacks any FLEPPC category 1 or 2 species. Proper stormwater management will continue and measures will be taken to ensure that problems are remedied, if necessary.

Description and Assessment: There are two altered landcover types depicted on the natural communities map: borrow pits and developed land covers. The borrow pits referred to here are 3 substantial excavations located a short distance from Highway 14, and were used to supply fill material for the construction of this two-lane asphalt road. These pits are filled with water so that they function as retention ponds, though the regularity of their outlines belies their artificial origin. There are numerous other borrow pits near the park's access roads, many only temporarily filled with water after rains, but these are much too small to be apparent on a map of this scale.

Developed land covers include the park's access roads, parking lots, public use and boat ramp areas, and a vacant lot that once was occupied by a park staff residence before it was demolished. Just to the south of the visitor parking lot, the remnants of a former fish camp are still observable. An access road winds among a few dozen former RV campsites, some with nonfunctional outlets still present. There are three small buildings that are not currently in use. Also, there are a number of underground septic tanks scattered around this area.

General Management Measures: Maintain free from exotics and maintain water quality.

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.

There are three imperiled plant species that have been observed in the park: corkwood, angle pod (*Gonolobus suberosus*), and needle palm (*Rhapidophyllum hystrix*). Corkwood, not be confused with a different Florida species (*Stillingia aquatica*) also referred to by the same common name, was so named from the past practice of harvesting its wood to be used for floats on fishing nets (Nelson 2011). It has the lightest density wood of any plant in the state. While fossil evidence suggests that the species may have once been more widespread (e.g. western Russia), it is now found in several widely scattered localities in the eastern United States; in Florida, it occurs in scattered areas (muddy rivers and their associated estuaries) in the Big Bend region. Where it occurs, including the park, it may be locally abundant. Seasonally deciduous, corkwood loses its leaves over the winter but may be identifiable as a cluster of thin woody stems interspersed among other trees and shrubs. Its typical habitat consists of water-filled depressions or ditches receiving adequate sunlight. Occasionally it is encountered adjacent to the road beds traversing the hydric hammock. Along with corkwood, angle pod is another state-listed, threatened species in the park; it is an herbaceous vine that typically occurs in hammocks. Classified as being Commercially Exploited, needle palm occurs in places that rarely burn, including hardwood-dominated hammocks and bottomland forests. While its range extends down to the central peninsula, it has a discontinuous distribution and is found in limited areas within this larger area. At the park, it may be observed in portions of the hydric hammock, particularly more inland locales closer to the northern boundary. No specific actions are necessary for these plants, aside from assuring that their respective habitats are protected from disturbance pressures and buffered from visitor impacts.

The expansive salt marsh with its many tidal creeks, seepage streams, and lakes is indispensable habitat for obligate imperiled bird species such as Marian's marsh wren and the Scott's seaside sparrow, both of which occur on the Gulf Coast of Florida's Big Bend. Both species are dependent on marshes dominated by black needle rush and smooth cordgrass for breeding and are generally permanent residents in this habitat; these marshes are also important habitats used by other northern subspecies that migrate to this area in the winter (Hipes et al. 2001). The salt marsh and other associated wetlands prevalent in the park also serve as important habitat for other imperiled bird species that are less specialized in their habitat requirements, including the little blue heron, tricolored heron, and wood stork. Southeastern American kestrels have also been observed in this park. While they may forage in a variety of natural communities, especially with more open vistas that allow them to see for an appreciable distance, during the breeding season, they require dead snags or telephone poles for nesting. Nest sites have an unobstructed view of the surroundings and a grassy or open area below in order to spot potential predators. As prescribed fire efforts progress and the mesic flatwoods are restored to a more favorable ecological condition, habitat quality in this community will improve for the park's kestrels. Additionally, the abundant wetland, riverine, and lacustrine communities in this park provide excellent habitat for American alligators and manatees (particularly in the Econfina River for the latter

species). Finally, park staff have observed signs (e.g. tracks, scat) as well as actual individuals of the Florida black bear on multiple occasions. This species prospers when allowed to roam throughout its home range unobstructed; its preferred habitat is forested wetlands, which provides diurnal cover. For each species listed above, maintenance of buffers against visitor-induced disturbance of favorable habitat, along with the continued surveillance for and control of exotic plants and animals, will assist with preserving the condition of natural communities and the viability of the park's rare species' populations.

Currently, the presence of gopher tortoises on the property is not confirmed. A park staffer observed one tortoise in the park in the 2000s, but neither this individual nor any burrows have been seen since. A park staffer conducted a gopher tortoise survey in 2014 and failed to locate any evidence of them in the park. The potential habitat that could support them is in the limited acreage of mesic flatwoods in the upper northeast corner of the park. This community is now in poor condition, with low coverage of herbaceous groundcover relative to the woody midstory, such that little sunlight reaches the ground. Planned reintroduction of prescribed fire to this area in future years should restore this stand to an improved ecological condition, one that may provide a better opportunity to support a small population. If this park is eventually considered for translocation of gopher tortoises in order to establish a local population, the suitability of this site would be dependent on the availability of favorable land cover types occurring off park property. Otherwise, the new population would likely remain isolated from other conspecifics.

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.

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.

Table 2: Imperiled Species Inventory						
Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FWC	USFWS	FDACS	FNAI		
PLANTS						
Angle pod <i>Gonolobos suberosus</i>			LT		10	Tier 1
Corkwood <i>Leitneria floridana</i>			LT	G3,S3	10	Tier 1
Needle palm <i>Rhapidophyllum hystrix</i>			CE		10	Tier 1
REPTILES						
American alligator <i>Alligator mississippiensis</i>		T (S/A)		G5,S4	10,13	Tier 1
BIRDS						
Scott's seaside sparrow <i>Ammodramus maritimus peninsulae</i>	T			G4T3,S3	10,13	Tier 1
Marian's marsh wren <i>Cistothorus palustris marianae</i>	ST			G5T3,S3	10,13	Tier 1
Tricolored heron <i>Egretta tricolor</i>	T			G5,S4	10,13	Tier 1

Table 2: Imperiled Species Inventory						
Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FWC	USFWS	FDACS	FNAI		
Southeastern American kestrel <i>Falco sparverius paulus</i>	ST			G5T4,S3	10,13	Tier 1
Wood stork <i>Mycteria americana</i>	SE	LT		G4,S2	10,13	Tier 1
MAMMALS						
West Indian manatee <i>Trichechus manatus</i>	SE	LE		G2,S2	10,13	Tier 1
Florida black bear <i>Ursus americanus floridanus</i>	ST			G5T2,S2	10,13	Tier 1

Management Actions:

- | | |
|---|---|
| 1. Prescribed Fire | 8. Predator Control |
| 2. Exotic Plant Removal | 9. Erosion Control |
| 3. Population Translocation/Augmentation/Restocking | 10. Protection from visitor impacts (establish buffers)/law enforcement |
| 4. Hydrological Maintenance/Restoration | 11. Decoys (shorebirds) |
| 5. Nest Boxes/Artificial Cavities | 12. Vegetation planting |
| 6. Hardwood Removal | 13. Outreach and Education |
| 7. Mechanical Treatment | 14. Other |

15. 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.

Exotic and Nuisance Species

Exotic species are plants or animals not native to Florida. Invasive exotic species can 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.

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

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

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.

Fortunately, observations by DRP staff over the years have not uncovered any exotic invasive species of plants at this park. As part of the statewide DRP exotic plant control program, the park is periodically surveyed to ensure that no infestations appear and become established; park personnel are also vigilant for any sightings of exotic plants as they go about their duties. Given the higher visitation rate and potential for future transportation of propagules into the park, areas that receive a higher priority for closer scrutiny include the boat ramp/parking area at the Econfina Landing community, along Highway 14, along trail segments more frequently used by park visitors, and in the vicinity of the equestrian area near the extreme northeastern corner of the park.

Exotic animals in the park include armadillos and feral hogs. Since armadillos excavate burrows in the soil for shelter, they are generally found in more upland communities since wetlands with a high water table would not permit tunneling. Thus, most of the potential armadillo activity is in the drier, higher elevation communities in the northeastern portion of the park.

While armadillos pose more of an occasional issue, feral hogs are one of the park's most significant natural resource problems. The population size is significant and there is enough remote acreage on the property where they can hide from control efforts. Additionally, the abundance of natural habitat outside the park boundary, while certainly a positive aspect, does mean that hog populations can move across

the landscape at will and reestablish their presence inside the park. However, with the substantial damage they cause to the natural communities and native plant and animal species, it will always remain a priority to reduce the population. Impacts to the wetland communities, especially the hydric hammock, are the most substantial. The worst damage results from their digging and rooting through the soil substrate, often resulting in patches of churned up mud 20 feet or more in diameter that are denuded of most groundcover vegetation. These areas can have local erosion and water quality issues that result in degraded aquatic habitat for fish and amphibians. This denudation also removes potential shelter and cover for smaller animal species, such as ground-dwelling birds, mammals, reptiles, amphibians, and invertebrates. These hogs consume large quantities of small animal species and compete with native fauna for mast. The main approach to feral hog control is to hire a contractor to trap and harvest these pest animals. The traps are enclosures that allow hogs to enter through a gate; a trigger closes it with the hogs inside. Feed corn serves as bait to lure the animals in. The contractor can then retrieve the hogs when he or she checks the trap and then transport them off-site for later sale as a food source. In addition to the contractor, park staff also take opportunities to remove hogs when encountered.

Special Natural Features

Two coastal wetland natural communities exemplified in the park, hydric hammock and salt marsh, are among the largest examples of these associations preserved in the Florida state park system, providing visitors with public access and the opportunity for exploration.

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 3-part evaluation scale, expressed as good, fair and poor. These terms describe the present condition, rather than comparing what exists to the ideal condition. Good

describes a condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. Fair describes a condition in which there is a discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A fair assessment is usually a cause for concern. Poor describes an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.

Level of Significance

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

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

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

Prehistoric and Historic Archaeological Sites

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

Description: Econfina River State Park has been utilized by humanity for thousands of years, and its known assemblage of archaeological sites reflects the patterns of its habitation. Its location along the Gulf Coast, and its flat, wetland-dominated terrain and shallow limestone bedrock provided prehistoric cultures with a bountiful source of food and tool-making materials. Even with the proportionately limited access through the frequently inundated, raised road beds constructed in the mid-20th century, many sites replete with evidence of early human habitation have been discovered. When C. B. Moore initially surveyed this vicinity in 1902, he reported on several cultural sites along the river that must have once been dramatic in

appearance. Unfortunately, his descriptions of their exact locations were vague and subsequent attempts to locate these resources and update their status were unsuccessful. Most notably, he located a burial mound (TA4) composed of sand piled about 3.5 feet high and 50 feet in diameter from which he recovered stone tool fragments and human bones. However, later surveys and shovel tests (Harp 1999), completed prior to a planned park facilities construction project near the boat ramp and the abandoned Poppels Fish Camp, did not locate any definitive evidence of this site, which was assumed to have been lost to development. An additional mound (TA5) and midden (TA16) located up- and downstream along the river, respectively, by Moore were never found by later surveys. Another mound feature (TA275) was found in 1997 and is still present to this day; it is located near the northwest corner of the park near an access road. It measures about 4 feet tall by 15 feet wide, and has yielded an assortment of stone tools and lithic scatters.

There are a multitude of other sites found in the park that possess stone tools or other lithic fragments and are generally believed to represent camp sites or tool making sites (TA191 to 201, 12, 389, 438, 440, 441, 446, 447, 498, 499). Site TA197 also contained a "crystalline formation in limestone [and] debitage." Sites TA438 and 447 are located on islands in the salt marsh and are only readily accessible by boat. Eleven of these sites (TA191 to 201) were located in 1985 by Calvin Jones with the Division of Historic Resources; as such, he conducted a surface observational survey of exposed ground without further excavation. Jones judged that these artifacts were likely created during the Middle to Late Archaic period about 2500 to 7000 years ago.

There are 3 known cultural sites from the historic American period: TA439 consisted of a cat-faced pine tree indicating past turpentine collecting, TA442 is a historic road segment believed to date to at least the Civil War period, and TA500 is the site of a 20th century homesite. The documents associated with TA442 indicate that Confederate salt works were also said to exist in association with this site, but no evidence was uncovered. At TA500, abundant artifacts are still apparent including an intact chimney base, collapsed building materials (wooden walls, metal roof, window panes and frames), and assorted furniture and appliances; this site is located along the Econfina River near the upper northeastern corner in zone 2. There are no historic structures currently standing on park property.

A predictive model has been completed for this park by the Alliance for Integrated Spatial Technologies at the University of South Florida (Collins et al. 2012). The team drew from existing records, aerial imagery, and field visits to provide the report's analysis, which used a host of natural and cultural spatial variables. This analysis resulted in a map depicting areas predicted to possess high, medium, and low probability of harboring unknown cultural resources in order to guide future research efforts. High priority areas for archaeological sites represented about 4% of the total park acreage and was concentrated on the drier habitat patches embedded within the hydric hammock and islands scattered throughout the salt marsh. There have been 3 cultural resource surveys conducted in the past (Harp 1999, Bennett et al. 2001; Porter 2009), but a comprehensive survey has not yet been completed.

Condition Assessment: Given its outlying location and light visitation to areas outside the vicinity of the boat ramp parking lot, illegal poaching of artifacts from various cultural sites throughout the park has been problematic. Holes left by pothunters are unfortunately apparent at some locations, especially at the mound near the park's northwest corner (TA275). It is unfortunate that these excavations were extensive enough to compromise the overall shape of the mound so that it is somewhat irregular in outline. One can assume that the collection pressures on many of the sites are lower than they must have been in the past, particularly for the more remote sites, since locked gates now prevent ready access from the highway. In past decades, before this property was established a state park, there had been removal of artifacts without proper documentation with DHR, so it might not be possible to fully know what items have been lost and which sites have been severely compromised. As noted above, some of the most dramatic features such as prominent mounds and middens are believed to have been lost, presumably for road fill or similar uses, as was common practice throughout Florida in the late 19th and early 20th centuries. The condition of sites can be described to be fair, since substrates appear to be intact, indicating that looting no longer occurs.

General management measures: The most pressing management measure is to continue to monitor known sites in order to prevent looting; culturally rich sites are visited at least once per month, if not more often. Park staff should be vigilant against suspicious activity when noticed. Whenever evidence of illegal pothunting is found, law enforcement should be notified so that they may investigate the crime, as is standard practice. Also, whenever previously unknown cultural features or artifacts are discovered by park staff, they should inform DHR and complete the forms for the Florida Master Site File (FMSF) when appropriate. Also, the homesite (TA500) needs to be investigated by DHR or other cultural staff so that the site can be studied and inventoried; following this survey and after any significant artifacts have been catalogued and deposited in the state collection facility, the rubble should be cleaned up and removed from the park for disposal.

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. The Florida Master Site File lists no historical structures currently present in the park.

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: There are no historical documents per se associated with Econfina River State Park in possession by park staff. Any paperwork or official documents (e.g. FMSF forms, cite assessments, photographs) regarding the park's cultural

resources are stored at the administrative office for the Tallahassee – St. Marks “geopark” system, which is located at Lake Jackson Mounds State Park in northern Tallahassee. They are stored in file cabinets in a climate controlled office setting so that degradation is not an issue. Any artifacts collected in the course of past archaeological surveys have been documented and submitted to the DHR collections facility for their safekeeping.

Condition Assessment: Park documents are in good condition, and artifacts stored at the DHR collections facility should also be preserved against degradation.

General management measures: There are no specific management measures necessary for the collection items, aside from assuring that they are preserved against the elements.

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 3. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
TA00004 Mound A near Econfina River	Prehistoric	Archaeological Site	NE		
TA00005 Mound B near Econfina River	Prehistoric	Archaeological Site	NE	NE	P
TA00016 Econfina 5	Prehistoric	Archaeological Site	NE	NE	P
TA00024 NN	Prehistoric	Archaeological Site	NE	NE	P
TA00191 MCKAY1	Prehistoric	Archaeological Site	NE	NE	P
TA00192 MCKAY2	Prehistoric	Archaeological Site	NE	NE	P
TA00193 MCKAY3	Prehistoric	Archaeological Site	NE	NE	P

Table 3. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
TA00194 MCKAY4	Prehistoric	Archaeological Site	NE	NE	P
TA00195 MCKAY5	Prehistoric	Archaeological Site	NE	NE	P
TA00196 MCKAY6	Prehistoric	Archaeological Site	NE	NE	P
TA00197 MCKAY7	Prehistoric	Archaeological Site	NE	NE	P
TA00198 MCKAY8	Prehistoric	Archaeological Site	NE	NE	P
TA00199 MCKAY9	Prehistoric	Archaeological Site	NE	NE	P
TA00200 MCKAY10	Prehistoric	Archaeological Site	NE	NE	P
TA00201 MCKAY11	Prehistoric	Archaeological Site	NE	NE	P
TA00275 MCKAY Tract – Taylor County	Prehistoric	Archaeological Site	NE	F	P
TA00389 Econfina River State Park Site #5	Prehistoric	Archaeological Site	NE	NE	P
TA00438 Rodent Haven	Prehistoric	Archaeological Site	NE	NA	P
TA00439 Rosin's Catface	20 th century American	Archaeological Site	NE	NE	P
TA00440 Econfina Logmade Creek	Prehistoric	Archaeological Site	NE	NE	P
TA00441 Econfina Boar Hunt	Prehistoric	Archaeological Site	NE	NE	P
TA00442 Salt Lick Road	19 th century American	Archaeological Site	NE	NE	P
TA00446 Econfina Pools	Prehistoric	Archaeological Site	NE	NE	P
TA00447 Hammock Island	Prehistoric	Archaeological Site	NE	NA	P
TA00498 Tree Fall Mound	Prehistoric	Archaeological Site	NE	NE	P

Table 3. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
TA00499 Scattered Dreams	Prehistoric	Archaeological Site	NE	NE	P
TA00500 Rubble House	20 th century American	Archaeological Site	NE	P	R

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 Econfina River State Park. Please refer to the Implementation Schedule and Cost Estimates in the Implementation Component of this plan for a consolidated spreadsheet of the recommended actions, measures of progress, target year for completion and estimated costs to fulfill the management goals and objectives of this park.

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

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

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

Natural Resource Management

Hydrological Management

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

The natural hydrology of most state parks has been impaired prior to acquisition to one degree or another. Florida's native habitats are precisely adapted to natural drainage patterns and seasonal water level fluctuations, and variations in these factors frequently determine the types of natural communities that occur on a particular site. Even minor changes to natural hydrology can result in the loss of plant and animal species from a landscape. Restoring state park lands to original

natural conditions often depends on returning natural hydrological processes and conditions to the park. This is done primarily by filling or plugging ditches, removing obstructions to surface water “sheet flow,” installing culverts or low-water crossings on roads, and installing water control structures to manage water levels. Efforts to restore the natural surface hydrological flow involve identifying locations within the existing trail network improve water flow while not prohibiting public access through the use of culverts, low-water crossings, pedestrian bridges, or a variety of other solutions based on trail usership and context.

Objective A: Restore natural hydrological conditions and functions to approximately 1,818 acres of the hydric hammock natural community.

- Action 1 Repair 10 high priority culvert crossings to allow drainage under the raised access road beds.
- Action 2 Repair 5 medium priority culvert crossings to allow drainage under the raised access road beds.
- Action 3 Install 2 new crossings to allow drainage under the raised access road beds.

A hydrological assessment was commissioned by the DRP in April 2014 in order to estimate the drainage needs and options that could be undertaken. The report showed that by repairing or replacing culvert crossings underlying the raised access road beds traversing the hydric hammock, the hydrological restoration of this natural community could occur. While it is exceedingly difficult to gauge how much acreage would benefit from more effective drainage, for these purposes it was estimated as the entire acreage of management zones 3 and 6 (191 and 1,080 acres, respectively) and half of zone 4 (equal to 547 acres), for a total of 1,818 acres of hydric hammock. Evaluating 20 culvert crossings and washouts along these access roads, the report indicated that ten locations had a high priority for replacement or repair, 5 locations were a medium priority, and 5 locations that were adequately functioning were a low priority. In addition, the report identified 2 new areas where upstream water volume was high enough to justify constructing new crossings where none had previously existed. Furthermore, at 6 locations, vegetative characteristics up- and downstream of a culvert crossing were sufficiently altered, leading to the conclusion that water flow was inadequate and that blockages are likely contributing to identifiable vegetative changes over time.

Potential remedies for each case were presented in the report according to a Cost Option Matrix that identifies optimal repair or upgrade options, so that allowances can be made concerning the funds available for the project budget. Three alternatives for drainage options were presented: (1) box culverts, which are precast concrete structures that can be installed en masse. Box culverts permit pedestrian access over a crossing and can be designed according to the specific demands of that location; (2) low water crossings, which consist of rock fill with or without underlying Geoweb fabric for stability. Low water crossings are installed to match the prevailing terrain contour and are a less expensive option, though only suitable for ephemeral or low velocity flows in order to prevent damage to the structure; and (3) cylindrical culverts, which can be composed of various materials with concrete being the strongest. This type must be lowered into place using a

crane or comparable piece of heavy equipment, and the substrate underlying the culvert must be adequately prepared in order to prevent failure of the crossing structure. Before repair projects are initiated, decisions need to be made regarding which of the recommended approaches would be utilized.

Natural Communities Management

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

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

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 ecosystems. 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 A: Within 10 years, have 75 acres of the park maintained within the optimum fire return interval.

- Action 1 Develop/update annual burn plan
- Action 2 Manage mesic flatwoods east of Highway 14 by burning 75 acres.
- Action 3 Plan for and prepare prescribed fire infrastructure for remaining 15 acres of mesic flatwoods.

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 4: Prescribed Fire Management		
Natural Community	Acres	Optimal Fire Return Interval (Years)
Mesic Flatwoods	90	2-5
Annual Target Acreage	18 - 45	

Prescribed fire is planned for each burn zone on 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.

The park's mesic flatwoods have been significantly impacted by land use alterations. Having been logged, raked, lightly bedded, and then planted with a high density of slash pines in a plantation fashion, stand density in zone 2's 75 acres of flatwoods was estimated to be about 350 to 400 stems per acre prior to the initiation of restoration efforts. In 2010, contractors thinned the pines so that there are now about 30 to 40 stems per acre, which more closely corresponds to the desired future condition for this natural community. Firelines were created around the burn zone in order to provide access and prevent the spread of fire to surrounding communities, which are dominated by mature hardwood trees and are less likely to ignite than the mesic flatwoods. Reduction of the woody vegetation in the understory reduced fuels in preparation for zone 2's first prescribed fire, scheduled to take place in the non-growing season at the next opportunity; this burn will promote increased coverage of herbaceous groundcover. Once the initial burns have sufficiently restored the vegetation structure and species composition, the fire return interval would be every 2-5 years. Two concerns for this burning regime include a 10-acre outparcel located along the highway along the western fringe of this stand, and the potential for smoke to obscure visibility on Highway 14. To address these, the park manager should coordinate with the outparcel's private landowner, conducting a burn on that property on the same day, if possible, and wait for weather conditions with favorable winds to carry smoke away from the highway. Later in the planning period, a restoration plan should be drafted for burning the 15 acres of mesic flatwoods located west of the highway (zone 1), with appropriate preparatory steps undertaken; the plan should be based on the actions taken to prepare zone 2 for prescribed fire. Once both sections of the mesic flatwoods are within the burn rotation, the annual target acreage would be 18 to 45 acres, though with only one or 2 burning events, burns would not actually take place every year.

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

Natural Community Restoration/Improvement

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

Currently, all natural community improvements can be accomplished with routine resource management practices such as prescribed burning and by installing and repairing culverts/water crossings. There is no need for additional natural community restoration at this park.

Imperiled Species Management

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

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

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

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

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

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

Plant and animal species have been observed and recorded on multiple occasions in preparation for the species lists included in this plan. However, there remains an ongoing need to continue to survey for species not yet documented. Particular emphasis would be placed on being vigilant for the rare, listed taxa that may not yet be known to exist on the property. Park and district staff will maintain a record of species encountered in the course of the various management activities executed. Observations about known imperiled species, unless elsewhere noted for increased scrutiny and more involved monitoring procedures, will be documented at a Tier 1 (Non-Targeted Observation/Documentation) level as encountered.

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 most ecological damage. Removal techniques may include mechanical treatment, herbicides or biocontrol agents.

Objective A: Implement control measures on 2 exotic and invasive animal species in the park.

- | | |
|----------|--|
| Action 1 | Plan for and conduct control measures for feral hogs and armadillos in the park. |
|----------|--|

As mentioned in the Description section, feral hogs are a serious problem for the natural communities and plant and animal species in the park. While the hog population is substantial and capable of being reestablished from the surrounding landscape outside the park boundary, the damage they cause is severe and efforts must continue to minimize the population size. Contractors are the primary means used to remove hogs, employing multiple traps arrayed around the property, but staff also work to remove hogs when encountered. Armadillos are an occasional pest mainly in the upland communities of the park's northeastern corner and should also be controlled by park staff when encountered.

Cultural Resource Management

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

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

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

Objective A: Assess and evaluate 27 of 27 recorded cultural resources in the park.

Action 1 Complete 27 assessments/evaluations of archaeological sites.

Park staff should formally assess and evaluate 27 of 27 recorded cultural resources in the park over the next planning cycle. This action is necessary in order to comprehensively record the condition of the site at that time in a detailed fashion and track any deterioration or damage that may arise. Therefore, significant threats (e.g. looting, erosion, foot or vehicular disturbance) can be identified and remedied if possible in order to arrest further declines in the site's condition. This tally includes one site believed to be lost (Mound A; TA-4) and 2 others recorded over a century ago with vague descriptions that have not yet been relocated (Mound B, TA-5; Econfina 5, TA-16). Park staff should complete an independent effort to determine whether these sites are, in fact, lost or too ambiguous to be relocated, respectively, and then formally indicate whether this is the case in the cultural records.

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

- Action 1 Collect information about the history of the park by various means (e.g., literature searches, original survey notes, consultation with experts, oral history interviews)
- Action 2 Conduct Level 1 archaeological survey for priority areas identified by the predictive model

Park staffers should continue to collect available information about the history of the park property and the surrounding region. Potential sources for this knowledge

include historic documents and contemporary academic research reports, original survey notes, consultation with historians or archaeologists about this area, and interviews with people or their descendants that may have worked or lived on the park property or the Econfina Landing community before it was established as a state park in 1989. Also, there is a need to conduct a Level 1 archaeological survey on portions of the park identified as having a high probability of containing unknown cultural resources. High priority areas for archaeological sites represent about 4% of the total park acreage and are concentrated on the drier habitat patches embedded within the hydric hammock and the islands scattered throughout the salt marsh.

Objective C: Bring one of 27 recorded cultural resources into good condition.

- Action 1 Design and implement regular monitoring programs for one cultural site.
- Action 2 Create and implement a cyclical maintenance program for one cultural resource.

Park staff will endeavor to arrest potential threats to the known prehistoric mound present in the park (McKay Tract – Taylor County: TA00275) so that it may be preserved in good condition. Upgrading the mound to good condition requires stabilizing it against likely sources of deterioration rather than any type of cosmetic alterations to its appearance. While the park staff does inspect this feature in the course of their regular duties so that any degradation would be noted and prevented, there remains a need to design and implement a formal monitoring and maintenance program for the mound in consultation with cultural experts at BNCR that conforms to best management practices. Three potential threats to the site would likely be addressed, including (1) the removal of large, older trees that occur on or near the mound so that an upended root system would not disrupt its structural integrity, (2) the minimization of erosion risk to the mound (e.g. filling looter pits if it is deemed necessary to retaining the remaining substrate), and (3) working to control the feral hog population in the vicinity so that their digging does not damage the site. While the looting evident at the site is believed to have occurred before the state park was established, regular observations of the site can document any current damage that may occur. Restricted access to the site should be continued by preventing the formation of identifiable walking trails through the thick vegetation to the mound, not publicizing its location, and maintaining locked gates at the main trailheads.

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 forest inventory describing basal area, stand distribution, and species composition was completed in spring 2016 for this and most other Florida state parks. DRP will work with Florida Forest Service to determine what further plans and measures may be necessary to fulfill this recommendation.

Coastal/Beach Management

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

While this is a coastal park, its location bordering the gently sloping and low wave energy Apalachee Bay do not provide conditions that stimulate the development of a sandy beach.

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

Arthropod Control Plan

All DRP lands are designated as "environmentally sensitive and biologically highly productive" in accordance with Ch. 388 and Ch. 388.4111 Florida Statutes. If a local mosquito control district proposes a treatment plan, the DRP works with the local mosquito control district to achieve consensus. By policy of DEP since 1987, aerial adulticiding is not allowed, but larviciding and ground adulticiding (truck spraying in public use areas) is typically allowed. The DRP does not authorize new physical alterations of marshes through ditching or water control structures. Mosquito control plans temporarily may be set aside under declared threats to public or animal health, or during a Governor's Emergency Proclamation. There is no Arthropod Management Plan in effect for this park.

Sea Level Rise

Potential sea level rise is now under study and will be addressed by Florida's residents and governments in the future. The DRP will stay current on existing research and predictive models, in coordination with other DEP programs and

federal, state, and local agencies. The DRP will continue to observe and document the changes that occur to the park's shorelines, natural features, imperiled species populations, and cultural resources. This ongoing data collection and analysis will inform the Division's adaptive management response to future conditions, including the effects of sea level rise, as they develop.

Resource Management Schedule

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

Land Management Review

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

Econfina River State Park was subject to a land management review on February 22, 2018. The review team made the following determinations:

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

LAND USE COMPONENT

Introduction

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

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

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

External Conditions

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

Econfina River State Park is located within Taylor County about 27 miles west of Perry, 28 miles south of Wakulla, and 43 miles southeast of Tallahassee in the north central part of the state. Approximately 121,000 people live within 30 miles of the park (U.S. Census 2010). According to the U.S. Census Data (2015), approximately 28 percent of residents in Taylor County identify as black, Hispanic or Latino, or another minority group. Nearly half (44 percent) of residents can be described as youth or seniors (U.S. Census 2010). Sixty-eight percent of the population is of working age (16 to 65) (U.S. Census Bureau

2010). Taylor County's per capita personal income is \$27,395, which is below the statewide average of \$41,497 (U.S. Bureau of Economic Analysis 2015). The table below identifies significant resource-based recreation opportunities within 15 miles of Econfina River State Park.

Table 5. Resource-Based Recreational Opportunities Near Econfina River State Park									
Name	Biking	Hiking	Swim/ Beach Access	Boating/ Paddling	Fishing	Wildlife Viewing	Overnight Stay	Hunting	Equestrian Facilities
Aucilla Wildlife Management Area (FWC)	✓	✓		✓	✓	✓		✓	✓
Middle Aucilla Wildlife Management Area (FWC)	✓	✓		✓	✓	✓		✓	
Lower Econfina River Wildlife Management Area (FWC and SRWMD)	✓	✓		✓	✓	✓		✓	✓
Wacissa Conservation Area (SRWMD)	✓	✓			✓	✓		✓	✓
Big Bend Wildlife Management Area (FWC)	✓	✓		✓	✓	✓		✓	✓
Fenholloway Conservation Area (FWC)	✓	✓		✓	✓	✓		✓	
St. Marks National Wildlife Refuge (USFWS)	✓	✓		✓	✓	✓			✓

The park is located in the North Central Vacation Region, which includes Gadsden, Leon, Wakulla, Jefferson, Madison, Taylor, Columbia, Bradford, Union, Hamilton, Lafayette, Suwannee, Dixie, Levy, Alachua, Gilchrist, and Bradford counties (Visit Florida 2014). According to the 2014 Florida Visitor Survey, approximately 1.8 percent of domestic visitors to Florida visited this region. Roughly 89 percent of visitors to the region traveled to the North Central for leisure purposes. The top activities for domestic visitors were visiting friends or relatives. The most popular travel season for the area is winter, with 36 percent of visitors coming at that time. Nearly all visitors traveled by non-air (91%),

reporting an average of 3.7 nights and spending an average of \$63 per-person per-day (Visit Florida 2014).

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

Existing Use of Adjacent Lands

The primary existing land uses to the east and west of Econfina River State Park include public conservation lands and medium to low density single-family residential. Existing uses adjacent to the park are predominantly low-density rural development. To the south and east of Econfina River, land is managed by the Suwannee River Water Management District. The Big Bend Wildlife Management Area surrounds the park to the north and south. Residential mobile homes and single-family residences line County Road 14, which extends along the park's eastern boundary. The park is bound on the southwest by the Gulf of Mexico.

Planned Use of Adjacent Lands

Taylor County lies within Florida's Nature Coast, which also includes Wakulla, Jefferson, Dixie, Levy, Citrus, Hernando, and Pasco Counties. In 2010, the region had a population of approximately 900,000 people (U.S. Census 2010). The Nature Coast is distinguished by the abundance of outdoor recreational opportunities and scenic beauty. Taylor County's economic development plan indicates that tourism is an integral component of the local economy. With economic interests at the forefront, the county aims to increase accessibility to state lands and water by 2060 in hopes of using their access to the waterfront as an asset. Additionally, the county is promoting itself as a destination for leisure, including second or vacation home opportunities (Taylor County 2009). As of 2013, 53 percent of Taylor County's housing stock was for seasonal, recreational, or occasional use (U.S. Census 2013). It is expected that by 2060, a concentration of second, vacation, or retiree units will be located near Econfina River State Park (Taylor County 2009).

Projections anticipate Taylor County's population to exceed 25,000 by 2040 (BEBR 2014). Higher density construction is being encouraged in Perry with the development of master planned communities. As it exists today, Perry is the most urbanized area in the county. The establishment of a Regional

Employment Center District around the city serves as a transitional boundary from urban and rural service areas.

The table below identifies the zoning and future land use designations for parcels in Taylor County that are adjacent to Econfina River State Park.

Table 6. Zoning and Future Land Use Designations for Taylor County*				
Future Land Use Designation	Allowable Uses	Maximum Density (Dwelling Units per Acre)	Maximum Intensity (Floor Area Ratio)	Other Noteworthy Considerations
Conservation	Publicly owned natural reservations, lands identified for protective treatment; Passive recreation	1 du/ 40 acres	0.15 FAR	Area with extremely limited development potential due to environmental sensitivity.
Agriculture 2	Pasture land, orchards and groves, or forestry; Dwellings and associated farm buildings	1 du/10 acres	n/a	Clustered residential development to maintain gross density. Open space ratio shall be 75%. Neighborhood commercial or public use should be very limited.
Compact Mixed Use Village	Residential; Commercial retail and service; Office, Institutional/Schools	22 du/1 acre	0.75 FAR	May contain 2 to 4 neighborhoods, each within ¼-mile walk of school or park, with mixed use village center.

Coastal Village Center	Commercial retail, hotels, Institutional educational and medical; Residential	12 du/1 acre	0.50 FAR	Mixed use located adjacent to coastal residential communities.
Coastal Village	Residential	5 du/1 acre	0.40 FAR	Medium density residential in close proximity to coastal resources

*Taylor County. 2011. Taylor County Comprehensive Plan 2011. Taylor County, Florida.

A development of regional impact (DRI) is proposed for a 45,000-acre area of existing timberland located northeast of the coastal communities of Keaton Beach and Steinhatchee, including approximately 31,000 acres for mixed-use residential. This DRI could potentially include 26,000 housing units, 15,000 acres total for three commercial areas to include 10.3 million square feet of industrial space, and 5 million square feet of office, retail, medical, hotel and college use. The vicinity of the community of Hampton Springs is identified as a potential regional employment center. Implications for changes to the park may include increased visitation. Levels of service for County Road 14 are planned to remain consistent with the existing rural area type.

Surrounding lands are designated for conservation uses to the north, northeast, and south of the park. Inland properties to the east are identified for agricultural activities. Taylor County's long-range plan specifies maintaining rural areas by limiting development to the outlined urban service areas. Agricultural uses can include crop production, pasture lands, silviculture and forestry. Most of the non-conservation land surrounding Econfina River State Park is owned and managed by timber companies for silviculture and recreational purposes (FWC 2015). As of early 2015, the Foley Timber and Land Company (FTLC) has placed 560,000 acres of land up for sale. The majority of this property is in Taylor County, with the remainder in Lafayette, Dixie, Madison, and Jefferson counties. Some of these parcels are adjacent to the Big Bend WMA. In an agreement with Taylor County, the current landowner has decided to designate the property as predominantly open space with one-third of land slated for housing or commercial development (Gelles 2015). However, the sale provides the opportunity to develop or sell development rights to a rural area of the state, which would bring unprecedented growth to the region.

Florida Greenways and Trails System (FGTS)

The Florida Greenways and Trails System (FGTS) is made up of existing, planned, and conceptual non-motorized trails and ecological greenways that form a connected, integrated statewide network. The FGTS serves as a green infrastructure plan for Florida, tying together the greenways and trails plans and planning activities of communities, agencies and non-profit organizations throughout Florida. Trails include paddling, hiking, biking, multi-use and equestrian trails. The Office of Greenways and Trails maintains a priority trails map and gap analysis for the FGTS to focus attention and resources on closing key gaps in the system.

In some cases, existing or planned priority trails run through or are adjacent to state parks, or they may be in close proximity and can be connected by a spur trail. State parks can often serve as trailheads, points-of-interest, and offer amenities such as camping, showers, and laundry, providing valuable services for trail users while increasing state park visitation.

Econfina River State Park was designated through the Florida Greenways and Trails Designation Program on January 22, 2002 (OGT- DA0003). Econfina River Paddling Trail runs along the east and south park boundaries, which are opportunity corridors within the Florida Greenways and Trails System. The Econfina River Paddling Trail was grandfathered into the Florida Greenways and Trails Designation Program on December 08, 1981 and is approximately 22 miles. Segment 6 of the Florida Circumnavigational Saltwater Paddling Trail, a 153-mile link from the Aucilla River mouth to the Cross Florida Greenway spoil island campsite near Yankeetown, runs along the coastline of Econfina River State Park.

The Florida National Scenic Trail (FNST) is currently undergoing major corridor planning efforts in the Big Bend area which may potentially include routing the Hickory Mound and Snipe Island units of the Big Bend Wildlife Management Area and Econfina River State Park. The FNST corridor would traverse the park between the two Big Bend Wildlife Management Area units, potentially utilizing existing trails within the park. The Florida Trail is administered by the USDA Forest Service and managed to a set of agreed upon standards in cooperation with land management partners and stakeholders. As the state park becomes part of larger trail systems, additional signage and interpretive resources may be necessary.

Property Analysis

Effective planning requires a thorough understanding of the unit's natural and cultural resources. This section describes the resource characteristics and existing uses of the property. The unit's recreation resource elements are

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

Recreational Resource Elements

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

Land Area

Approximately 40 percent of the park's property is wetlands and another 56 percent are seasonally flooded. Developable upland is limited to less than 4 percent of the park's land. Trails have been established in the seasonally flooded areas.

Water Area

The Econfina River and the Gulf of Mexico, bordering the park on the east and south, provide boating and fishing activities. Several borrow pits exist on park property. The larger of the borrow pits associated with the construction of County Road 14 contains surface water. None of these interior water bodies is suitable for recreation.

Shoreline

The shoreline of the Econfina River is almost entirely bottomland forest, estuarine tidal marsh, and freshwater tidal swamp. The exception is the developed area at the boat launch. This area has a bulkhead and fill. Most outparcels north of the boat launch also have shorelines altered with fill material. This shoreline is suitable for boating, canoeing and kayaking, and fishing.

Natural Scenery

The near pristine condition of some of the natural communities plays an important role in the visitor experience. Views across the estuarine tidal marsh and out to the Gulf are outstanding. The xeric hammock is part of an ancient marine terrace with old sand dunes as high points in hydric hammock and tidal marsh. The open vista of the abundant marshes makes for exceptionally unique scenery in this part of the state of Florida.

Natural Features

The river and associated tidal marshes are outstanding natural features. The marshes are part of a continuous natural community extending from Wakulla County through Pasco County, one of the most extensive marshes in the United States. In addition, this pristine community provides habitat for numerous wildlife species. The hot and wet climate conditions of this park make the recreational opportunities very limited for most of the year.

Archaeological and Historical Features

A formal archeological investigation is needed to identify the sites of cultural resources. Known cultural sites are briefly described in the resource management component of this plan. Some of these sites may be suitable for public interpretation in the future.

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

Prior to acquisition by the state, the upland communities were used as pine plantations. The upland property adjacent to the river was a private camping resort. Recreational hunting and boating activities were also popular on the property.

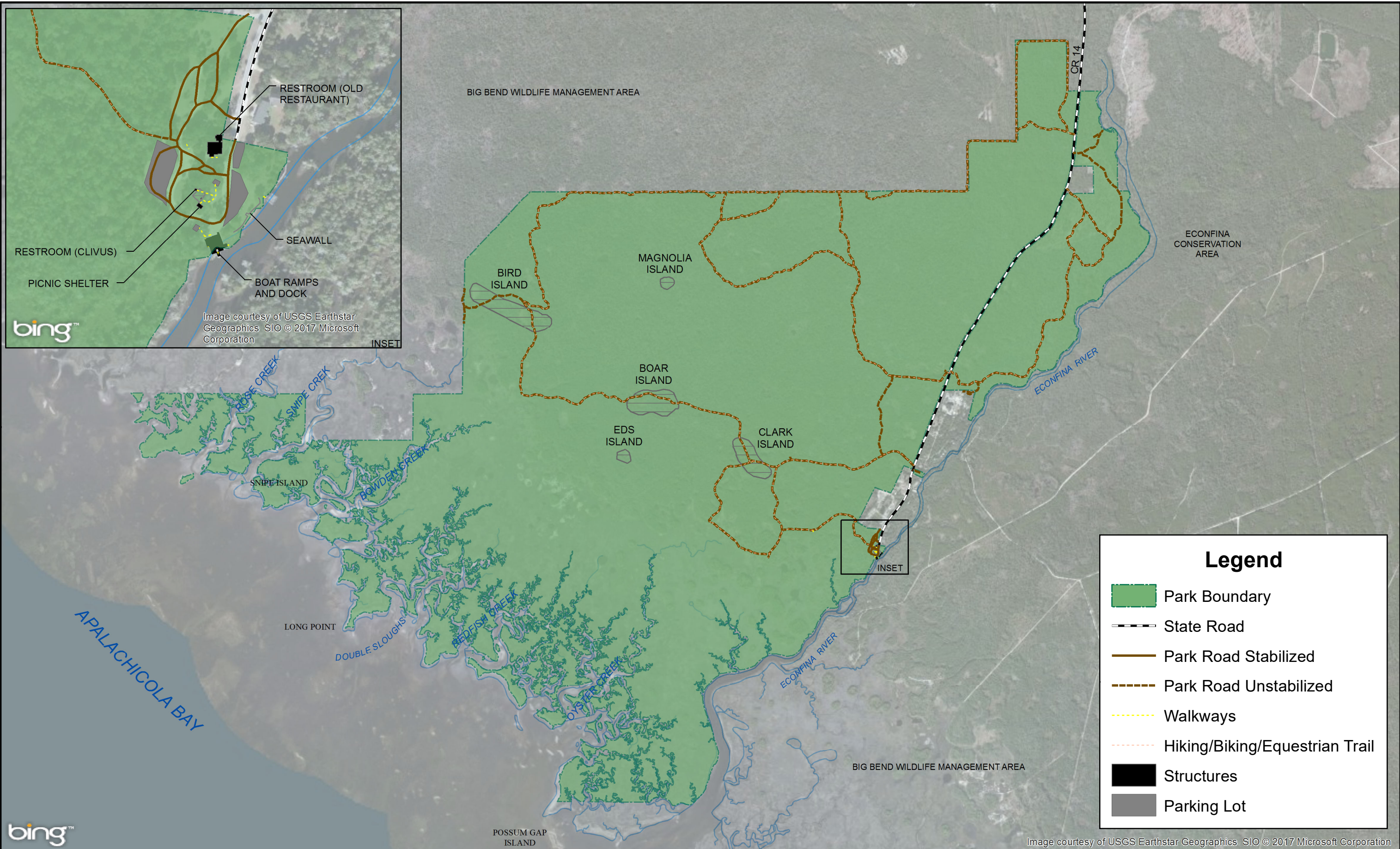
Future Land Use and Zoning

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.

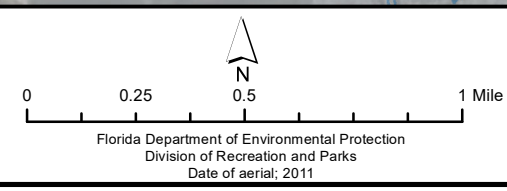
The Future Land Use designation for the park is Conservation as described in the Taylor County Comprehensive Plan. The building density for this category is one residence per 40 acres. No conflicts with park development and management are anticipated (Taylor County 2010).

Current Recreational Use and Visitor Programs

Boating and fishing in the Econfina River and Gulf of Mexico are popular activities. The boat ramp provides access to these waters and picnicking is available near the boat ramp. Excellent opportunities for wildlife observation \



ECONFINA RIVER STATE PARK



BASE MAP

and nature study are a result of the outstanding condition of the natural communities. The park's trail system provides hiking, horseback riding, and bicycling. Standard camping is available on privately owned lands on County Road 14 just north of the boat ramp.

Econfina River State Park recorded 10,026 visitors in FY 2015/2016. By DRP estimates, the FY 2015/2016 visitors contributed \$867,253 in direct economic impact, the equivalent of adding 14 jobs to the local economy (FDEP 2016).

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 Econfina River State Park all wetlands and floodplain as well as basin marsh, basin swamp, floodplain swamp, hydric hammock, salt marsh, marsh lake, sinkhole lake, 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 and Support Facilities

The existing facilities at Econfina River State Park are located adjacent to the boat ramp at the southern terminus of County Road 14. Most of these facilities were once part of the adjacent RV resort and fish camp until acquisition in 1988 to be managed as a state park. Several buildings are not currently in use and these structures are not listed in the recreation and support facility lists.

Around the boat ramp a picnic area, restroom, and parking area are accessible to the public. Other facilities are currently not open to the public. Outside of the boat ramp area, an extensive network of shared use trails that connect to surrounding conservation land trail networks along with one primitive campsite is available for public use.

Existing recreation and support facilities are listed by use area below.

Day Use Area

Restroom
Picnic Pavilion

Parkwide

Shared Use Trails (16.1 miles)
Primitive Campsite

Boat Ramp (Two Ramps)
Parking (60 spaces)

Staff Residence

Conceptual Land Use Plan

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

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

Potential Uses

Public Access and Recreational Opportunities

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

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

Legend

- * Proposed Facilities
- ▭ Park Boundary
- ▨ Protected Zone
- Existing Trails

Shop Area
Add Staff Residence
Add 2-bay shop
Add Volunteer host site

Equestrian Camping Area
Add Primitive Equestrian Camping in Existing Clearing

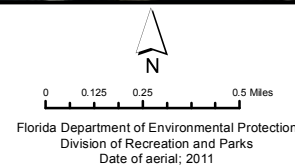
Group Camping Area
Add Small Primitive Group Campground in Existing Clearing

Main Day Use Area
Improve Entrance
Rehabilitate Concession Building
Replace Dock
Improve Landscaping
Repair Seawall
Continue to Remove Old Fish Camp Buildings
Add Trail Signage
Add Interpretive Kiosk

Parkwide
Add Scenic Overlook



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Objective: Maintain the park's current recreational carrying capacity of 956 users per day.

Existing opportunities for public outdoor recreation to be maintained at the park include the popular boat ramp which provides public access to the Gulf of Mexico via the Econfina River. The extensive trail network is also a popular recreational amenity that accommodates various users including hikers, equestrian users, and off-road cyclists. The trail network connects to existing trails on the surrounding conservation lands linking to an even more developed regional trail network.

Objective: Expand the park's recreational carrying capacity by 30 users per day.

A small primitive group campground is proposed along with opportunities for primitive equestrian camping. Small group and equestrian camping opportunities that are primitive and low impact in nature would meet regional recreational opportunity needs in the Big Bend region as identified in Table 5 and play an important role in the larger regional trail network.

Objective: Continue to provide the current repertoire of 1 interpretive program on a regular basis.

The one-hour guided interpretive ranger tours offered to park visitors will continue to be provided in an effort to showcase the unique and valuable natural resources the park protects.

Proposed Facilities

Capital Facilities and Infrastructure

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

Future development at Econfina River State Park will be conducted in a way that works alongside the major natural resource management efforts ongoing at the park. The Main Day Use Area will also be improved to provide a better user experience and to attempt to mitigate the increasing impacts of nuisance flooding.

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

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

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

Objective: Improve/repair 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.

Main Day Use Area

Improvements proposed for the boat launch area include entrance, signage, landscaping, and traffic flow enhancements to create a more attractive visitor experience. The old concession building will be rehabilitated and will serve as a future support facility, concession operation, or other role as determined by park management. Remnants of the fish camp operated prior to state ownership will be removed and impacts to natural resources such as septic systems will be appropriately addressed. The dock is proposed to be replaced and repairs made to the existing seawall. Other improvements to the Main Day Use Area include the addition of signage at the beginning of the park trail system and an interpretive kiosk adjacent to the picnic pavilion to help orient park visitors.

Parkwide

A scenic overlook will be installed along the trail network where a prominent clearing provides an exceptional view of the surrounding salt marsh landscape and opportunity to inform park visitors of the impacts of marsh migration and expansion of the northern range of mangroves.

Objective: Construct 3 new facilities.

Group Camping Area

A group campground is proposed to the northwest of the Main Day Use Area in an existing clearing. Four to five sites will accommodate small groups of up to 20 visitors, a fire ring with seating, potable water and signage are proposed to formalize the use area and address the need for group camping opportunities in the surrounding region.

Equestrian Camping Area

Primitive equestrian camping is proposed near the northern boundary of the park across from the proposed Shop Area. With relatively high levels of equestrian users at the park, a formal and primitive equestrian campsite with

appropriate facilities will help mitigate dispersed impacts to the surrounding natural communities. Proposed facilities would be placed in disturbed areas to minimize natural resource impacts. Equestrian access is currently allowed on existing service roads that connect to the proposed use area.

Shop Area

A support area is proposed to allow for the placement of a staff residence, a 2-bay shop, and a volunteer host site on the eastern side of County Road 14 near the northern park boundary.

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:

Main Day Use Area

- Improve Entrance
- Rehabilitate Concession Building
- Replace Dock
- Improve Landscaping
- Repair Seawall
- Continue to Remove Old Buildings
- Add Interpretive Kiosk (2)

Group Camping Area

- Add Small Primitive Group Campground in Existing Clearing

Parkwide

- Add Scenic Overlook

Shop Area

- Add Staff Residence
- Add 2-Bay Shop
- Add Volunteer Host Site

Equestrian Camping Area

- Add Primitive Equestrian Camping in Existing Clearing

Recreational Carrying Capacity

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

most appropriate to the specific activity, the activity site and the unit's classification is selected (see Table 7).

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 7.

Table 7. Recreational Carrying Capacity

Activity/Facility	Existing Capacity*		Proposed Additional Capacity		Estimated Recreational Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
Picnicking	8	16	0	0	8	16
Camping						
Group	0	0	20	20	30	30
Equestrian	0	0	10	10	15	15
Trails						
Shared Use	258	516	0	0	258	516
Boat Ramp	8	384	0	0	8	384
Fishing	16	32	0	0	16	32
TOTAL	298	956	30	30	328	986

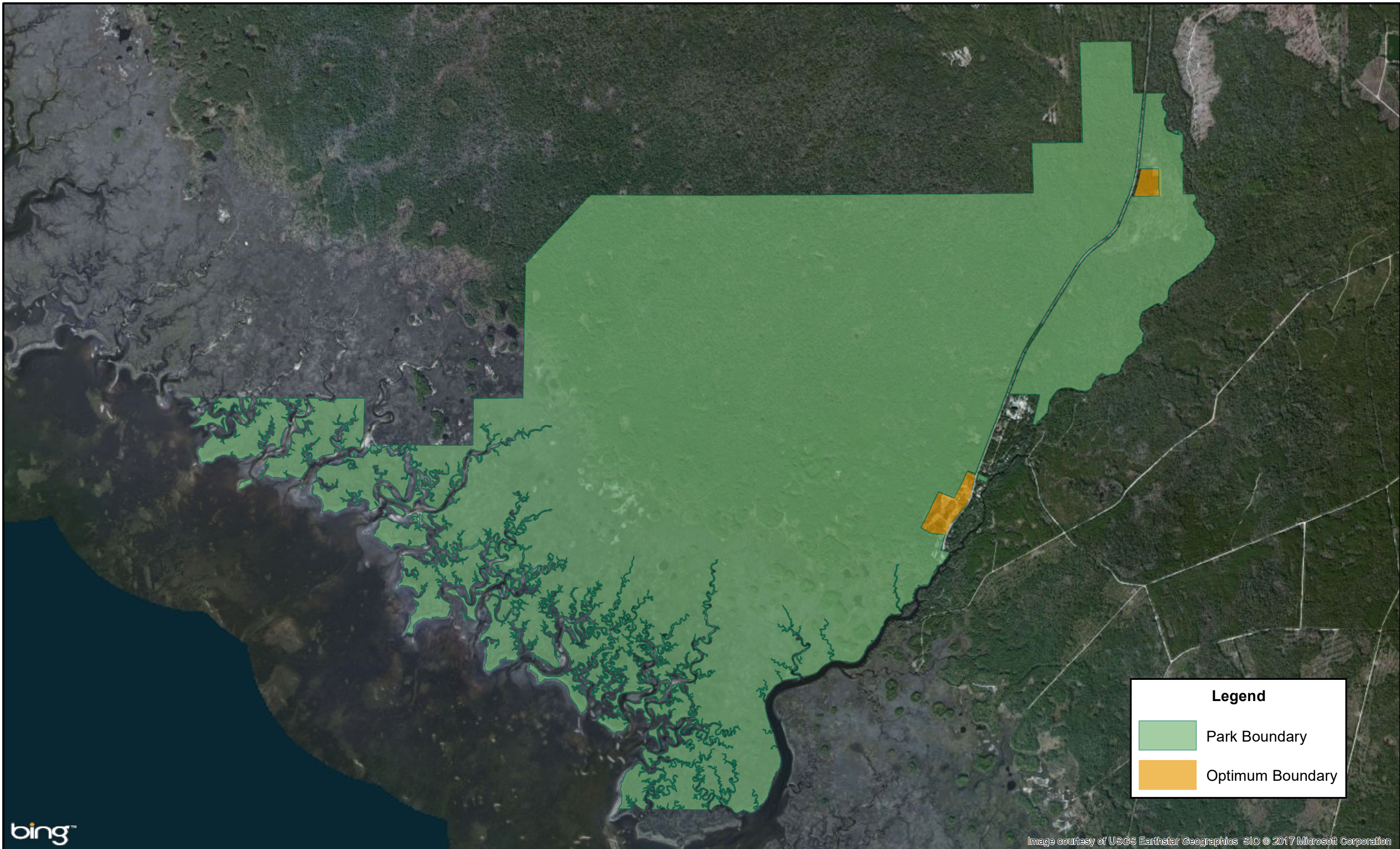
*Existing capacity revised from approved plan according to DRP guidelines.

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.

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

suggest that any government entity should impose additional or more restrictive environmental land use or zoning regulations. Identification should not be used as the basis for permit denial or the imposition of permit conditions. The optimum boundary proposed incorporates the adjacent RV campground and other inholdings at the northern end of the park. Acquisition of these lands would facilitate a more efficient resource management program while increasing potential recreational opportunities.



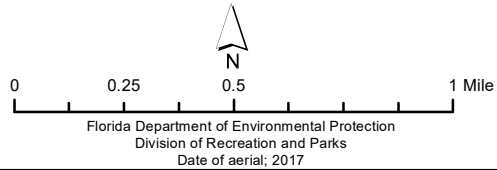
Legend

-  Park Boundary
-  Optimum Boundary

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Image courtesy of USGS Earthstar Geographics SIO © 2017 Microsoft Corporation

ECONFINA RIVER STATE PARK



OPTIMUM BOUNDARY MAP

IMPLEMENTATION COMPONENT

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

Management Progress

Since the approval of the last management plan for Econfina River State Park in 2006, significant work has been accomplished and progress made towards meeting the DRP's management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and the DRP.

Acquisition

- Additional 500 acres of marsh transferred to the park.

Park Administration and Operations

- Concessionaire provided lodging for overnight guests until 2014.

Resource Management

Natural Resources

- Thinned slash pines in Zone 2 and installed fire break around the restoration site.
- Hydrological Survey of the park completed.
- Repaired 3 culverts and 1 low water crossing to improve hydrological flow and improve public access to interior of the park.
- Continued hog removal efforts.

Cultural Resources

- Implemented procedures to routinely monitor and patrol cultural sites for better protection.

- Updated cultural sites listed in the Master Site File.

Recreation and Visitor Services

- Improved the day use area with additional picnic facilities, fencing, and a smoother driveway and parking area.
- Moved primitive campsite to drier site to enhance the camping experience.
- Park staff conducts one event per year in the park.
- Created a park brochure with trail map included.

Park Facilities

- Re-opened the public restrooms located in the park's old restaurant building.
- Made ADA improvements to the public restroom.
- Built an accessible ramp to the restrooms.
- Improved the boat ramp facilities.

Management Plan Implementation

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

Many of the actions identified in the plan can be implemented using existing staff and funding. However, a number of continuing activities and new activities with measurable quantity targets and projected completion dates are identified that cannot be completed during the life of this plan unless additional resources for these purposes are provided. The plan's recommended actions, time frames and cost estimates will guide the DRP's planning and budgeting activities over the period of this plan. It must be noted that these recommendations are based on the information that exists at the time the plan was prepared. A high degree of adaptability and flexibility must be built into this process to ensure that the DRP can adjust to changes in the availability of funds, improved understanding of the park's natural and cultural resources, and changes in statewide land management issues, priorities and policies.

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

Table 8
Econfina River 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	Continue day-to-day administrative support at current levels.	Administrative support ongoing	C	24,850
Objective	Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.	Administrative support expanded	C	\$7,150
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	Restore natural hydrological conditions and functions to approximately 1818 acres of the hydric hammock natural community.	# Acres restored or with restoration underway	UFN	\$73,300
Action 1	Repair / upgrade ten high priority culvert crossings to allow drainage under the raised access road beds.	# Culvert crossings repaired	UFN	\$59,000
Action 2	Repair / upgrade five medium priority culvert crossings to allow drainage under the raised access road beds.	# Culvert crossings repaired	UFN	\$14,300
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, 75 acres of the park maintained within optimal fire return interval.	# Acres within fire return interval target	LT	\$0
Action 1	Develop/update annual burn plan.	Plan updated	C	\$16,000
Action 2	Manage mesic flatwoods east of Highway 14 by burning 75 acres.	Average # acres burned annually	C	\$37,500
Action 3	Plan for and prepare prescribed fire infrastructure for remaining 15 acres of mesic flatwoods.	# Miles established	ST or LT	\$5,016

* 2018 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 8
Econfina River 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.

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	\$7,500
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	Implement control measures on two exotic and nuisance animal species in the park.	# Species for which control measures implemented	C	\$15,000
Action 1	Plan for and conduct control measures for feral hogs and armadillos in the park.	# Species controlled	C	\$15,000
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 27 of 27 recorded cultural resources in the park.	Documentation complete	LT	\$2,149
Action 1	Complete 27 assessments/evaluations of archaeological sites.	Assessments complete	LT, ST	\$2,149
Objective B	Compile reliable documentation for all recorded historic and archaeological resources.	Documentation complete	LT	\$25,398
Action 1	Collect information about the history of the park by various means (e.g. literature searches, original survey notes, consultation with experts, oral history interviews).	Amount of information collected	ST	\$6,000
Action 2	Conduct Level 1 archaeological survey for priority areas identified by the predictive model.	Probability Map completed	ST	\$19,398
Objective C	Bring 1 of 27 recorded cultural resources into good condition.	# Sites in good condition	LT	\$2,250
Action 1	Design and implement regular monitoring programs for 1 cultural site	# Sites monitored	C	\$1,500
Action 2	Create and implement a cyclical maintenance program for 1 cultural resource.	Programs implemented	C	\$750

* 2018 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 8
Econfina River 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 VII: Provide public access and recreational opportunities in the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective	Maintain the park's current recreational carrying capacity of 956 users per day.	# Recreation/visitor	C	\$10,500
Objective	Expand the park's recreational carrying capacity by 77 users per day.	# Recreation/visitor	ST or LT	\$7,000
Action 1	Develop 3 new opportunities for overnight accommodations.	# Recreation/visitor opportunities per day	ST or LT	\$19,000
Objective	Continue to provide the current repertoire of 1 interpretive, educational and recreational programs on a regular basis.	# Interpretive/education programs	C	\$5,490
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	Maintain all public and support facilities in the park.	Facilities maintained	C	\$54,654
Objective	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 or LT	\$14,685
Objective	Improve and/or repair 2 existing facilities.	# Facilities/Miles of Trail/Miles of Road	LT	\$12,254
Action 1	Improve the Main Day Use Area.		ST, LT or UFN	
Objective	Construct 4 new facilities.	# Facilities/Miles of Trail/Miles of Road	LT	\$343,571
Action 1	Construct new facilities at the proposed Marsh Island Primitive Camping Area, Group Camping Area, Equestrian Camping Area, and the Shop Area.		ST, LT or UFN	
Objective	Expand maintenance activities as existing facilities are improved and new facilities are developed.	Facilities maintained	C	\$254,978

* 2018 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 8
Econfina River 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.

Summary of Estimated Costs

Management Categories	Total Estimated Manpower and Expense Cost* (10-years)
Resource Management	568,008
Administration and Support	
Capital Improvements	\$427,333
Recreation Visitor Services	\$18,000
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.

* 2018 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

Econfina River State Park Acquisition History

Park Name	Econfina River State Park				
Date Updated	7/27/2016				
County	Taylor County, Florida				
Trustees Lease Number	Lease No. 3540				
Legal Description	A legal description is available upon request to the Department of Environmental Protection				
Current Park Size	5,031.37 acres				
Purpose of Acquisition	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida acquired Econfinal River State Park to protect and conserve the resources of the site.				
Acquisition History					
Parcel Name or Parcel DM-ID	Date Acquired	Initial Seller	Initial Purchaser	Size in acres	Instrument Type
MDID 360505	1/8/1988	K. H. Mackay Jr. individually and as Trustees for and a partner of Mackay-Fisher Partners, et al...	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees).	4177.53	Warranty Deed
MDID 158	4/6/1993	Payne H. Midyette and Alma Jane Midyette	Trustees	308.469	Quitclaim Deed
Management Lease					
Parcel Name or Lease Number	Date Leased	Initial Lessor	Initial Lessee	Current Term	Expiration Date
Lease No. 3540	3/23/1989	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida.	State of Florida Department of Natural Resources, Division of Recreation and Parks.	50 years	3/22/2039
Outstanding Issue	Type of Instrument	Brief Description of the Outstanding Issue		Term of the Outstanding Issue	
There is no known deed-related restriction or reservation on the use of Econfina River State Park.					

Econfina River State Park Acquisition History

Addendum 2—Advisory Group Members and Report

**Econfina River State Park
Advisory Group Members**

Local Government Representative

The Honorable Stephen Walker,
Chairman
Jefferson County Board of County
Commissioners

Mike Holm, Recreation and Parks
Director
Jefferson County

Richard Schwab, Chairman
Suwannee River Water Management
District

Malcolm Page, Chairman
Taylor County Board of Commissioners

Agency Representatives

Rob Lacy, Park Manager
Division of Recreation and Parks
Econfina River State Park

Arthur Stiles, Wildlife Biologist
Division of Recreation and Parks
Econfina River State Park

Jason Love
Florida Forest Service

Jim Grubbs, Supervisory Forester
Florida Division of Forestry

Maj. Craig Duval, Regional
Commander
FWC Division of Law Enforcement

Billy Sermons, Regional Wildlife
Biologist & Regional Director
FWC Division of Habitat & Species
Conservation

Julia Duggins, Archaeology Supervisor
Florida Department of State
Division of Historical Resources

**Environmental and Conservation
Group Representative**

Kathleen Carr, President
Apalachee Audubon Society

Tim Jones, Aquatic Preserve Manager
Big Bend Aquatic Preserves, St. Martin
Marshes Aquatic Preserve

Shawn Thomas, Manager
Florida National Scenic Trail Program
in FL

Ina Crawford, Board Member
Florida Native Plant Society

Local Private Property Owners

George Mackay
Property Owner

**Recreational User Group
Representatives**

Linda Vause, President
Southern Trail-riders Association

**Tourism and Economic
Development Representative**

Katrina Richardson, Director
Jefferson County Tourism
Development Council

Dawn Taylor
Perry-Taylor County Chamber of
Commerce

Melody Cox, Grants Coordinator
Perry-Taylor County Chamber of
Commerce

Econfina River State Park Advisory Group Written Comments

The advisory group meeting to review the proposed unit management plan (UMP) for Econfina River State Park was held at the park on May 4th, 2018 at 9:00 am.

Stephen Walker, Mike Holm, Richard Schwab, Jim Grubbs, Craig Duval, Tim Jones, Ina Crawford, Katrina Richardson were not in attendance. Jason Love, Julia Duggins and Jeff Gore provided written comments prior to the meeting, which can be seen below. Doug Longshore represented Jason Love, Adam Fryska represented Shawn Thomas, Randy Havens represented Billy Sermons, Jami Boothby represented Melody Cox, Robert Williams represented Kathleen Carr. All other appointed advisory group members were present, as well as Katie Bernier, Britney Moore and David Ward. Attending staff were Rob Lacy, Randy Rabon, Arthur Stiles and Mari Schwabacher.

Ms. Mari Schwabacher began the meeting by explaining the purpose of the advisory group and reviewing the meeting agenda. She provided a brief overview of the Division of Recreation and Parks' (DRP) planning process, and summarized public comments received during the previous evening's public meeting. Ms. Schwabacher then asked each member of the advisory group to express his or her comments on the plan.

Summary of Advisory Group Comments

Linda Vause (Southern Trail Riders Association) Voiced support for the plan, specifically about the proposals related to equestrian recreation in the conceptual land use part of the plan. She mentioned the organization's desire to incorporate wildlife management areas to the network of equestrian trails in order to increase the quality of the experience and increase mileage. She also will be providing detailed suggestions for the equestrian campground proposal at the north end of the park. She mentioned Southern Trail Riders Association willingness to support the park and provide volunteer hours to maintain trails and facilities.

Adam Fryska (Florida Trail Association) Stated that Florida Trail Association is very excited about the rerouting of the trail to go through Econfina State Park and that it is a great opportunity for the Florida Park Service and the Florida Trail Association to work together to revive the area and provide exceptional recreational opportunities to visitors. He also mentioned that once the trail is completed, the Florida Trail Association will be assigning a group of volunteers to that part of the trail to help park staff manage the area.

Randy Havens (FWC) Inquired about fencing issues on a part of the park and how it was affecting the Aucilla Wildlife Management Area. Voiced overall support for the plan and is interested in cooperating with Florida Park Service on fire management in order to make natural resource management more effective for both agencies. He also suggested that the different conservation agencies should create a way to

**Econfina River State Park
Advisory Group Written Comments**

share information on natural resources such as the spring and surveys that are being done in order to promote cohesiveness and awareness of the resources that are available in the area.

Doug Longshore (Florida Forest Service) Commented on timber management analysis. Voiced overall support for it but would like to see it prioritize some of the aspects for restoration and would like to see a little more detail on what communities and specific areas that are being considered for timber management. Suggested that we create a visual aid for the timber management analysis such as a map showing the considerations.

David Ward (Aucilla Research Institute) Talked about the natural resource importance of the park and that it is a unique place with many resources. He stated that the area is perfect for research and voiced support for the potential of having a research lab at the park. Commented on how important the area is for research and that the diversity of species in the area is a worldwide phenomenon.

Brittany Moore (Office of Greenways and Trails)

George Mackay (Adjacent Landowner) Voiced overall support for the plan and is pleased with all proposals. Mentioned need for better maintenance of trails, such as mowing and burning. He mentioned the need for better interpretive signage and warning signs such as the ones about no wake and manatees. Voiced support for allowing the University of Central Florida to lease the old restaurant building and turn it into a research institute. He believes it is a great opportunity for the park to use the building and help revive the area.

Malcolm Page (Taylor County Board of Commissioners) Voiced appreciation for the opportunity to participate in the advisory group discussion and mentioned the fact that this is an important place because Taylor county does not have many access points to the gulf, so the maintenance and development of this park is very important for the county. He also voiced support for the Southern Trail Riders Association and mentioned that the county does not have many equestrian recreation facilities and trails. He would like to see the park improve equestrian recreation as well signage and offered help from county if necessary.

Jami Boothby (Taylor County BOCC) Talked about how the county is working hard with Britney and Adam to reroute the National Scenic Trail and expressed the county's excitement to the economic effect it will bring to the area.

Robert Williams (Apalachee Audubon) Commented on bird list and pointed out that there are two birds missing from it. Stated that Econfina has a low population of birds in comparison to other conservation areas in the panhandle. Voiced support for the plan and expressed desire to see more interpretive signage about the

**Econfina River State Park
Advisory Group Written Comments**

incredible natural resources at Econfina River State Park.

Staff Recommendations

The staff recommends approval of the proposed management plans for Econfina River State Park as presented, with no significant changes.

Notes on Composition of the Advisory Group

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

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

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

Addendum 3—References Cited

Econfina River State Park

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Addendum 4—Soil Descriptions

**ECONFINA RIVER STATE PARK
SOIL DESCRIPTIONS**

46 - Pits.

Setting

Landscape: Lowlands on the lower Coastal Plain

Landform: Flats, flatwoods, rises, and knolls

Shape of areas: Generally, square or rectangle

Size of areas: 5 to more than 20 acres

Composition

Pits: 98 percent

Dissimilar soils: 2 percent

Typical Condition

This map unit consists of excavations from which soil and other geologic material have been removed for use in road construction, foundations, septic tank absorption fields, or other purposes. The sides of the excavations have short, steep side slopes. Most pits are abandoned. Areas that have been excavated below the normal seasonal high water table usually contain water.

Soil Properties and Qualities

Depth class: Variable

Drainage class: Poorly drained and very poorly drained

Permeability: Variable

Available water capacity: Variable

Shrink-swell potential: Variable

Slope class: Variable

Hazard of flooding: Variable

Extent of rock outcrop: Variable

Parent material: Sandy and loamy marine sediments, possibly overlying limestone

Bedrock: Variable

Use and Management

Dominant uses: Native vegetation and wildlife habitat

Woodland (potential productivity): Not suited due to wetness at the surface and ponding

Cropland, hayland, pasture, and urban development (suitability): not suited due to wetness at the surface and ponding

Interpretive Groups

Land capability classification: VIIIs

Woodland ordination symbol: Not assigned

Ecological community: Not assigned

48 - Wekiva-Tennille-Tooles complex, occasionally flooded.

Setting

Landscape: Gulf coast lowlands

ECONFINA RIVER STATE PARK SOIL DESCRIPTIONS

Landform: Flats and depressions
Shape of areas: Rounded to long and narrow or irregular
Size of areas: 10 to more than 500 acres

Composition

Wekiva and similar soils: 44 percent
Tennille and similar soils: 28 percent
Tooles and similar soils: 16 percent
Dissimilar soils: 12 percent

Typical Profile

Wekiva:

Surface layer: 0-6 inches - black fine sand
Subsurface layer: 6-14 inches - yellowish brown fine sand
Subsoil: 14-21 inches - light gray fine sandy loam
Bedrock: 21 inches - soft, weathered, fractured limestone

Tennille:

Surface layer: 0-6 inches - black fine sand
Substratum: 6-14 inches - brown and dark grayish brown fine sand
Bedrock: 14 inches - soft, weathered, fractured limestone

Tooles:

Surface layer: 0-8 inches - very dark gray fine sand
Subsurface layer: 8-23 inches - brown fine sand
Subsoil: 23-35 inches - yellowish brown fine sand
35-46 inches - light gray sandy clay loam
46-55 inches - pale yellow clay loam
Bedrock: 55 inches - pale yellow clay loam

Soil Properties and Qualities

Depth class: Wekiva – shallow and moderately deep; Tennille – very shallow and shallow; Tooles – deep
Drainage class: Poorly drained
Permeability: Wekiva – moderately slow in the subsoil; Tennille – rapid throughout; Tooles – slow in the subsoil
Available water capacity: Low
Flooding: Occasional for brief periods
Extent of rock outcrop: None
Shrink-swell potential: Wekiva and Tennille – low; Tooles - moderate
Slope class: Nearly level
Content of organic matter in the surface layer: Wekiva – moderate or high; Tennille and Tooles – moderately low or moderate
Parent material: Sandy and loamy marine sediments overlying limestone
Bedrock: Bedrock is within a depth of 60 inches in about 98 percent of the map unit and within a depth 61 to 80 inches in about 1 percent. Where

ECONFINA RIVER STATE PARK SOIL DESCRIPTIONS

present, it is at a depth of about 6 to 75 inches. The best estimate for overall average depth to bedrock is 24 inches.

Minor Components

Dissimilar soils: Tennille-like soils that have a thick, dark surface layer – on flats; Chaires soils, Chaires-like soils that have a limestone substratum, Steinhatchee-like soils that do not have a loamy subsoil or that have limestone at a depth of 25 inches – in areas of flatwoods; Matmon and Melvina soils on rises and knolls

Similar soils: Clara-like soils that have limestone below a depth of 60 inches, Meadowbrook soils, Tennille-like soils that have an organic-stained subsoil, and Wekiva-like soils that do not have a loamy subsoil – in positions similar to those of the Wekiva, Tennille, and Toolès soils

Use and Management

Dominant uses: Timber production and wildlife habitat

Other uses: Crops, pasture, and urban development

Woodland (Potential productivity): Poorly suited due to wetness at the surface and flooding

Cropland, hayland, pasture, and urban development (Suitability): Not suited due to wetness at the surface and flooding

Interpretive Groups

Land capability classification: Wekiva – Vw; Tennille and Toolès – Viw

Woodland ordination symbol: Not assigned

Ecological community: Shrub bogs – Bay swamps

53 – Bayvi soils, frequently flooded.

Setting

Landscape: Coastal swamps on the lower Coastal Plain

Landform: Salt marshes

Shape of areas: Long and narrow or irregular

Size of areas: 10 to more than 2000 acres

Composition

Bayvi and similar soils: 81 percent

Dissimilar soils: 19 percent

Typical Profile

Surface layer: 0 to 5 inches – black muck

Subsurface layer: 5 to 17 inches – black mucky loamy sand; 17 to 31 inches – very dark grayish brown sand

Substratum: 31 to 53 inches – grayish brown sand; 53 to 80 inches – gray sand

ECONFINA RIVER STATE PARK SOIL DESCRIPTIONS

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Very poorly drained

Permeability: Rapid throughout

Available water capacity: Very low

Shrink-swell potential: Low

Slope class: Nearly level

Flooding: Frequent for very long periods

Extent of rock outcrop: None

Content of organic matter in the surface layer: Very high

Parent material: Sandy and loamy marine sediments and, in places, the underlying limestone

Bedrock: Bedrock is within a depth of 60 inches in about 58 percent of the map unit and within a depth of 61 to 80 inches in about 6 percent; depth to bedrock ranges from about 4 to 68 inches; the best estimate for overall average depth to bedrock is 38 inches.

Minor Components

Dissimilar soils: Bayvi soils that have limestone bedrock within a depth of 80 inches; Leon-like, Lynn Haven-like, and Nutall-like soils that have tidal influence; soils that have a dark, organic-stained subsoil, a loamy subsoil, or limestone at a depth of 40 to 60 inches; soils that have a loamy subsoil over limestone at a depth of 40 to 60 inches; and Tennille-like soils, some that have a thick, dark surface layer; in positions similar to those of the Bayvi soil. Similar soils: Similar soils that have limestone below a depth of 60 inches; in positions similar to those of the Bayvi soil

Use and Management

Dominant uses: Native vegetation and wildlife habitat

Woodland: Potential productivity – not suited due to flooding

Cropland, hayland, pasture, and urban development: Not suited due to flooding

Interpretive Groups

Land capability classification: VIIIw

Woodland ordination symbol: Not assigned

Ecological community: Salt marsh

61 – Wekiva-Tooles, depressional-Tennille, complex, rarely flooded.

Setting

Landscape: Lowlands on the lower Coastal Plain

Landform: Flats and depressions

Shape of areas: Rounded to long and narrow or irregular

Size of areas: 10 to more than 170 acres

ECONFINA RIVER STATE PARK SOIL DESCRIPTIONS

Composition

Wekiva and similar soils: 43 percent
Tooles and similar soils: 25 percent
Tennille and similar soils: 12 percent
Dissimilar soils: 20 percent

Typical Profile

Wekiva: Surface layer – 0 to 6 inches – black fine sand; Subsurface layer – 6 to 14 inches – yellowish brown fine sand; Subsoil – 14 to 21 inches – yellowish brown fine sandy loam; Bedrock – 21 inches – soft, weathered, fractured limestone

Tooles: Surface layer – 0 to 8 inches – very dark gray fine sand; Subsurface layer - 8 to 23 inches – brown fine sand; Subsoil – 23 to 35 inches – yellowish brown fine sand & 35 to 46 inches – light gray sandy clay loam & 46 to 55 inches – pale yellow clay loam; Bedrock – 55 inches – soft, weathered, fractured limestone

Tennille: Surface layer – 0 to 6 inches – black fine sand; Substratum – 6 to 14 inches – brown and dark grayish brown fine sand; Bedrock – 14 inches – soft, weathered, fractured limestone

Soil Properties and Qualities

Depth class: Wekiva – shallow and moderately deep; Tooles – deep; Tennille – very shallow and shallow

Drainage class: Wekiva and Tennille – poorly drained; Tooles – very poorly drained

Permeability: Wekiva – moderately slow in the subsoil; Tooles – slow in the subsoil; and Tennille – rapid throughout

Available water capacity: Low

Shrink-swell potential: Wekiva – low; Tooles and Tennille – moderate

Slope class: Nearly level

Flooding: Rare

Extent of rock outcrop: None

Content of organic matter in the surface layer: Wekiva – moderate or high; Tooles and Tennille – moderately low or moderate

Parent material: Sandy and loamy marine sediments overlying limestone

Bedrock: Bedrock is within a depth of 60 inches in about 96 percent of the map unit and within a depth of 61 to 80 inches in about 3 percent; where present, it is at a depth of about 5 to 75 inches; the best estimate for overall average depth to bedrock is 33 inches.

Minor components

Dissimilar soils: Tooles and Wekiva soils in depressions; Meadowbrook and Tooles soils on flats; Chaires soils, Steinhatchee soils, and Steinhatchee-like soils that have an organic-stained subsoil – in areas of flatwoods

ECONFINA RIVER STATE PARK SOIL DESCRIPTIONS

Use and Management

Dominant uses: Timber production and wildlife habitat

Other uses: Crops, pasture, and urban development

Woodland:

Potential productivity: Tennille – low; Wekiva and Tooles – not suited

Trees to plant: Tennille – slash pine and loblolly pine

Management concerns: Equipment limitations, seedling mortality, windthrow, and plant competition

Management considerations: Site preparation, such as bedding, helps to establish seedlings, reduces the seedling mortality rate, and increases the early growth rate; chopping and bedding help to minimize debris, control competing vegetation, and facilitate planting; using field machinery equipped with large tires or tracks and harvesting during dry periods help to overcome the equipment limitations and minimize soil compaction and root damage during thinning activities; logging systems that leave plant debris well distributed over the site increase the content of organic matter and improve fertility; trees in areas of this map unit respond well to applications of fertilizer

Cropland:

Suitability: Wekiva and Tennille – poor; Tooles – not suited

Commonly grown crops: Corn, grain sorghum, and tobacco

Management concerns: Wetness, droughtiness, and fast intake

Management considerations: Crop rotations that include close-growing cover crops at least two-thirds of the time improve tilth and help to control erosion; the cover crops and all crop residue should be returned to the soil; good tilth and nutrient management are required for maximum yields; special erosion-control practices are not normally needed; irrigation is not normally used for crops on these soils

Pasture and hayland:

Suitability: Wekiva and Tennille – moderately well suited; Tooles – not suited

Commonly grown grasses: Bahiagrass and improved Bermuda grass

Management concerns: Wetness, droughtiness, and fast intake

Management considerations: A total management system for the water table should remove excess water rapidly and provide a means of applying subirrigation; a combination of tile drains and open ditches may be needed to maintain the water table at the preferred depth; the proper spacing of tile drains is important for obtaining adequate drainage; tile drains can provide a means of applying subirrigation during periods of low rainfall; nutrient management maximizes yields; controlled grazing helps to maintain vigorous plants and maximum yields

Urban development:

Suitability: Not suited due to rock, wetness, flooding, and corrosivity

Interpretive Groups

Land capability classification: Wekiva – IVw; Tooles – VIIw; Tennille - Vw

Woodland ordination symbol: Wekiva – 8W for slash pine; Tooles – not assigned; Tennille – 8W for slash pine

ECONFINA RIVER STATE PARK SOIL DESCRIPTIONS

Ecological community: Wekiva and Tennille – Wetland Hardwood Hammocks;
Tooles – Shrub bogs-bay swamps

71 – Leon fine sand, rarely flooded.

Setting

Landscape: Lowlands on the lower Coastal Plain

Landform: Flatwoods

Shape of areas: Rounded to long and narrow or irregular

Size of areas: 5 to more than 75 acres

Composition

Leon and similar soils: 78 percent

Dissimilar soils: 22 percent

Typical Profile

Surface layer: 0 to 6 inches – very dark gray fine sand

Subsurface layer: 6 to 11 inches – grayish brown fine sand; 11 to 25 inches – light gray fine sand

Subsoil: 25 to 30 inches – black fine sand; 30 to 34 inches – dark reddish brown fine sand

Substratum: 34 to 56 inches – dark yellowish brown fine sand; 56 to 80 inches – yellowish brown fine sand

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Poorly drained

Permeability: Moderate or moderately rapid in the subsoil

Available water capacity: Low

Shrink-swell potential: Low

Slope class: Nearly level

Flooding: Rare

Extent of rock outcrop: None

Parent material: Sandy marine sediments

Depth to bedrock: No bedrock within a depth of 80 inches

Minor Components

Dissimilar soils: Chaires, Meadowbrook, Osier, and Tooles soils and Osier-like soils that have a thick, dark surface layer – on floodplains and in depressions; Chaires, Meadowbrook, Osier, Pottsburg, Tennille, Tooles, and Wekiva soils on flats; Leon soils, Leon-like that have an organic-stained subsoil below a depth of 30 inches, and Steinhatchee soils – in areas of flatwoods

Similar soils: Chaires-like soils that have an organic-stained subsoil below a depth of 30 inches, do or do not have limestone below a depth of 60 inches, or have a loamy subsoil at a depth of less than 40 inches – in positions similar to those of the Leon soil

ECONFINA RIVER STATE PARK SOIL DESCRIPTIONS

Use and Management

Dominant uses: Timber production and wildlife habitat

Other uses: Crops, pasture, and urban development

Woodland:

Potential productivity: Moderately high

Trees to plant: Slash pine and loblolly pine

Management concerns: Equipment limitations, seedling mortality, and plant competition

Management considerations: Site preparation, such as bedding, helps to establish seedlings, reduces the seedling mortality rate, and increases the early growth rate; chopping and bedding help to minimize debris, control competing vegetation, and facilitate planting; using field machinery equipped with large tires or tracks and harvesting during dry periods help to overcome the limitations and minimize soil compaction and root damage during thinning activities; logging systems that leave plant debris well distributed over the site increase the content of organic matter and improve fertility; trees in areas of this map unit respond well to applications of fertilizer

Cropland

Suitability: Poor

Commonly grown crops: Corn, grain sorghum, and tobacco

Management concerns: Wetness, droughtiness, and fast intake

Management considerations: Crop rotations that include close-growing cover crops improve tilth and help to control erosion; the cover crops and all crop residue should be returned to the soil; good tilth and nutrient management are required for maximum yields; special erosion-control practices are not normally needed; irrigation is not normally used for crops on this soil

Pasture and hayland

Suitability: Moderately well suited

Commonly grown grasses: Bahiagrass and improved Bermuda grass

Management concerns: Wetness, droughtiness, and fast intake

Management considerations: A total management system for the water table should remove excess water rapidly and provide a means of applying subirrigation; a combination of tile drains and open ditches may be needed to maintain the water table at the preferred depth; the proper spacing of tile drains is important for obtaining adequate drainage; tile drains can provide a means of applying subirrigation during periods of low rainfall; nutrient management maximizes yields; controlled grazing helps to maintain vigorous plants and maximum yields.

Urban development

Suitability: Not suited due to wetness, poor filter, seepage, too sandy, flooding, cutbanks cave, and corrosivity

Interpretive groups

Land capability classification: IVw

Woodland ordination symbol: 8W for slash pine

Ecological community: wetland hardwood hammock

Addendum 5—Plant and Animal List

Econfina River State Park—Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for designated species)
LICHEN		
Deer lichen	<i>Cladina</i> sp.	
PTERIDOPHYTES		
Cinnamon fern	<i>Osmunda cinnamomea</i>	
Resurrection fern	<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>	
Braken fern	<i>Pteridium aquilinum</i>	
Netted chain-fern	<i>Woodwardia areolata</i>	
GYMNOSPERMS		
Southern red cedar	<i>Juniperus silicicola</i>	
Slash pine	<i>Pinus eliottii</i>	
Spruce pine	<i>Pinus glabra</i>	
Loblolly pine	<i>Pinus taeda</i>	
Pond cypress	<i>Taxodium ascendens</i>	
Bald cypress	<i>Taxodium distichum</i>	
MONOCOTS		
Bushy bluestem	<i>Andropogon glomeratus</i>	
Broomsedge	<i>Andropogon virginicus</i>	
Wiregrass	<i>Aristida stricta</i>	
Giant cane	<i>Arundinaria gigantea</i>	
Bandana of the Everglades	<i>Canna flaccida</i>	
Greenwhite sedge	<i>Carex albolutescens</i>	
Sedge	<i>Carex</i> sp.	
Slender wood oats	<i>Chasmanthium laxum</i>	
Sawgrass	<i>Cladium jamaicense</i>	
Saltgrass	<i>Distichlis spicata</i>	
Gulf Coast spikerush	<i>Eleocharis cellulosa</i>	
Green-fly orchid	<i>Epidendrum conopseum</i>	
Spring-run spider lily	<i>Hymenocallis rotata</i>	
Savannah iris	<i>Iris tridentata</i>	
Blue flag iris	<i>Iris virginica</i>	
Soft rush	<i>Juncus effuses</i> var. <i>solutus</i>	
Shore rush	<i>Juncus marginatus</i>	
Manyhead rush	<i>Juncus polycephalus</i>	
Black rush	<i>Juncus roemerianus</i>	
Two flower melic grass	<i>Melica mutica</i>	
Woods grass	<i>Oplismenus hirtellus</i>	
Maiden cane	<i>Panicum hemitomon</i>	
Green arrow arum	<i>Peltandra virginica</i>	

Econfina River State Park—Plants

Common Name	Scientific Name	Primary Habitat Codes (for designated species)
Needle palm	<i>Rhapidophyllum hystrix</i>	HH, MEH
Starrush whitetop	<i>Rhynchospora colorata</i>	
Sandy field beaksedge	<i>Rhynchospora megalocarpa</i>	
Widgeon grass	<i>Ruppia maritima</i>	
Cabbage palm	<i>Sabal palmetto</i>	
Sugarcane plumegrass	<i>Saccharum giganteum</i>	
Bulrush	<i>Scirpus sp.</i>	
Nutrush	<i>Scleria sp.</i>	
Saw palmetto	<i>Serenoa repens</i>	
Knotroot foxtail	<i>Setaria parviflora</i>	
Bamboo vine	<i>Smilax laurifolia</i>	
Wild sarsaparilla	<i>Smilax pumila</i>	
Salt mash cordgrass	<i>Spartina alterniflora</i>	
Salt meadow cordgrass	<i>Spartina patens</i>	
Gulf cordgrass	<i>Spartina spartinae</i>	
Spring ladies tresses	<i>Spiranthes vernalis</i>	
Spanish moss	<i>Tillandsia usneoides</i>	
Eastern gamagrass	<i>Tripsacum dactyloides</i>	
Southern cattail	<i>Typha domingensis</i>	
Common 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>
Red buckeye	<i>Aesculus pavia</i>
False bastard indigo	<i>Amorpha fruticosa</i>
Pepper vine	<i>Ampelopsis arborea</i>
Saltbush, sea myrtle	<i>Baccharis halimifolia</i>
Smooth water hyssop	<i>Bacopa monnieri</i>
River birch	<i>Betula nigra</i>
Cross vine	<i>Bignonia capreolata</i>
Bushy seaside oxeye	<i>Borrichia frutescens</i>
American bluehearts	<i>Buchnera americana</i>
Beautyberry	<i>Callicarpa americana</i>
Trumpet vine	<i>Campsis radicans</i>
Vanilla leaf	<i>Carphephorus odoratissimus</i>
Water hickory	<i>Carya aquatica</i>
Pignut hickory	<i>Carya glabra</i>
Sugarberry	<i>Celtis laevigata</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Redbud	<i>Cercis canadensis</i>
Purple thistle	<i>Cirsium horridulum</i>
Stinging nettle	<i>Cnidocolus stimulosus</i>

Econfina River State Park—Plants

Common Name	Scientific Name	Primary Habitat Codes (for designated species)
Flowering dogwood	<i>Cornus florida</i>	
Green haw	<i>Crataegus viridis</i>	
Climbing hydrangea	<i>Decumaria barbara</i>	
Persimmon	<i>Diospyros virginiana</i>	
Florida elephant's foot	<i>Elephantopus elatus</i>	
Early whitetop fleabane	<i>Erigeron vernus</i>	
Dog fennel	<i>Eupatorium capillifolium</i>	
Pop ash	<i>Fraxinus caroliniana</i>	
Green ash	<i>Fraxinus pennsylvanica</i>	
Dwarf huckleberry	<i>Gaylussacia dumosa</i>	
Water locust	<i>Gleditsia aquatica</i>	
Angle pod	<i>Gonolobus suberosus</i>	HH, MEH
Coastal plain hawkweed	<i>Hieracium megacephalon</i>	
Many flowered marsh pennywort	<i>Hydrocotyle umbellata</i>	
St. John's wort	<i>Hypericum sp.</i>	
Musky mint	<i>Hyptis alata</i>	
Dahoon holly	<i>Ilex cassine</i>	
Gallberry	<i>Ilex glabra</i>	
American holly	<i>Ilex opaca</i>	
Yaupon holly	<i>Ilex vomitoria</i>	
Morning glory	<i>Ipomoea sp.</i>	
Bigleaf sumpweed	<i>Iva frutescens</i>	
Virginia seaside mallow	<i>Kosteletzkya virginica</i>	
Corkwood	<i>Leitneria floridana</i>	HH
Carolina sea lavender	<i>Limonium carolinianum</i>	
Sweetgum	<i>Liquidambar styraciflua</i>	
White lobelia	<i>Lobelia paludosa</i>	
Christmas berry	<i>Lycium carolinianum</i>	
Rusty staggerbush	<i>Lyonia ferruginea</i>	
Fetterbush	<i>Lyonia lucida</i>	
Southern magnolia	<i>Magnolia grandiflora</i>	
Sweetbay	<i>Magnolia virginiana</i>	
Red mulberry	<i>Morus rubra</i>	
Wax myrtle	<i>Myrica cerifera</i>	
Ogeechee tupelo	<i>Nyssa ogeche</i>	
Swamp tupelo	<i>Nyssa sylvatica var. biflora</i>	
Southern gaura	<i>Oenothera simulans</i>	
Prickly pear	<i>Opuntia humifusa</i>	
Virginia creeper	<i>Parthenocissus quinquefolia</i>	
Red bay	<i>Persea borbonia</i>	
Swamp bay	<i>Persea palustris</i>	
Oak mistletoe	<i>Phoradendron leucarpum</i>	
Capeweed	<i>Phyla nodiflora</i>	
Narrowleaf silkgrass	<i>Pityopsis graminifolia</i>	
Rosy camphorweed	<i>Pluchea baccharis</i>	

* Non-Native Species

Econfina River State Park—Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for designated species)
Camphorweed	<i>Pluchea camphorata</i>	
Stinking camphorweed	<i>Pluchea foetida</i>	
Rustweed	<i>Polypremum procumbens</i>	
Pickernelweed	<i>Pontederia cordata</i>	
Combweed mermaid weed	<i>Proserpinaca pectinata</i>	
Carolina desert chicory	<i>Pyrrhopappus carolinianus</i>	
Sand live oak	<i>Quercus geminata</i>	
Laurel oak	<i>Quercus laurifolia</i>	
Myrtle oak	<i>Quercus myrtifolia</i>	
Water oak	<i>Quercus nigra</i>	
Live oak	<i>Quercus virginiana</i>	
Winged sumac	<i>Rhus copallina</i>	
Sand blackberry	<i>Rubus cuneifolius</i>	
Carolina wild petunia	<i>Ruellia caroliniensis</i>	
Dwarf glasswort	<i>Salicornia bigelovii</i>	
Coastal plain willow	<i>Salix caroliniana</i>	
Lyre-leaf sage	<i>Salvia lyrata</i>	
Pineland pimpernel	<i>Samolus valerandi</i> var. <i>parviflorus</i>	
Lizard's tail	<i>Saururus cernuus</i>	
Florida bully	<i>Sideroxylon reclinata</i>	
Horse nettle	<i>Solanum carolinense</i>	
Water toothleaf	<i>Stillingia aquatica</i>	
Poison ivy	<i>Toxicodendron radicans</i>	
American elm	<i>Ulmus americana</i>	
Sparkleberry	<i>Vaccinium arboreum</i>	
Highbush blueberry	<i>Vaccinium corymbosum</i>	
Darrow's blueberry	<i>Vaccinium darrowii</i>	
Shiny blueberry	<i>Vaccinium myrsinites</i>	
Southern arrowwood	<i>Viburnum dentatum</i>	
Four leaf vetch	<i>Vicia acutifolia</i>	
Common blue violet	<i>Viola sororia</i>	
Summer grape	<i>Vitis aestivalis</i>	
Muscadine	<i>Vitis rotundifolia</i>	

FISH

Pirate perch		<i>Micropterus notius</i>	
		Spotted sucker	
		<i>Minytrema melanops</i>	MLK
	<i>Aphre</i>	Atlantic needlefish	
<i>doderus sayanus</i>	BST,	<i>Strongylura marina</i>	BST,
MLK		MLK	
Flier		Red drum	
	<i>Centr</i>		<i>Sciaen</i>
<i>archus macropterus</i>	BST,	<i>ops ocellatus</i>	BST
MLK			
Sheepshead minnow			
	<i>Cyprin</i>		
<i>odon variegatus</i>	BST,	Mole salamander	
MLK			<i>Amby</i>
Sunfish		<i>stoma talpoideum</i>	MTC
	<i>Ennea</i>	Southeastern slimy salamander	
<i>canthus sp.</i>	BST,		<i>Pletod</i>
MLK		<i>on grobmani</i>	MTC
Mosquitofish		Southern toad	<i>Bufo</i>
	<i>Gamb</i>	<i>terrestris</i>	MTC
<i>usia holbrooki</i>	BST,	Eastern narrow-mouthed frog	
MLK			<i>Gastro</i>
Flagfish		<i>phryne carolinensis</i>	MTC
	<i>Jorda</i>	Gray treefrog	<i>Hyla</i>
<i>nella floridae</i>	BST,	<i>chrysocelis</i>	MTC
MLK		Green treefrog	<i>Hyla</i>
Warmouth		<i>cinerea</i>	MTC
	<i>Lepo</i>	Pine-woods treefrog	<i>Hyla</i>
<i>mis gulosus</i>	BST,	<i>femorialis</i>	MTC
MLK		Squirrel treefrog	<i>Hyla</i>
Striped mullet	<i>Mugil</i>	<i>squirella</i>	MTC
<i>cephalus</i>	BST,	Southern spring peeper	
MLK			<i>Pseud</i>
Golden shiner		<i>acris crucifer</i>	MTC
	<i>Notem</i>	Florida chorus frog	
<i>igonus crysoleucas</i>	BST,		<i>Pseud</i>
MLK		<i>acris nigrita</i>	DS,
Molly		MLK	
	<i>Peocili</i>	Little grass frog	
<i>a latipinna</i>	BST,		<i>Pseud</i>
MLK		<i>acris ocularis</i>	DS,
Redbreast sunfish		MLK	
<i>Lepomis auritus</i>		Ornate chorus frog	MLK
Bluegill			<i>Pseud</i>
<i>Lepomis macrochirus</i>	MLK	<i>acris ornata</i>	DS,
Redear sunfish		MLK	
<i>Lepomis microlophus</i>	MLK	Bullfrog	<i>Rana</i>
Florida largemouth bass		<i>catesbeiana</i>	DS,
<i>Micropterus salmoides floridanus</i>		MLK	MLK
Suwannee bass		Bronze frog	<i>Rana</i>

AMPHIBIANS

<i>clamitans</i>	DS,		<i>Scelop</i>
MLK		<i>orus undulatus</i>	MTC
Southern leopard frog	<i>Rana</i>	Ground skink	
<i>utricularia</i>	MTC		<i>Scince</i>
Eastern spadefoot toad		<i>Ila lateralis</i>	MTC
	<i>Scaph</i>	Florida cottonmouth	
<i>iopus holbrooki</i>	SCF,		<i>Agkist</i>
XF		<i>rodon piscivorus</i>	MTC
		Northern scarlet snake	
			<i>Cemo</i>
		<i>phora coccinea</i>	MTC
		Southern black racer	
American alligator			<i>Colub</i>
	<i>Alligat</i>		MTC
<i>or mississippiensis</i>	MTC	<i>er constrictor</i>	
Snapping turtle		Eastern diamondback	
	<i>Chely</i>		<i>Crotal</i>
<i>dra serpentina</i>	MTC	<i>us adamanteus</i>	MTC
Eastern chicken turtle		Southern ringneck snake	
	<i>Deiroc</i>		<i>Diado</i>
<i>helys reticularia</i>	MTC	<i>phis punctatus</i>	HH
Striped mud turtle		Red rat snake	
	<i>Kinost</i>		<i>Elaph</i>
<i>ernon bauri</i>	MTC	<i>e guttata</i>	MTC
Eastern mud turtle		Gray rat snake	
	<i>Kinost</i>		<i>Elaph</i>
<i>ernon subrubrum</i>	MTC	<i>e obsoleta</i>	MTC
Florida cooter		Eastern mud snake	
	<i>Pseud</i>		<i>Faran</i>
<i>emys floridana</i>	MTC	<i>cia abacura</i>	BF, BS
Gulf coast box turtle		Scarlet kingsnake	
	<i>Terrap</i>		<i>Lampr</i>
<i>ene carolina</i>	MTC	<i>opeltis triangulam</i>	MTC
Green anole		Banded water snake	
<i>carolinensis</i>	<i>Anolis</i>		<i>Nerodi</i>
Six-lined racerunner	MTC	<i>a fasciata</i>	BS,
		MLK	
<i>dophorus sexlineatus</i>	<i>Cnemi</i>	Gulf salt marsh snake	
Southeastern five-lined skink	MTC		<i>Nerodi</i>
	<i>Eume</i>	<i>a clarkii clarkii</i>	SAM
<i>ces inexpectatus</i>	MTC	Dusky pygmy rattlesnake	
Broad-headed skink			<i>Sistrur</i>
	<i>Eume</i>	<i>us miliarius</i>	MTC
<i>ces laticeps</i>	MTC	Florida red-bellied snake	
Island glass lizard			<i>Storer</i>
	<i>Ophis</i>	<i>ia occipitomaculata</i>	MTC
<i>aurus compressus</i>	MTC	Blue-striped ribbon snake	
Eastern glass lizard			<i>Tham</i>
	<i>Ophis</i>	<i>nophis sauritus</i>	MTC
<i>aurus ventralis</i>	MTC	Blue-striped garter snake	
Southern fence lizard			<i>Tham</i>

<i>nophis sirtalis</i>	MTC	Little blue heron	<i>Egrett</i>
BIRDS		<i>a caerulea</i>	FS,
Red-breasted merganser		SAM	
	<i>Mergu</i>	Tricolored heron	<i>Egrett</i>
<i>s serrator</i>	FS,	<i>a tricolor</i>	FS,
SAM		SAM	
Wild turkey		Cattle egret	
	<i>Melea</i>		<i>Bubul</i>
<i>gris gallopavo</i>	HH,	<i>cus ibis</i>	FS,
MEH		SAM	
Pied-billed grebe		Green heron	
	<i>Podily</i>		<i>Butori</i>
<i>mbus podiceps</i>	FS,	<i>des striatus</i>	FS,
SAM		SAM	
Wood stork		Black-crowned night-heron	
	<i>Mycte</i>		<i>Nyctic</i>
<i>ria americana</i>	FS,	<i>orax nycticorax</i>	FS,
SAM		SAM	
Double-crested cormorant		Yellow-crowned night-heron	
	<i>Phalac</i>		<i>Nycta</i>
<i>rocorax auritus</i>	FS,	<i>nassa violacea</i>	FS,
SAM		SAM	
Anhinga		Black vulture	
	<i>Anhin</i>		<i>Corag</i>
<i>ga anhinga</i>	FS,	<i>yps atratus</i>	MTC
SAM		Turkey vulture	
American white pelican			<i>Cathar</i>
	<i>Peleca</i>	<i>tes aura</i>	MTC
<i>nus erythrorhynchos</i>	FS,	Osprey	
SAM			<i>Pandio</i>
Brown pelican		<i>n haliaetus</i>	FS,
	<i>Peleca</i>	SAM	
<i>nus occidentalis</i>	FS,	Swallow-tailed kite	
SAM			<i>Elanoi</i>
Least bittern		<i>des forficatus</i>	BF
	<i>Ixobry</i>	Mississippi kite	<i>Ictinia</i>
<i>chus exilis</i>	SAM	<i>mississippiensis</i>	MTC
Great blue heron	<i>Ardea</i>	Bald eagle	
<i>herodias</i>	FS,		<i>Haliae</i>
SAM		<i>etus leucocephalus</i>	MTC
Great egret		Northern harrier	<i>Circus</i>
	<i>Casm</i>	<i>cyaneus</i>	MTC
<i>erodius albus</i>	FS,	Red-shouldered hawk	<i>Buteo</i>
SAM		<i>lineatus</i>	MTC
Snowy egret		Red-tailed hawk	<i>Buteo</i>
	<i>Egrett</i>	<i>jamaicensis</i>	MTC
<i>a thula</i>	FS,	Clapper rail	<i>Rallus</i>
SAM		<i>longirostris</i>	FS,

SAM			<i>Sayor</i>
Sora		<i>nis phoebe</i>	MTC
	<i>Porza</i>	Great crested flycatcher	
<i>na carolina</i>	FS,		<i>Myiarc</i>
SAM		<i>hus crinitus</i>	MTC
Greater yellowlegs	<i>Tringa</i>	White-eyed vireo	<i>Vireo</i>
<i>melanoleuca</i>	FS,	<i>griseus</i>	BF,
SAM		HH	
Laughing gull	<i>Larus</i>	Blue-headed vireo	<i>Vireo</i>
<i>atricilla</i>	SAM	<i>solitarius</i>	BF,
Mourning dove		HH	
	<i>Zenai</i>	Red-eyed vireo	<i>Vireo</i>
<i>da macroura</i>	MTC	<i>olivaceus</i>	BF,
Common ground-dove		HH	
	<i>Colum</i>	Blue jay	
<i>bina passerine</i>	MTC		<i>Cyano</i>
Yellow-billed cuckoo		<i>citta cristata</i>	MTC
	<i>Coccy</i>	Fish crow	
<i>zus americanus</i>	MTC		<i>Corvu</i>
Barred owl	<i>Strix</i>	<i>s ossifragus</i>	FS,
<i>varia</i>	HH,	SAM	
MEH		Purple martin	
Chuck-will's widow			<i>Progn</i>
	<i>Capri</i>	<i>e subis</i>	DV
<i>mulgus carolinensis</i>	HH,	Tree swallow	
MEH			<i>Tachy</i>
Chimney swift		<i>cineta bicolor</i>	MTC
	<i>Chaet</i>	Carolina chickadee	<i>Parus</i>
<i>ura pelagica</i>	DV	<i>carolinensis</i>	HH,
Belted kingfisher	<i>Ceryle</i>	MEH	
<i>alcyon</i>	FS,	Tufted titmouse	<i>Parus</i>
SAM		<i>bicolor</i>	HH,
Red-bellied woodpecker		MEH	
	<i>Melan</i>	Carolina wren	
<i>erpes carolinus</i>	MTC		<i>Thryot</i>
Yellow-bellied sapsucker		<i>horus ludovicianus</i>	HH,
	<i>Sphyr</i>	MEH	
<i>apicus varius</i>	MTC	Marian's marsh wren	
Northern flicker			<i>Cistot</i>
	<i>Colapt</i>	<i>horus palustris</i>	MTC
<i>es auratus</i>	MTC	Blue-gray gnatcatcher	
Pileated woodpecker			<i>Poliop</i>
	<i>Dryoc</i>	<i>tila caerulea</i>	HH,
<i>opus pileatus</i>	MTC	MEH	
American kestrel	<i>Falco</i>	Golden-crowned kinglet	
<i>sparverius</i>	MTC		<i>Regul</i>
Acadian flycatcher		<i>us satrapa</i>	HH,
	<i>Empid</i>	MEH	
<i>onax virescens</i>	MTC	Ruby-crowned kinglet	
Eastern phoebe			<i>Regul</i>

<i>us calendula</i>	HH,	Yellow-throated warbler	
MEH			<i>Setop</i>
Eastern bluebird	<i>Sialis</i>	<i>haga dominica</i>	MTC
<i>sialia</i>	HH,	Eastern towhee	<i>Pipilo</i>
MEH		<i>erythrophthalmus</i>	MTC
Hermit thrush		Chipping sparrow	
	<i>Cathar</i>		<i>Spizell</i>
<i>us guttatus</i>	HH,	<i>a passerina</i>	MTC
MEH		Wakulla seaside sparrow	
Wood thrush			<i>Ammo</i>
	<i>Hyloci</i>	<i>dramus maritimus juncicola</i>	SAM
<i>chla mustelina</i>	HH	Scott's seaside sparrow	
American robin			<i>Ammo</i>
	<i>Turdu</i>	<i>dramus maritimus peninsulae</i>	FS,
<i>s migratorius</i>	MTC	SAM	
Gray catbird		Summer tanager	
	<i>Dume</i>		<i>Pirang</i>
<i>tella carolinensis</i>	DV	<i>a rubra</i>	BF,
Northern mockingbird	<i>Mimus</i>	HH	
<i>polyglottos</i>	MTC	Northern cardinal	
Brown thrasher			<i>Cardin</i>
	<i>Toxost</i>	<i>alis cardinalis</i>	MTC
<i>oma rufum</i>	MTC	Indigo bunting	
Black-and-white warbler			<i>Passer</i>
	<i>Mniotil</i>	<i>ina cyanea</i>	MTC
<i>ta varia</i>	MTC	Red-winged blackbird	
Prothonotary warbler			<i>Agelai</i>
	<i>Proton</i>	<i>us phoeniceus</i>	FS,
<i>otaria citrea</i>	BF,	SAM	
HH		Common grackle	
Common yellowthroat			<i>Quisca</i>
	<i>Geothl</i>	<i>lus quiscalus</i>	DV
<i>ypis trichas</i>	MTC	Boat-tailed grackle	
Hooded warbler			<i>Quisca</i>
	<i>Setop</i>	<i>lus major</i>	FS,
<i>haga citrina</i>	BF,	SAM	
HH		Brown-headed cowbird	
Northern parula			<i>Molot</i>
	<i>Setop</i>	<i>hrus ater</i>	DV
<i>haga americana</i>	BF,		
HH			
Palm warbler			
	<i>Setop</i>	Virginia opossum	
<i>haga palmarum</i>	MTC		<i>Didelp</i>
Pine warbler		<i>his marsupialis</i>	MTC
	<i>Setop</i>	Eastern mole	
<i>haga pinus</i>	MTC		<i>Scalop</i>
Yellow-rumped warbler		<i>us aquaticus</i>	SCF,
	<i>Setop</i>	XH	
<i>haga coronata</i>	MTC	Florida black bear	<i>Ursus</i>

MAMMALS

<i>americanus</i>	BF,
HH	
Raccoon	
	<i>Procy</i>
<i>on lotor</i>	MTC
River otter	<i>Lontra</i>
<i>canadensis</i>	BS,
SAM	
Gray fox	
	<i>Urocy</i>
<i>on cinereoargenteus</i>	MTC
Bobcat	<i>Lynx</i>
<i>rufus</i>	MTC
Eastern gray squirrel	
	<i>Sciuru</i>
<i>s carolinensis</i>	MTC
Eastern woodrat	
	<i>Neoto</i>
<i>ma floridana</i>	MTC
Cotton mouse	
	<i>Perom</i>
<i>yscus gossypinus</i>	MTC
Eastern harvest mouse	
	<i>Reithr</i>
<i>odontomys humilis</i>	MTC
Hispid cotton rat	
	<i>Sigmo</i>
<i>don hispidus</i>	MTC
Eastern cottontail	
	<i>Sylvila</i>
<i>gus floridanus</i>	MTC
Marsh rabbit	
	<i>Sylvila</i>
<i>gus palustris</i>	FS,
HH	
White-tailed deer	
	<i>Odoco</i>
<i>ileus virginianus</i>	MTC
Nine-banded armadillo	
	<i>Dasyp</i>
<i>us novemcinctus</i>	MTC
Feral hog	<i>Sus</i>
<i>scrofa</i>	MTC
West Indian manatee	
	<i>Triche</i>
<i>chus manatus</i>	BS

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.

FNAL 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

Imperiled Species Ranking Definitions

- GXC extirpated from the wild but still known from captivity or cultivation
- G#? Tentative rank (e.g., G2?)
- G#G# range of rank; insufficient data to assign specific global rank (e.g., G2G3)
- G#T# rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
- G#Q..... rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
- G#T#Q..... same as above, but validity as subspecies or variety is questioned.
- GU due to lack of information, no rank or range can be assigned (e.g., GUT2).
- G?..... Not yet ranked (temporary)
- S1..... Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- S2..... Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- S3..... Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
- S4..... apparently secure in Florida (may be rare in parts of range)
- S5..... demonstrably secure in Florida
- SH of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- SX..... believed to be extinct throughout range
- SA..... accidental in Florida, i.e., not part of the established biota
- SE..... an exotic species established in Florida may be native elsewhere in North America
- SN regularly occurring but widely and unreliably distributed; sites for conservation hard to determine

Imperiled Species Ranking Definitions

SU due to lack of information, no rank or range can be assigned (e.g., SUT2).

S? Not yet ranked (temporary)

N Not currently listed, nor currently being considered for listing, by state or federal agencies.

LEGAL STATUS

FEDERAL

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

LE Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species that is in danger of extinction throughout all or a significant portion of its range.

PE Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.

LT Listed as Threatened Species. Defined as any species that is likely to become an endangered species within the near future throughout all or a significant portion of its range.

PT Proposed for listing as Threatened Species.

C Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants. Defined as those species for which the USFWS currently has on file sufficient information on biological vulnerability and threats to support proposing to list the species as endangered or threatened.

E(S/A) Endangered due to similarity of appearance.

T(S/A) Threatened due to similarity of appearance.

EXPE, XE..... Experimental essential population. A species listed as experimental and essential.

EXPN, XN.... Experimental non-essential population. A species listed as experimental and non-essential. Experimental, nonessential populations of endangered species are treated as threatened species on public land, for consultation purposes.

Imperiled Species Ranking Definitions

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)

Imperiled Species Ranking Definitions

- LE Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.
- LT Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

Imperiled Species Ranking Definitions

Addendum 7—Cultural Information

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

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.

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

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 .

* * *

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

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

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

Phone: (850) 245-6425

Toll Free: (800) 847-7278

Fax: (850) 245-6435

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

- 1) Districts, sites, buildings, structures, and objects may be considered to have significance in American history, architecture, archaeology, engineering, and/or culture if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
 - a) are associated with events that have made a significant contribution to the broad patterns of our history; and/or
 - b) are associated with the lives of persons significant in our past; and/or
 - c) embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or
 - d) have yielded, or may be likely to yield, information important in prehistory or history.

- 2) Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the *National Register*. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
 - a) a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
 - b) a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving

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

- 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
- a property achieving significance within the past 50 years, if it is of exceptional importance.

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

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

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

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

Addendum 8—Timber Management Analysis

Econfina River State Park Timber Management Analysis

1. *Management Context and Best Management Practices*

Timber management prescriptions and actions at Econfina River State Park are based on the desired future condition (DFC) of a stand or natural community (NatCom) as determined by guidelines established by the DRP. In most cases, the DFC will be closely related to the historic NatCom. However, it is important to note, that in areas where the historic community has been severely altered by past land use practices, the DFC may not always be the same as the historic NatCom. All forest/stand/timber management activities undertaken will adhere to the current Florida Silvicultural Best Management Practices and Florida Forestry Wildlife Best Management Practices for State Imperiled Species. DRP is responsible for managing timber resources within corresponding management zones. This timber assessment was conducted by F4 Tech on behalf of DRP.

2. *Purpose of Timber Management Activities*

Timber management activities will be conducted to help restore and/or improve current conditions so that the associated DFC (typically an historic condition) can be achieved or maintained. Timber management will primarily be conducted in pine-dominated natural communities. Upland communities typically include mesic flatwoods, sandhill, upland pine, upland mixed woodland and altered landcover areas such as successional hardwood forest and pine plantations. Other historically hardwood-dominated natural communities will likely have little to no scheduled timber management activities. In some circumstances, actions may be conducted to remove overstory invasive/exotic trees such as Chinese tallow to help restore or maintain natural communities.

3. *Potential Silvicultural Treatments*

Several silvicultural treatments may be considered and utilized over the next ten years to achieve the long-term DFC for candidate NatCom types at Econfina River State Park. These treatments include timber harvests, timber stand improvement, and reforestation. The various types of timber harvests may include pine thinning, targeted hardwood removal, and clearcutting. Silvicultural treatments should be implemented to minimize disturbance to non-target vegetation, soil, and wildlife.

Thinning is conducted to reduce the basal area (BA) or density of trees/stems in a stand to improve forest health and growth conditions for residual trees. The "opening up" of high density forest stands increases tree and stand vigor, which helps mitigate the potential for damaging insect outbreaks. Thinning also increases sunlight reaching the forest floor, which when combined with routine prescribed fire, can increase groundcover vegetation abundance, species richness, and overall ecological diversity. The disruption of a historic natural fire regime and/or fire return interval can

Econfina River State Park Timber Management Analysis

often result in the need to remove undesirable or overstocked hardwood stems that currently occupy growing space in the canopy and sub-canopy. Tree removal/harvest also increases groundcover vegetation, ecological diversity, and fine fuels that facilitate consistent fire return intervals and responses.

Clearcutting supports restoration goals by removing offsite pine or hardwood species and is a precursor to establishing site-appropriate species. It is also used to control insect infestations that are damaging or threatening forest resources and ecosystem conditions on or off site. A tangible by-product of conducting timber harvests for restoring or improving forested communities is the generation of revenue.

Stand or NatCom improvement activities are often conducted to reduce unwanted hardwood, palm, or palmetto competition. Stand improvement treatments reduce fuel or fuel height, which can improve groundcover conditions and aid in maintaining proper prescribed burning return intervals. The two main stand improvement activities used on park property are herbicide treatments and mechanically cutting vegetation. Herbicide may be applied aerially, by mechanized ground-based equipment, or via backpack sprayers. Herbicides are used to reduce the amount of hardwood competition in areas that are unable to carry sufficient prescribed fire due to shading and lack of adequate groundcover fuels. Mechanical cutting is used to reduce the height of smaller shrub and hardwood competition, allowing for the establishment of fire-dependent herbs and grasses. Decreasing fuel loadings and enhancing groundcover allows prescribed fire to be reintroduced safely into a stand that has been unable to carry fire adequately. In select areas, mechanical or chemical control is also used to control excessive palm density promoted by past disturbance or fire exclusion to the same ends described above. Unlike hardwoods, these areas can burn with too much intensity under certain conditions.

Reforestation is used to establish the appropriate southern pine species in areas that have been harvested and lack sufficient natural regeneration in terms of abundance (seedlings/acre) and/or species composition. Reforestation candidate areas can also include those that are fire suppressed or have been recently impacted by natural events such as windthrow, bark beetle attack, or wildfire. The two methods used to reestablish the overstory will be natural and artificial regeneration. Both methods may require site preparation to facilitate survival of the desired species. Site preparation activities may include the use of prescribed fire, herbicides, and/or mechanical treatments such as roller chopping. Site preparation technique(s) will be selected that address the current vegetative cover type and condition, and the need to minimize seedling competition while

Econfina River State Park Timber Management Analysis

avoiding/minimizing any long-term impacts to native groundcover species and native wildlife. Natural generation may be used in areas where artificial regeneration is not needed, such as areas that have an adequate seed source of the desired tree species located on site or in the immediate vicinity. Artificial regeneration may include machine or hand planting. Hand planting is preferred on wetter sites, rougher sites, and/or sites where groundcover protection is a concern and a more natural appearance of randomly spaced trees is desired. Machine planting generally allows for more consistent planting and often allows higher survival rates if the site is properly prepared.

4. Inventory Data and Potential Actions per Area of Interest or Management Zone

Econfina River State Park comprises 4,528 acres in Taylor County. A total of 649 acres are associated with four (4) upland NatCom types that are potential candidates for timber management. In July 2017, an inventory based on field plots was conducted across and within these areas to quantify overstory, midstory and understory conditions. Table 1 below provides general statistics generated by the inventory at Econfina River State Park. Table 2 below provides current stocking levels and potential management activities of candidate management zones and NatCom types.

This timber assessment was based on GIS data (management zone and NatCom boundary data) provided by DRP in December 2017. This assessment identifies opportunities for potential actions over the next 10-year UMP planning horizon based on current conditions compared against desired future conditions. It is not intended to be prescriptive. State park staff responsible for developing operational plans should view this timber assessment and all supporting data as a guide for potential actions to consider. Given the dynamic nature of property ownership and land management activities at Econfina River State Park, together with the timeframe required to create or update a UMP, it is possible that some tabular data may be dated. Therefore, NatCom acreages and recent treatments that occurred after the December 2017 period may not be reflected in the tables herein.

A review and analysis of this data suggests that current ecological conditions for multiple management zones and associated forested communities could benefit from vegetation treatments. This assessment was based on a comparison of current conditions and the corresponding NatCom analog or target conditions as defined per FNAI Reference Site descriptions. In general, inventory data indicates that upland habitats in some management zones have a non-pine component which is outside the acceptable range for

Econfina River State Park Timber Management Analysis

the DFC of the NatCom types. Some natural communities considered may require midstory and overstory control to become, or remain, in compliance with FNAI defined ranges for palmetto and non-pine midstory. Stands with low stocking levels or a complete lack of preferred tree species would likely benefit from midstory control and artificial regeneration. In areas where planting is deemed necessary, the site should be assessed for site preparation needs including midstory/understory reduction.

The following section contains a general description of each management zone within Econfina River State Park that contains upland NatCom types as well as their general condition and need for restoration and/or improvement actions via timber management.

Table 1. General summary statistics for Econfina River State Park

Number of Management Zones within the Park	6
Number of Management Zones needing timber management	6
Number of unique upland NatCom polygons (split by management zone)	12
Number of unique upland NatCom polygons potentially needing timber management	12
Upland NatCom acres	649
Acres potentially needing timber management	649

Mesic Flatwoods (93 acres)

Within mesic flatwoods in north Florida, dominant pines will usually be longleaf pine (*Pinus palustris*). Native herbaceous groundcover will exceed at least 50 percent of the area and be less than three feet in height. Saw palmetto (*Serenoa repens*) will comprise no more than 50 percent of total shrub species cover and are also less than three feet in height. Other shrub species may include gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), running oak (*Quercus elliotii*), dwarf live oak (*Q. 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

Econfina River State Park Timber Management Analysis

this community is two to five years. The preferred overstory species (as determined by FNAI reference sites) is longleaf pine, which should be stocked at a level of 10 to 50 square feet of BA per acre. No other tree species should be in the overstory. The following management zone(s) contain mesic flatwoods which could be considered for some form of timber management including overstory removal, midstory mitigation, site preparation, and planting of preferred pine species.

Management Zone(s)	Mesic Flatwoods (Acres)	Basal Area (ft ² /acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
ER-01	14	129	26	102	11.1
ER-02	79	50	5	45	8.4

Scrubby Flatwoods (56 acres)

The dominant tree species in scrubby flatwoods will usually be longleaf pine (*Pinus palustris*) and slash pine (*P. elliottii*). Mature sand pines (*P. clausa*) will typically not be present. There will be a diverse shrubby understory often with patches of bare white sand. A scrub-type oak "canopy" will contain a variety of oak age classes/heights across the landscape. Dominant shrubs include sand live oak (*Quercus geminata*), myrtle oak (*Q. myrtifolia*), Chapman's oak (*Q. chapmanii*), saw palmetto (*Serenoa repens*), rusty staggerbush (*Lyonia ferruginea*), and tarflower (*Bejaria racemosa*). Cover by herbaceous species will often be low to moderately dense. The optimal fire return interval for this NatCom will be regionally variable and is typically 5-15 years when aiming to achieve a mosaic of burned and unburned areas. In this region, the preferred overstory species (as determined by FNAI reference sites) are longleaf pine and slash pine, which should be stocked at a level of 10 to 60 square feet of BA per acre while non-pine species should remain between 0 and 26.2 stems per acre. The following management zone(s) contain scrubby flatwoods which could be considered for some form of timber management including overstory removal, midstory mitigation, site preparation, and planting of preferred pine species.

Management Zones	Scrubby Flatwoods (Acres)	Basal Area (ft ² /acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
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Econfina River State Park Timber Management Analysis

Management Zones	Scrubby Flatwoods (Acres)	Basal Area (ft ² /acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
ER-05*	3	--	--	--	--
ER-03	17	54	10	44	9
ER-04*	4	--	--	--	--
ER-06*	32	--	--	--	--

*Un-sampled upland areas are present in this analysis and could require vegetation management in the future.

Xeric Hammock (42 acres)

This NatCom type is typically considered a late successional stage of scrub or sandhill that generally occurs in small isolated patches on excessively well drained soils. Vegetation will consist of a low closed canopy dominated by live oak (*Quercus virginiana*) which provides shady conditions. Typical plant species may also include Chapman's oak (*Q. chapmanii*) and laurel oak (*Q. hemisphaerica*). Sand pine (*Pinus clausa*), slash pine (*P. elliotii*), or longleaf pine (*P. palustris*) may also be a minor component. Understory species will include saw palmetto (*Serenoa repens*), fetterbush (*Lyonia lucida*), and myrtle oak (*Q. myrtifolia*). A sparse groundcover layer of wiregrass (*Aristida stricta* var. *beyrichiana*) and other herbaceous species may exist but will typically be absent. A continuous leaf litter layer may be present. Overgrown scrub in need of fire and/or mechanical treatment should not be confused with true xeric hammock. Preferred species for this NatCom include those specified above. There are currently no FNAI recommendations on per species stocking levels for this NatCom. However, in areas where restoration is considered, longleaf pine will be viewed as a preferred overstory species. The following management zones contain xeric hammock which could be considered for some form of timber management including overstory removals, and midstory mitigation.

Management Zones	Xeric Hammock (Acres)	Basal Area (ft ² /acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
ER-03*	1	--	--	--	--
ER-05*	5	--	--	--	--
ER-06*	36	--	--	--	--

Econfina River State Park Timber Management Analysis

*Un-sampled upland areas are present in this analysis and could require vegetation management in the future.

Mesic Hammock (458 acres)

Mesic hammock is characterized by a well-developed evergreen hardwood and/or palm forest which can occur through much of peninsular Florida. The canopy, often dense, 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. Pine trees, particularly slash pine (*Pinus elliottii*) or loblolly pine (*P. taeda*), may form a sparse emergent layer. Mesic hammocks can arise in naturally pine-dominated areas when shielded from fire because of human activities. Timber management can support restoration goals. Preferred species for this NatCom include those specified above. There are currently no FNAI recommendations on per species stocking levels for this NatCom. The following management zone(s) contain mesic hammock which could be considered for some form of timber management including overstory removal, midstory mitigation, site preparation, and planting of preferred pine species.

Management Zones	Mesic Hammock (Acres)	Basal Area (ft²/acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
ER-01	140	133	--	--	9.8
ER-02	103	129	--	--	13.2
ER-04	215	161	--	--	11

Econfina River State Park Timber Management Analysis

Timber Management Analysis

Table 2. Summary of potential timber management actions for upland NatCom types to help restore or improve ecosystem conditions.

Management Zones	MZ (acres)	Candidate NatCom Type	Candidate NatCom Type Acres	Current Average Overstory Pine BA (ft2/AC)	Target Overstory Pine BA (ft2/AC)	Current Average Overstory Non-Pine TPA	Target Non-Pine Overstory TPA	Potential Actions/Treatments			
								Harvest or Thin	Stand Improvement	Site Prep	Plant
ER-01	155	Mesic Flatwoods	14	30	10 - 50	835	0 - 0	Y	Y	N	N
ER-02	354	Mesic Flatwoods	79	40	10 - 50	468	0 - 0	Y	Y	N	N
ER-01	155	Mesic Hammock	140	30	--	835	--	Y	Y	N	N
ER-02	354	Mesic Hammock	103	40	--	468	--	Y	Y	N	N
ER-04	1104	Mesic Hammock	215	23	--	751	--	Y	Y	N	N
ER-03	190	Scrubby Flatwoods	17	26	10 - 60	327	0 - 26	Y	Y	N	N
ER-04*	1104	Scrubby Flatwoods	4	--	--	--	--	Y	Y	N	N
ER-05*	1709	Scrubby Flatwood	3	--	--	--	--	Y	Y	N	N

Timber Management Analysis

Management Zones	MZ (acres)	Candidate NatCom Type	Candidate NatCom Type Acres	Current Average Overstory	Target Overstory Pine BA	Current Average Overstory	Target Non-Pine Overstory	Potential Actions/Treatments			
		s									
ER-06	1072	Scrubby Flatwoods	32	0	10 - 60	31	0 - 26	Y	Y	Y	Y
ER-03*	190	Xeric Hammock	1	--	--	--	--	N	N	N	N
ER-05*	1709	Xeric Hammock	5	--	--	--	--	N	N	N	N
ER-06	1072	Xeric Hammock	36	0	--	31	--	N	N	Y	Y

*Un-sampled upland areas are present in this analysis and could require vegetation management in the future.

Addendum 9—Land Management Review

Econfina River State Park Land Management Review

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMORANDUM

TO: James Parker, GOC III, Office of Environmental Services
Division of State Lands

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

Wes Howell Digitally signed by Wes Howell
Date: 2018.05.11 09:37:35
-04'00'

Steve Cutshaw, Chief, Office of Park Planning
Division of Recreation and Parks

Steven Cutshaw Digitally signed by Steven
Cutshaw
Date: 2018.05.11 10:52:25 -04'00'

SUBJECT: Response to Draft Land Management Review (LMR)
Econfina River State Park

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

Attached is DRP's Managing Agency Response to the draft LMR report. The responses were prepared via a coordinated effort of the park, district office, and our offices.

Thank you for your attention.

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2018 Land Management Review Team Report for Econfina River State Park

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I. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In case where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan."

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district or jurisdictional water management district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

Econfina River State Park Land Management Review

1.1. Property Reviewed in this Report

Name of Site: Econfina River State Park

Managed by: Florida Department of Environmental Protection – Division of Recreation and Parks

Acres: 4,528.26

County: Taylor

Purpose(s) for Acquisition: to protect and restore the natural and cultural values of the property and provide the greatest benefit to the citizens of the state.

Acquisition Program(s): Save Our Coast

Original Acquisition Date: 12/24/87

Area Reviewed: Entire Property

Last Management Plan Approval Date: 4/21/06

Review Date: 2/22/18

Agency Manager and Key Staff Present:

- Rob Lacy, Park Manager
- Randy Rabon, FPS

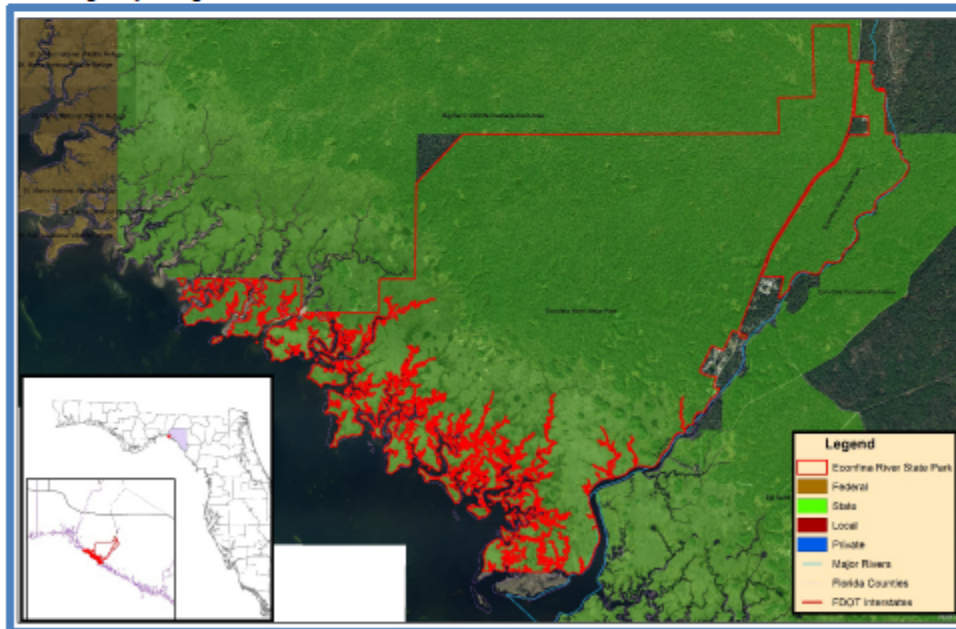
Review Team Members Present (voting)

- Arthur Stiles, DRP District
- Douglas Longshore, FFS
- Ronald Blair, Conservation Org.
- WMD, None
- Blair Hayman, FWCC
- Local Gov't, None
- Linda Oliva, DEP District
- Private Land Manager, None

Other Non-Team Members Present (attending)

- James Parker, DEP/DSL
- Keith Singleton, DEP/DSL
- Sandy Tedder, Observer

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed for purposes that are compatible with conservation, preservation, or recreation?

Yes = 5, No = 0

Are the management practices, including public access, in compliance with the management plan?

Yes = 5, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see *Appendix A*.

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	4.14	3.29
Prescribed Fire / Habitat Restoration	3.97	3.63
Hydrology	3.73	3.35
Imperiled Species	4.20	3.80
Exotic / Invasive Species	4.11	3.40
Cultural Resources	4.80	4.30
Public Access / Education / Law Enforcement	4.02	3.61
Infrastructure / Equipment / Staffing	3.13	N/A
Color Code (See Appendix A for detail)		
Excellent	Above Average	Below Average
		Poor

1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the Florida Park Service (FPS) for management of a highly used public access area (boat ramp). Well maintained for a remote area. Great use of volunteers as well. (5+, 0-)
2. The team commends the FPS for efforts of preservation of known historical and archaeological sites. (5+, 0-)
3. The team commends the FPS for efforts in the control of invasive plants. (5+, 0-)

1.3.2 Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends the FPS consider burning isolated scrubby flatwoods found within hydric hammock. (5+, 0-)

Managing Agency Response: Disagree. The incidence of natural fire on these islands, either embedded within the salt marsh or the hydric hammock wetlands, is rare. Fire return interval as well as extant species composition and structure indicate these small isolated uplands are not fire dependent natural communities, and have properties similar to xeric or maritime hammock. They are currently mapped as scrubby flatwoods based on the dense overstory of "off-site" planted slash

pine established before the property became a state park. Furthermore, our long-term management intent is to allow these areas to revert back to dense, oak dominated hammocks as mortality reduces the slash pine overstory over time. The narrative in the Unit Management Plan (UMP) will be revised to more clearly reflect this goal.

2. The team recommends the FPS add a viewing platform in vista for the “destination” feel that was discussed. This is one of the highlights of this park and definitely should be advertised/accessible as such. (5+, 0-)

Managing Agency Response: The DRP will consider this suggestion for improving the visitor amenities / opportunities toward enhancing their experience of the park for potential inclusion within the upcoming UMP revision.

3. The team recommends the FPS enhance the loop trail to provide an exceptional visitor experience of natural communities without vehicle. (5+, 0-)

Managing Agency Response: The DRP will continue to explore ways to enhance the visitor experience for users of the loop trail. It should be noted that public vehicles are currently excluded from this route and other access roads in the park away from Highway 14 and the boat ramp area. Only staff vehicles on official business may access these routes. While the 2006 UMP ventured developing this loop as a scenic drive, this scenario is no longer being considered and it has been removed in the recent draft UMP.

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. Natural communities, specifically bottomland forest, basin swamp, floodplain swamp, hydric hammock, marsh lake, and salt marsh.
2. Listed species: protection & preservation specifically animals and plants.
3. Natural resources survey/monitoring specifically fire effects monitoring and invasive species survey/monitoring.
4. Cultural resources, specifically cultural resource survey and protection and preservation.
5. Resource management (prescribed fire), specifically quality.
6. Restoration, specifically mesic flatwoods restoration.
7. Forest Management, specifically timber inventory/assessment and timber harvesting.
8. Non-native, invasive, and problem species, specifically prevention and control of plants.
9. Resource protection, specifically gates and fencing, signage, and law enforcement presence.
10. Adjacent property concerns, specifically expanding development and inholdings/additions.
11. Public access, specifically roads, parking, and boat access.
12. Environmental education and outreach, specifically recreational opportunities and management of visitor impacts.
13. Management resources, specifically waste disposal and sanitary facilities.

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2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan update should include information on how these items have been addressed:

1. *Natural Resources Survey, specifically listed species or their habitat monitoring. The review team is asked to evaluate, based on information provided by the managing agency, whether survey and monitoring of the resources or their habitats are sufficient.*

Managing Agency Response: Agree. While the DRP lacks the staffing resources to conduct a formal surveillance and monitoring program for amphibians (as mentioned in the additional comments) or other animal species, we will continue to pursue opportunities to increase our knowledge about the distribution of imperiled species on park property.

2. *Management Resources, specifically equipment, staff, and funding received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether management resources are sufficient.*

Managing Agency Response: Division funding is appropriated annually by the Florida Legislature. This funding is allocated at the Division and District levels in order to best meet annual operational and resource management needs. Any deemed increase in Division Budget/staffing will follow the established legislative budget request process.

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	4	3	3	4	4				3.60
Scrubby Flatwoods	I.A.2	3	4	2	3	4				3.20
Xeric Hammock	I.A.3	4	4	2	4	4				3.60
Bottomland Forest	I.A.4	5	5	4	5	5				4.80
Basin Swamp	I.A.5	x	x	4	4	4				4.00
Floodplain Swamp	I.A.6	4	3	5	5	5				4.40
Hydric Hammock	I.A.7	5	4	4	5	5				4.60
Marsh Lake	I.A.8	5	5	5	5	5				5.00
Salt Marsh	I.A.9	5	5	5	5	5				5.00
Ephemeral Wetland	I.A.10	4	3	4	3	4				3.60
Natural Communities Average Score										4.18
Listed species:Protection & Preservation (I.B)										
Animals	I.B.1	5	3	4	3	5				4.00

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Plants	I.B.2	5	4	4	4	5				4.40
Listed Species Average Score										4.20
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	x	2	1	3	5				2.75
Fire effects monitoring	I.C.4	3	4	4	4	5				4.00
Invasive species survey / monitoring	I.C.6	5	5	4	5	5				4.80
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	5	4	5	5	5				4.80
Protection and preservation	II.B	5	4	5	5	5				4.80
Cultural Resources Average Score										4.80
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	4	2	4	5				3.80
Frequency	III.A.2	3	3	2	4	5				3.40
Quality	III.A.3	5	5	4	5	4				4.60
Resource Management, Prescribed Fire Average Score										3.93
Restoration (III.B)										
Mesic Flatwoods Restoration	III.B.2	4	4	3	4	5				4.00
Hydrological Restoration	III.B.3	3	3	3	4	5				3.60
Restoration Average Score										4.00
Forest Management (III.C)										
Timber Inventory / Assessment	III.C.1	4	x	3	4	5				4.00
Timber Harvesting	III.C.2	4	4	3	5	5				4.20
Forest Management Average Score										4.10
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	5	5	4	5	5				4.80
prevention - animals	III.D.1.b	3	3	4	4	5				3.80
prevention - pests/pathogens	III.D.1.c	x	3	4	3	5				3.75
Control										
control - plants	III.D.2.a	5	4	4	5	5				4.60
control - animals	III.D.2.b	3	3	4	4	4				3.60
Non-Native, Invasive & Problem Species Average Score										4.11
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	2	3	4	4	5				3.60
Ditches	III.E.1.b	3	3	4	5	4				3.80
Hydrologic/Geologic function, Hydro-Alteration Average Score										3.70
Surface Water Monitoring (III.E.3)										
Surface water quantity	III.F.3.b	x	2	4	4	5				3.75
Surface Water Monitoring Average Score										3.75
Resource Protection (III.F)										
Boundary survey	III.F.1	x	3	4	3	4				3.50
Gates & fencing	III.F.2	5	3	4	4	4				4.00

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Signage	III.F.3	5	3	4	4	4				4.00								
Law enforcement presence	III.F.4	5	3	5	5	4				4.40								
Resource Protection Average Score										3.98								
Adjacent Property Concerns (III.G)																		
Land Use																		
Expanding development	III.G.1.a	x	3	4	5	4				4.00								
Inholdings/additions	III.G.2	x	3	4	5	5				4.25								
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)																		
Public Access																		
Roads	IV.1.a	4	4		5	5				4.50								
Parking	IV.1.b	4	2		5	5				4.00								
Boat Access	IV.1.c	4	5	5	5	5				4.80								
Environmental Education & Outreach																		
Wildlife	IV.2.a	x	3	5	3	4				3.75								
Invasive Species	IV.2.b	x	3	5	3	4				3.75								
Habitat Management Activities	IV.2.c	x	2		3	4				3.00								
Interpretive facilities and signs	IV.3	4	3	4	2	4				3.40								
Recreational Opportunities	IV.4	4	4	5	5	5				4.60								
Management of Visitor Impacts	IV.5		4	5	5	5				4.75								
Public Access & Education Average Score										4.06								
Management Resources (V.1, V.2, V.3, V.4)																		
Maintenance																		
Waste disposal	V.1.a	4	3	5	4	4				4.00								
Sanitary facilities	V.1.b	4	4	5	5	5				4.60								
Infrastructure																		
Buildings	V.2.a	1	3	4	5	3				3.20								
Equipment	V.2.b	1	2	4	3	3				2.60								
Staff	V.3	1	3	3	3	3				2.60								
Funding	V.4	1	2	1	2	3				1.80								
Management Resources Average Score										3.13								
<p style="text-align: center;">Color Code:</p> <table style="display: inline-table; border: none;"> <tr> <td style="background-color: #90EE90; padding: 2px;">Excellent</td> <td style="background-color: #ADD8E6; padding: 2px;">Above Average</td> <td style="background-color: #FFDAB9; padding: 2px;">Below Average</td> <td style="background-color: #FF6347; padding: 2px;">Poor</td> </tr> <tr> <td></td> <td style="background-color: #FFFF00; padding: 2px;">Missing Vote</td> <td style="background-color: #F0F0F0; padding: 2px;">Insufficient Information</td> <td></td> </tr> </table> <p style="text-align: right; margin-right: 20px;">See Appendix A for detail</p>											Excellent	Above Average	Below Average	Poor		Missing Vote	Insufficient Information	
Excellent	Above Average	Below Average	Poor															
	Missing Vote	Insufficient Information																

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

1. *Natural Communities, specifically basin swamp, floodplain swamp and ephemeral wetland received below average scores. This is an indication that the management plan does not*

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sufficiently address current or desired condition and/or future management actions to protect or restore.

Managing Agency Response: Agree. The LMR team reviewed the most recently approved UMP for the park, which dates back to 2006. A revised UMP has been drafted and is in the late stages of its review process. Items raised in this LMR review have either been or will be addressed in this upcoming UMP revision, including this suggestion to improve the discussion of these three natural communities.

- 2. Forest Management, specifically timber inventory/assessment received a below average score. This is an indication that the management plan does not sufficiently address forest management.*

Managing Agency Response: Agree. A new timber assessment was in the process of being surveyed and drafted when this LMR review was underway. The report is now available and will be included as an addendum in the upcoming UMP revision.

- 3. Non-Native, Invasive & Problem Species, specifically prevention of pest/pathogens, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, as well as overall management actions, whether prevention and control are sufficient.*

Managing Agency Response: Agree. Discussion of the pest / pathogen issue will be included in the upcoming UMP revision.

- 4. Adjacent Property Concerns, specifically discussion of potential surplus land and surplus lands identified received a below average score. This is an indication that the management plan does not sufficiently address adjacent property.*

Managing Agency Response: Agree. The LMR team reviewed the most recently approved UMP for the park, which dates back to 2006. A revised UMP has been drafted and is in the late stages of its review process. Items raised in this LMR review have either been or will be addressed in this upcoming UMP revision, including this suggestion to include a discussion regarding potential surplus lands.

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	3	3	4	5	4				3.80
Scrubby Flatwoods	I.A.2	3	3	4	3	4				3.40
Xeric Hammock	I.A.3	3	3	4	3	4				3.40
Bottomland Forest	I.A.4	4	3	4	3	5				3.80
Basin Swamp	I.A.5	2	2	4	1	4				2.60
Floodplain Swamp	I.A.6	3	2	4	1	4				2.80
Hydric Hammock	I.A.7	4	4	4	4	5				4.20

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Marsh Lake	I.A.8	3	4	4	3	4				3.60
Salt Marsh	I.A.9	3	3	5	1	5				3.40
Ephemeral Wetland	I.A.10	3	2	2	3	4				2.80
Natural Communities Average Score										3.38
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	3	2	4	4	5				3.60
Plants	I.B.2	3	4	4	4	5				4.00
Listed Species Average Score										3.80
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	2	2	4	3	4				3.00
Fire effects monitoring	I.C.4	3	4	4	2	4				3.40
Invasive species survey / monitoring	I.C.6	3	4	4	4	4				3.80
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A	4	3	5	4	5				4.20
Protection and preservation	II.B	5	3	5	4	5				4.40
Cultural Resources Average Score										4.30
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	3	3	2	5	5				3.60
Frequency	III.A.2	2	3	4	5	5				3.80
Quality	III.A.3	3	3	4	4	4				3.60
Resource Management, Prescribed Fire Average Score										3.67
Restoration (III.B)										
Mesic Flatwoods Restoration	III.B.2	4	4	3	3	4				3.60
Hydrological Restoration	III.B.3	4	3	3	3	4				3.40
Restoration Average Score										3.60
Forest Management (III.C)										
Timber Inventory / Assessment	III.C.1	4	2	2	2	4				2.80
Timber Harvesting	III.C.2	4	4	2	4	4				3.60
Forest Management Average Score										3.20
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	3	4	4	3	4				3.60
prevention - animals	III.D.1.b	3	3	4	5	4				3.80
prevention - pests/pathogens	III.D.1.c	2	2	1	1	4				2.00
Control										
control - plants	III.D.2.a	3	3	4	5	4				3.80
control - animals	III.D.2.b	3	3	4	5	4				3.80
Non-Native, Invasive & Problem Species Average Score										3.40
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	4	3	4	4	4				3.80
Ditches	III.E.1.b	2	2	4	4	4				3.20
Hydrologic/Geologic function, Hydro-Alteration Average Score										3.50

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Surface Water Monitoring (III.E.3)										
Surface water quantity	III.E.3.b	3	2	4	3	4				3.20
Surface Water Monitoring Average Score										3.20
Resource Protection (III.F)										
Boundary survey	III.F.1	3	3	4	3	4				3.40
Gates & fencing	III.F.2	3	3	4	3	4				3.40
Signage	III.F.3	3	3	5	3	4				3.60
Law enforcement presence	III.F.4	2	3	5	3	4				3.40
Resource Protection Average Score										3.45
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	3	4	4	3	4				3.60
Inholdings/additions	III.G.2	3	3	4	1	4				3.00
Discussion of Potential Surplus Land Determination	III.G.3	1		4	1	3				2.25
Surplus Lands Identified?	III.G.4	1		2	1	3				1.75
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	3	3	4	5	4				3.80
Parking	IV.1.b	3	3	4	5	4				3.80
Boat Access	IV.1.c	3	4	5	5	5				4.40
Environmental Education & Outreach										
Wildlife	IV.2.a	3	3	5	2	4				3.40
Invasive Species	IV.2.b	3	3	5	2	4				3.40
Habitat Management Activities	IV.2.c	3	3		2	4				3.00
Interpretive facilities and signs	IV.3	3	3	4	2	4				3.20
Recreational Opportunities	IV.4	4	4	4	5	5				4.40
Management of Visitor Impacts	IV.5		3	5	5	5				4.50
Public Access & Education Average Score										3.77
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Horseback Riding	VI.A.1	5	5	5	5	5				5.00
Hiking	VI.A.2	5	5	5	5	5				5.00
Picnicking	VI.A.3	5	5	5	5	5				5.00
Canoeing	VI.A.4	5	5	5	5	5				5.00
Boat Access	VI.A.5	5	5	5	5	5				5.00
Fishing	VI.A.6	5	5	5	5	5				5.00
Proposed Uses										
Expanded Primitive Camping	VI.B.1	4	5	4	5	5				4.60
Loop Road	VI.B.2	2		4	2	5				3.25
Color Code:		Excellent	Above Average	Below Average	Poor					See Appendix A for detail
			Missing Vote	Insufficient Information						

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

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