Florida Department of Environmental Protection

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

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

April 20, 2018

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

RE: Fred Gannon Rocky Bayou State Park - Lease No. 4498

Dear Mr. Cutshaw:

On **April 20, 2018**, the Acquisition and Restoration Council (ARC) recommended approval of the **Fred Gannon Rocky Bayou State Park** management plan. Therefore, Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Fred Gannon Rocky Bayou State Park** management plan. The next management plan update is due April 20, 2028.

Pursuant to s. 253.034(5)(a), F.S., each management plan is required to "describe both short-term and long-term management goals, and include measurable objectives to achieve those goals. Short-term goals shall be achievable within a 2-year planning period, and long-term goals shall be achievable within a 10-year planning period." Upon completion of short-term goals, please submit a signed letter identifying categories, goals, and results with attached methodology to the Division of State Lands, Office of Environmental Services.

Pursuant to s. 259.032(8)(g), F.S., by July 1 of each year, each governmental agency and each private entity designated to manage lands shall report to the Secretary of Environmental Protection, via the Division of State Lands, on the progress of funding, staffing, and resource management of every project for which the agency or entity is responsible.

Pursuant to s. 259.032, F.S., and Chapter 18-2.021, F.A.C., management plans for areas less than 160 acres may be handled in accordance with the negative response process. This process requires small management plans and management plan amendments be submitted to the Division of State Lands for review, and the ARC for public notification. The Division of State Lands will approve these plans or plan amendments submitted for

review through delegated authority unless three or more ARC members request the division place the item on a future council meeting agenda for review. To create better efficiency, improve customer service, and assist members of the ARC, the Division of State Lands will notice negative response items on Thursdays except for weeks that have State or Federal holidays that fall on Thursday or Friday. The Division of State Lands will contact you on the appropriate Friday to inform you if the item is approved via delegated authority or if it will be placed on a future ARC agenda by request of the ARC members.

Pursuant to s. 259.036(2), F.S., management areas that exceed 1,000 acres in size, shall be scheduled for a land management review at least every 5 years.

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

Sincerely,

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

Fred Gannon Rocky Bayou State Park

Approved
Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
April 2018

TABLE OF CONTENTS

RESOURCE MANAGEMENT COMPONENT

LAND USE COMPONENT

IMPLEMENTATION COMPONENT

TABLES

MAPS

LIST OF ADDENDA

INTRODUCTION

Fred Gannon Rocky Bayou State Park is located in Okaloosa County just east of the City of Niceville (see Vicinity Map). Access to the park is from State Highway 20 (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

Fred Gannon Rocky Bayou State Park was initially acquired on July 1, 1966 as a lease from the Department of the Air Force. Currently, the park comprises 346.42 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on June 5, 2005, the Trustees leased (Lease Number 4498) the property to DRP under a fifty-year lease. The current lease will expire on May 31, 2055.

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

Purpose and Significance of the Park

The purpose of Fred Gannon Rocky Bayou State Park is to conserve unique natural communities and pristine steephead ravines that allow rare species to thrive, while also providing resource-based outdoor recreation in a region of the state that is rapidly developing into a premier tourist destination.

Park Significance

- The park protects one of the most biologically diverse sites in the western Florida panhandle. The park, while relatively small at 346 acres, has a diversity of natural communities and one of the highest densities of rare plant species including red pitcherplant, large-leaved jointweed, Gulf Coast lupine, pond spicebush, and pink catchfly.

- The park preserves some of the last remnants of old growth stands of longleaf pine found in the Florida State Parks system. Many of the park's longleaf pines are two feet in diameter and 70 feet tall with several that are over 300 years old.

- The park protects rare and pristine steephead ravines where elevation drops nearly 30 feet into deep-cut valleys. These ravines form dense evergreen baygall forests and rare shrub bog natural communities before the seepage stream flows into Rocky Bayou.

- An abundance of archaeological sites including shell middens and lithic artifacts in the park provides tangible evidence of the importance of this area to aboriginal cultures in prehistoric times.

- In addition to conserving natural and cultural resources, the park provides an ideal location for resource-based outdoor recreation in a rapidly urbanizing region of the state. A boat ramp and kayak launch provide access to the Rocky Bayou Aquatic Preserve, while the campground and trails allow visitors to experience the park's diverse natural communities.

Fred Gannon Rocky Bayou State Park is classified as a state recreation area in the DRP's unit classification system. In the management of a state recreation area, major emphasis is placed on maximizing the recreational potential of the unit. However, preservation of the park's natural and cultural resources remains important. Depletion of a resource by any recreational activity is not permitted. In order to realize the park's recreational potential, the development of appropriate park facilities is undertaken with the goal to provide facilities that are accessible, convenient and safe, to support public recreational use or appreciation of the park's natural, aesthetic and educational attributes.

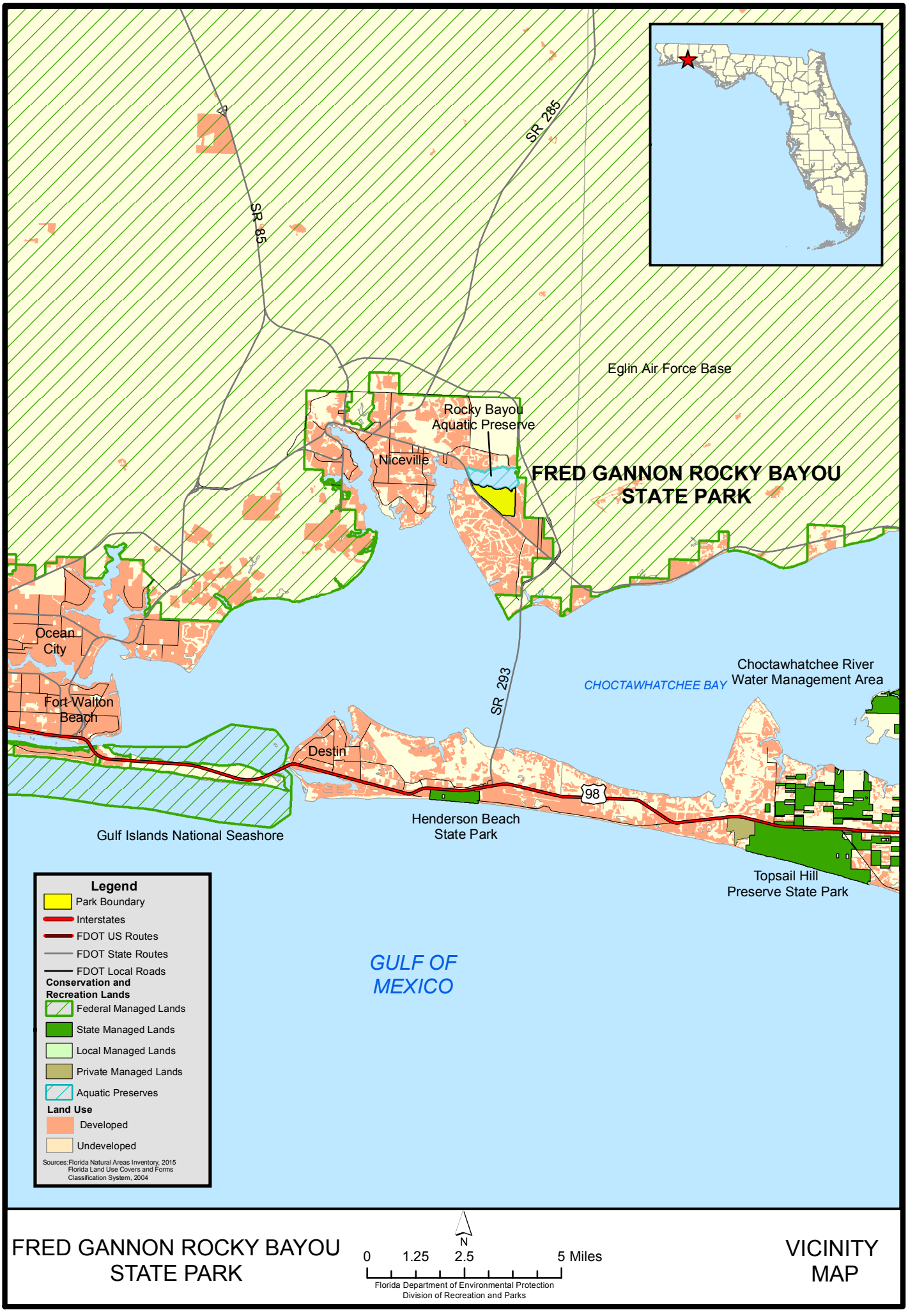
Purpose and Scope of the Plan

This plan serves as the basic statement of policy and direction for the management of Fred Gannon Rocky Bayou 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, 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)



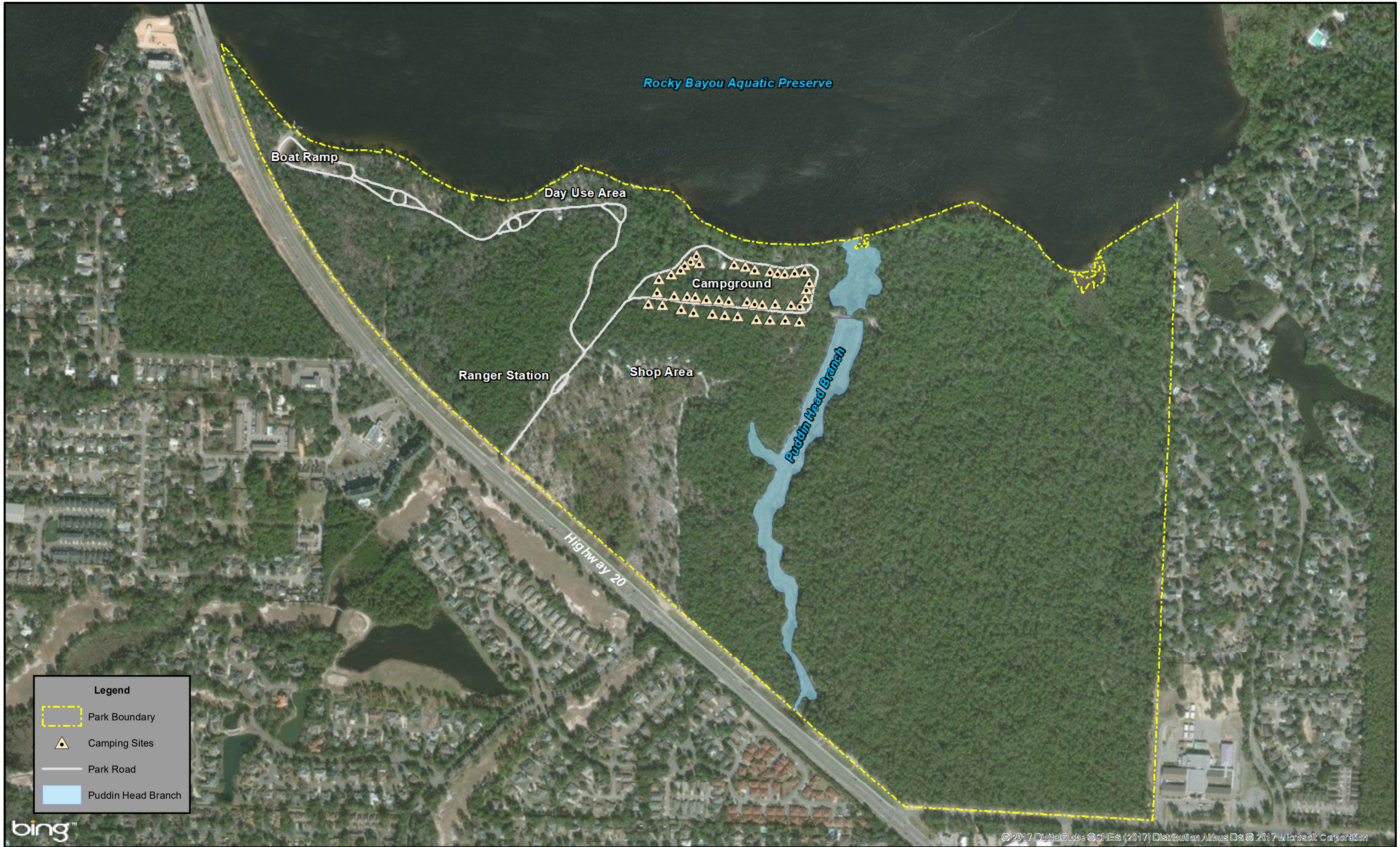
FRED GANNON ROCKY BAYOU STATE PARK

N

0 1.25 2.5 5 Miles

Florida Department of Environmental Protection
Division of Recreation and Parks

VICINITY MAP



FRED GANNON ROCKY BAYOU
STATE PARK

N

0 250 500 1,000 Feet

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

REFERENCE MAP

measures that will be used to evaluate the DRP's implementation progress, (2) timeframes for completing actions and objectives and (3) estimated costs to complete each action and objective.

All development and resource alteration proposed in this plan is subject to the granting of appropriate permits, easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state or federal agencies.

In the development of this plan, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of the DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, it was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation. Uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan.

The potential for generating revenue to enhance management was also analyzed. Visitor fees and charges are the principal source of revenue generated by the park. It was determined that multiple-use management activities would not be appropriate as a means of generating revenues for land management. Instead, techniques such as entrance fees, concessions and similar measures will be employed on a case-by-case basis as a means of supplementing park management funding.

DRP may provide the services and facilities outlined in this plan either with its own funds and staff or through an outsourcing contract. Private contractors may provide assistance with natural resource management and restoration activities or a Visitor Service Provider (VSP) may provide services to park visitors in order to enhance the visitor experience. For example, a VSP could be authorized to sell merchandise and food and to rent recreational equipment for use in the park. A VSP 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 VSPs, 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 (FFWCC) assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within the park. In addition, the FFWCC 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 Costal Office (FCO) aids staff in aquatic preserves management programs. 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 meeting and an advisory group meeting to present the draft management plan to the public. These meetings were held on November 7, 2017 and November 8, 2017, respectively. Meeting notices were published in the Florida Administrative Register (October 26, 2017, Vol. 43/208), 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

Fred Gannon Rocky Bayou 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 eligible to become 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 adjacent to the Rocky Bayou Aquatic Preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

Introduction

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

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

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

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

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

Table 1. Fred Gannon Rocky Bayou State Park Management Zones			
Management Zone	**Acreage**	**Managed with Prescribed Fire**	**Contains Known Cultural Resources**
RB-A	17.65	N	Y
RB-B	51.78	Y	Y
RB-C	25.85	Y	Y
RB-D	64.06	Y	Y
RB-E	187.28	Y	Y

Resource Description and Assessment

Natural Resources

Topography

Fred Gannon Rocky Bayou State Park falls within the Gulf Coastal Lowlands province, a physiographic region close to the Gulf of Mexico. This province is separated from the Western Highlands by the Cody Scarp. The Coastal Lowlands form the entire coastline of Florida, including the Florida Keys, and reach inland as much as sixty miles at some points. The inner edge generally lies at the 100-foot contour line. These lowlands were, in recent geologic times, marine terraces (sea floors) during at least three successive inundations by higher seas. The coastline of Florida has shifted significantly both seaward and landward in the past five million years. Many topographic features were formed when sea levels were higher than they are presently.

Topography at the park is generally at elevations ranging from 25 to 50 feet but drops sharply at the steephead formations, where the collapse of underlying soils and rock by seepage has formed deep-cut valleys. Just to the east of the park, elevations range from 100 feet in high dry pinelands, to less than 25 feet in the numerous steepheads. Rocky Bayou, itself, has some steep banks, with slopes extending down to depths of 16 feet.

Geology

Fred Gannon Rocky Bayou State Park lies in a geologic transitional zone between the shallow stratigraphy of the central panhandle and that of the western panhandle. A Mississippi rock unit, the Chickasawhay Limestone, extends into the area, and the other units, the Pensacola Clay and the Miocene coarse classics, are in the western panhandle.

The park is composed of Holocene terrace sands and clay underlain by reworked Pleistocene, Miocene, and Pliocence deposits from the Citronelle, Miocene Coarse Clastics, Intracoastal, and Bruce Creek Limestone formations. The Chickasawhay Limestone formation underlies all of the reworked deposits (USDA 1995).

FRED GANNON ROCKY BAYOU
STATE PARK

N

0 250 500 1,000 Feet

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

MANAGEMENT ZONES MAP

FRED GANNON
ROCKY BAYOU STATE PARK

N

0 225 450 900 Feet

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

TOPOGRAPHIC MAP

Soils

According to the National Resources Conservation Service, 4 soil types are found at the park (see Soils Map). A detailed description of these soil types is contained in Addendum 4.

The dominate soil type found at the park is Lakeland sand, 0 to 5 percent slopes. This Lakeland sand contains nearly level to very steep excessively drained sandy soils and is found on the broad ridgetops of the uplands. Lakeland sand, 12 to 30 percent slope contains moderately steep or steep with excessively drained sandy soils and is found on upland slopes or steepheads. Dorovan muck contains nearly level, very poorly drained soils and is found in the wetlands of the seepage streams, shrub bog, seepage slope, baygall, and wet flatwood communities. Rutledge sand, depressional contains poorly drained, nearly level soils and is found in a small depression marsh and the surrounding flatwoods.

Low bluffs occur along the shoreline of the bayou. These bluffs, some of which are twenty feet high, continue to be undercut and eroded by wave action. This is a slow natural process that continues to move the shoreline of the bayou into the park. However, the level of erosion is exacerbated by trampling, excessive wake from boating activity on the bayou, and sheet flow runoff from rain. Access stairs and split rail fencing are maintained on the parks shoreline in order to reduce erosion along the bluffs by trampling and/or vehicles. The fencing has led to a reduced rate of erosion and the park plans to continue with these erosion prevention measures. Despite the reduced erosion, additional restoration efforts along the bluffs and shoreline are needed.

Minerals

No minerals are commercially mined in Okaloosa County.

Hydrology

There are two aquifer systems in Okaloosa County. The first is the surficial aquifer that consists of unconsolidated sand and gravel and is filled from the high local rainfall (USDA 1995). The Floridan aquifer system in Okaloosa County is found in the deep limestone formations.

The waters of Rocky Bayou border the park to the north and west. This northern extension of the Choctawhatchee Bay is a relatively low salinity and brackish bayou due largely to the input of freshwater from Rocky Creek, Turkey Creek and several smaller steephead streams. Low tidal energy and the freshwater input from these creeks and streams has allowed the bayou to maintain it's fresh to brackish salinity; average surface salinity of 8.3 ppt and average bottom salinity of 20.5 ppt (Livingston, 1986). The low salinity of the system has had a strong effect on the biotic communities of the bayou. This effect is evidenced by the wide variety of freshwater and brackish water vegetation which is present along the shoreline.

Four seepage streams occur either partially or wholly on the park. The two largest of the seepage streams are commonly referred to as Puddin Head and the Schoolhouse Branch. The Puddin Head seepage stream is just to the east of the park entrance. The Puddin Head seepage stream was dammed and impounded in the early 1960s by the USFS in order to create Puddin Head Lake. The earthen dam was removed in 2005 and the original hydrological flow of the seepage stream was restored, allowing the stream to flow from the steephead that begins adjacent to State Road 20 until reaching Rocky Bayou.

The Schoolhouse Branch seepage stream is located near the park's eastern boundary and meanders on and off of the park along its upper portion. The steephead for this stream is located just inside of the park near the adjacent elementary school. The stream curves northeast, off of park property and into the residential development of Blue Water Bay, then curves northwest back onto the park for the remainder of its course. The lower portion of this stream meanders through dense, evergreen baygall and shrub bog communities before draining into Rocky Bayou.

A third unnamed seepage stream is located to the west of Puddin Head. The stream flows from 2 steepheads located near SR 20 that later combine to form a single stream. The seepage stream flows through a baygall and upland hardwood forest community until reaching Rocky Bayou. The park road bisects this westernmost seepage stream disrupting the hydrologic flow before it reaches Rocky Bayou. A single culvert allows some water flow, but it is inadequate. In addition to disrupting hydrologic flow, the topography of the slopes of the seepage stream has led to a low lying park road that collects and pools all excess surface runoff water. A restoration plan is needed to restore hydrologic flow to the stream and address needed improvements to the park road. The park should restore these roads or reroute them so that the hydrological regime of neighboring natural communities is intact.

A fourth seepage stream occurs almost entirely off of the park. However, the mouth of the stream is located in the far northeastern corner of the park.

Beavers (*Castor canadensis*) are established at the School House Branch and Puddin Head seepage streams. Beavers have a tendency to impound water on the streams. The presence of beavers, dam, and level of impoundment should be evaluated periodically to determine potential impacts to pitcherplants (*Sarracenia* spp.) that occur in seepage slope and shrub bog natural communities.

The only depression marsh that occurs at the park was altered when stormwater infrastructure was built in conjunction with the State Highway 20 road widening project. The current hydrology of the marsh should be assessed due to the presence of pondspice (*Litsea aestivalis*), a state endangered species.

Stormwater retention is an ongoing problem (e.g., pooling, surface runoff, and sheet flow erosion), particularly in developed areas of the park. Topside sheet flow is exacerbating erosion along the bluffs near the edge of Rocky Bayou. The park

FRED GANNON ROCKY BAYOU STATE PARK

N

0 250 500 1,000 Feet

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

SOILS MAP

has made significant strides in reducing erosion by putting up fencing and preventing vehicles from pulling directly up to the bluffs which contributed to increasing soil compaction. A habitat improvement plan is needed to continue and improve surface runoff issues along the topside of the bluffs. Pooling from surface runoff is also present in the parking lot near the boat ramp. Storm water retention will be addressed during the renovation of the parking lot.

Natural Communities

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

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

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

The park contains 14 distinct natural communities as well as altered landcover types (see Natural Communities Map). A list of known plants and animals occurring in the park is contained in Addendum 5.

<u>Baygall</u>

Desired future condition: The desired future conditions of baygall should consist of wet densely forested, peat filled depressions near the edges and along the slopes of

seepage streams. Seepage from adjacent uplands should maintain the saturated conditions. Medium to tall trees should consist of sweetbay (*Magnolia virginiana*), swamp bay (*Persea palustris*), American holly (*Ilex opaca*), pignut hickory (*Carya glabra*) and southern magnolia (*Magnolia grandiflora*). Slash pines (*Pinus elliottii*) may also occur within the canopy of the baygall community. The understory should consist of gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), Florida anise (*Illicium floridanum*), dahoon (*Ilex cassine*), titi (*Cyrilla racemiflora*), climbing vines such as greenbriar (*Smilax* spp.) and muscadine grape (*Vitis* spp.) should also be abundant. The dominant baygall species are fire intolerant indicating an infrequent Optimal Fire Return Interval of 25-100 years. Fires from adjacent communities should be allowed to enter the baygall ecotone however, taking into account the problems associated with peat fires. No exotic plants or animals should be present.

Description and assessment: Within the park, the baygall community runs parallel to seepage streams and is primarily embedded between the stream and various upland and wetland habitats. Baygall is sparsest along the Puddin Head seepage stream, likely because many hardwood species were flooded out by the previous impoundment that formed Puddin Head Lake. Sweetbay and fetterbush dominate the baygall habitat. In addition to sweetbay the canopy is composed of scattered slash pine and pignut hickory. The subcanopy is made up of swamp azaleas, swamp bay, redbay (*Persea borbonia*), wax myrtle (*Myrica cerifera*), titi, and gallberry. Along the seepage streams, closer to the steepheads older trees occur and has mixed upland hardwood forest community adjacent and embedded in locations and a closed canopy is present.

Along the lower portions of the seepage streams, baygall appears to have expanded into shrub bog, seepage slope and/or wet flatwoods habitats from fire exclusion. For example, the shrub bog habitat on the Schoolhouse Branch that is referred to as the White Cedar Bog, currently resembles baygall, but was likely shrub bog historically. Currently the White Cedar Bog is characterized by nearly impenetrable thickets of various shrubs, saplings, and trees including: sweetbay, black titi (*Cliftonia monophylla*), titi, fetterbush, wax myrtle, Atlantic white cedar (*Chamaecyparis thyoides*) and slash pine. Beneath the thick canopy remnants of the shrub bog community remains. The bog is interspersed with patches of sphagnum supporting spoonleaf sundew (*Drosera intermedia*). Historically parrot (*Sarracenia psittacina*), Gulf Coast redflower (*Sarracenia rubra* ssp. *gulfensis*), and Gulf purple pitcherplants (*Sarracenia rosea*) were abundant in this area mixed in with the sundew.

The baygall community at the park is heavily influenced by tropical storm activity. In locations where the shrub bog/baygall occurs near the bayou, it is exposed to saltwater intrusion during tropical storm events. For example, the White Cedar Bog experienced saltwater intrusion in 2005 from Hurricane Ivan, resulting in a large die-off of Atlantic white cedar and pitcherplants. Similarly, in the baygall community along the upper portion of the seepage streams, large trees were damaged and/or blown down during Hurricane Opal. In addition to storm activity, fire likely played a role in maintaining open areas. Fire-dependent communities occur adjacent to

FRED GANNON ROCKY BAYOU STATE PARK

N

0 250 500 1,000 Feet

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

NATURAL COMMUNITIES MAP

baygall on the Schoolhouse Branch. A wild fire did occur near the bayou in this area in 1984, where the fire began in the adjacent flatwoods from a lightning strike.

The baygall is in fair condition due to the dense canopy and impenetrable thickets and encroachment into neighboring communities.

General Management Measures: Approximately 2.8 acres of the shrub bog/baygall community in the northeast corner of the park require restoration efforts to reach the desired future condition of shrub bog. Restoration of this acreage is discussed in the Resource Management Program section of this component. It is apparent that by the historic distribution of pitcherplants, that the baygall community near the bayou habitat was more open with sunlight gaps, resembling a shrub bog or seepage slope. Johnson (2000) experimented with woody removal in locations where shade suppressed pitcherplants were observed with immediate responses in growth. It is recommended that further work within the baygall community be conducted to determine the extent of potential expansion into neighboring communities. Following habitat assessment, the potential for restoration should be evaluated and a plan developed. All restoration efforts should only include baygall adjacent to fire-type communities to provide opportunity for maintenance following restoration with prescribed fire.

In some locations, fire return intervals in the baygall may naturally be long due to the surrounding natural communities, such as those embedded within scrub. It appears that that the heavily wooded baygall has conditions that resist the spread of naturally occurring fires and would only burn under extreme drought conditions that would probably result in a catastrophic, stand replacement burn. Fuel reduction or hand removal of woody species would be need prior to prescribed fire efforts in surrounding fire-type communities.

The park should monitor the baygall community for exotic species. The community is vulnerable to infestation due to water flow from the bayou and neighboring developments. Chinese tallow (*Sapium sebifera*) was observed on the lower end of the Schoolhouse Branch.

The park should continue to maintain the original hydrology and prevent future hydrological alteration. Care must be taken to prevent any further disruption to hydrology. Careful consideration should be given to the type, location, creation and maintenance of firelines.

<u>Depression Marsh</u>

Desired future condition: Depression marsh is characterized as containing low emergent herbaceous and shrub species which will be dominant over most of the area and include open vistas. Trees will be few and if present, will occur primarily in the deeper portions of the community. There will be little accumulation of dead grassy fuels due to frequent burning. Depending on the site, dominant vegetation in the depression marsh may include maidencane (*Panicum hemitomon*), panic grasses (*Panicum* spp.), common reed (*Phragmites australis*), pickerelweed

(*Pontederia cordata*), arrowheads (*Sagittaria* spp.), buttonbush (*Cephalanthus occidentalis*), and St. John's wort (*Hypericum* spp.). Depression marshes should be allowed to burn on the same frequency as the adjacent fire type community, allowing fires to naturally burn across ecotones. Depression marshes are important breeding grounds for amphibians, snakes, marsh birds and wading birds.

Description and assessment: There is one depression marsh at the park that is embedded within mesic flatwoods. The site is located near State Road 20 and was previously impacted by stormwater infrastructure as a result of road widening. The marsh was reduced in size during the road widening project. The pond is in fair condition. The marsh at the park is dominated by maidencane, gallberry, and slash pine and herbaceous species are sparse. Pondspice, a woody shrub that is state endangered, occurs along the margins of the marsh. The pondspice population was impacted during road construction and few remain. The marsh holds water for some parts of the year but because it is shallow, it usually dries up during periods of drought. Due to the adjacent stormwater infrastructure, the depression marsh may hold more surface runoff than what was present historically.

General Management Measures: The fire regime of this community should mirror that of the natural community where it occurs. Fire is important for keeping this community herbaceous and if applied regularly will allow the marsh to reach the desired future conditions. Pondspice presumably respond favorably to fire. However, due to the small population that occurs at the park, fire should be applied cautiously in the area. The depression marsh tends to dry out during drought years. Application of fire during drought years may be detrimental to pondspice. A monitoring protocol needs to be developed. Pondspice should be monitored pre and post burns to determine potential impacts and modifications to the burn program should be made accordingly. Augmentation of the pondspice population may be necessary for long-term persistence. Seeds should be collected from the marsh before the population is lost.

The park should avoid further altering the hydrology of depression marsh especially when planning new firelines or development. An assessment of current hydrological conditions is needed given the recent alterations from road construction. Hydrology assessment is discussed in the Resource Management Program section of this component. Herbicide use should be limited in these marshes as the amphibians that depend on them may be sensitive to pollutants.

Freshwater Tidal Marsh

Desired future condition: The future conditions of freshwater tidal marsh should be characterized as an open vista, dominated by emergent low herbaceous and shrub species. Trees should be few and if present, should occur primarily in the deeper portions of the community or along the edges. Dominant vegetation in floodplain marsh should include sawgrass (*Cladium jamaicense*), maidencane, panicgrasses, cutgrass (*Leersia* sp.), common reed, pickerelweed, arrowheads, buttonbush, and St. John's wort. The Optimal Fire Return Interval for this community depends on fire frequency of adjacent communities.

Description and assessment: The freshwater tidal marshes are located at the mouth of the seepage streams at the park and along the shoreline of Rocky Bayou. The patches of tidal marsh at the mouth of the seepage streams are small in size and occur in the ecotone between freshwater wetland habitats (e.g., shrub bog, baygall, seepage stream, etc.) and the bayou. The tidal marsh and the associated vegetation should be the buffer between the bayou and the freshwater wetlands. Due to the low salinity of the bayou and regular freshwater flow from seepage streams, the marshes resemble freshwater tidal marshes rather than salt marsh. The tidal marsh habitat at the park is dominated by sawgrass and supports a variety of salt and freshwater plant species. Needlerush and some saltmarsh cordgrass is present, but is predominately located directly adjacent to the bayou, forming a border along the open water, where there is more of an influx of saltwater. Sawgrass dominates the bulk of the standing plant community. Fresh water and salt tolerant shrubs also occur in this area. A rim of tidal marsh habitat follows much of the shoreline of Rocky Bayou. Where vegetation still occurs, the thin strip is dominated by needle rush and common reed. Due to shoreline erosion caused primarily by boat wages, very little vegetation remains along the shore. Although this community occurring in the mouths of the steams appears in good condition, the remaining tidal marsh habitat is in poor condition.

General Management Measures: Much of the Rocky Bayou shoreline requires restoration efforts to reach the desired future condition. Restoration of the shoreline is discussed in the Resource Management Program section of this component. The tidal marsh habitat that lines the Rocky Bayou shoreline needs restoration to establish vegetation to reduce erosion beside the base of the bluffs.

In locations on the park where the tidal marsh is adjacent to fire-type communities, fire should be used with caution so as not to cause destructive peat fires and to avoid adversely affecting bird or other species dependent on the marsh habitat for nesting and foraging. Specifically, fires during the breeding season should be avoided and the marsh habitat should be burnt in a mosaic providing patches of unburned habitat that function as a refuge for marsh dependent species.

Tidal marsh vegetation, water level, and salinity should be monitored periodically to determine potential impacts from sea level rise. These efforts will help with potential restoration efforts of adjacent freshwater wetlands.

Following storm events, the tidal marsh habitat is often littered with garbage. These materials should be collected and removed when possible due to potential for entanglement or ingestion by foraging wading birds and other wildlife.

Mesic Flatwoods

Desired future condition: At the park the desired future condition of mesic flatwoods is a scattered overstory of uneven aged mixed slash pine and longleaf pine (*Pinus palustris*) with a diversity of low herbaceous and woody species in the understory. Saw palmetto (*Serenoa repens*) should be present. Other shrub species should include gallberry, fetterbush, shiny blueberry (*Vaccinium myrsinites*), and dwarf

huckleberry (*Gaylussacia dumosa*). The herbaceous layer should be primarily grasses, including wiregrass (*Aristida stricta*), dropseeds (*Sporobolus* spp.), and broomsedges (*Andropogon* spp.). This community should have minimal topographic relief and the soils should contain a hardpan layer within a few feet of the surface which impedes percolation. Due to these factors, water should saturate the sandy surface soils for extended periods during the wet season but lengthy droughts also commonly occur during the dry season. The Optimal Fire Return Interval for this community is 2-5 years.

Description and assessment: Mesic flatwoods are located in several locations at the park and are generally in fair condition where fire has been reintroduced. Mesic flatwoods consisting of slash pine occur along the rim of much the Rocky Bayou shoreline. This is a thin linear strip of mesic flatwoods that quickly grades into scrub, hammock or wetland habitat. The understory of the shoreline rim of flatwoods is dominated by saw palmetto, wax myrtle, and gallberry. Other species found in this community, include pignut hickory, yaupon (*Ilex vomitoria*), and red bay. The largest section of mesic flatwoods is a dense area around the depression marsh adjacent to SR 20. Pondspice occurs along the edge between the depression marsh and the flatwoods community (see above under depression marsh for more details). This area of flatwoods consists of a dense, partially closed, canopy of slash and longleaf pine, with a thick understory of gallberry, yaupon, fetterbush, and saw palmetto. This southern pocket of flatwoods quickly grades into the surrounding sandhill. Fire has been reintroduced into this area as part of the neighboring sandhill community and has improved the conditions. A third section of mesic flatwoods occurs in the northeast section of park and grades into wet flatwoods. The mesic flatwoods in this area were impacted by storm activity and primarily consist of sand pine regrowth. Both locations of mesic flatwoods have a sparse herbaceous understory.

General Management Measures: Approximately 2.4 acres of the mesic flatwoods community in the northeast corner of the park require restoration efforts to reach the desired future condition. Restoration of this acreage is discussed in the Resource Management Program section of this component. Prescribed fire is important to this community and should continue to be implemented on a 2-5 year interval in order to reach the desired future conditions. In areas where fire has been suppressed for many years, reintroduction of fire in these communities must be undertaken sensitively to prevent tree crown consumption and duff smoldering that can lead to tree mortality in older trees (Varner 2005). Once fire has been reintroduced, it will take many years of careful burning before this community will return to good condition. Burns during the recovery period should take into account the duff moisture prior to burning. If sufficient duff moisture exits then ignition techniques should be tailored accordingly.

Pondspice presumably respond favorably to fire. However, due to the small population that occurs at the park, fire should be applied cautiously in the margins where pondspice occurs. The depression marsh tends to dry out during drought years. Application of fire during drought years may be detrimental to pondspice. A monitoring protocol needs to be developed. Augmentation of the pondspice

population may be necessary for long-term persistence. Seeds should be collected from the marsh before the population is lost. Exotic species should be controlled as necessary.

Mesic Hammock

Desired future condition: At the park the future conditions of mesic hammock should be characterized as a well-developed evergreen hardwood forest. The dense canopy should be dominated by live oak (*Quercus virginiana*). Southern magnolia and pignut hickory may be common components in the subcanopy as well. The shrubby understory can widely vary and should be composed of saw palmetto, beautyberry (*Callicarpa americana*), American holly (*Ilex opaca*), gallberry (*Ilex glabra*) and sparkleberry (*Vaccinium arboreum*). The groundcover may be sparse and patchy but should generally contain panicgrasses, switchgrass (*Panicum virgatum*), sedges, as well as various ferns and forbs. Abundant vines and epiphytes will occur on live oaks and other subcanopy trees. Mesic hammocks should contain sandy soils with organic materials and may have a thick layer of leaf litter at the surface. Mesic hammocks should rarely be inundated and are not considered to be a fire-adapted community and should be shielded from fire.

Description and assessment: Mesic hammock is located two locations at the park and is in good condition. The largest patch is located at the far northwestern point and directly west of the campground. The more mesic vegetation expression on these sites mapped within the park is a result of changed soil chemistry (increased nutrients and high calcium) resulting from aboriginal occupation and deposition of shell, found along most of the park shoreline with Rocky Bayou. The associated calcareous substrate has allowed a more mesic type of community to develop that is characteristic of a hammock. Southern magnolias, southern red cedar, pignut hickory, live oaks, wild olive, and red bay are species found here. Species that specialize in calcareous hammocks such as the state endangered spiked crested coralroot (*Hexalectris spicata*) are also found here.

Lithic scatter and middens have been found throughout the hammocks. Further research investigating these sites and protecting shell middens and artifacts through interpretation to visitors is essential.

General Management Measures: Fire should be avoided. However, if hammock habitat is found adjacent to fire-type communities fire should be allowed to enter the ecotone as would have occurred during a natural wildfire.

Erosion is present along the bluffs in the hammock habitat where middens are exposed. The erosion areas are sensitive to visitor impacts, such as inadvertently picking up artifacts. The park should evaluate visitor impacts and protect the habitat as necessary.

SR 20 and a mowed utility corridor run adjacent to the hammock habitat along the northwest corner of the park. The close proximity of these altered habitats leaves the hammock vulnerable to exotic invasive plants. Regular monitoring should occur

and exotics should be controlled as necessary. Exotic species should be controlled as necessary.

Sandhill

Desired future condition: Sandhill sit on well-drained sands and should contain a diverse understory of herbaceous and woody plants and a low density of uneven aged longleaf pine. Dominant pines should be longleaf pine. Herbaceous and low woody species cover may be 80 percent or greater, typically of wiregrass, bluestem grasses, woody goldenrod, shiny blueberry, silk grass (*Pityopsis spp.*) and blazing star (*Liatris spp.*), and should be less than 3 feet in height. Scattered individuals, clumps or ridges of onsite oak species, usually turkey oaks (*Quercus laevis*), sand post oak (*Quercus margaretta*) and blue-jack oak (*Quercus incana*), should occur. In old growth conditions, sand post oaks are commonly 150-200 years old, and some turkey oaks are over 100 years old. The optimal fire return interval for this community is 1-3 years.

Description and assessment: At the park, sandhill is found along a broad, flat ridge top at the park near the park entrance and is in various stages of restoration. Despite restoration efforts, the sandhill remains in fair condition due to a lack of herbaceous ground cover. The sandhill community at the park encompasses one of the few remaining stands of truly old growth longleaf pine. Preliminary work conducted as part of ongoing Division research indicates that many of the widely scattered overstory longleaf pines are 150-300 years of age (some individuals perhaps older). Other tree species found here include turkey oak, sand post oak, sand live oak (*Quercus geminata*), Arkansas oak (*Quercus arkansana*), sparkleberry, southern magnolia, and pignut hickory. Presently, typical sandhill herbaceous groundcover species (e.g., wiregrass, pineywoods dropseed [*Sporobolus junceusI*], butterfly milkweed [*Asclepias tuberosa*], woody goldenrod [*Chrysoma pauciflosculosa*], and tailed bracken fern [*Pteridium aquilinum var. pseudocaudatum*]) are widely scattered and either sparse or lacking over much of the area. The dominate understory within the sandhill community is yaupon. It is possible that the restoration location was previously scrubby flatwoods and not sandhill. This would explain the dominant woody understory.

The sandhill areas of the park was severely degraded from the invasion of off-site sand pine and hardwoods from adjacent communities due to decades of fire exclusion. In 2002 sand pine and off-site hardwoods were removed from approximately 30 acres of sandhill. Prior to restoration, the stand contained hundreds of longleaf pines. Since that time longleaf seedlings have naturally regenerated throughout the habitat. Largeleaf jointweed (*Polygonella macrophylla*) is present in the sandhill habitat following removal of off-site pine and hardwoods, likely responding to newly created light gaps.

Prescribed fire has been reintroduced to the restoration area. However, previous prescribed fire efforts resulted in undesirable levels of duff consumption that may have stressed old growth trees. Under current conditions there is very little herbaceous fuel to carry a fire. The park has started mowing areas where yaupon is

dense with the hopes of reducing shrubs and encouraging the growth of grasses. Gopher tortoise (*Gopherus polyphemus*) responded readily to sandhill restoration efforts. Previous records indicated evidence of a single tortoise at the park. The number of burrows observed is steadily increasing annually.

General Management Measures: The park has worked on a restoration plan for the sandhill community and will be updating and implementing it during the tenure of this plan. Nearly 27 acres of the sandhill community require continued restoration and improvement efforts to reach the desired future condition. Restoration of this acreage is discussed in the Resource Management Program section of this component.

Prescribed fire is one tool used to manage sandhill communities. The park should continue to burn the restoration area. Prescriptions should address impacts of burning into the deep duff layers that have accumulated around the old trees and consider measures to resolve/avoid these impacts. Additional site preparation may be necessary in portions of the sandhill.

Herbaceous and grass species response to restoration has been poor and is not currently adequate to carry fire. The understory currently consists mainly of shrubby species such as yaupon. Restoration of herbaceous ground cover may be necessary. This is discussed in the Resource Management Program

In areas dominated by shrubs, mowing has been utilized, in combination with prescribed fire efforts, to reduce shrubby understory species. These efforts should continue. However, it is evident that longleaf pine seedlings are unintentionally being mowed over in the effort. Similarly, desirable oak species such as Arkansas oak, turkey oak, sand post oak, myrtle oak (*Quercus myrtifolia*), Chapman's oak (*Quercus chapmanii*), running oak (*Quercus pumila*), and gopher apple (*Licania michauxii*) should also be avoided and not removed. Staff or volunteers coordinating mowing or removal of undesirable species will be trained in plant identification so that they do not inadvertently remove desirable species. Special care will be made to mark longleaf pine seedlings, Arkansas oak, and largeleaf jointweed so that they are visible to prevent removal. Adequate training will be insured by District biological staff.

Recruitment and reseeding of sand pines are a concern that needs to be monitored and addressed. In order to continue to restore the sandhill community, sand pine will need to be removed continually. Regular monitoring should occur and exotics should be controlled as necessary. Exotic species should be controlled as necessary.

Gopher tortoise burrows will be monitored and marked as necessary to avoid detrimental impacts from (e.g., running burrows over with mowers or tractors) during restoration efforts and prescribed fire application.

Scrub

Desired future condition: The scrub community should be dominated by evergreen shrubs including sand live oak, myrtle oak and Chapman's oak. This community can either have sand pine present or absent. Scrub occurs on dry sandy ridges. The fire return interval for stand replacement fires in scrub on the peninsula of Florida is 4-15 years, but, there is no evidence that fire is an important process that shapes the coastal scrub in the Florida panhandle (Drewa et al 2008; Parker et al 2001). Coastal processes such as salt spray and tropical force winds are believed to play more of a role in regulating Panhandle scrub than fire (Parker et al 2001; Huck et al. 1996; FNAI 2010). Sand pines damaged by high winds and salt spray create gaps in the canopy for recruitment where seeds can germinate and grow. Non-serotinous cones exhibited by panhandle sand pine (*Pinus clausa* var *immuginata*) allow for a continuous seed source that is not dependent on fire for release. In oak scrub, salt spray and wind regulates the community creating openings and light gaps after tropical storms. Gaps or scattered openings in the canopy with bare patches of sand support many imperiled or endemic plant species; these species should flower regularly to replenish their seed banks.

Groves of sand pine in select locations in the panhandle may exceed 100-150 years of age. Sand pine growing in scrub in the panhandle exhibits different characteristics such as non-serotinous cones and is considered a sub-species of sand pine (Clewell 1988; Ward 1963). Stands of panhandle coastal sand pine scrub exhibit an uneven age character in marked contrast to Peninsular scrub where even-aged stands are created by infrequent but stand replacing fires (Drewa et al 2008; Parker et al 2001). Salt spray and wind appear to take the place of fire in shaping panhandle coastal scrub.

The scrub community should grade into other natural communities without barriers such as roads, trails, and fire breaks etc. No exotic plants or animals should be present.

Description and assessment: Sand pine scrub community covers a large portion of the park's uplands. Typically in the Panhandle this natural community is largely confined to coastal areas where the occurrence of natural fires was less frequent. Bayous of Choctawhatchee Bay might have served to restrict the spread of naturally occurring lightning fires. The park's scrub community consists of uneven aged stands of Choctawhatchee sand pine. It has been suggested that major tropical weather events, as well as fire, play a major role in the natural management of this species in the Panhandle (Huck et al 1996). Hurricane Opal felled a large number of sand pines throughout the park's scrub. Many portions of the sand pine forest have since been littered with sand pine logs that were blown down in Opal's strong winds. In the years that followed, dense thickets of young sand pines grew up in most of the openings created by the storm.

The scrub community at Rocky Bayou State Park is unique when compared to the classic FNAI description for this natural community. The scrub is in good condition. The scrub community is dominated by sand pine, scrub oaks, and pignut hickory.

Some portions of the scrub appear to be taking on characteristics of xeric hammock, and the aspect of this community has been differentiated as “xeric forest” (Huck et al. 1996) with the presence of southern magnolia, white fringetree (*Chionanthus virginicus*), hickories, sourwood (*Oxydendrum arboreum*), wild olive (*Cartrema americana*), American holly (*Ilex opaca*), and shrubs of blueberries, saw palmetto, Gulf Sebastian-bush (*Ditrysinia fruticosa*), and scarlet calamint (*Calamintha coccinea*).

A rare panhandle species, largeleaf jointweed also occurs in openings within the park’s scrub and portions of the neighboring sandhill. Gulf Coast lupine (*Lupinus westianus*) is found here as well, although it has not been observed in the park since 1995. These two species are disappearing from the scrub community due the general closed canopy of much of the scrub habitat. Largeleaf jointweed largely occurs currently adjacent to the scrub in neighboring sandhill community where restoration activities recently took place.

General Management Measures: Given the varying components that resemble xeric hammock within the scrub community at the park, the scrub should be thoroughly assessed and mapped. Following the assessment, the desired future conditions for portions of this community may change. The assessment is discussed in the Resource Management Program section of this component.

The use of ignition techniques to mimic stand replacing or catastrophic canopy fires should not be applied to coastal scrub in the park since researchers (Drewa et al. 2008; Parker et al. 2001) have concluded that stand replacing fire was not the natural process driving the structure and health of these coastal panhandle scrub communities. Use of stand replacing fire would not mimic a normal natural process in these communities and would alter the natural uneven age stand structure of sand pine. It might also expose the oak refugia that wildlife use following tropical storms to abnormally high wind and water erosion. It is wind, wind erosion and salt spray that create obvious effects on coastal scrub. Wind throws create gaps, and salt spray kills apical meristems keeping the canopy low. After tropical storms, many scrub plants are defoliated and killed from salt spray only to re-sprout from the base.

Mechanical clearing followed by prescribed fire has been used to manage scrub communities in peninsular Florida in order to mimic, with prescribed fire, the stand replacing fire regime appropriate to scrub in that region. Similar techniques should not be used in the park as evidence shows that stand replacing fire was rare in these communities. The challenge is not to create a situation where canopy fires can be conducted in a safe fashion, but to recreate the natural process which did not include catastrophic stand replacement fires in this location.

Prescribed fire in adjacent fire type natural communities should be allowed to burn across ecotones into the scrub when burning under typical growing season weather conditions. It should be noted however, that under these natural conditions the coastal scrub will not readily carry fire.

Surveys to locate imperiled scrub species are needed. A monitoring and management protocol is needed for Gulf Coast lupine and largeleaf jointweed in the scrub community. These two species should be mapped when located and habitat conditions assessed. Gulf Coast lupine may still exist in the seed bank.

Scrubby Flatwoods

Desired future condition: The scrubby flatwoods should be dominated by longleaf pine and slash pine. Slash pines will be the dominant tree in North Florida barrier island scrubby flatwoods. Sand pine may be present in the subcanopy, but should not be the dominate canopy pine species. There should be a diverse shrubby understory often with dispersed patches of bare sand. A scrub-type oak "canopy" should contain a variety of oak age classes/heights across the landscape. Dominant shrubs will include sand live oak, myrtle oak, Chapman's oak, saw palmetto, and rusty staggerbush (*Lyonia ferruginea*). Herbaceous groundcover species should be low to moderately dense. The Optimal Fire Return Interval for this community varies; typically, 5-15 years when aiming to achieve a mosaic of burned and unburned areas.

Description and assessment: Scrubby flatwoods are located along the eastern boundary of the park adjacent to the elementary school and following the Schoolhouse Branch seepage stream. The scrubby flatwoods are in poor condition due to decades of fire exclusion. The site is characterized by a canopy of mature sand pine with remnant old growth longleaf and slash pine. The subcanopy is diverse with turkey oak, sand live oak, sand post oak, myrtle oak, and Chapman's oak. Groundcover includes woody goldenrod, kidneyleaf rosinweed (*Silphium compositum*), gopher apple, saw palmetto, and pricklypear (*Opuntia humifusa*).

General Management Measures: Nearly 7 acres of the scrubby flatwoods community require restoration efforts to reach the desired future condition. Restoration of this acreage is discussed in the Resource Management Program section of this component. The scrubby flatwoods should be in incorporated into the burn plan for the park. However, due to the close proximity to the elementary school, mechanical fuel reduction will need to occur prior to burning. Continued assessment of the area is needed. The original footprint of scrubby flatwoods may be larger than the approximate 7 acres currently identified. However, the scrubby flatwoods present at the park are likely the remaining sliver following adjacent development. Similar aged longleaf pine are visible on the opposite site of the road.

Seagrass Bed

Desired future condition: Marine seagrass beds are characterized as expansive stands of vascular plants and are among the most productive communities in the world. Seagrass beds will occur in clear, coastal waters where wave action is moderate. Seagrass beds require unconsolidated substrate in order to establish their underground biomass root structure. They will typically be found in waters ranging from 20° to 30°C (68° to 86°F), and require clear water for photosynthesis. Seagrass beds will not thrive where nutrient levels are high because of increased

turbidity and competition of undesirable algal species. This community supports a high diversity of marine species. Seagrass beds should be free from pollutants, development, man-made debris, dredging activities, and boat damage.

Description and assessment: Seagrass beds fringe the shoreline of the bayou and are in fair condition. Seagrass beds are important nursery beds for fish and other aquatic invertebrates. The grass beds found in Rocky Bayou are dominated by widgeon-grass (*Ruppia maritima*).

Rocky Bayou is heavily used by recreational boaters, water skiers, and jet skiers. Over the years the occurrence of recreation in the shallows along the shoreline of the park has led to physical damage of the seagrass beds from boat propellers, often referred to as “prop scars”. Damaged seagrass beds do not recover quickly; it takes years for the seagrass to reestablish.

Water quality and nutrient loading can impact the seagrass bed community. The high level of recreation on the bayou has led to an increase in turbidity, with the resultant loss of submerged grassbeds sensitive to lowered levels of incident light penetration. Water quality is increasingly an issue in the bayou as sources of nutrient loading from septic systems and/or storm water runoff impact the bayou and therefore the seagrass community within the park.

General Management Measures: A plan should be written in coordination with the Rocky Bayou Aquatic Preserve to protect the grassbeds here as well as other shoreline features to reach the desired future condition. Proposed protection efforts are discussed in the Resource Management Program section of this component. The plan should consider establishing a ‘No Wake’ zone adjacent to the park with channel markers. Shallow water areas should be marked to minimize prop scars and other damage to seagrass beds from recreational boating in the area.

Educational signage at the park informing park visitors about the presence of and the importance of seagrass beds is needed. A coordinated effort with the Aquatic Preserve staff to monitor and record significant impacts to seagrass beds is needed.

Seepage Slope

Desired future condition: Seepage slopes are herbaceous communities that are determined by gently sloping low nutrient and saturated soils. The topographic change between the more upland natural communities and the small streams that form the centerline of the lineal seepage slopes, results in a gentle slope. Rain that falls on adjacent upland communities percolates down through poor sandy soils. When the percolating water reaches the high surface water table it spreads laterally through the sandy soil emerging on the slope as it approaches the stream, keeping the soil of the area down slope saturated.

Seepage slopes are known for their high diversity of rare and carnivorous species, including pitcherplants, sundews, orchids and lilies. Sphagnum moss should be present to help seeds germinate and acidify the soil, keeping nutrients from being

available to other plants. This suite of plants requires a saturated, nutrient impoverished soil that is exposed to sunlight in order to flourish. Seepage slopes are also an important habitat for various amphibian species.

The poverty of nutrients available to plants is the primary key to maintaining the rare plants that symbolize this community. Fire keeps ground litter at a minimum and reduces the pulse of nutrient created by fire from reaching the seepage slope leaving the sandy soils nutrient poor. The surface hydrology helps to further leach nutrients from the soils and maintains saturation which both compacts soil and creates anoxic conditions that keep nutrients from becoming available to more competitive plant species thus helping to prevent woody plant encroachment. Seepage slopes generally have a very gradual slope where sub-surface water seeps down the slope keeping the soils saturated.

The fire regime should mimic the surrounding communities. Hydrological regime should be intact providing constant seepage to the natural community.

Description and assessment: At the park, the seepage slope community is located along edges of the Puddin Head seepage stream. Seeps are located in various locations along the edge of the steam. This community occurs as a narrow ecotone between seepage stream and the surrounding upland communities. Soils within the seepage slope are soft and mucky underfoot. The majority of the seepage slope community at the park is in fair condition. Due to the previous impoundment of the seepage stream, woody species have not invaded the community. However, much of the typical seepage slope vegetative components such as wiregrass are missing. The rich diversity of species characteristic of this natural community, including carnivorous plants, has disappeared in much of the habitat. However, spoonleaf sundew, club moss (*Lycopodiella* spp.), yellow hatpins (*Syngonanthus flavidulus*), yelloweyed grass (*Xyris* spp.) and sphagnum are abundant. White top, parrot, Gulf Coast purple and Gulf Coast redflower pitcherplants were recently reintroduced to the seepage slope community. Much of the remaining habitat is dominated by woody species.

The discrepancy in seepage slope vegetation may be due to the planting associated with restoration efforts following the removal of the earthen dam. Sparse records exist for the species planted, abundance and location of plantings following the removal of the earthen dam. However, many of the species planted had woody characteristics and are not representative of a seepage slop natural community.

Fire has not been reintroduced to this community. The seepage slope community is primarily surrounded by scrub. However, it is evident by the large pine stumps found within the seepage stream signature, that fire may have occurred naturally in the community from lighting strikes. Mesic flatwoods are also present along the northern end of the community, bordering the shrub bog and baygall communities. Dense titi is already forming in locations directly adjacent to the scrub. Without prescribed fire, woody species may quickly invade the seepage slope.

Following the removal of the earthen dam, beavers have established in several locations along the Puddin Head seepage stream effectively flooding the seepage slope community and reintroduced pitcherplants. Beavers and an allowable level of flooding need to be addressed.

General Management Measures: The seepage slope community requires improvement efforts to reach the desired future condition. Improvement of this community is discussed in the Resource Management Program section of this component. A restoration plan was written for the removal of the earth dam and drainage of Puddin Head Lake, however it did not include specific objectives aimed at restoring/improving the seepage slope community. The restoration plan for the Puddin Head seepage stream should be updated to include improvement efforts of the seepage slope. The plan should include restoration of vegetation to those that represent seepage slopes. Collaborative work with Atlanta Botanical Gardens reintroducing white top, parrot, Gulf Coast purple and Gulf Coast redflower pitcherplants should continue. The reintroduced pitcherplants should be tagged and GPS mapped to determine health, reproductive performance, and survival. These metrics will allow for adaptive management of the seepage slope community and guide any future pitcherplant augmentation activities. Additionally, the community should be revisited and assessed. Prior to the impoundment, the community may have been more of a shrub bog rather than a seepage slope given the surrounding non fire-type community around the stream. Time and reassessment will reveal the natural characteristics of this community.

Prescribed fire needs to be reintroduced to the community. Due to the surrounding scrub community, the seepage stream, seepage slope, shrub bog, and baygall communities that occur on the Puddin Head seepage stream may need to have prescribed fire applied directly rather than allow fire to move through adjacent upland communities. Fire from on the Puddin Head seepage stream should be allowed to move from the stream into the adjacent scrub habitat to control invasion from woody species such as titi that is already forming dense stands on the margins.

In addition to fire, storm activity (e.g., storm surge, tree fall, etc.) likely aided in keeping woody species under control. However, storm surge also has the ability to kill bog species such as pitcherplants. Keeping the seepage slope community upslope in good condition will provide a seed bank to populate the down slope stream and bog community following potential events of die-off due to saltwater intrusion.

Beavers create dams that impound water in various locations along the stream. Although beavers are a natural part of the community, the habitat should be monitored and focal species targeted to prevent flooding of the entire seepage slope community. As part of the restoration plan of the stream, beavers and expectable levels of water impoundment should be addressed.

Seepage slopes with soft saturated soil are sensitive to soil disturbance from vehicles. Roads and firebreaks as well as equipment use and activities related to

restoration should be designed to prevent hydrological disruption. Seepage slopes should not be isolated from neighboring natural communities on which they depend for headwaters for seepage. Firelines should not be installed along the ecotones between seepage slopes and their neighboring communities to allow fire to spread through both communities. Herbicide use should be avoided in these natural communities. If necessary, herbicides should only be used with extreme caution in these natural communities, as many of the plant species are sensitive to overspray, drift and root transfer and amphibian species are generally highly-sensitive to any herbicide use.

Seepage Stream

Desired future condition: Seepage Streams are characterized as perennial or intermittent seasonal water courses originating from shallow ground waters that have percolated through deep, sandy, upland soils. Because they are generally sheltered by a dense overstory of hardwoods which block out most sunlight, seepage streams most often have depauperate aquatic floras. Mosses, ferns and liverworts may grow in clumps at the water's edge. In the lower, broader reaches, narrow bands of spatterdocks (*Nuphar advena*), goldenclub (*Orontium aquaticum*) and spikerush (*Eleocharis* spp.) may occur along the shorelines.

Water color should be clear to slightly colored, with a fairly slow flow rate and fairly constant temperature. Fish, reptiles and amphibians should be common. This community is highly susceptible to hydrologic alteration. All hydrologic disturbances negatively impacting this community should be restored. Exotics should be absent.

Description and assessment: The seepage streams at the park originate from steepheads and are generally in fair condition. Cool and clear water streams are found at the base of the steephead ravines. The source of these streams is rainwater that has percolated through the deep sands and emerged at the bottom of the steephead ravines. The seepage streams flow through various upland and wetland habitats, including baygall, upland hardwood forest, wet flatwoods, shrub bog, seepage stream and freshwater tidal marsh near the bayou. Three seepage streams are found on the park, one of which is not entirely on park property. The entire stream within the eastern most steephead (or the school house branch) is not within park property. About half way down its course, the stream bows out into the adjacent housing development of Bluewater Bay. The lower section of this seepage stream, as well as its mouth, is again on park property. A fourth seepage stream occurs almost entirely off of the park, starting on Eglin Air Force Base. However, the mouth of the stream is located in the far northeastern corner of the park. In addition, Puddin Head and the westernmost steepheads are impacted by SR 20.

The Puddin Head seepage stream is just to the east of the park entrance and was dammed and impounded in the early 1960s by the US Forest Service in order to create Puddin Head Lake. The earthen dam was removed in 2005 and the original hydrological flow of the seepage stream was restored, allowing the stream to flow from the steephead that begins adjacent to State Road 20 until reaching Rocky

Bayou.

The park road bisects this westernmost seepage stream disrupting the hydrologic flow before it reaches Rocky Bayou. A single culvert allows some water flow, but it is inadequate. In addition to disrupting hydrologic flow, the topography of the slopes of the seepage stream has led to a low lying park road that collects and pools all excess surface runoff water. A restoration plan is needed to restore hydrologic flow to the stream and address needed improvements to the park road. The park should restore the road or reroute it so that the hydrological regime of the stream and the neighboring natural communities is intact.

General Management Measures: The park should avoid further altering the hydrology of the seepage streams especially when planning new firelines or development. Herbicide use should be limited in these streams as the amphibians that depend on them may be sensitive to pollutants. The hydrology of the westernmost seepages stream should be restored to allow adequate water flow. The park should restore the road or reroute it so that the hydrological regime of the stream and the neighboring natural communities is intact. Restoration of the stream and park road is discussed in the Resource Management Program section of this component.

Due to the location of the steepheads, they are impacted by SR 20 and will likely continue to be. Road maintenance, pollutants (petroleum products, herbicides, pesticides, litter, etc.), and storm water runoff have the potential to impact the seepage streams. Water quality sampling is needed. Amphibians and macroinvertebrates should be monitored regularly as an indicator of water quality in the streams.

Beavers create dams that impound water in various locations along the stream. Although beavers are a natural part of the community, the stream should be monitored to prevent flooding of natural communities adjacent to the steam. As part of the restoration plan of Puddin Head seepage stream, beavers and expectable levels of water impoundment should be addressed.

Shrub Bog

Desired future condition: The desired future condition of shrub bogs should be characterized as a peat filled wetland that often remains saturated or inundated and contains acidic soils. Vegetation structure should consist of dense shrubs and/or open and marsh like conditions with no woody species present. Typical plant species should include sphagnum moss, titi, fetterbush, wax myrtle, bay species, and occasionally scattered slash pines. The Optimal Fire Return Interval for this community is dependant on the surrounding communities. Fires from adjacent uplands should be allowed to enter the bog ecotone. This community is highly susceptible to hydrologic alteration. All hydrologic disturbances negatively impacting this community should be restored. Exotics should be absent.

Description and assessment: Two areas of shrub bog occur on the park, both are

near the mouth of seepage streams, one on Puddin Head and the other is on the Schoolhouse Branch seepage streams. The two bogs are frequently referred to as the White Cedar Bog and the Puddin Head Bog. The White Cedar Bog has taken on many of the characteristics of baygall and has nearly impenetrable thickets of various shrubs, saplings, trees (including black titi, titi, fetterbush, wax myrtle, odorless bayberry, Atlantic white cedar, and slash pine) and smilax interspersed with patches of sphagnum supporting spoonleaf sundew. The Puddin Head Bog was previously degraded by placement of an earthen dam that formed Puddin Head Lake. St. John's wort dominates the bog. This bog historically supported white-top and Gulf Coast redflower pitcherplants, but were extirpated from the site. These two species plus parrot at Gulf Coast purple pitcherplants were recently reintroduced to the bog and adjacent seepage slope. The shrub bogs grade into baygall, wet flatwoods, and freshwater tidal marsh. The shrub bog community at the park is heavily influenced by tropical storm activity. In locations where the bog occurs near the bayou, it is exposed to saltwater intrusion during tropical storm events.

The shrub bog is in poor condition due to the dense canopy and impenetrable thickets that continue to shade out the carnivorous plants present in this community along the Schoolhouse Branch and encroachment of baygall. Prior to saltwater intrusion the parrot and Gulf purple pitcherplants that were previously abundant in the restorable baygall/shrub bog were highly shade-suppressed. The few healthy individuals that bloomed and set seed were observed in locations where light gaps were present (Johnson 2000).

Impacts from storm activity and fire likely played a role in maintaining open areas. Fire-dependent communities occur adjacent to shrub bog on the Schoolhouse Branch. A wild fire did occur near the bayou in the baygall community on the Schoolhouse Branch in 1984, the fire began in the adjacent flatwoods from a lightning strike. Prescribed fire has not been applied to the shrub bog habitat at the park allowing for succession into baygall.

General Management Measures: The shrub bog/baygall community may require restoration efforts to reach the desired future condition. However, a plan to evaluate the potential for restoration is needed first and should only include shrub bog/baygall adjacent to fire-type communities. Restoration of this community is discussed in the Resource Management Program section of this component. The shrub bog community may be more extensive than what is currently mapped due to encroachment of baygall due to lack of fire. It is apparent that by the historic distribution of pitcherplants, that the shrub bog community near the bayou was more open with sunlight gaps. Johnson (2000) experimented with woody removal in locations where shade suppressed pitcherplants were observed with immediate responses in growth.

It appears that that the heavily wooded shrub bog and adjacent baygall has conditions that resist the spread of naturally occurring fires and would only burn under extreme drought conditions that would probably result in a catastrophic,

stand replacement burn. Fuel reduction or hand removal of woody species would be need prior to prescribed fire efforts in surrounding fire-type communities.

Beavers create dams that impound water in various locations along the stream. Although beavers are a natural part of the community, the stream should be monitored to prevent flooding of shrub bog and other natural communities adjacent to the steam. As part of the restoration plan of Puddin Head seepage stream, beavers and expectable levels of water impoundment should be addressed.

The park should monitor the shrub bog community for exotic species. The community is vulnerable to infestation due to water flow from the bayou and neighboring developments. Chinese tallow was observed on the lower end of the Schoolhouse Branch.

The park should continue to maintain the original hydrology and prevent future hydrological alteration. Care must be taken to prevent any further disruption to hydrology. Careful consideration should be given to the type, location, creation and maintenance of firelines.

Wet Flatwoods

Desired future condition: At the park the desired future condition of wet flatwoods should be represented by an overstory of scattered slash pine with a mixture of low shrubs and herbs in the groundcover. The midstory should consist of scattered sweetbay, swamp bay, titi, and wax myrtle. Common shrubs should include fetterbush, gallberry, titi, saw palmetto and wax myrtle. Native herbaceous cover should include pitcherplants and other plants such as terrestrial orchids may be present and abundant in some areas. Fire should burn through this community every two to four years. Soils should be saturated much of the year with little to no duff accumulation.

Description and assessment: The slash pine-dominated wet flatwoods within the park are located to the east of the White Cedar Bog and towards the mouth of the western most seepage stream. The wet flatwoods are embedded within a mosaic of various non-fire type communities including scrub and baygall and fire type communities including mesic flatwoods and shrub bog. Some very large diameter slash pines occur here. Some of these trees are in excess of 25 inches dbh, and are remnants of the park's original old-growth. The habitat is in poor condition due to the encroachment of baygall and needle cast build up from lack of fire. At the park, shrubs dominate the understory. Along the ecotonal edges sphagnum and spoonleaf sundew are present. Historically parrot, Gulf purple, and Gulf Coast redflower pitcherplants were also abundant, but are now visually absent due to saltwater intrusion and shade suppression. Johnson (2001) suggested that pitcherplants can persist in some situations as dormant (i.e., unobservable) rhizomes under deep shade. Therefore, these three species may still be present, but are no longer detected.

General Management Measures: Approximately 4.5 acres of wet flatwoods community may require restoration efforts to reach the desired future condition. Restoration of this community is discussed in the Resource Management Program section of this component. Prescribed fire is important to this community and needs to be reinstated to the recommended fire return intervals of 2-4 years. A burn plan needs to be developed for the wet flatwoods at the park. Fire should be reintroduced cautiously due to fire suppression and fuel build-up. Fuel reduction techniques may be necessary before reintroduction of fire, particularly in areas currently invaded by baygall vegetation. Once fire has been reintroduced, it will take years of controlled and cautious burning before this community returns to good condition. Monitoring prior to and after burns for pitcherplants may be necessary to reduce detrimental impacts to stressed plants.

Upland Hardwood Forest

Desired future condition: The future conditions of upland hardwood forest should be characterized as a mature, closed canopy hardwood forest that occurs on slopes within the park. The upland hardwood forest should generally have mesic conditions. The overstory tree species found in this community should consist of species such as southern magnolia, live oak, laurel oak (*Quercus laurifolia*), pignut hickory, American beech, and Florida maple (*Acer saccharum* subsp. f*loridanum*). Understory species should include trees and shrubs such as American holly, Carolina basswood (*Tilia americana var. caroliniana*), gum bully (*Sideroxylon lanuginosum*), eastern hophornbeam (*Ostrya virginiana*), red bay and beautyberry. Ground cover should consist of shade tolerant herbaceous species, sedges and vines.

Description and assessment: Upland hardwood forests are found along slopes of the westernmost and Schoolhouse Branch seepage streams at the park and are in good to excellent condition. The slopes of these two seepage stream have more topography than the other locations on the park. The overstory species are predominately pignut hickory, southern magnolia, live oak, and laurel oak with scattered old growth slash pine along the stream bottom. The understory consists of Florida anise, American holly, red bay, beautyberry, Florida flame azalea (*Rhododendron austrinum*), and Batzell's sedge (*Carex baltzellii*). There is some overlap of baygall species along the ecotones between these two communities. Baygall occurs in flatter, more saturated areas and at the steepheads along the same stream.

General Management Measures: Fire should generally be avoided in this community. However, if Upland Hardwood Forest occurs adjacent to other fire-type communities, fire should be allowed to enter as would have occurred during natural wildfires.

The slope along the western most seepage stream is located near the 'cedar trail'. Foot traffic from park visitors can lead to erosion problems over time. The slope will need to be monitored regularly and protected as needed.

Exotic species should be absent and controlled as necessary. Regular monitoring for exotic species should occur.

Developed

Desired future condition: The developed areas within the park will be managed to minimize the effect of the developed areas on adjacent natural areas. Priority invasive plant species (FLEPPC Category I and II species) will be removed from all developed areas. Other management measures include proper stormwater management and development guidelines that are compatible with prescribed fire management in adjacent natural areas.

Description and assessment: Developed areas include parking areas, buildings, campgrounds and other facilities as well as maintained rights-of-way and roadsides. Additional use areas along the Rocky Bayou bluffs are also considered as developed due to the amount of maintenance mowing that occurs. These areas, if not mowed, would likely be considered as either mesic or xeric hammocks. Middens are present through much of the use and picnic areas along the bluffs. Protection from park visitors may be necessary in the form of signage or closure of eroding areas. The mowed areas also exacerbate storm water and erosion issues by increasing the level of sheet flow from the use area to the bayou. Wild pink (*Silene caroliniana*) was previously found in the picnic areas of the park, but has gone undetected for approximately a decade.

General Management Measures: Staff will continue to control invasive exotic plants in developed areas of the park. Defensible space will be maintained around all structures in areas managed with prescribed fire or at risk of wildfires. An improvement plant for the mowed picnic area is needed to address the sheet flow erosion problems. Improvement of the use area is discussed in the Resource Management Program section of this component. Monitoring for wild pink should occur in the use area regularly. If detected, protection efforts will be needed. Monitoring and protection of the wild pink is discussed I the Resource Management Program.

Clearing

Desired future condition: The clearing areas within the park will be managed to remove priority invasive plant species (FLEPPC Category I and II species). Other management measures include limited restoration efforts designed to minimize the effect of the ruderal areas on adjacent natural areas. Cost-effectiveness, return on investment and consideration of other higher priority restoration projects within the park will determine the extent of restoration measures in cleared areas.

Description and assessment: The cleared areas at the park are predominately located along the park roads, parking areas and park boundaries and tend to have a higher occurrence of exotic plants. In particular the cleared areas along the eastern boundary are prone to exotic plant infestations.

General management measures: Staff will continue to control invasive exotic plants in cleared areas of the park as needed.

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 fifteen known imperiled plant species that occur at the park in various natural communities. Six of the imperiled species at the park are linked to seepage streams and their associated communities (seepage slope, shrub bog, baygall, and wet flatwoods). The species associated with these communities are spoonleaf sundew, yellow fringed orchid (*Platanthera ciliaris*), white top pitcherplant, parrot pitcherplant, Gulf purple pitcherplant and Gulf Coast redflower pitcherplant. All of these species are vulunerable to alteration of hydrolgy, salt water intrusion from tropical storm activity and shade supression. The spoonleaf sundew is the only imperiled species found in these communities that is still plentiful. The sundew was very abundant along both the Puddin Head and White Cedar bogs. All of the pitcherplants have been reintroduced to the Puddin Head seepage stream. Reintroduced plants need to be individually tagged and monitored to improve management, increase population and determine need for future augmentation efforts. Parrots and purple pitcherplants were historically abundant along the Schoolhouse Branch seepage stream, but were presumably extirpated by salt water intrusion from tropical storm activity in 2005. Surveys to document these two pitcherplant species should continue at the park and reintroduction efforts should occur as needed.

Along the upper slopes of the seepage streams, found in baygall and mixed upland hardwood communities two imperiled plant species occur, Batzell's sedge and Florida's flame azalea. Spiked crested coralroot is present at the park in calcerous mesic hammock. Surveys for these species should occur during the bloom windows to enhance detection.

Pondspice is a state endangered shrub species that occurs is an exceedingly small population at the park. At the park, pondspice occurs at the southern margin of the the depression marsh adjacent to SR 20. Similar to pondspice populations throughout Florida, pondspice is found in small, higher elevation wetland habitats that are embedded within natural communities that receive fire. The depression marsh at the park is embedded within mesic flatwoods and sandhill. The use of prescribed fire may be an important management technique benefiting pondspice. Elsewhere in Florida the most robust fruiting individuals were found in open settings with sparse canopy cover and low densities of competing shrubs of other species (Surdick and Jenkins 2009). Allowing prescribed fire from the adjacent up lands to naturally enter the wetlands supporting pondspice will benefit this species. However, the natural periodicity of fire for pondspice may be slightly longer than

what is typical for the surrounding landscape due to fluctuating water levels in the depression marsh. Laurel Wilt Disease (LWD) has been found to be lethal to members of the Lauraceae family including pondspice (Surdick and Jenkins 2009). Although the LWD epidemic is currently located in northeast Florida, it is actively spreading to adjacent counties. Although it appears that no populations of pondspice have been extirpated as a result of LWD infections, there are populations in northeast Florida exhibiting symptoms. Pondspice at the park will need to be monitored for symptoms. Loss of pondspice at the park would also impact wildlife, such as populations of butterflies that rely on species in the *Persea* species. An example of species that could be impacted are Palamedes swallowtail (*Papilio palamedes*) and Spicebush swallowtail (*Papilio troilus*).

Largeleaf jointweed is generally found in coastal scrub and scrubby flatwoods along the panhandle Gulf Coast. However, it has also been located in hammock and sandhill communities within its range. This species thrives in unshaded habitats that are kept open by natural disturbances, such as fire, salt spray pruning and storm events, which remove the pine canopy (Jenkins et al. 2007). At Rocky Bayou, largeleaf jointweed is primarily found in recently restored sandhill adjacent to intact scrub. Although not much is known about its response to fire it does appear to prosper in open to partially open scrub throughout its range. For this reason prescribed fire activity in communites adjacent to scrub at the park should be allowed to move across the ecotone. The scrub community at the park is also highly impacted by storm activity. Tree falls from hurricane Opal created light gaps that likely benefited this species. An additional remnant population of largeleaf jointweed has been documented at the edge of mesic hammock and flatwoods at the park adjacent to State Road 20. The mesic hammock likely succeeded from scrub. Surveys for this species should be completed October-November due to the ease in location during the bloom window. Hairy Florida wild indigo (*Baptisia calycosa var. villosa*) is also found in the scrub community. Gulf Coast lupine was observed last observed in 1995 in scrub. Monitoring efforts should continue during the bloom window.

Arkansas oak is found throughout the park, primarily in scrub habitat that is dominated by oaks, sand pine and hickories. Some mature Arkansas oak in the restoration area died back following restoration of sandhill habitat at the park. Other trees were mowed down in efforts to reduce woody understory within the sandhill restoration area. Arkansas oak should be flagged and GPS mapped in areas where restoration activities will occur to minimze determintal impacts.

Wild pink was described as frequent at the park in 1994 as infrequent in 2002 and has not been located since. Both observations and subsequent collections were associated with the picnic area and bluffs along the bayou. The location in question is regularly mowed by park staff and volunteers. It is possible that this species is still present at the park, but is mowed down regularly. Health and population of this species is currently unknown. Monitoring efforts will continue.

During seasonal migrations, numerous imperiled bird species use the park. Merlin (*Falco columbarius*), peregrine falcons (*Falco peregrinus*) and American redstart

(*Setophaga ruticilla*) are observed during migratory periods. A small number of merlin and peregrine falcons overwinter at the park, often using snags for perches. Snags should remain in place for these species in most habitats. Appropriate management actions for this species include conserving and maintaining suitable natural area with little to no human disruption or alteration. This is considered Management Action 14 (Other) in the table below. American redstarts are rare at the park, but may be observed during the spring and fall migrations. Swallow-tailed kites (*Elanoides forficatus*) typically use the park only by flying over, however they may also use the park for foraging since they tend to forage for insects over wet open areas.

Gopher tortoises are found in the park's sandhill restoration area responding to the open canopy that is present following restoration efforts. Gopher tortoises are also present along utility corridors where open canopies are maintained. Although the actual population at the park is unknown, it is steadily increasing each year due to recruitment from adjacent lands. Prior to restoration efforts, only one burrow was recorded at the park. Currently there are 65 documented and marked burrows at the park, supporting an estimated 30-40 tortoise. The park will continue to monitor and document tortoise burrows. With continuing restoration of sandhill and improvement of habitat for gopher tortoises, populations should increase.

The biggest threats to American alligators (*Alligator mississippiensis*) at the park are from potential interactions with visitors. Visitors should be educated on the dangers of feeding or molesting alligators both in terms of harm to the alligator and the visitor.

Wading birds, such as little blue heron (*Egretta caerulea*) and tricolored heron (*Egretta tricolor*) are found in various wetland habitats. Roseate spoonbills (*Platalea ajaja*) are rare at the park. However, they have been observed in migration foraging in the marsh habitat. Good quality wetlands are important for foraging and nesting for wading birds. Hydrology should be maintained in these wetlands, and spraying of insecticide should be minimized as much as possible. All three specieswere recommended for listing as Threatened by FWC. Park staff should collaborate with district biologists and FWC to determine any new state monitoring requirements per the change in listing status.

Florida black bears (*Scalopus aquaticus*) have occasionally been spotted at the park. Dumpsters and garbage cans should be animal proof to prevent attracting and habituating nuisance and exotic animals. The park staff should be trained in nuisance bear prevention and harassment measures.

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

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
PLANTS						
Hairy Florida wild indigo *Baptisia calycosa var. villosa*	ST	N	LT	G3T3, S3	10	Tier 2
Baltzell's sedge *Carex baltzellii*			LT	G3, S3	10	Tier 2
Spoonleaf sundew *Drosera intermedia*			LT		1, 4, 10	Tier 2
Spiked crested coralroot *Hexalectris spicata*			LE		10	Tier 2
Pondspice *Litsea aestivalis*			LE	G3?, S2	1, 3, 4, 10	Tier 2
Gulf Coast lupine *Lupinus westianus*			LT	G3, S3	1, 4, 10	Tier 2
Yellow fringed orchid *Platanthera ciliaris*			LT		10	Tier 2
Largeleaf jointweed *Polygonella macrophylla*			LT	G3, S3	1, 4, 10	Tier 2
Arkansas oak *Quercus arkansana*			LT	G3, S3	14	Tier 2
Florida flame azalea *Rhododendron austrinum*			LE	G3, S3	10	Tier 2
White-top pitcherplant *Sarracenia leucophylla*			LE		1, 3, 4, 10	Tier 3

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Parrot pitcherplant *Sarracenia psittacina*			LT		1, 3, 4, 10	Tier 2
Gulf purple pitcherplant *Sarracenia rosea*			LT		1, 3, 4, 10	Tier 2
Gulf Coast redflower pitcherplant *Sarracenia rubra subsp. gulfensis*			LT	G4T2Q, S2	1, 3, 4, 10	Tier 3
Wild pink *Silene caroliniana*			LE	G5, S1	10, 14	Tier 2
REPTILES						
American alligator *Alligator mississippiensis*	FT(S/A)	SAT		G5, S4	4, 10, 13	Tier 1
Gopher tortoise *Gopherus polyphemus*	ST			G3,S3	1,6,7,8,10,13	Tier 2
BIRDS						
Little blue heron *Egretta caerulea*	ST			G5,S4	4, 10, 13	Tier 1
Tricolored heron *Egretta tricolor*	St			G5,S4	4, 10, 13	Tier 1
Swallow-tailed Kite *Elanoides forficatus*				G5, S2	14	Tier 1
Merlin *Falco columbarius*				G5, S2	14	Tier 1
Peregrine Falcon *Falco peregrinus*				G4, S2	14	Tier 1
Caspian tern *Hydroprogne caspia*				G5, S2	13	Tier 1

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Roseate spoonbill *Platalea ajaja*	ST			G5, S2	4, 10, 13	Tier 1
American redstart *Setophaga ruticilla*				G5, S2	4, 13	Tier 1
Least tern *Sternula antillarum*	ST			G4, S3	13	Tier 1
Sandwich tern *Thalasseus sandvicensis*				G5, S2	13	Tier 1
MAMMALS						
Florida black bear *Ursus americanus floridanus*				G5T2,S2	1,4,10, 13	Tier 1
West Indian manatee *Trichechus manatus latirostris*	FT	LT		G2, S2	4, 10,13	Tier 1
INVERTEBRATES						
Common Roadside-Skipper *Amblyscirtes vialis*	N	N		G4, S1	4, 10	Tier 1
Eastern Pine Elfin *Callophrys niphon*	N	N		G5, S2	4, 10	Tier 1

Management Actions:

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

Monitoring Level:

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

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

Exotic and Nuisance Species

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

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.

Park staff are regularly trained on the identification of exotic species that might be present at the park. Although no standardized surveys are conducted, park and district staff document the presence of any exotic plant species observed. After initial documentation, the exotics plants are maps with a GPS, the size of the infested area is estimated and a general description of the infestation is recorded and entered into the exotic plants database. Intensive control efforts over the past few years have succeeded in reducing the coverage of exotic plant species in the park, which was moderately infested in patches by several FLEPPC category 1 species.

Although the park only has a few invasive exotic species, the exotics need continual treatment and monitoring to prevent infestations from enlarging. There is only one location of cogon grass (*Imperata cylindrica*) on the park. The location has been treated in past years and is continually monitored and treated. Cogon grass is difficult to eradicate, so tenacity and repeated treatments are needed.

Infestations of alligator weed (*Alternanthera philoxeroides*) and Chinese tallow tree are minor. When found they are treated by the park immediately. The park needs to continue monitoring for these species and treating them as they appear in order to prevent larger infestations from establishing. Mimosa (*Albizia julibrissin*), lantana (*Lantana camera*), and Japanese honeysuckle (*Lonicera japonica*) are in maintenance condition. However, staff will continue to monitor for reinfestation and treat accordingly.

Ornamental species are frequently observed in the park along the eastern boundary near the Blue Water Bay development. This area should be monitored frequently for presence of exotic invasive species and ornamental species should be removed.

Laurel wilt, caused by the non-native fungus, *Raffaelea lauricola*, and spread by the non-native redbay ambrosia beetle (*Xyleborus glabratus*), kills trees in the Laurel (*Lauraceae*) family, including redbay, swamp red bay and pondspice. The park staff will monitor for signs of laurel wilt and will notify county agricultural extension agents and district biologists if spotted.

Regular monitoring of sensitive habitat (such as wetlands) for signs of nine-banded armadillo (*Dasypus novemcinctus*) or feral hog (*Sus scrofa*) damage is needed. If damage is detected, efforts to control these species will be considered.

Coyotes (*Canis latrans*) are present in fairly substantial numbers at the park. Not only have coyotes become a nuisance issue with park visitors (i.e., growling at visitors, grabbing dogs, etc.), they are frequently documented digging into gopher tortoise burrows at the park. The level of impact to gopher tortoise is unknown, however, monitoring of burrows and the presence of coyote tracks should continue at this time.

Beavers are established at the School House Branch and Puddin Head seepage streams. Beavers have a tendency to impound water on the streams. The presence of beavers, dam, and level of impoundment should be evaluated periodically to determine potential impacts to pitcherplants that occur in seepage slope and shrub bog natural communities. Beavers and expectable levels of water impoundment on the seepage stream should be addressed.

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.

Table 3 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive, exotic plant species found within the park (FLEPPC, 2011). The

table also identifies relative distribution for each species and the management zones in which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	**FLEPPC Category**	**Distribution**	**Management Zone (s)**
PLANTS			
Mimosa *Albizia julibrissin*	I	0	RB-C, RB-E
Cogon grass *Imperata cylindrica*	I	1	RB-B
Lantana *Lantana camara*	I	0	RB-E
Alligator weed *Alternanthera philoxeroides*	II	1	RB-A
Chinese tallow *Sapium sebiferum*	I	1	RB-C, RB-D, RB-E
Japanese Honeysuckle *Lonicera japonica*	I	0	RB-D

Distribution Categories:

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

Special Natural Features

For its size, Rocky Bayou has exceptional botanical diversity. The park is one of the few locations in Florida where Arkansas oak occurs as part of the southernmost extent of this species. The combination of multiple steephead seepage streams and associated bogs are a special and unique natural feature of the park.

Cultural Resources

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

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

Condition Assessment

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

Level of Significance

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

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

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

Prehistoric and Historic Archaeological Sites

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

Description: There are 14 historical resources recorded on park property, including 14 archaeological sites that have corresponding Florida Master Site File (FMSF) documentation. These sites contain evidence of human occupation during the Early Archaic period, Deptford period, Weeden Island period and the 19th and 20th centuries. Because the park contains archaeological evidence representing various periods, it has been noted by archaeologists that the park has the potential to provide a wealth of information relating to the prehistory and history of Florida (Kempton 1989).

Sites have been recorded and investigated in the area around the park for over 100 years. The earliest occurred in 1901 by Clarence Moore (Willey 1949). This was followed by a 1976 survey by Dale Benton at the adjacent Bluewater Development area. In 1989, Thomas Kempton was the first archaeological expert to report on research conducted in what is recognized as the now park boundary as part of Section 106 compliance (Kempton 1989). Kempton located three archaeological sites. The first site documented, is known as the "Bee hive" site (OK00521). This prehistoric site is represented by Deptford series ceramics and has an associated shell midden. A later Weeden Island period component was also thought to exist in the area. Combined, an approximate date range for the sites is 700 BC to 1000 AD. Kempton recommended additional research to determine the total number of components at the site and the overall footprint of the site. Thomas Kempton documented two additional sites during his visit. These were an extensive shell midden referred to as Rocky Bayou 2 (OK00522) and a WWII concrete training bomb (OK00523). During Kempton's visit, a dense shell layer was documented and a single ceramic artifact at the Rocky Bayou 2. Uncertainties were also addressed on the context of the shell layer and the need to determine if the shell was in fact redeposited shell. There had been reports that a pile of shell was brought into the park previously.

Kempton's last site was the WWII concrete training bomb, which is a faux bomb that measures 6 feet long and two feet in diameter. These faux bombs were used as a practice bomb during WWII military training. It is reported that the present location of the bomb represents a missed target in the bayou during a training exercise. Due to the favorable weather and abundant land, Florida was one of the primary locations selected for military construction during World War II. During WWII numerous airfields were established in Florida for anti-submarine defense and for training pilots and aircrew of United States Army and Air Force fighters and bombers.

In 1991, an archaeological survey was conducted in association with the widening of State Road SR 20, immediately adjacent to the park (Browning et al. 1991). This project included granting an easement into the park as a right of way to the FDOT. Five sites were discovered within the park boundary during the cultural resource investigation: OK00534, OK00535, OK00536, OK00537 and OK00538. OK00534, OK00535, OK00536 and OK00537 all represented prehistoric camp sites and artifact scatters. Two of the sites also contained pottery sherds. However, at this time they are all listed as culture/period unknown. Subsurface testing at each of the 4 prehistoric sites was determined to be not significant. One additional site was located, OK00538. The burial plot was found to be ineligible for the National Register. This site was an historic burial plot that has since been relocated outside of the park to a nearby cemetery.

Rhonda Kimbrough visited the park in 1994 in association with an archaeological investigation around a proposed boat ramp and associated proposed structures (Kimbrough 1994). During her investigation, one new site was documented, a shell midden on an eroding bluff (OK00944). A single pottery sherd and an unspecified shell midden were located. Kimbrough concluded that most of the site was likely already lost from heavy erosion along the bluffs. Furthermore, she recommended either bank stabilization or an archaeological excavation to mitigate loss of the site. Moreover, Kimbrough recommended that archaeological surveys should occur at the park prior to any ground disturbing activities due to the potential for prehistoric sites in the area.

Louis Tesar, with the DHR, conducted an emergency archaeological survey of the park in 1995 following Kimbrough's recommendations. Tesar's investigation was due to a road widening of the park drive and expansion of the park day use area. During this investigation, Tesar located one new archaeological site (OK00995) and conducted test pits at several of the previous located sites in addition to potential sites in the vicinity of the construction area (Tesar 1995). OK00995 was a remnant shell midden eroding at the edge of the bluff. Tesar recorded the site was unknown culture, however it was later described as Weeden Island. Tesar noted this site and other in the area were likely single meal, seasonal temporary camp deposits. He further noted that the red cedars found in the area are likely an indicator of shell middens and bones deposited over time. Midden and bone can provide calcium sources needed by red cedars. During Tesar's visit, he was eventually able to relocate the larger midden described by Thomas Kempton. The original site files were incorrect, but updated by Tesar.

Andrea Repp, an archaeologist with the US Forest Service, visited the park in association with a Rocky Bayou and Tate's Hell land swamp. During this investigation, four new archaeological sites were documented at the park (Repp 2001), OK1705, OK1706, OK1707 and OK1708. All of these sites were associated with prehistoric campsites dating to Weeden Island or unspecified. OK1705 was represented by a single sand-tempered plain sherd. OK1706 was represented by lithic material, primarily debitage and flake tools crafted out of crystalline chert. At OK1707 evidence of prehistoric and historic refuse were present. Wakulla check-stamped sherd as well as lithics and shells were present. Repp noted that the site

may have been a prehistoric refuse pile instead of a living area. In addition, a brick fragment representing historic occupation, 1821 to present, was documented. Lastly, at OK1708, sherds, lithic and shell materials were located. Related to OK1708, Repp noted that this site was potentially significant and further testing was recommended.

Several additional construction projects in the park involving significant ground disturbances have led to compliance archaeological surveys. One such survey in 2006 in association with the addition of cement sidewalks for ADA compliance in the campground led to the discovery of a single projectile point dated to the early Archaic Period (Faure 2006).

Condition Assessment: Erosion along the bluff is severely impacting OK00521, OK00944, and OK00945. Herbaceous vegetation has largely been destroyed, soil is washed away, the bank is being undercut, and archaeological resources are exposed. Although the shoreline is naturally eroding, erosion is exacerbated by boating activity and unauthorized trails created by park visitors. Shell middens are exposed at these three sites and artifacts are throughout the water line. Visitor collection of exposed artifacts is an issue at these sites. However, visitor impacts are largely concentrated at the picnic area. It is currently not possible to assess whether removal of materials from the materials is taking place.

OK00523 the WWII era artifact was previously visited by unauthorized visitors leading to the potential for vandalism. Today, it is fenced off with interpretive materials for park visitors.

The remaining sites at the park have not been evaluated in recent years, so the condition is unknown. Several sites were visited, but no materials were evident on the ground surface. Sites should be relocated and assessments of condition made.

Level of Significance: The majority of archaeological sites at Rocky Bayou State Park have not been evaluated for significance (10 total). It was the opinion of the State Historic Preservation Officer (SHPO) that there was insufficient information to make a National Register of Historic Places eligibility determination for 9 sites back in 1992 and 2001. The SHPO also agreed with a professional consultant in 1992 that four sites were not eligible for the National Register based on their diffuse, unexceptional artifact assemblage. Professional archaeologists have recommended additional research for the three shell midden sites along Rocky Bayou (OK00944, OK00995, OK00521) in order to evaluate their research potential and the usefulness of mitigative archaeology. These sites' integrity and thus their significance have been severely impacted by erosion over the years. A professional archaeologist also recommended that OK522 may contain potentially important intact features and discernible stratification.

General Management Measures: The main threat to the cultural sites, such as OK00521, OK00944, and OK00945, are shoreline erosion along the bluffs due to natural erosion, boat activity in the bayou and unauthorized trails by park visitors. The park will protect these sites from damage during resource management or

development activities and potential visitor collection of exposed surface artifacts. The park will prevent impacts from human disturbance by posting and roping sensitive dune areas where necessary. Signage should be placed at the park entrance and public use areas interpreting the rules and regulations related to the collection of artifacts at the park.

To combat erosion of the bluffs, the park will consult with DHR for shoreline stabilization measures. The park will work with DHR and the Rocky Bayou Aquatic Preserve to seek grant funding to stabilize the shorelines along the bluffs and adjacent to cultural sites. Additionally, the park will consider adding a “no wake zone” adjacent to the bluffs to reduce the speed of boating traffic and reduce the level of wage and erosion in the areas.

The remaining sites should be preserved. Assessments of these cultural sites are needed to determine if any further action beyond preservation are needed.

Historic Structures

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

Description: There are no historic structures in the park, but one structure within the park will turn 50 during the life of this plan. The structure was constructed in the late 1960s and is associated with the operation of the state park. The Workshop (BL65006) was not built at the park, but was relocated here to provide a building for a shop.

Condition Assessment: The structure is associated with park operations and maintained for current use at the park. The threats to the structure is from tropical storms and general degradation from age. The site will be documented in the FMSF with associated photos.

The Workshop (BL65006) is in poor condition. Although still in use, the building is planned for demolition due to poor conditions if and when a new shop can be built at the park. The Workshop does not represent any historical or cultural significance.

Level of Significance: The park contains no significant historic structures at this time. The park’s one near-historic structure has likely lost its significance since it was relocated to the park from its original location.

General Management Measures: The park will continue to regularly maintain all of the structures being used in the park to keep them in good condition.

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: At this time, the park possesses a single projectile point that was collected from the park and loaned from the Bureau of Archeological Research.

Condition Assessment: The item currently in the park's collection is in good condition. The item is housed in a wooden display case in the ranger station which is a climate controlled environment that would not expose these items to the elements or degradation. Currently, there is no Scope of Collections Statement in effect for the aforementioned item.

Level of Significance: The park contains no significant collections at this time.

General Management Measures: The exhibited collection items are housed in the ranger station, which is a climate controlled environment that would not expose these items to the elements or degradation. However, there is no monitoring of humidity levels. A Scope of Collections should be developed that includes loan agreements and other relevant collections information. The scope should also include details on improving management, maintenance and pertinent information including current collections conditions, locations, values, and significance.

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

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

Site Name and FMSF #	Culture / Period	Description	Significance	Condition	Treatment
Bee Hive OK521	Deptford (700-300 BC) Weeden Island (450-1000 AD)	Prehistoric campsite, inhabitation, shell midden, lithic scatter	NE	F	ST

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture / Period**	**Description**	**Significance**	**Condition**	**Treatment**
Rocky Bayou #2 OK522	Weeden Island (450-1000 AD) Weeden Island II	Prehistoric campsite, inhabitation, shell midden, lithic scatter	NE	NE	P
WWII Concrete Training Bomb OK523	World War II & Aftermath 1941-1950	Military	NE	F	P
Marker 450 OK534	Prehistoric with pottery	Prehistoric campsite, artifact scatter	NS	NE	P
Marker 467 OK535	Prehistoric lacking pottery	Prehistoric campsite, artifact scatter	NS	NE	P
Marker 474 OK536	Prehistoric with pottery	Prehistoric campsite, single artifact	NS	NE	P
Marker 507 OK537	Prehistoric lacking pottery	Prehistoric campsite, single artifact	NS	NE	P
USFS 94-2 (P) APA OK944	Prehistoric with pottery Weeden Island (450-1000 AD)	Prehistoric campsite, shell midden, artifact scatter	NE	F	ST
NN OK995	Weeden Island (450-1000 AD)	Prehistoric campsite, procurement site, shell midden, artifact scatter	NE	F	ST
01-02APA OK1705	Weeden Island (450-1000 AD)	Prehistoric campsite	NE	NE	P
01-03APA OK1706	Prehistoric (unspecified)	Prehistoric campsite	NE	NE	P
01-04APA OK1707	Weeden Island (450-1000 AD) American, 1821-present	Prehistoric campsite, middens, historic refuse	NE	NE	P
01-05APA OK1708	Weeden Island (450-1000 AD)	Prehistoric campsite	NE	NE	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture / Period**	**Description**	**Significance**	**Condition**	**Treatment**
Kirk Douglas OK2909	Early Archaic	Single Artifact	NE	NE	P
Workshop BL65006	20th Century (1967)	Historic Structure	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 Fred Gannon Rocky Bayou State Park. Please refer to the Implementation Schedule and Cost Estimates in the Implementation Component of this plan for a consolidated spreadsheet of the recommended actions, measures of progress, target year for completion and estimated costs to fulfill the management goals and objectives of this park.

While, the DRP utilizes the ten-year management plan to serve as the basic statement of policy and future direction for each park, a number of annual work plans provide more specific guidance for DRP staff to accomplish many of the resource management goals and objectives of the park. Where such detailed planning is appropriate to the character and scale of the park's natural resources, annual work plans are developed for prescribed fire management, exotic plant management and imperiled species management. Annual or longer- term work plans are developed for natural community restoration and hydrological restoration. The work plans provide the DRP with crucial flexibility in its efforts to generate and implement adaptive resource management practices in the state park system. The work plans are reviewed and updated annually. Through this process, the DRP's resource management strategies are systematically evaluated to determine their effectiveness. The process and the information collected is used to refine techniques, methodologies and strategies, and ensures that each park's prescribed management actions are monitored and reported as required by Sections 253.034 and 259.037, Florida Statutes.

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

Natural Resource Management

Hydrological Management

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

The natural hydrology of most state parks has been impaired prior to acquisition to one degree or another. Florida's native habitats are precisely adapted to natural drainage patterns and seasonal water level fluctuations, and variations in these factors frequently determine the types of natural communities that occur on a particular site. Even minor changes to natural hydrology can result in the loss of plant and animal species from a landscape. Restoring state park lands to original natural conditions often depends on returning natural hydrological processes and conditions to the park. This is done primarily by filling or plugging ditches, removing obstructions to surface water "sheet flow," installing culverts or low-water crossings on roads, and installing water control structures to manage water levels.

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

Action 1 Assess potential alteration of depression marsh adjacent to State Road 20

Following the roadwork and construction of stormwater infrastructure near State Road 20 (zone RB-C), hydrological function may have been impacted. Potential alteration of hydrology may be impacting the depression marsh and the pondspice present within the flatwoods/marsh ecotone. It is unclear what impacts from the adjacent modification were made, however the pondspice population is declining. The hydrology and water levels need to be assessed. If it is determined that the hydrology was disrupted, DRP should determine if restoration should proceed.

Objective B: Restore natural hydrological conditions and functions of approximately 1.8 acres of seepage stream and associated natural communities.

Action 1 Assess hydrological disruption caused by park drive
Action 2 Develop restoration plan
Action 3 Implement plan

Currently the park road cuts across the contour the westernmost seepage stream disrupting the hydrological flow before it reaches Rocky Bayou in zone RB-B. A single culvert allows some water flow, but appears to be inadequate. Pooling of water on the south side of the road is evident. Additionally, based on the topography of the seepage stream, the road crosses the stream at the lowest point of the slope creating storm water issues. The road is flooded during rain events. The surface runoff should be allowed to enter the seepage stream and eventually out to Rocky Bayou. A hydrological assessment of this area by an engineer is needed. Once an assessment is conducted, the park should determine how to proceed with restoration and develop a restoration plan accordingly.

Objective C: Improve surface runoff sheet erosion on bluffs of Rocky Bayou use area.

Action 1	Assess topside sheet flow of Rocky Bayou bluffs
Action 2	Design plan to increase native vegetation in problem areas following assessment of problem areas
Action 3	Implement control measures

Erosion of the bluff in the picnic area is aided by mowing and raking grooming efforts of the area (zones RB-A and RB-B). This activity increased sheet flow from the picnic area as rain falls directly on the compacted soils and runs down slope. Natural vegetation and leaves serve to slow down the absorption rate of rainfall and reduces runoff. An assessment of the picnic area sheet erosion areas is needed. Following assessment erosion control measures should occur, such as establishing "vegetative islands" of either planted or natural regeneration of native species in areas that are protected.

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

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

Objective A: Within 10 years, have 63 acres of the park maintained within the optimum fire return interval.

Action 1 Develop/update annual burn plan

Action 2 Manage fire dependent communities by burning between 8-18 acres annually

Action 3 Develop fuel reduction measures for overgrown and fire suppressed natural communities such as wet flatwoods, scrubby flatwoods and shrub bog.

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

Table 5. Prescribed Fire Management

Natural Community	Acres	Optimal Fire Return Interval (Years)
Sandhill	27.2	1-3
Mesic Flatwoods	13.3	2-5
Scrubby Flatwoods	6.7	5-15
Wet Flatwoods	4.5	2-4
Seepage Slope	5.9	2-5
Shrub Bog	4.9	10-20
Depression Marsh	0.5	2-5
Annual Target Acreage	13-28	

Fire-dependent natural communities at the park include mesic flatwoods, wet flatwoods, seepage slope, shrub bog, depression marsh, sandhill and scrubby flatwoods. Local wildlife populations that depend on or benefit from well-maintained fire adapted natural communities include ornate chorus frog, pygmy rattlesnake, coachwhip, six-lined racerunner, bobcat, southeastern kestrel, loggerhead shrike, brown-headed nuthatch and pine warbler. Imperiled species, such as Gulf Coast redflower pitcherplant, white top pitcherplant, parrot pitcherplant, Gulf purple pitcher plant, yellow fringed orchid, largeleaf jointweed and pondspice will benefit from regular prescribed fire. Prescribed burning is the primary management tool for mimicking natural process and improving and maintaining quality habitats for these and many other wildlife species.

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.

Park staff will coordinate with the district burn coordinator to identify yearly burn objectives. Once zones have been selected, burn prescriptions will be completed and reviewed by the end of the calendar year. All primary and secondary (contingency) firelines for the planned burn zones will be completed by the end of the calendar year as well. At a minimum, firelines will be cleared of all significant vegetation and fine dead fuels up to twice the width of the adjacent live understory fuels. In most cases, resource management roads are used as primary firebreaks, and provide for a mineral soil fireline component without the need for disking. Segments of existing well-established firelines that require light disking shall be prepared well prior to burning. If disking is required, it is recommended that only the outer edge of the fireline be disked, in order to preserve vehicular access along the remaining majority of the fireline. Prior planning for any new firelines must be coordinated through BNCR and DHR.

Since research has shown that natural fire is not the process that shapes and maintains scrub communities in the panhandle of prescribed fire should not be planned in these natural communities. Prescribed fire that is introduced during growing season when natural lighting fires would have occurred, to natural communities adjacent to scrub, should be given the opportunity to spread across the ecotone into scrub. Panhandle scrub should not be mechanically reduced and ignited in a manner that would mimic a stand replacement fire. Fire should be allowed to trickle into the scrub community at the park from other adjacent fire-type communities to benefit scrub species that favor light gaps such as largeleaf jointweed and Gulf Coast lupine.

The seepage slope/shrub bog community on the Puddin Head seepage stream will need to be burned independently given the surrounding scrub. Fire should be applied when water levels are lower to allow fire to move through the habitat. As the sandhill restoration continues adjacent to SR 20, prescribed fire from the sandhill may move into the seepage slope/shrub bog community. Some fuel reduction by hand may be necessary in the shrub bog community. Historically, shrub bogs likely burned only during drought periods. However, fire should be applied cautiously to prevent peat fires that will result in catastrophic stand replacement fires.

Park staff will communicate with the district burn coordinator, and regional fire managers, in order to gather additional burn crew and equipment needed to safely conduct burns. Park staff will be responsible for tracking weather conditions throughout the burn season, and identifying potential burn windows based on weather forecasts.

All fire suppression equipment will be routinely inspected and operationally tested. Any necessary maintenance and repairs will be accomplished or facilitated by park staff, or if necessary, coordinated with the district burn coordinator. Accurate and complete rainfall data will be maintained on-site, in order to effectively track the

local drought index and plan prescribed fire activities.

While the body of knowledge that supports prescribed fire supports fires that occur in growing (lightening) season, it is not reasonable to expect that all prescribed fires at this park can be conducted during that season. Urban development adjacent to the park, and resulting smoke management and safety concerns place limitations on the opportunities that are available in any given time period. For example, prescribed fire activities can only be applied at the park with under south winds to minimize impacts from smoke to SR 20. Prescribed burn efforts should be managed so that the seasonality of prescribed burns is rotated throughout zones that are in maintenance stage management so that each zone will have some exposure to lightening season fire.

In the case mesic, wet and scrubby flatwoods and shrub bog in management zones RB-D and RB-E, the adjacent development or high fuel loading prevents a prescribed fire program until certain conditions, such as fuel reduction or restoration, are met. In addition, all other zones with an urban interface will receive mechanical fuel reduction if needed prior to any prescribed fire treatments to reduce fire intensity.

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

Natural Community Restoration

In some cases, the reintroduction and maintenance of natural processes is not enough to reach the desired future conditions for natural communities in the park and active restoration programs are required. Restoration of altered natural communities to healthy, fully functioning natural landscapes often requires substantial efforts that may include mechanical treatment of vegetation or soils and reintroduction or augmentation of native plants and animals. For the purposes of this management plan, restoration is defined as the process of assisting the recovery and natural functioning of degraded natural communities to desired future condition, including the re-establishment of biodiversity, ecological processes, vegetation structure and physical characters.

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

Following are the natural community/habitat restoration and maintenance actions recommended to create the desired future conditions in the sandhill, wet flatwoods, mesic flatwoods, scrubby flatwoods, shrub bog, and seepage slope communities.

Objective B: Continue habitat/natural community restoration activities on 27.24 acres of sandhill natural community

Action 1	Update site specific restoration plan and continue restoration efforts of sandhill community at the park.
Action 2	Implement restoration plan
Action 3	Restore herbaceous groundcover, by planting sandhill species such as wiregrass.
Action 4	Protect desirable oak and imperiled species from impacts associated with restoration.
Action 5	Map and flag longleaf pine seedlings, Arkansas oak, and largeleaf jointweed
Action 6	Train staff or volunteers in sandhill plant identification
Action 7	Continue removal of sand pine seedlings

The ultimate goal of the sandhill restoration in zone RB-C is to reestablish the species diversity, distribution, and proportions indicative of a sandhill community. Mature sand pine and off-site hardwood species have been removed and recruitment of longleaf pine is apparent. The continued restoration efforts need to focus on establishing herbaceous groundcover while reducing shrubs in the understory.

In areas dominated by shrubs, mowing has been utilized, in combination with prescribed fire efforts, to reduce shrubby understory species. These efforts should continue. Longleaf pine seedlings, imperiled species and desirable oak species such as Arkansas oak, turkey oak, sand post oak, myrtle oak, Chapman's oak, runner oak, and gopher apple should also be avoided and not removed. Staff should map and flag longleaf pine seedlings, Arkansas oak, and largeleaf jointweed so that they are visible to reduce detrimental impacts from mowing, herbicide application, or fire. Staff or volunteers coordinating mowing or removal of undesirable species will be trained in plant identification so that they do not inadvertently remove desirable species. Adequate training will be insured by District biological staff.

Without regular fire in the sandhill community, sand pine will continue to recruit from the seed bank and neighboring scrub community. Continued assessment and removal of sand pine is necessary at this time.

Assessment of a reduction of fuel around old growth trees will continue. Ground cover has been severely suppressed. Mowing to reduce fuel loading may be necessary in some areas. However, damage to the trunks and root systems of longleaf and disturbance to soil and groundcover should be minimized during mowing or prescribed fire activities.

Objective C: Conduct habitat/natural community restoration activities on 6.7 acres of scrubby flatwoods, 4.5 acres of wet flatwoods and 2.4 acres of mesic flatwoods natural communities

Action 1 Develop restoration plan
Action 2 Implement restoration plan
Action 3 Incorporate restored flatwoods into park burn plan
Action 4 Assess surrounding habitat to determine the full extent of the scrubby and wet flatwoods communities at the park

The scrubby flatwoods community in zone RB-E is currently degraded to fire exclusion and invasion of sand pine and hardwoods. A restoration plan is needed to address the canopy of mature sand pine and reintroduction of fire to the community. Given the close proximity of the scrubby flatwoods to the adjacent elementary school and the Blue Bay development, mechanical fuel reduction will need to occur prior to prescribed burning efforts. Mature sand pine will likely need to be removed. Sparse Arkansas oak was observed in the understory. They will need to be mapped and protected during restoration activities.

The wet flatwoods occur in zone RB-E and are currently degraded due to fire exclusion and invasion of baygall. In some areas, it is difficult to separate the wet flatwoods from baygall. A restoration plan is needed to address the baygall invasion and heavy needle cast that currently exists. The wet and mesic flatwoods in the northeastern corner of the park in zone RB-E is adjacent to the Blue Bay development. Therefore, mechanical and or hand fuel reduction will need to occur prior to prescribed burning efforts. The wet flatwoods in this area maintains wet conditions with the presence of sphagnum and spoonleaf sundew. They will need to be mapped and protected during restoration activities. The wet flatwoods near the mouth of the westernmost seepage stream is severely overgrown with baygall species. Needle cast and duff accumulation is 2-3 feet in places at the base of slash pine.

A restoration plan should be developed prior to restoration activities and should include a monitoring plan that includes at least qualitative monitoring, such as photo point documentation. The park should monitor the areas closely to determine if groundcover re-establishes. If groundcover does not reestablish, the park should plan to plant groundcover seed. Once groundcover responds or is planted, the area should be maintained with prescribed fire and incorporated into the park's burn plan.

Objective D: Conduct habitat/natural community restoration activities on the Rocky Bayou shoreline

Action 1 Develop a shoreline restoration plan in collaboration with the Rocky Bayou Aquatic Preserve to reduce erosion and improve tidal marsh and seagrass habitat.
Action 2 Implement restoration plan

Wave activity along the Rocky Bayou shoreline near the picnic area, zones RB-A and RB-B, has led to severe erosion. Herbaceous vegetation has largely been

destroyed, soil is washed away, the bank is being undercut, and archaeological resources are exposed. Although the shoreline is naturally eroding, erosion is exacerbated by boating activity and unauthorized trails created by park visitors. To combat this erosion, an approximate 300 foot living shoreline restoration project should be placed along the eroding area to stabilize and prevent further loss of the shoreline and improve tidal marsh habitat. The actual length of the living shoreline may vary and will be dictated by the developed restoration plan. An engineering survey is needed prior to restoration planning in order to develop restoration plans and designs. All restoration efforts should be done in collaboration with Rocky Bayou Aquatic Preserve. If a living shoreline is pursued for the area, interpretive programs should be created to minimize trampling by park visitors. In addition to a living shoreline, establishing a "No Wake" zone with channel markers will augment erosion control. Annual photo point should be established before and after restoration efforts. Photo points should also include cultural sites.

Natural Community Improvement

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

Objective E: Continue habitat/natural community improvement activities on 5.9 acres of seepage slope and 2.24 acres of shrub bog natural communities

Action 1	Update restoration plan for Puddin Head seepage stream
Action 2	Develop burn plan for the seepage slope and shrub bog habitats found on Puddin Head seepage stream
Action 3	Evaluate methods of reducing woody shrubs in shrub bog
Action 4	Implement restoration plan

The restoration plan associated with the removal of the earthen dam on Puddin Head seepage stream did not directly address the seepage slope or shrub bog communities. Various woody species not characteristic of this community were planted in the area following the draining of the lake. Information on the species and locations of plantings need to be recovered and included in planning for improvement/restoration activities. The restoration plan needs to be updated to include management and improvement strategies for the seepage slope and shrub bog communities found in zone RB-D. Plan should include strategies to reinstate natural fire return intervals, improving populations of herbaceous species (e.g., pitcherplants) and reduction of woody canopy in the shrub bog.

Objective F: Control unauthorized access to sensitive areas

Protection efforts coupled with enforcement should be employed to prevent degradation of sensitive natural communities, such as bluffs and slopes due to unauthorized visitor access. Park staff should work with law enforcement to monitor visitor activities and discourage behaviors that might degrade sensitive

areas. Additionally, interpretive signs placed near closed areas to inform visitors about the sensitive habitats should be used to help discourage detrimental behaviors. Any unauthorized trails should be closed with signage and/or rope. Unauthorized trails should be evaluated as to whether further improvement actions are necessary beyond just closing and discouraging use.

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

Action 1 Targeted herpetofauna surveys along shrub bog and seepage stream habitats.

Action 2 Flora surveys throughout the park in collaboration with the Native Plant Society.

Action 3 Target seepage streams to monitor all plant and animal species

Surveys should include chorus call transects for frog species and placement of minnow traps along the entire length of seepage streams to monitor for other herptofauna species. FWC will be consulted for monitoring design and species identification. There is a high potential for Pine Barrens treefrog (*Hyla andersonii*), bog dwarf salamander (*Eurycea* cf. *chamberlaini*), four-toed salamander (*Hemidactylium scutatum*), Eglin Ravine dusky salamander (*Desmognathus* cf. *conanti*), leopard siren (*Siren* cf. *lacertina*) and 2 undescribed species of lesser siren (*Siren* cf. *intermedia*) to occur in the boggy areas of the park. These species have been documented in similar habitats along nearby steephead seepage streams.

Monitor and GPS map the presence of southern dusky salamanders at the park. Although on previous species lists for the park, the location is unknown and is not included in FNAI element occurrence data. They likely occurred in the Puddin Head and White Cedar bogs. A monitoring protocol needs to be developed to enhance the detection of the southern dusky salamander and other imperiled amphibian species that may be present in the bog habitat. The development of the monitoring protocol will be completed in coordination with FWC biologist.

Depending on funding, a full plant survey needs to be conducted at the park to determine presence and location of other listed plant species. Plant surveys should vary seasonally to detect species that bloom during different times of the year. In addition, the park has never been fully surveyed for herptofauna, insects, bats, or birds. If funding is available, surveys for these species should be conducted and the species list updated. Surveys for these species are particularly important around wet community types such as depression marsh, basin swamp, or dome swamp that are critical for breeding amphibians. District biologists in partnership with FWC may survey for herptofauna. The park will work with district biologists to conduct limited surveys and update the imperiled species lists.

Okaloosa Darter (Etheostomoa okaloosae), may occur in the seepage streams of the park. The darter is a federally endangered, endemic species in the Choctawhatchee Bay. Although not detected during previous efforts, monitoring should continue, particularly if improvement and restoration efforts occur in the surrounding natural communities. If this species is found at the park, a management protocol would need to be developed in collaboration with the USFWS.

Objective B: Monitor and document 1 selected imperiled animal species in the park.

Action 1 Update monitoring protocols for 1 selected imperiled animal species, gopher tortoise.

Action 2 Implement monitoring protocols for 1 imperiled animal species including those listed in Action 1 above

Continue to monitor, document tortoise burrows, and develop a more detailed monitoring protocol. Gopher tortoises are found in the park's sandhill restoration area, responding to the open canopy that is present following restoration efforts and along utility corridors and fire breaks that mark the park boundary. Although the actual population at the park is unknown, it is steadily increasing each year. Prior to restoration efforts, only one burrow was recorded at the park. Currently there are 65 documented and marked burrows at the park, supporting an estimated 30-40 tortoise. Tortoise surveys should be conducted after each burn when they are the easiest to detect.

An interagency group of land managers, including the Division of Recreation and Parks, Florida Park Service prioritized 200 state conservation lands for gopher tortoise population surveys. Fred Gannon Rocky Bayou State Park ranked in the 6th tier (of 10) for receiving a gopher tortoise population survey. This prioritization helps FWC allocate resources to the highest priority tortoise areas in the state. Fred Gannon Rocky Bayou State Park has approximately 280 acres of potential gopher tortoise habitat which meets the minimum number of acres (250 contiguous ac.) in suitable condition to support a viable population. Surveys should be conducted once habitat is in suitable condition and can support tortoises. Future survey efforts that may be undertaken should be completed using the range-wide standardized survey methodology, Line Transect Distance Sampling with scoping. The protocol calls for monitoring every 5-10 years and uses either a 2- or 3-person survey team. The Florida Fish and Wildlife Conservation Commission's Gopher Tortoise program or the Florida Natural Areas Inventory may be consulted for technical assistance on this methodology.

Objective C: Monitor and document 10 selected imperiled plant species in the park.

Action 1	Develop monitoring protocols for 6 selected imperiled plant species including: white top pitcherplant, Gulf Coast redflower pitcherplant, spoonleaf sundew, pondspice, largeleaf jointweed, and Arkansas oak.
Action 2	Implement monitoring protocols for 6 imperiled plant species including those listed in Action 1 above.
Action 3	Conduct targeted surveys of 4 imperiled plant species that have been documented at the park, but have not been observed in recent years. Target species include parrot pitcherplants, Gulf purple pitcherplants, wild pink, and Gulf Coast lupine.
Action 4	Develop monitoring protocols for any plant species listed in Action 3 above if detected at the park.
Action 5	Implement monitoring protocols listed in Action 3 above if detected in park

A monitoring protocol needs to be developed for pondspice. Pondspice should be individually tagged with permanent numbered tags (placed on tree stakes at the base of each plant), mapped with a GPS, and visually assessed for size, health, signs of Laurel Wilt Disease, production of fruit, and for signs of recruitment. Pre and post-fire assessments should be conducted. Water levels in the depression

marsh should be assessed prior to prescribed fire efforts. Drought conditions may create conditions for more intense fires will likely negatively impact the pondspice population.

Currently the white top and Gulf Coast redflower pitcherplants that have been reintroduced to the park are individually flagged and some are individually marked with a GPS. The remaining individuals need to be marked and permanent tags should be placed at the base of each plant to ensure that each can be relocated. Monitoring should take place biannually. Spring monitoring, when plants are more visible, should occur to check for recruitment and loss of individuals. Fall monitoring should occur to check for seed production. During each visit each plant should be assessed for size and health. Habitat assessments should also occur during each visit checking for shade suppression, impacts from water levels (flooding from beaver dams), or saltwater intrusion for those closer to the bayou to allow for adaptive management for these species.

Develop measures to protect the largeleaf jointweed population. Largeleaf jointweed is found in several locations throughout the park. The perimeter of occurrence should be GPS mapped and marked with flagging to prevent inadvertent harm (e.g., mowing, herbicide application, etc.).

Develop measures to protect the Arkansas oak population found in the sandhill restoration zone. Arkansas oak is found throughout the park in various natural communities. The perimeter of occurrence within the restoration area should be GPS mapped and marked with flagging to prevent inadvertent harm (e.g., mowing, herbicide application, etc.).

Species that historically occurred at the park may already be lost. Targeted surveys should be conducted to determine whether they still occur at the park. These species include parrot pitcherplants, Gulf purple pitcherplants, wild pink, and Gulf Coast lupine. If these species are detected, monitoring and management protocols should be developed.

Parrot and Gulf purple pitcherplants were listed as abundant in 2000. In 2005 these two species were no longer observed following saltwater intrusion from Hurricane Ivan. They were not observed during more recent surveys. Annual surveys should be conducted in the White Cedar Bog to determine if they are still present at the park. Their populations may be too low and/or the plants too suppressed to detect.

Wild pink has not been observed since 2002. Surveys for wild pink should be conducted during and just before the bloom window (April to June). Consultations with Lauren Anderson (original observer) should be considered if this species cannot be located at the park. If individuals of this species are located, they should be flagged and protected from impacts such as mowing or visitors (e.g., trampling, picking, etc.).

Targeted surveys in scrub and sandhill habitats for Gulf Coast lupine (not observed since 1995) are needed. Surveys should be conducted in the spring during

blooming to increase the probability of detection. This species is vulnerable to shading, but may still persist in the seed bank. Surveys should be conducted after prescribed fire efforts in adjacent burn zones and after tropical storm events to check for recruitment within any established gaps.

Objective D: Augment pitcherplant populations within the Puddin Head seepage stream adjacent natural communities

- Action 1 Develop monitoring/augmentation plan for pitcherplants on Puddin Head seepage stream
- Action 2 Continue to collaborate with Atlanta Botanical Garden on seed collection, seed storage and plant production.
- Action 3 Implement plan and update based on monitoring results accordingly

White top, parrot, Gulf Coast purple and Gulf Coast redglower pitcherplants have been reintroduced along the Puddin Head seepage stream in seepage slope habitat. Collaboration with Atlanta Botanical Garden (ABG) will continue in efforts to increase the abundance of pitcherplants. In collaboration with ABG and the park staff, district biologist will develop a monitoring protocol and conduct monitoring of pitcherplants to determine the survival rate of reintroduced plants and the number of years for plants to become reproductively viable. These metrics will aid management and augmentation efforts for these species.

Objective E: Collect seed from pondspice for seed storage and potential future augmentation of population

- Action 1 Develop a management and/or restoration plan for the pondspice population.
- Action 2 Collaborate with Atlanta Botanical Gardens to collect and store seed from pondspice before it is extirpated.
- Action 3 Assess need for population augmentation and include in management/restoration plan.
- Action 4 Implement plan

Since the road widening project on SR 20, the pondspice at the park appears to be in decline. The pondspice population should be monitored regularly to determine the level of natural reproduction, potential mortality, or evidence of Laurel Wilt Disease. Only 4 plants had produced fruit when monitored in 2010. Seed should be collected when observed and stored and/or grown at Atlanta Botanical Garden's facilities. Cuttings from the pondspice should be considered if reproduction is not observed. A detailed plan is needed for augmentation efforts.

Objective F: Monitor viability of old-growth longleaf pines to gauge impacts of prescribed fire

- Action 1 Update monitoring protocol for tagged longleaf pine
- Action 2 Implement protocol
- Action 3 Assess and adapt sandhill restoration plan based on longleaf monitoring data.

A monitoring protocol is needed. Trees should be monitored pre and post prescribed fire application. Restoration strategies should be adapted accordingly.

Objective G: Evaluation of Puddin Head and White Cedar Bogs to determine habitat types

Action 1 Conduct detailed assessments of White Cedar Bog and Puddin Head Bog to determine and refine natural communities
Action 2 Assess variability in water levels and salinity at the bogs
Action 3 Develop restoration plans for the two bogs
Action 4 Implement restoration plans

Much of the habitat currently at the White Cedar Bog (zone RB-E) resembles baygall, but is likely either restorable shrub bog. The White Cedar Bog is surrounded by fire-type natural communities. Therefore, it is highly unlikely that the bog was historically baygall, although many mature bay trees are present. Similarly, the Puddin Head Bog (zone RB-D), currently considered shrub bog and seepage slope, may have had more woody species historically given the non-fire type communities that surround it. Fire would have been less frequent allowing for woody species to thrive. However, saltwater from storm activity likely played an important role in reducing woody species periodically at both bogs. Reduction of overgrown woody species will need to occur before prescribed fire activities are reinstated. A detailed burn plan will need to be developed to prevent catastrophic stand replacement fires.

Water levels and saltwater intrusion should be evaluated along with the development of restoration plans. Variation in tidal water levels and salinity should be monitored prior to any decisions to reintroduce pitcherplants to the White Cedar Bog. If pitcherplants are reintroduced, plants should be placed upstream from the bog to provide natural seeding opportunities if large die-offs from salt water intrusion occur again.

A restoration plan will need to be developed for each bog given the differences in surrounding communities and current conditions.

Objective H: Investigate potential Red Cockaded Woodpecker cavity found on a longleaf pine in the park campground

Action 1 Locate historic records and photos of cavity
Action 2 Collaborate with local red cockaded woodpecker biologist to confirm origin of cavity.

Confirming the origin of the cavity located in the campground will provide insight into the historic distribution of natural communities at the park. Red cockaded woodpeckers (*Picoides borealis*) require an intact forest of mature pine. Longleaf pines are most commonly preferred. Although old growth longleaf pines are found at the park, the size of the forest patch is not adequate to support a red cockaded woodpecker population. The cavity in question is located in what is now classified as scrub habitat with potential xeric hammock characteristics.

Exotic Species Management

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

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

Objective A: Annually treat 2.7 acres of exotic plant species in the park.

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

All of the park should be surveyed for exotic species annually and all exotics observed and documented should be treated accordingly. Infested areas of cogon grass will be checked annually and treated with herbicides as necessary until the areas are in maintenance condition. Spot checks for individual Chinese tallow trees, mimosa, lantana shrubs, alligator weed, and Japanese honeysuckle will be conducted annually. Maintenance condition describes a formerly active infestation that has been treated to the extent that any plants remaining are manageable with existing staff and resources, total area is stable or declining, mature reproducing individuals are absent, and the species poses no significant threat to listed plants or animals. Thus, the actual treated zone may reduce in area over time though the entire extent would need to be inspected indefinitely. An important exception is an instance where the exotic plants are well mixed with native vegetation, which would need an accompanying restoration program to plant natives in the formerly infested area. The reason for this caveat is that in this situation herbicide application would likely result in significant non-target damage; the resulting area would be denuded of live vegetation and highly vulnerable to re-infestation by exotic plant species. Such removal of native vegetation may lead to the necessity of perpetual treatment and subsequent loss of native plant species from that area. A restoration effort to replant the area with native vegetation appropriate for that habitat following treatment would be intended to preempt potential exotic growth into the open space.

Ornamental species are frequently observed in the park along the eastern boundary near the Blue Water Bay development. This area should be monitored frequently for presence of exotic invasive species and ornamental species should be removed.

Objective B: Implement control measures on 2 nuisance animal species in the park.

- Action 1 Remove feral cats and armadillos from the park as they are encountered.
- Action 2 Monitor impacts from coyote and remove as necessary
- Action 3 Monitor for feral hog damage and develop removal program if they are documented at the park

Feral cats and armadillos should be removed as park staffers observe them in the park or are alerted to their presence by visitors' reports. Cats may decimate the bird, reptiles, amphibians, and small mammals in a natural area as they forage, thus potentially causing trophic disturbance to a community's food web. Armadillos may disturb the soil, consume small animal species, and damage herbaceous vegetation as they root through the substrate.

Coyotes appear to be the most problematic exotic animal at the park. Coyotes are documented digging into gopher tortoise burrows at the park. Their impact to the tortoise population at this time is unknown. However, if unchecked, it could be detrimental. In addition to impacts to wildlife, nuisance coyotes have attacked visitors dogs, gotten into park garbage facilities and growled at park visitors. Although it would be impossible to eradicate coyotes from the park, due to the park's proximity to Eglin Air Force Base, problem coyotes should be targeted for removal if funding allows. While these three species have been the most problematic, any other exotic animals found in the park should be targeted when the opportunity arises.

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 Fred Gannon Rocky Bayou State Park.

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

The management of cultural resources is often complicated because these resources are irreplaceable and extremely vulnerable to disturbances. The advice of historical and archaeological experts is required in this effort. All activities related to land clearing, ground disturbing activities, major repairs or additions to historic structures listed or eligible for listing in the National Register of Historic Places must be submitted to the FDOS, Division of Historical Resources (DHR) for review and comment prior to undertaking the proposed project. Recommendations may include, but are not limited to concurrence with the project as submitted, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effect. In addition, any demolition or substantial alteration to any historic structure or resource must be submitted to the DHR for consultation and the DRP must demonstrate that there is no feasible alternative to removal and must provide a strategy for documentation or salvage of the resource. Florida law further requires that 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 14 of 14 recorded cultural resources in the park.

Action 1 Complete 14 assessments/evaluations of archaeological sites.

The park will assess 14 of the 14 known archaeological sites within the park every other year. The site condition will be evaluated and any threats examined. Priority should be placed on those sites at risk of erosion and those that have not recently been visited. The assessments will include an examination of each site with a discussion of any threats to the site's condition, such as natural erosion; vehicular damage; pedestrian damage; looting; construction, including damage from fire break construction; animal damage; plant or root damage or other factors, which might cause deterioration of the site. The park will set up and use photo points at each site to evaluate changes of the site from previous assessment periods. Management measures will be prioritized after assessments to determine management needs for each site.
The 1 historic structure is planned for demolition and will be replaced by a new park shop.

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

Action 1 Ensure all known sites are recorded or updated in the Florida Master Site File.
Action 2 Conduct Level 1 archaeological survey for 3 priority areas identified by the predictive model
Action 3 Develop and adopt a Scope of Collections Statement.
Action 4 Conduct oral history interviews.
Action 5 Compile a park administrative history.
Action 6 Train park staff and/or conduct an orientation of cultural resources located on the park property. GPS standards should be implemented throughout the park.

Fred Gannon Rocky Bayou State Park was included in the 2011 Archaeological Resource Sensitivity Modeling conducted by The University of South Florida, Alliance for Integrated Spatial Technologies (Collins et al. 2012). One new archaeological site was recorded at the park during this study. However, 66% of the park was identified as having a high or medium sensitivity for archaeological site locations. A Level I survey should be conducted on priority sites at the park as identified by the predictive model so they can be evaluated by the State Historic Preservation Officer (SHPO) for National Register eligibility. Because erosion is impacting several cultural sites on the park, surveys beyond Level 1 should be considered at several of the sites, including OK00521, OK00944, and OK00995. This should include sub-surface testing, including post-hole testing to help identify site boundaries, vertical and horizontal limits of sites, and identification of additional cultural and natural materials associated with the site that may not be currently recorded for the site. Priority should be placed on OK00521 because it is exposed to coastal erosion and looting to a greater extent than the other sites in the area.

Park staff will update the park's data in the FMSF as new archaeological sites are discovered, or new information on currently recorded sites is revealed via assessments/ evaluations or approved archaeological investigation.

Oral interviews should be conducted of those who discovered sites at the park, and those who have worked at the park for many years. These individuals may be able to give a more recent history of the role and history of the park service at the park in addition to information on the located cultural sites.

In cooperation with the Florida Bureau of Archaeological Research, the park should develop and adopt a procedure for accepting artifacts and other probable cultural materials recovered and turned over by visitors and for forwarding them to the Bureau. Currently there is not a scope of collections.

Review all potential ground disturbance activities according to the DHR matrix of disturbance. Coordinate any anticipated, major ground disturbance events through the DHR.

Efforts to train park staff and/or conduct an orientation of cultural resources located on the park property are needed. Additionally, GPS standards should be implemented throughout the park. Training on basic GIS and GPS principles will benefit the cultural program at the park and allow for more frequent and/or scheduled cultural resource monitoring and management.

Objective C: Bring 3 of 14 recorded cultural resources into good condition.

Action 1	Design and implement regular monitoring programs for 3 cultural sites
Action 2	Create and implement a cyclical maintenance program for each cultural resource.
Action 3	Determine significance of 3 sites prior to stabilization efforts to determine priorities

Maintenance of the cultural resources at the park ranges from potentially clearing vegetation to monitoring for looting. All sites should be monitored for damage from storms, human disturbance, vehicular traffic, heavy equipment use, looting and any other ground disturbance. Ground disturbance anywhere in the park should be carefully examined for the presence of artifacts and features, and any new sites or site boundaries properly documented.

The park should design and implement regular monitoring programs for three of the recorded cultural resources. The park should develop a schedule and a list of items at each site that need to be checked by staff during each assessment.

Stabilization is needed for three cultural sites at the park. There should be a priority for further surveys before they becomes entirely eroded or submerged. The park should consult BNCR and DHR for guidance and funding related to the management of this site. Stabilization of the cultural sites is only one part of the erosion issue along the Rocky Bayou shoreline. The location of the cultural sites should be

considered in any shoreline restoration efforts.

Prior to restoration efforts, level 2 surveys should be conducted at the three sites found on the bluff edge (OK00521, OK00944, and OK00995) to determine the significance and eligibility of the sites.

Special Management Considerations

Timber Management Analysis

Chapters 253 and 259, Florida Statutes, require an assessment of the feasibility of managing timber in land management plans for parcels greater than 1,000 acres if the lead agency determines that timber management is not in conflict with the primary management objectives of the land. The feasibility of harvesting timber at this park during the period covered by this plan was considered in context of the DRP's statutory responsibilities and an analysis of the park's resource needs and values. The long-term management goal for forest communities in the state park system is to maintain or re-establish old-growth characteristics to the degree practicable, with the exception of those communities specifically managed as early successional.

A timber management analysis was not conducted for this park since its total acreage is below the 1,000-acre threshold established by statute. Timber management will be re-evaluated during the next revision of this management plan.

Arthropod Control Plan

Currently, Okaloosa County Mosquito Control does not have any program activities in this area.

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. Treatment methods including larviciding and ground adulticiding (truck spraying in public use areas) are typically allowed. Aerial adulticiding can be allowed through an agreed upon control plan. 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.

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.

Within the 10-year planning period of this management plan, sea level rise is not anticipated to directly affect the natural or cultural resources of Fred Gannon Rocky Bayou State Park, the recreation facilities and infrastructure of the park.

Additional Considerations

The Trustees have granted management authority of certain sovereign submerged lands to DRP under Management Agreement MA 68-086 (as amended January 19, 1988). Management of Fred Gannon Rocky Bayou State Park includes certain management activities within the buffer zone of sovereign submerged land along the entire Rocky Bayou shoreline, beginning at the mean high water or ordinary high water line, or from the edge of emergent vegetation and extending waterward for 150 feet. Extension of the park's boundary into sovereign submerged land, 150 feet beyond the Rocky Bayou shoreline is needed to manage and protect the park's coastal communities. This area comprises the tidal marsh and seagrass bed substrates of the park. The submerged resources within the buffer zone significantly increase the species diversity within the park and offers additional recreational opportunities for park visitors. Management actions occurring within the buffer zone include protection of seagrass beds, erosion control of bluffs through establishment of living shorelines and wake reduction, removal of trash, litter, and other debris, public safety activities, and resource inventories and monitoring.

Resource Management Schedule

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

Land Management Review

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

Fred Gannon Rocky Bayou State Park was subject to a land management review on December 3, 2007. 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.

There are many publicly managed conservation lands that offer recreational opportunities within 15 miles of the park. Eglin Air Force Base is located immediately to the north and covers nearly 464,000 acres across Santa Rosa, Okaloosa, and Walton counties. Other conservation lands include properties managed by the Florida Forest Service (FFS), Northwest Florida Water Management District (NWFWMD), Florida Department of Environmental Protection (FDEP), and the National Park Service (NPS). The following table (Table 6) lists the conservation lands that offer resource-based outdoor recreation activities in the area surrounding Fred Gannon Rocky Bayou State Park.

Table 6. Resource-Based Recreational Opportunities Near Fred Gannon Rocky Bayou State Park									
Name	**Biking**	**Hiking**	**Swimming / Beach Access**	**Boating / Paddling**	**Fishing**	**Wildlife Viewing**	**Overnight Stay**	**Hunting**	**Equestrian Facilities**
Blackwater River State Forest (FFS)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Point Washington State Forest (FFS)	✓	✓				✓	✓	✓	✓
Yellow River Water Management Area (NWFWMD)		✓		✓	✓	✓	✓	✓	
Choctawhatchee River Water Management Area (NWFWMD)		✓		✓	✓	✓	✓	✓	
Blackwater River State Park (FDEP)		✓	✓	✓	✓	✓	✓		
Eden Gardens State Park (FDEP)		✓		✓	✓	✓			
Camp Helen State Park (FDEP)		✓	✓		✓	✓			
Deer Lake State Park (FDEP)		✓	✓		✓	✓			
Grayton Beach State Park (FDEP)	✓	✓	✓	✓	✓	✓	✓		
Topsail Hill Preserve State Park (FDEP)	✓	✓	✓	✓	✓	✓	✓		
Henderson Beach State Park (FDEP)	✓	✓	✓		✓	✓	✓		
Gulf Islands National Seashore (NPS)			✓	✓	✓	✓			

Fred Gannon Rocky Bayou State Park (FGRBSP) is located within Okaloosa County, about two miles east of Niceville in the northwest part of the state. Nearly 265,000 people live within 30 miles of the park, which includes the cities of Fort Walton Beach, Niceville, Crestview, Destin, Grayton Beach, and Defuniak Springs (US Census 2010). According to US Census data (2010), approximately 19% of residents in the county identify as black, Hispanic or Latino, or another minority group. Two-thirds of the residents are considered to be of working age, which is defined as being between 16 and 65 years old (US Census 2010). Okaloosa County ranked 11th statewide in per capita personal income at $44,695, above the state average of $42,737 (US Bureau of Economic Analysis 2015).

The park is located in the Northwest Vacation Region, which includes Escambia, Santa Rosa, Okaloosa, Walton, Holmes, Washington, Bay, Jackson, Calhoun, Gulf, Liberty, and Franklin counties (Visit Florida 2014). According to the 2014 Florida Visitor Survey, approximately 10% of domestic visitors to Florida visited this region. 95% of visitors to this region traveled to the Northwest region for leisure purposes. Visiting the beach/waterfront, dining, and shopping were the most popular activities for those visitors. Nearly half (45%) of visitors came to the region during the summer, and about a quarter (26%) came during the spring. Most visitors traveled by non-air (94%), reporting an average stay of 4 nights and spending an average of $131 per person per day (Visit Florida 2014).

Florida's Statewide Comprehensive Outdoor Recreation Plan (SCORP) indicates that participation rates in the Northwest region for recreational activities including non-boat freshwater fishing, paved and unpaved bicycling, horseback riding, picnicking, visiting archaeological sites, and RV camping are higher than the statewide average with demand for additional facilities increasing through 2020 (FDEP 2013).

Existing Use of Adjacent Lands

Fred Gannon Rocky Bayou State Park lies on a peninsula surrounded by Choctawhatchee Bay on the south and Rocky Bayou on the north. The park is bordered on the north by the open water of Rocky Bayou, which is an aquatic preserve, and to the west by State Road 20, which crosses Rocky Bayou into Niceville. State Road 20 is a four-lane road with on-road bike lanes. The lands to the south and east consist of medium density residential and country clubs, commercial uses along State Road 20, and a public elementary school adjacent to southeastern boundary of the park. The outlying lands to the north and east are federal lands administered by Eglin Air Force Base.

Planned Use of Adjacent Lands

Most of the surrounding area is designated Mixed Use 1 Development of Reginal Impact (MU-1 DRI) which allows for residential, commercial, institutional, recreation, or any combination thereof as determined by the DRI development

order. The maximum residential density is 25 dwelling units per acre. Two small parcels located outside of the DRI are designated as Mixed Use. These occur near the northwest corner of the park and have the same allowable uses and maximum densities as MU-1 DRI (Okaloosa County Comprehensive Plan 2009). While these future land use designations allow for high density residential and mixed-use development, the build-out of this area is largely complete, and there is no indication that the residential density will increase. The only foreseeable area of development could occur immediately to the west of the park on the 26-acre parcel currently owned by the Okaloosa County School District and designated for institutional uses. In the event that this parcel is sold and the zoning classification is amended, development intensity could increase less than a mile from the park's entrance.

The 2040 Long Range Transportation Plan for the Okaloosa-Walton Transportation Planning Organization (OWTPO) is currently being developed, and according to its forecast deficiencies map, State Road 20 adjacent to the park is considered a "very congested" roadway (OWTPO 2016). As such, the current iteration of the draft needs plan has put forth two potential projects that could directly impact FGRBSP. First, it is proposed that State Road 20 should be widened to accommodate 6 lanes of capacity. Next, an express transit service is suggested to run along the park boundary on State Road 20. The DRP should continue to monitor the progress made on the OWTPO 2040 Long Range Transportation Plan in order to coordinate with the TPO if 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

The park encompasses nearly 350 acres, and approximately a third of that acreage is classified as the scrub natural community. This natural community is conducive to the development of trails for hiking and biking. Sensitive wetland

natural communities such as basin marsh and baygall occur adjacent to scrub areas, providing scenic views of habitat and wildlife.

Water Area

Rocky Bayou, an arm of the Choctawhatchee Bay, is adjacent to the park and is managed as an aquatic preserve by the Florida Coastal Office. Boating on Rocky Bayou is one of the main recreational attractions for the park. Pudding Head Lake is a manmade water feature created in the 1960s by impounding the waters of a seepage stream. The impoundment has since been removed, allowing the seepage stream to be restored to a natural community that is an ideal area for wildlife viewing and nature study.

Shoreline

The northern boundary of the park is adjacent to Rocky Bayou, forming over a mile of shoreline. Although a majority of this shoreline has been subject to erosion which has created bluffs overlooking the aquatic preserve, there are several access points leading to the water that allow for swimming and paddling recreational opportunities.

Natural Scenery

To the east of the park entrance road, sandhill restoration efforts have slowly rehabilitated the native longleaf pines in the natural community. Longleaf pines at FGRBSP are some of the last remaining old growth stands found in the park system, and these restoration efforts represent an interpretation opportunity with which visitors can learn about the restoration techniques used throughout the park system.

Significant Habitat

The seepage slope and bog natural communities provide significant habitat for several imperiled plant species including the spoonleaf sundew, yellow fringed orchid, and a variety of pitcherplant species. In addition, the park conserves important habitat for migratory and wading imperiled bird species. The diversity of habitat at FGRBSP positions the park as an ideal location for photography, nature study, and birding.

Natural Features

Over the years, the seepage slope and seepage stream natural communities have gradually carved the multiple steephead ravines that are found at FGRBSP. These unique natural features have dramatic elevation changes where valleys have been cut nearly 30 feet, and the dense baygall forests and rare shrub bogs make these areas of the park noteworthy for nature enthusiasts.

Archaeological and Historical Features

There are 14 recorded archaeological sites at the park, 12 of which are considered pre-historic and 2 representing historic archaeological sites. The pre-historic sites are mostly middens, and the earliest site can be traced back as early as 8,000 BC. Given the park's former use as a WWII training area, one of the historic sites is a large, concrete practice bomb that can be interpreted by hikers along the Rocky Bayou trail.

Assessment of Use

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

Past Uses

The US Air Force managed the site as a recreation area for personnel from nearby Eglin Air Force Base until 1966. At that time, the Florida Park Service managed the site under a special use permit while the US Department of Agriculture held fee simple title to the property. The State of Florida secured ownership of the property in 2005 through a land exchange with the federal government.

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.

According to the 2009 Okaloosa County Comprehensive Plan, the future land use designation for FGRBSP is recreation. The intended purpose of this district is to provide areas for public parks and open spaces to serve local community needs. Allowable uses in the recreation future land use designation include parks, picnic areas, campgrounds, boat launches, trails, and storage facilities, as well as other uses that are considered user-based recreational facilities (Okaloosa County Comprehensive Plan 2009). The mission of the DRP is to provide public access for resource-based recreational opportunities, and the inclusion of user-based recreational facilities is counter to that mission. As such, the DRP should coordinate with Okaloosa County to change the park's future land use designation to conservation, which allows for outdoor recreation facilities that are consistent with conservation efforts.

Current Recreational Use and Visitor Programs

Although the park is relatively small compared with others throughout the park system, FGRBSP has numerous recreational opportunities available for visitors.

The most popular recreational pursuits at the park are boating and camping. Near the northwestern boundary of the park, there is a boat launching facility that allows visitors to access Rocky Bayou and then out to Choctawhatchee Bay southwest of the park. The RV campground is among the most actively used campgrounds in the state, and in fiscal year 2014/2015, the campground experienced a 76% occupancy rate, with the highest usage occurring during the spring and summer months. Other recreational uses at the park include picnicking, hiking, paddling, and swimming.

Fred Gannon Rocky Bayou State Park recorded 101,066 visitors in Fiscal Year (FY) 2015/2016. By DRP estimates, the FY 2015/2016 visitors contributed $8,968,274 in direct economic impact, the equivalent of adding 143 jobs to the local economy (FDEP 2016).

Other Uses

There are no other uses at FGRBSP.

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 Fred Gannon Rocky Bayou State Park all wetlands and floodplain as well as basin marsh, baygall, depression marsh, clastic upland lake, seepage stream natural communities 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

Most of the recreation facilities at FGRBSP are near the northern boundary of the park that is adjacent to Rocky Bayou. In the northwestern corner of the park, the boat ramp area is highly utilized as one of the only public boat launches in the area. This area accommodates an accessible restroom and boat trailer parking. To the east of the boat ramp area, the day use area provides several picnic pavilions, a nature and fitness trail, playground, and a canoe/kayak launch. There are also five sets of staircases in the day use area that lead down to the swimming area and small beaches along Rocky Bayou. In the central portion of the park near the water's edge, the campground loop accommodates 42 RV campsites, a bathhouse, picnic pavilion, and campfire circle. A bridge across Puddin Head Lake connects the campground area to the

west with trails in the eastern portion of the park that highlight unique natural landscapes. The support facilities are conveniently clustered south of the campground area and include two residences, storage and shop facilities, a pump house, and two volunteer campsites (see Base Map).

Recreation Facilities

Day Use Area
Medium Picnic Pavilion
Small Picnic Pavilion (3)
Playground
Restroom
Canoe/Kayak Launch
Swimming Area

Campground Area
Developed Campsite (42)
Bathhouse
Medium Picnic Pavilion
Campfire Circle

Trails
Hiking (1.25 miles)
Nature (1.15 miles)
Fitness (0.2 miles)

Boat Ramp Area
Boat Launch/Dock
Restroom
Trailer Parking Area

Support Facilities

Residence/Shop Area
Staff Residence (2)
Flammable Storage
Shop
Pump House
Volunteer RV Campsite (2)

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

FRED GANNON ROCKY BAYOU STATE PARK

N

0 250 500 1,000 Feet

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

BASE MAP

vegetation, sewage disposal and stormwater management) and design constraints (such as imperiled species or cultural site locations) are investigated in greater detail. Municipal sewer connections, advanced wastewater treatment or best available technology systems are applied for on-site sewage disposal. Creation of impervious surfaces is minimized to the greatest extent feasible in order to limit the need for stormwater management systems, and all facilities are designed and constructed using best management practices to limit and avoid resource impacts. Federal, state and local permit and regulatory requirements are addressed during facility development. This includes the design of all new park facilities consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, park staff monitors conditions to ensure that impacts remain within acceptable levels.

Potential Uses

Public Access and Recreational Opportunities

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

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

Objective: Maintain the park's current recreational carrying capacity of 1,038 users per day.

The park will continue to maintain the recreational activities that are currently offered. Given its location in an urbanized area, the park will continue to be an important community asset that provides an opportunity for visitors to experience the natural environment and engage in resource-based recreational activities such as camping, boating, hiking, picnicking, swimming, and paddling.

Objective: Expand the park's recreational carrying capacity by 112 users per day.

In order to expand the recreational carrying capacity, the park will develop new facilities that will incorporate new types of camping and trails. Along with redesigning the campground loop to better accommodate RV campers, up to 4 rustic cabins should be established near the existing campground area. Additionally, the development of up to 2 miles of an off-road biking trail is proposed.

Objective: Continue to provide the current repertoire of 3 interpretive, educational, and recreational programs on a regular basis.

Interpretive programs that are currently in place at the park will continue to be maintained. These programs include interpretive displays and kiosks that

educate visitors about natural community restoration efforts and imperiled species at the park, as well as techniques that should be utilized to be “bear aware” while camping. In addition to this physical signage, park staff will continue to offer guided tours of the park and lead seasonal activities such as Estuary Day and Pioneer Day.

Objective: Develop 1 new interpretive, educational, and recreational programs.

As former property of the US Air Force, the park was once used as a training area for bombing practice during WWII. Test bombs have periodically been found on park property, and a concrete bomb that is currently displayed along the Rocky Bayou nature trail is believed to have been dropped during practice in preparation for retaliatory attacks against Japan following Pearl Harbor. There is no interpretive signage for the concrete bomb, and as such, an interpretive display should be developed to illustrate the military history associated with the park. The interpretive display should also include a barrier to protect the artifact from unauthorized access.

Proposed Facilities

Capital Facilities and Infrastructure

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

Since becoming a state park in 1966, FGRBSP has steadily grown in popularity and visitor usage. With this growth and the passage of time, the park’s infrastructure has gradually deteriorated and its design has become outdated. The two main use areas at the park, the boat ramp area and campground area, are designed in such a manner that has not adapted to the increased size of boats and RV campers. In order to address these issues, the development concept for FGRBSP will largely focus on the redesign of the park’s most popular use areas. New developments are intended to increase the recreational carrying capacity of the park by providing additional camping and trail options. Improvements will also be made to existing facilities that need to be repaired as a result of being exposed to saltwater conditions, and upgrades are needed to the park’s utilities.

The existing facilities of this state park are appropriate to the natural and cultural resources contained in the park and should be maintained. New construction, as discussed further below, is recommended to improve the quality and safety of the recreational opportunities, to improve the protection of park resources, and to streamline the efficiency of park operations. The following is a summary of improved and new facilities needed to implement the conceptual land use plan for Fred Gannon Rocky Bayou 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 6 existing facilities and 2 miles of trail.

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. The following discussion of other recommended improvements and repairs are organized by use area within the park.

Day Use Area

Along the northern edge of the park boundary in the day use area, there are five staircases leading down to the swimming area. Given impacts from the elements and steady shoreline erosion, these staircases will need to be repaired in order to safely secure access to the water. Additionally, there should be a coordinated effort intended to mitigate erosion taking place along the park's northern shoreline. Coordination between the Florida Coastal Office, which manages the Rocky Bayou Aquatic Preserve, and the DRP should focus on developing a living shoreline that can absorb energy generated by waves on Rocky Bayou and reduce shoreline erosion. The development of a living shoreline also represents an opportunity to interpret and educate visitors about its importance.

The saltwater air at FGRBSP has had a corrosive effect on the playground in the day use area. As such, the playground will need to be replaced. The existing fitness trail along the northern boundary of the park should be relocated to the west of its current location and redesigned to form a closed loop. Modern outdoor fitness equipment should also be installed to create a quarter-mile fitness loop. Additional recreational amenities may also be added to the existing nature trail. Lastly, the Friends of Emerald Coast State Parks supports the effort to increase the number of visitors to the park and proposes the establishment of a gazebo near the Magnolia Pavilion that would be an ideal structure for special events such as weddings. An ADA-compliant sidewalk will accompany the gazebo to create a direct route from the Magnolia Pavilion to the nearby restroom. Adding electrical power to the pavilion should also be considered.

Boat Ramp Area

The boat ramp area is highly utilized, especially on the weekends, and has experienced gradual deterioration over the years. The design of the parking area is also outdated given the growth in the size of boats and trailers since the boat ramp area was originally designed. In order to improve traffic circulation and increase parking, the park road at the boat ramp area should be redesigned. A boat trailer exit onto SR 20 could be incorporated. The boat ramp

should also be considered for a widening that would allow for two vessels to be launched at the same time. Additionally, the boat dock will need to be replaced within this 10-year planning period. The hardware of the dock is rusting due to the saltwater, and when the repairs take place, the decking of the dock will also need to be replaced. An accessible restroom near the entrance to the boat ramp area is the only facility at the park that is still on a septic system. This restroom should be converted to the city sewer system. In the event that the restroom is renovated, the footprint should be expanded to accommodate a larger capacity.

Trails

Currently, FGRBSP has designated hiking and nature trails, and biking is encouraged on the park's paved roads. The 2013 SCORP Report found that unpaved biking facilities in this region of the state are in demand. As such, the DRP should consider developing up to 2 miles of off-road biking trail at FGRBSP. This biking trail should be located to the east of the Sandy Pines hiking trail and south of the Rocky Bayou nature trail. The exact location and route will need to be determined according to trail development standards. A trailhead should be developed near the ranger station in order to separate day use visitors from overnight visitors in the campground. In the northwestern section of the Rocky Bayou nature trail, an observation platform should be constructed. This section of the trail opens up to the picturesque shoreline of Rocky Bayou and is an ideal location for birding and wildlife viewing. The observation platform could also include an interpretive panel that describes the surrounding natural communities and the aquatic preserve.

Campground Area

Camping at FGRBSP is one of the main attractions for the park, and similar to the boat ramp area, the layout of the campground area is in need of a redesign to accommodate larger RVs and improve the visitor experience. Currently, the campsites are positioned at a 90-degree angle in relation to the campground loop, which can make maneuvering large RVs a difficult task. To address these issues, the circulation pattern of the campground loop should be redesigned, and the campsites should be expanded with a larger footprint. The electrical systems also need to be upgraded to accommodate the energy needs of modern RVs. Rustic cabins should also be considered during this planning period. These cabins usually consist of sleeping quarters and a screened porch, but do not include kitchen or restroom facilities. The cabin locations should not interfere with the viewshed of the bayou or disturb the campground experience.

Parkwide

The waterline that extends from the day use area to the restroom at the boat ramp area has an insufficient pressure rating and frequently leaks, creating a constant maintenance issue. The waterline should be replaced with piping that has an adequate pressure rating. Lastly, the shop building in the support area should be replaced.

FRED GANNON ROCKY BAYOU STATE PARK

N

0 250 500 1,000 Feet

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

CONCEPTUAL LAND USE PLAN

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:

Recreation Facilities

Day Use Area
Repair Staircase (5)
Living Shoreline
Replace Playground
Redesign Nature/Fitness Trail
Special Events Gazebo

Boat Ramp Area
Redesign Parking Area
Renovate Restroom
Repair Boat Dock

Trails
Relocate Trailhead
Off-Road Biking (Up to 2 miles)
Observation Platform
Composting Restroom

Campground Area
Redesign Campground Layout
Rustic Cabins (Up to 4 cabins)

Support Facilities

Parkwide
Upgrade Utilities
Replace Shop Building

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

	Existing Capacity*		Proposed Additional Capacity		Estimated Recreational Capacity	
Activity/Facility	**One Time**	**Daily**	**One Time**	**Daily**	**One Time**	**Daily**
Trails						
Hiking	13	52			13	52
Nature	12	48			12	48
Fitness	1	4			1	4
Biking			20	80	20	80
Picnicking	32	64			32	64
Camping						
Developed	336	336			336	336
Rustic Cabins			32	32	32	32
Swimming	100	200			100	200
Fishing	70	140			70	140
Boating						
Power	72	144			72	144
Non-power	25	50			25	50
TOTAL	**661**	**1,038**	**52**	**112**	**713**	**1,150**

*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.

Given the park's location in an urbanizing area, the optimum boundary of the park has been achieved, and there are no parcels to be added to the optimum boundary.

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 Fred Gannon Rocky Bayou 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.

Park Administration and Operations

- During the last ten years, park volunteers contributed over 168,000 hours of volunteer service.
- The park's Citizen Support Organization (CSO), Friends of the Emerald Coast State Parks, Inc., has provided the park with:
    - Funding for education, research, publications and a new website;
    - Specialized equipment for park operations/resource management, including gopher burrow camera, stump grinder, wood splitter.
    - Purchased parts to repair park equipment.
    - Funded and performed improvements to the kayak launch.
    - Purchased new kayaks for rental purposes.
    - Installed an outdoor shower at the kayak launch area.
    - Installed commercial laundry equipment in the campground.
    - Purchased a new bush hog for resource management and maintenance purposes.
    - Purchased and restored an 1800 horse drawn wagon for display at the annual Pioneer Day.
    - The CSO has expanded the park store in the ranger station to include items for guest's convenience.
    - Funded three elevated tent camping pads to be built on three campsites.
    - Funded and installed a fitness trail through the day use area.
    - Purchased fire rings and picnic tables for the campground.

- The CSO has held Estuary Day and Pioneer Day at the park annually for the past 6 years.

Resource Management

Natural Resources

- The park has acquired a Browns tree cutter for natural community restoration activities.
- Annual monitoring of gopher tortoise population has been established and population has shown an increase. In 2005 only 1 burrow was found. In 2009 monitoring program was developed and yielded 12 burrows. In 2010 the survey yielded 17 burrows. In 2013 the survey found 47 active burrows. In 2014 the survey found 67 active burrows. In 2015 the survey found 49 active burrows. In 2016 the survey before the prescribed burn found 37 active burrows. We have noticed a direct correlation in species number decline with the absence of fire. We will re monitor again this year now that fire has been introduced. An influx of coyotes is cyclical. Multiple coyotes have been removed after digging into gopher tortoise borrows was witnessed.
- Installed two new bridges on the east side of park to access and maintain eastern boundary and fire line.
- Earthen dam was removed from Puddin Head Lake (2009) to restore the stream to its natural state. Over 8000 steephead streams plants were propagated from seed harvested onsite (DEP Greenhouse Pensacola) and planted as well as approximately 2000 pitcher plants (red top, white top, purple) (Atlanta Botanical Garden) were reintroduced during the stream restoration process.
- Monthly monitoring of Red pitcher plants, white top pitcher plants, and purple pitcher plants is ongoing.
- Monitor and removal of beaver dams has been ongoing. Multiple beavers have been removed due to flooding of sensitive species caused by beaver dams.
- Prescribed fire management conducted on the restoration area in 2008, 2010, 2013 and 2016.
- 2015-Scouts and volunteers removed over 2,000 sand pine seedlings from restoration area.
- Shoreline restoration of *Spartina alternaflora* with CBA 2015 to preserve cultural sites.

Cultural Resources

- Installed fencing around areas that were experiencing erosion and exposing potential artifacts.
- Monthly monitoring of sites for signs of disturbance and erosion.

Recreation and Visitor Services

- New interpretive programs: Kayak tours since 2015, and fishing classes 2016
- The park is listed as a site on the Great Florida Birding Trail.
- Developed and installed a new birding kiosk located at the trailhead of Rocky Bayou Trail and Sand Pines Trail (funded by the CSO).
- Staff and volunteers have successfully developed and implemented new programs and deliver over 212 programs annually.
- Three self-guided trail tours have been developed.

Park Facilities

- Replaced the roof on the marina restroom.
- Replaced the park residence and converted from septic to sewer.
- Installed fencing along the edge of the bayou to divert foot traffic to stair access to the bayou in order to address erosion issues.
- Installed new lift station in the shop area to accommodate new residence, ranger station and four volunteer sites in the shop area.
- Installed new swing set in the campground.
- Constructed a new kiosk at steephead stream for programs, sitting area, observation deck and interpretive materials (funded by CSO).
- Renovated the sidewalk at the campground restroom to increase accessibility.
- Added gravel to multiple campsites to stabilize soft sand.
- Constructed new ADA restroom with sewer connection on the east end of the day use area.
- Added an additional trail to connect day use area and campground.

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 8) 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 8 may need to be adjusted during the ten-year management planning cycle.

Table 8
Fred Gannon Rocky Bayou State Park
Ten-Year Implementation Schedule and Cost Estimates

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

Goal I: Provide administrative support for all park functions.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	Continue day-to-day administrative support at current levels.	Administrative support ongoing	C	**$500,695**
Objective B	Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.	Administrative support expanded	C	**$54,025**
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	Conduct/obtain an assessment of the park's hydrological needs.	Assessment conducted	LT	**$50,000**
Objective B	Restore natural hydrological conditions and function to approximately 1.8 acres of seepage stream and associated natural communities.	# Acres restored or with restoration underway	LT	**$350,000**
Objective C	Improve surface runoff sheet erosion on bluffs of Rocky Bayou use area.	Problem improved	LT	**$52,300**
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 63 acres of the park maintained within optimal fire return interval.	# Acres within fire return interval target	LT	**$38,500**
Objective B	Continue habitat/natural community restoration activities on 27.24 acres of sandhill	# Acres restored or with restoration underway	LT	**$31,150**
Objective C	Conduct habitat/natural community restoration activities on 6.7 acres of scrubby flatwoods, 4.5 acres of wet flatwoods and 2.4 acres of mesic flatwoods.	# Acres improved or with improvements underway	LT	**$35,400**
Objective D	Conduct habitat/natural community restoration activities on the Rocky Bayou shoreline	Linear feet restored	LT	**$100,000**
Objective E	Conduct habitat/natural community improvement activities on 5.9 acres of seepage slope and 2.24 acres of shrub bog natural communities	# Acres improved or with improvements underway	LT	**$18,400**
Objective F	Control unauthorized access to sensitive areas	Access controlled	C	**$10,000**
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	**$9,600**
Objective B	Monitor and document 1 selected imperiled animal species in the park.	# Species monitored	C	**$4,000**
Objective C	Monitor and document 10 selected imperiled plant species in the park.	# Species monitored	C	**$14,240**
Objective D	Augment white top and Gulf Coast redflower pitcherplant populations within Puddin Head seepage area	# Plants introduced	C	**$10,840**

* 2017 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
Fred Gannon Rocky Bayou State Park
Ten-Year Implementation Schedule and Cost Estimates

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Objective E	Collect pondspice seed for storage and potential future augmentation of population	Seed collected, pond spice Augumented	ST	**$10,600**
Objective F	Monitor viability of old-growth longleaf pines to gauge impacts of prescribed fire	Monitoring implemented	C	**$9,600**
Objective G	Evaluate Puddin Head and White Cedar Bogs to determine habitat types	Evaluation completed	LT	**$12,200**
Objective H	Investigate potential red-cockaded woodpecker cavity in campground longleaf pine	Cavity tree investigated	ST	**$2,540**
Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	Annually treat 2.7 acres of exotic plant species in the park.	# Acres treated	C	**$7,600**
Objective B	Implement control measures on 2 exotic and nuisance animal species in the park.	# Species for which control measures implemented	C	**$50,000**
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 14 of 14 recorded cultural resources in the park.	Documentation complete	LT	**$7,000**
Objective B	Compile reliable documentation for all recorded historic and archaeological sites.	Documentation complete	LT	**$32,450**
Objective C	Bring 3 of 14 recorded cultural resources into good condition.	# Sites in good condition	LT	**$24,000**
Goal VII: Provide public access and recreational opportunities in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	Maintain the park's current recreational carrying capacity of 1,038 users per day.	# Recreation/visitor opportunities per day	C	**$500,695**
Objective B	Expand the park's recreational carrying capacity by 112 users per day.	# Recreation/visitor opportunities per day	LT	**$54,025**
Objective C	Continue to provide the current repertoire of 3 interpretive, educational and recreational programs on a regular basis.	# Interpretive/education programs	C	**$15,000**
Objective D	Develop 1 new interpretive, educational and recreational programs.	# Interpretive/education programs	ST	**$5,000**
Goal VIII: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	Maintain all public and support facilities in the park.	Facilities maintained	C	**$560,775**
Objective B	Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.	Plan implemented	ST	**$20,000**
Objective C	Improve/repair 6 existing facilities and 2 miles of trail.	# Facilities/Miles of Trail/Miles of Road	LT	**$1,956,000**
Objective E	Expand maintenance activities as existing facilities are improved and new facilities are developed.	Facilities maintained	C	**$60,500**

* 2017 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
Fred Gannon Rocky Bayou State Park
Ten-Year Implementation Schedule and Cost Estimates

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		**$900,420**
Administration and Support		**$554,720**
Capital Improvements		**$2,597,275**
Recreation Visitor Services		**$574,720**
Law Enforcement Activities[1]		
	1Law enforcement activities in Florida State Parks are conducted by the FWC Division of Law Enforcement and by local law enforcement agencies.	

* 2017 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

Purpose of Acquisition:
The Florida Board of Parks and Historic Memorials ("FBPHM"), predecessor in interest to the State of Florida Department of Environmental Protection, Division of Recreation and Parks ("DRP"), acquired Fred Gannon Rock Bayou State Park to protect, conserve, maintain, operate and use it for recreation purposes.

Sequence of Acquisition:
On July 1, 1966, FBPHM leased a 363.09-acre real estate from the Department of the Air Force under a five-year term lease. This real estate constituted the initial area of Fred Gannon Rocky Bayou State Park.

When the July 1, 1966, lease expired on June 30, 1971, it was renewed through several legal actions until the ownership of Fred Gannon Rocky Bayou State Park was transferred to the U. S. Department of Agriculture ("DOA") in 1980s.

On October 22, 1980, DOA authorized the State of Florida Department of Natural Resources, predecessor in interest to the State of Florida Department of Environmental Protection, DRP, to manage Fred Gannon Rocky Bayou State Park under a five-year Special Use Permit that was scheduled to expire on October 1, 1985. DOA renewed or extended this Special Use Permit through April 5, 2005, when DOA patented Fred Gannon Rocky Bayou State Park to the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida ("Trustees").

On June 5, 2005, The Trustees leased Fred Gannon Rocky Bayou State Park to DRP under a fifty-year term lease, Lease No. 4498. Lease No. 4498 is scheduled to expire on May 31, 2055.

According to Lease No. 4498, DRP manages Fred Gannon Rocky Bayou State Park to conserve and protect the natural and cultural resources and use it for resource-based public outdoor recreation which is compatible with conservation and protection of the property.

Title Interest:
The Trustees holds fee simple title to Fred Gannon Rocky Bayou State Park.

Special Conditions on Use:
Fred Gannon Rocky Bayou State Park is designated as a single-use property to provide resource-based public outdoor recreation and other related uses. Uses such as water resource development projects, water supply projects, storm water management projects, linear facilities and sustainable agriculture and forestry are inconsistent with the purposes for which DRP manages the property.

Outstanding Reservations:
There are no known outstanding reservations and encumbrances that apply to Fred Gannon Rocky Bayou State Park.

Addendum 2—Advisory Group Members and Report

Local Government Representative

The Honorable Randall Wise, Mayor
City of Niceville

The Honorable Carolyn Ketchel, Chair
Okaloosa County
Board of County Commissioners

Agency Representatives

Chris Hawthorne, Park Manager
Division of Recreation and Parks
Fred Gannon Rocky Bayou State Park

Beth Fugate
Florida Coastal Office
Rocky Bayou Aquatic Preserve

Jason Love
Florida Forest Service

Jennifer Manis
Florida Fish and Wildlife
Conservation Commission

Lt. Keith Clark
Florida Fish and Wildlife
Conservation Commission
Law Enforcement

Julia Duggins, Archaeologist
Florida Department of State
Division of Historical Resources

Environmental and Conservation Group Representative

Alan Knothe
Choctawhatchee Audubon Society

Rachel Gwin
Choctawhatchee Basin Alliance

Local Private Property Owners

Maryanna Schwartz
Local Resident

Cultural and Historical Group Representative

Nicole Grinnan
Florida Public Archaeology Network

Recreational User Group Representatives

Tom Daniel
Florida Trail Association
Choctawhatchee Chapter

Tourism and Economic Development Representative

Kelly Windes
Okaloosa County
Tourist Development Council

Citizen Support Organization

Gary Wood, Vice President
Friends of Emerald Coast State Parks

Anne Marie Diaz, Business Manager
Friends of Emerald Coast State Parks

The advisory group meeting to review the proposed unit management plan (UMP) for Fred Gannon Rocky Bayou State Park was held at Crosspoint Bluewater Bay on November 8, 2017 at 9:00 am.

Carolyn Ketchel, Jason Love, Julia Duggins, Alan Knothe, Maryanna Schwartz, Nichole Grinnan, and Kelly Windes were not in attendance. Jason Love and Julia Duggins provided written comments prior to the meeting, which can be seen below. All other appointed advisory group members were present, as well as Neal Kelly, Tyler Searle, and Zach Schang. Attending staff were Warren Poplin, Raya Pruner, Chris Hawthorne, Geoff Davidson, Katrina Snyder, and Tyler Maldonado.

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

Summary of Advisory Group Comments

Tom Daniel (Florida Trail Association – Choctawhatchee Chapter) applauded the comprehensive scope of the management plan. He noted that he is a heavy user of the campground and does not support larger RV campsites. He suggested making improvements to the existing campsites to help reduce muddy conditions. He commented on the trail system traversing through the sand pine in the eastern portion of the park and stated that it could be difficult to develop biking trails in this area. He inquired about the nature and location of the proposed rustic cabins. It was stated that if rustic cabins are implemented, they would be within the current footprint of the campground and would not disturb the campground experience. He mentioned that the campground is constrained by the surrounding natural communities and tree cover, which should remain intact to preserve the campground experience. He welcomed the proposed coastline restoration and living shoreline project. He recommended incorporating interpretive material at the proposed observation platform that would educate visitors about Rocky Bayou.

Beth Fugate (Florida Coastal Office) stated that the management plan should incorporate more discussion of aquatic management within the DRP's 400-foot management zone that extends into Rocky Bayou. She pointed out that the recreational use of the bayou can be at odds with the protection of habitat, and the bayou is also impacted by other surrounding land uses. She noted that a no-wake zone would only be beneficial if it encompassed the entire bayou and creating such a zone in isolated areas along the shoreline would not yield the desired benefits. It was stated that the DRP has no intention of implementing a no-wake zone for all of Rocky Bayou. She commented that the seagrasses in the bayou along the shoreline are doing well. She recommended implementing additional signage to educate visitors about the seagrasses and their benefits to Rocky Bayou. She suggested working with existing resources such as the seagrasses to help reduce shoreline erosion. She noted that no reefs are allowed within 3 feet of existing vegetation,

and the seagrasses are in areas where reefs would be incorporated in the design of the living shoreline concept. She also described the eroding bluffs along the park boundary and the need for bluff stabilization.

Rachel Gwin (Choctawhatchee Basin Alliance) stated that she was interested in the living shoreline concept, but did not provide any suggestions or improvements to the management plan.

Randall Wise (Mayor – City of Niceville) remarked that he has been a supporter of the state parks and is excited to see the proposed improvements for Fred Gannon Rocky Bayou State Park. He noted that there are a couple disc golf courses in the area and offered to show the course that is maintained by the City of Niceville.

Anne Marie Diaz (Friends of Emerald Coast State Parks) commented on the special events gazebo proposed to be added to the existing day use and picnic area. She stated that this area to the east of the boat ramp is an underutilized portion of the park and is a good location for a special events facility that would ideally be geared toward a meeting facility that could be reserved. The management plan calls for this special events gazebo to be used for events such as weddings or family gatherings, but Ms. Diaz suggested that this area is not well suited for weddings. Instead, she recommended that this concept should be a facility that has an educational and interpretive component with the space to hold meetings or events. This would allow different groups or schools to reserve the space.

Gary Wood (Friends of Emerald Coast State Parks) stated that he is a frequent hiker at Fred Gannon Rocky Bayou State Park and often speaks with campers staying at the park's campground. According to his encounters, he expressed that campers return to Rocky Bayou's campground because of the tranquility and campground experience. He suggested that the size of the RV campsites should remain as is and any future redevelopment of the campground should retain the high-quality campground experience currently in place. He recommended including a St. Andrew's State Park-style visitor center to the conceptual projects proposed in the management plan. He stated that this type of interpretive facility would be a magnet for the park and could be geared toward attracting schools and students to use the facility for educational purposes.

Jennifer Manis (Florida Fish and Wildlife Conservation Commission) commented on FWC's involvement in the development new facilities and trails at the park. She suggested that there should be better communication between the agencies when land clearing takes place. This would allow FWC to provide recommendations on site plans to avoid the disturbance of imperiled species habitat that may be within the proposed development area. She stated that least terns are particularly attracted to sandy soils in development areas, and without constant activity, least terns can nest quickly in these clearings. She offered FWC's assistance with seepage slope restoration activities and suggested developing a wetland strike team to effectively implement prescribed burning programs in this area. She reminded the DRP to be vigilant in discouraging bear interactions by securing dumpsters and posting bear aware signage for visitors.

Summary of Public Comments

Neal Kelly (Disc Golf Advocate) appreciated the opportunity to participate in the advisory group discussion and present the case to allow disc golf to become an accepted recreational activity at the park. He stated that disc golf is a low-impact activity with a course that can be tailored to the land and surrounding environment. He suggested that the activity fits with the conservation mentality and has impact similar to that of a nature trail. He mentioned that the acreage needed for a 9-hole course varies depending on the difficulty, but estimated that 9 acres or 5,000 linear feet could accommodate an average course. He stated disc golf is one of the fastest growing recreational activities given its low barriers to entry and suggested that this activity would increase attendance and bring new visitors to the park. He commented that the development of courses is often privately-funded by local community members and most disc golf courses have clubs that form to maintain the course. He acknowledged the difficulty with misthrows that cause players to deviate from the defined path and respected the concern of the DRP with potential impact to habitat and wildlife.

Staff Recommendations

The staff recommends approval of the proposed management plans for Fred Gannon Rocky Bayou State Park as presented, with the following significant changes:

- The Cultural Resources section of the Resource Management Component will be revised to reflect the suggestions submitted by the Division of Historical Resources.

- The Plant and Animal Species List (Addendum 5) will be updated to include recently identified invertebrate species.

- The Conceptual Land Use Plan in the Land Use Component will be revised, with the proposed gazebo concept being replaced with a multi-use special events facility.

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.

FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Julie B. Duggins
Bureau of Archaeological Research
Florida Division of Historical Resources
1001 de Soto Park Drive
Tallahassee, Florida 32301
Julia.Duggins@dos.myflorida.com

November 6, 2017

Tyler Maldonado
Florida Park Service
Office of Park Planning
3900 Commonwealth Blvd., M.S. 525
Tallahassee, Florida 32399-3000
Tyler.maldonado@dep.state.fl.us

Mr. Maldonado:

Thank you for the opportunity to participate in the Management Advisory Group (MAG) for Fred Ganon Rocky Bayou State Park. We regret that we are unable to attend the meeting in person, but we would like to offer several recommendations to be considered while revising the draft plan. The cultural resources summary on pages 54-56 departs from the standard language used in most Florida Park Service plans, and we encourage planners to work closely with archaeologists and historians to redraft or remove most of the current language in that section. We are happy to provide hands-on assistance from archaeologists at the Bureau of Archaeological Research, and we hope you will consult archaeologist Bill Stanton at the Bureau of Natural and Cultural Resources (BNCR) for additional information.

To improve the cultural resources section, we recommended shortening each paragraph and removing many of the details about each site or time period. For example, on page 54, we

suggest striking most of the first paragraph in the *Description* section and replacing it with "There are 15 historical resources recorded on park property, including 14 archaeological sites and one historic cemetery. These sites contain evidence of human occupation during the Early Archaic period, Deptford period, Weeden Island period, and the 19th and 20th centuries." Also on page 54, we recommend replacing the second paragraph with a much briefer overview of the sites, removing the present descriptions of time periods. The language in this section does not reflect current anthropological understanding of the area's history, so it is important that the descriptions of sites and time periods are removed or are reworked in consultation with an archaeologist. We are happy to help in this effort. Last of all in the *Description* section, please remove the explanation of the sensitivity model results or use language from other approved unit management plans to ensure the wording accurately reflects USF's work.

The Condition Assessment section on page 55 is typically where the Florida Park Service makes a statement that they are monitoring all archaeological and historical sites on an annual basis. To that end, page 76 needs to reflect annual monitoring of all 15 sites, as required by the Division of Historical Resources (DHR). We commend you for roping off and interpreting OK523, and we urge you to highlight that as an example of good cultural resource management. If you need help with ideas for how to protect other threatened sites, please rely on DHR and BNCR. In the revised draft, please include future management plans for archaeological site protection.

A spreadsheet is attached listing the historical resources currently on record with the Florida Master Site File for Fred Ganon Rocky Bayou State Park. In the table of historical resources on page 58-59, please refer to the attached spreadsheet and update the associated Culture/Period and Significance columns.

For such a small park, there are many recorded archaeological and historical sites. We hope the revised draft will highlight the diversity, perhaps even at the outset of the plan on page 1. The shell middens, prehistoric campsites, military training site, and historic cemetery are diverse resources representing the long human history on park property.

Division of Historical Resources
R.A. Gray Building • 500 South Bronough Street• Tallahassee, Florida 32399
850.245.6300 • 850.245.6436 (Fax) • FLHeritage.com

Again, I want to emphasize that DHR and BNCR archaeologists are enthusiastic about helping the Florida Park Service improve this plan to better reflect future management goals. To that end, I am happy to personally help revise or even draft updated language for this plan. In the meantime, I invite Park and District staff to attend DHR's free two-day Archaeological Resource Management training scheduled for Pensacola in early Spring 2018.

Again, I regret not being able to attend the Advisory Group meeting, but I am happy to meet or conference with planners to offer specific improvements. I look forward to hearing from you.

Sincerely,

Julie B. Duggins
Public Lands Archaeology
Bureau of Archaeological Research
Julia.Duggins@dos.myflorida.com

CC:
Raya Pruner
Chris Hawthorne
Bill Stanton
Mary Glowacki
Jason O'Donoughue

Fred Gannon Rocky Bayou State Park Management Plan Review

Jason Love
Florida Forest Service

Natural Communities, especially fire return intervals need to be consistent. According to FNAI the fire return interval for mesic flatwoods is 2-4 years. For sandhill it is 1-3 years.
http://www.fnai.org/PDF/AA_Short_Descriptions_Final_2010.pdf
The written descriptions of the natural community and Table 5 need to be consistent. It is ok to deviate from the FNAI recommended return interval with a reason why.

In the Cultural Resources section, it is stated that there are 14 confirmed sites on the park. Table 4 lists 15 sites. The difference is the shop building that is currently 50 years old. In the Goals and Objectives section for cultural resources the number of sites varies from 14 to 15 being used.

In the Goals and Objectives for Exotic Species Management, Objective A is too specific. This number should be decreasing every year. Objective B needs to be re-written to make sense.

In Goals and Objectives for Resource Management be cautious using specific numbers as a goal to meet. Limitations due to funding, staffing, weather or other unknow factors play a big part in reaching these goals.

While a Timber Management Analysis is not required for this property, a plan needs to be in place for disaster situations.

Dear Review Committee:

I am writing on behalf of the Imperiled Butterflies of Florida Working Group (IBWG)-North to provide comments on the Unit Management Plan Currently being compiled for Fred Gannon Rocky Bayou State Park. The IBWG includes representatives from Federal, State, local and private agencies, entities and organizations that strongly support this worthwhile effort and look forward to participating in the development of this Plan.

Fred Gannon Rocky Bayou State Park Unit Plan Comments:

1. The list of butterflies in Addendum 5 currently lists only three of the 44 species that have been recorded at the park since 2000: Common Roadside Skipper (*Amblyscirtes vialis*), Funereal Duskywing (*Erynnis funeralis*) and Eastern Pine Elfin (*Callophyrs niphon*). The habitat codes listed in the text are incorrect for the three species. The correct Codes from FNAI are:
   Common Roadside Skipper (S1): SC (Scrub) it was found in scrub or nectaring adjacent to scrub
   Eastern Pine Elfin (S2): UP (Upland Pine) it was found in area labeled UHF on the park map
   Funereal Duskywing: UMW (Upland Mixed Woodland) Found in SH along fence line at the park

Rocky Bayou State Park is one of only a handful of locations in FL where **Common Roadside Skipper** (*Amblyscirtes vialis*) has been documented. Other sites include Eglin AFB Reservation and Apalachicola Bluffs and Ravines. It is known to use certain grasses (*Chasmanthium spp*. and others) as its host but it requires a combination of factors to thrive. Obviously Rocky Bayou provides these factors as the species has been seen in most years during spring and in late summer. It has been found in RB-A, RB-B and RB-C. Often it is seen nectaring on Verbena along the boundary fence.
Eastern Pine Elfin is also not often seen but mostly due to the short duration of the spring flight period and their diminutive size. Found in the park in RB-A.
Funereal Duskywing is a rare stray to our area during late summer and spring. Found 07/19/09 in RB-B
It is not tracked by FNAI

2. Please find attached a list of butterflies for the park based on past observations and recorded data from existing field notes. Relevant habitat codes can be provided if they are needed.
   This list should be added to Addendum 5.

   Since 2000 Fred Gannon Rocky Bayou State Park has been included in yearly NABA Butterfly Counts as part of the Choctawhatchee Bay NW Count Circle. Over the years data has been collected and reported in the park as part of these counts. In addition, informal counts and surveys have been conducted by MA Friedman and others. There are most likely more species present in the Park which have not yet been documented.

3. Other butterfly species which are tracked on the FNAI data base which might be added to the Park list of possible future sightings and imperiled species management on page 74:

Hessel's Hairstreak (S2), Host plant is Atlantic White Cedar (*Chamaecyparis thyoides*)
Eastern Tailed Blue (S2), Various Legumes are used as hosts.
King's Hairstreak (S2) Host plant is Horse Sugar (*Symplocos tinctoria*)
Florida Olive Hairstreak (S2) Host is Red Cedar (*Juniperus silicicola*)
Brown Elfin (S1) There was at one time, in early 2000's, a stand of its host plant, Mountain Laurel (*Kalmia latifolia)* along Puddin-Head Lake before the restoration. More may be found along the seepage areas and streams in the future.

We ask that the park continue to work with citizen scientists and researchers to determine other imperiled species which may occur and to continue adding to the butterfly records for the park.

4. A separate Objective could be added specific to Lepidoptera.

5. The land management/ prescribed burn regime:

We request that consideration be given to burning only one of the four scrub areas within the park during any prescribed burning cycle in order to ensure that sedentary invertebrates will not be completely burned out of the park. Language could be inserted into the Management Plan to reflect this concern.

6. Laurel Wilt Disease is a concern for several reasons which have been outlined. There are two butterfly species, **Palamedes Swallowtail** and **Spicebush Swallowtail** which will be adversely affected by the loss of *Persea* species, Pond Spice and Sassafras from Laurel Wilt. Language describing the consequences of Laurel Wilt Disease should include the possible impacts on these species.

7. In future Advisory Board selection a specialist in invertebrates should be included.

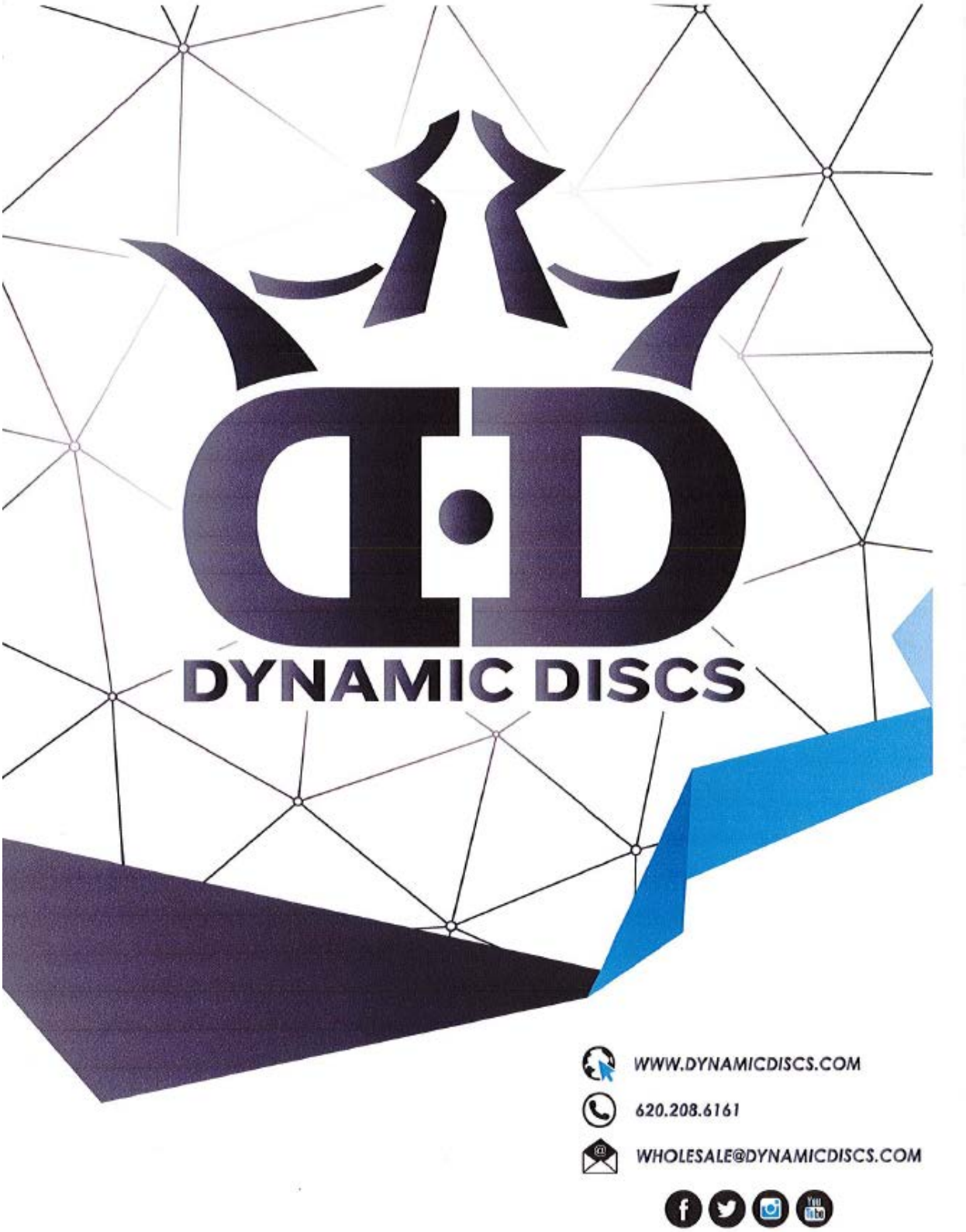
Respectfully submitted,
MaryAnn Friedman

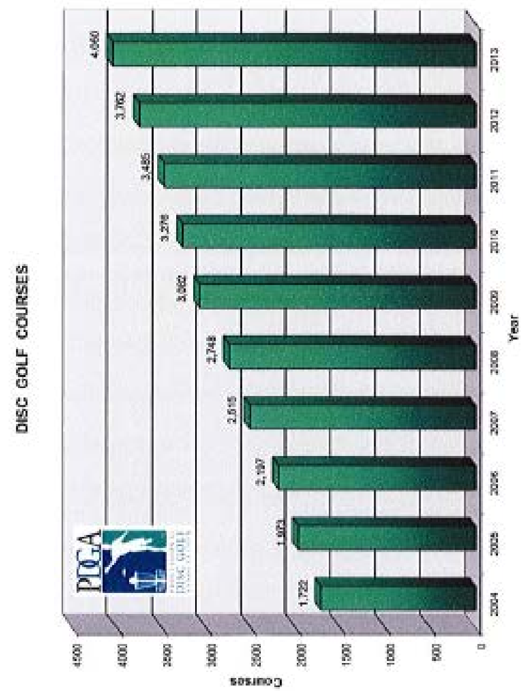
Imperiled Butterflies Working Group of Florida-North, Member Strategic Planning Committee
Former Panhandle Coordinator for FWC State Wildlife Grant #07001 Statewide Assessment of Current Status and Distribution of FNAI's Tracked Butterfly Species
North American Butterfly Association (NABA) Butterfly Count Compiler

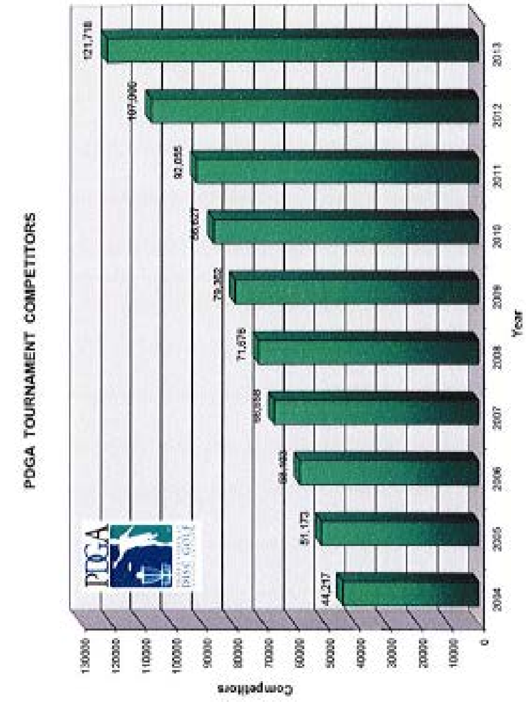
Rocky Bayou Fred Gannon State Park Butterfly List

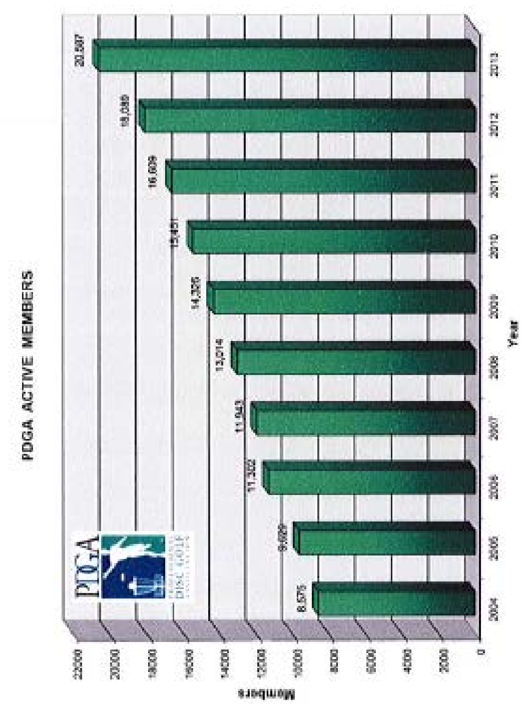
Pipevine Swallowtail
Zebra Swallowtail
Eastern Tiger Swallowtail
Spicebush Swallowtail
Palamedes Swallowtail
Checkered White
Cabbage White
Sleepy Orange
Little Yellow
Barred Yellow
Cloudless Sulphur
White M hairstreak
Banded Hairstreak
Eastern Pine Elfin*
Red-Banded Hairstreak
Gray hairstreak
Summer Spring Azure (Celastrina neglecta)
Gulf Fritillary
Variegated Fritillary
Pearl Crescent
Phaon Crescent
American Lady
Common Buckeye
Red-Spotted Purple
Viceroy
Carolina Satyr
Little Wood Satyr
Monarch
Silver Spotted Skipper
Long-Tailed Skipper
Horace's Duskywing
Funereal Duskywing*
Common/White Checkered Skipper
Tropical Checkered Skipper
Swarthy Skipper
Eufala Skipper
Clouded Skipper
Fiery Skipper
Whirlabout
Tawny-edged Skipper
Southern Broken Dash
Common Roadside Skipper *
Ocola Skipper
Cofaqui Giant Skipper (Eggs found on Yucca filamentosa)

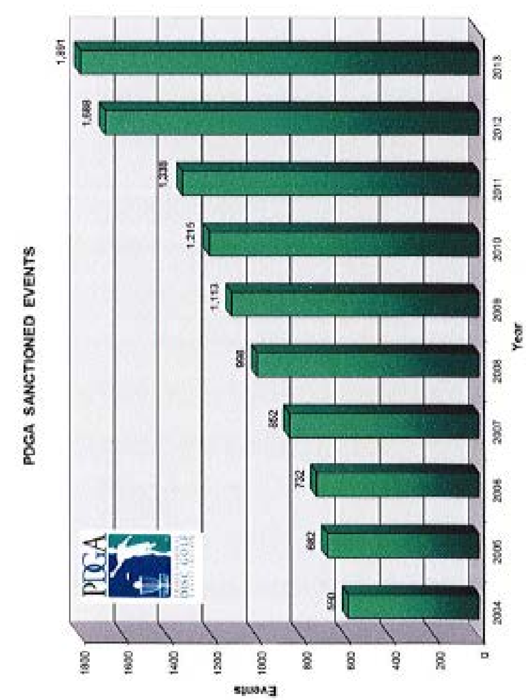
(Compiled 11/4/17 from past sightings) MaryAnn Friedman


DYNAMIC DISCS
WWW.DYNAMICDISCS.COM
620.208.6161
WHOLESALE@DYNAMICDISCS.COM

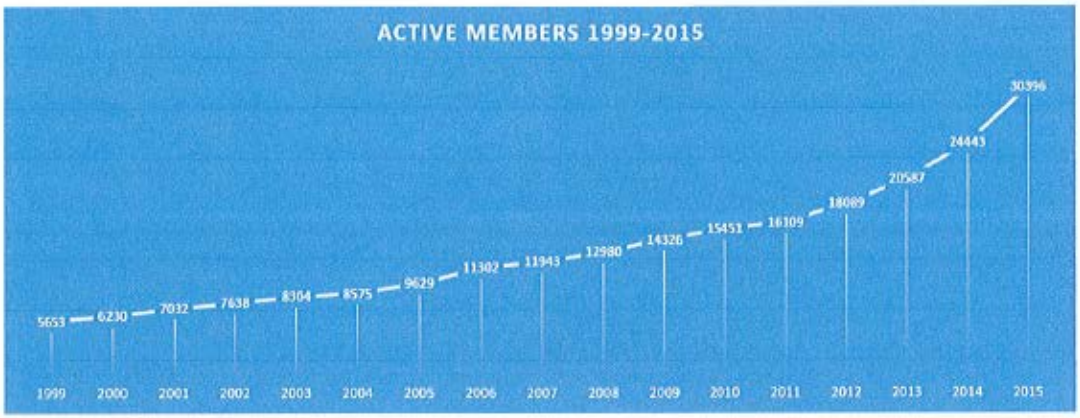

DISC GOLF COURSES
Courses
Year


PDGA TOURNAMENT COMPETITORS
Competitors
Year


PDGA ACTIVE MEMBERS
Members
Year

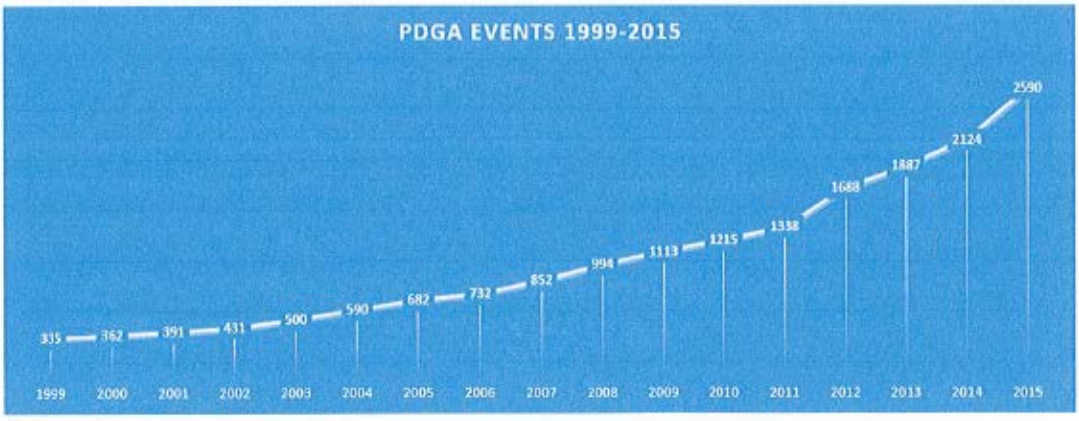

PDGA SANCTIONED EVENTS
Events
Year

PDGA Members



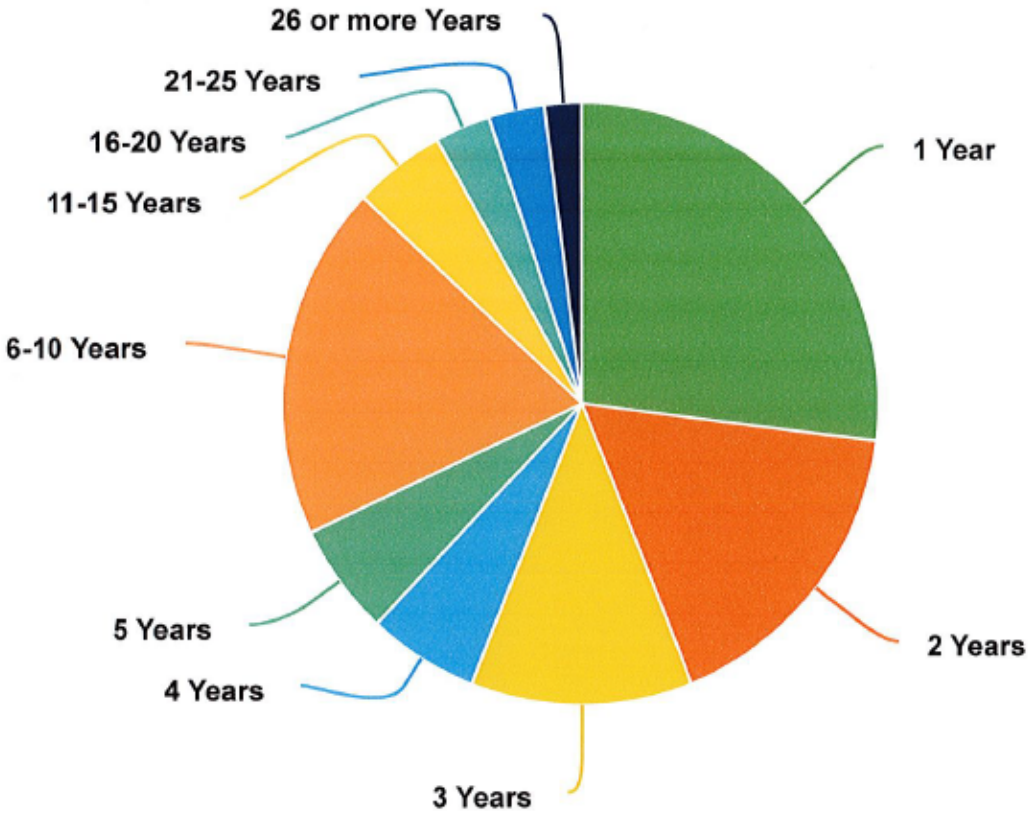
PDGA membership has been steadily growing since we came to be almost 40 years ago, but the last few years have been nothing short of explosive. Each and every year since 2012 a new record has been set for the number of active members and in 2015 we acheived a milestone that might have been scoffed at a decade ago. As the December holidays approached, we finally hit the 30,000 mark. A few days later, six month old Iver Melgård of Norway became PDGA member #80000. Purchased by his mother as a Christmas present, it was the perfect gift, mimicking his father's PDGA number, Einar Melgård #70000!

PDGA Events



Following the same trend as our member numbers, the number of PDGA-sactioned disc golf events has grown immensely over the last few years. The year ended with a total of 2,590 events, including seven that were on the PDGA National Tour, 12 PDGA Majors, and 100+ A-Tiers.

How Long Have You Been Playing Disc Golf?



Over half of those surveyed have been playing disc golf for only three years or less and 87% have been play for less than ten years. ***This is solid evidence to the claim that disc golf is the fastest growing sport in the world.*** Players in the sport are new to it, and those who have played for a long time are still going strong and loving it. Given more time, and the current rate of growth, expect to see higher level competition become more lucrative, professional, and exciting.

A decent portion also responded as being in the 6-10 years of being a disc golfer category – this is where you will likely find many of today's disc golf leaders. Those who have been playing for 6-10 years received 190 (15%) responses. Only 13% of disc golfers have been playing for 11 years or more.

Addendum 3—References Cited

Clewell, A.F. 1988. Guide to the Vascular Plants of the Florida Panhandle. University Press of Florida, Gainesville, FL.

Collins, L.D., S. Fernandez, J. DuVernay, K. Driscoll, and T. Doering. 2012. Archaeological sensitivity modeling in Florida state parks District 1: the northwest Florida region. University of South Florida Alliance for Integrated Spatial Technologies.

Drewa, P.B., W.J. Platt, C. Kwit and T.W. Doyle. 2008. Stand structure and dynamics of sand pine differ between the Florida panhandle and peninsula. Plant Ecology 196: 15-25.

FDEP. 2013. *Outdoor Recreation in Florida 2013.* Tallahassee, Florida.

FDEP. 2015. *Florida State Park System Economic Impact Assessment for Fiscal Year 2015/2016*. Tallahassee, FL.

Florida Natural Areas Inventory (FNAI). 2010. Guide to the Natural Communities of Florida: 2010 edition. Florida Natural Areas Inventory. Tallahassee, Florida.

Huck, R., A.F. Johnson, A.J. Parker, W.J. Platt and D.B. Ward, 1996. Management of Natural Communities of Choctawhatchee sand pine (Pinus clausa (Engelm.) Sarg. Var. immuginata Ward) in the Florida panhandle. Resource Management Notes, Florida Park Service, Florida Department of Environmental Protection. 8(4): 89-91

Jenkins, A.M., P. Diamond, A. Johnson, K. Gulledge, and C. Kindell. 2007. Status survey for large-leaved jointweed, Polygonella macrophylla. Florida Natural Areas Inventory, Tallahassee, Florida.

Johnson, E.D. 2001. Pitcherplants and their habitats in the Florida State Park system, resource conditions, trends and management needs System. Resource Management Evaluation Report. Florida Department of Environmental Protection, Division of Recreation and Parks, Tallahassee, Florida. 102 pp. + appendices.

Livingston, R.J., 1986. The Choctawhatchee River-Bay System. Center for Aquatic Research and Resource Management. Florida State University, Tallahassee, FL.

Okaloosa County. 2009. Okaloosa County Comprehensive Plan. Okaloosa County, Florida.

Okaloosa County. 2010. Okaloosa County Land Development Code. Okaloosa County, Florida.

Okaloosa-Walton Transportation Planning Organization. 2016. Okaloosa-Walton 2040 Long Range Transportation Plan. Pensacola, Florida

Parker, A.J., K.C. Parker and D.H. McCay, 2001. Disturbance-mediated variation in stand structure between varieties of Pinus clausa (Sand pine). Annals of the Association of American Geographers. 91(1); 28-47.

Surdick, J.A. and A.M. Jenkins. 2010. Population Surveys of Rare Lauraceae Species to Assess the Effect of Laurel Wilt Disease in Florida. Florida Natural Areas Inventory, Tallahassee, Florida.

U.S. Census Bureau. 2010. *State and County Quickfacts. http://quickfacts.census.gov/qfd/index.html,* 2016.

USDA. 1995. Soil Survey of Okaloosa County, Florida. In cooperation with the University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations and Soil Science Department and Florida Department of Agriculture and Consumer Services, Gainesville, FL.

U.S. Department of Commerce, Bureau of Economic Analysis. 2016. 2015 *Personal Income Summary/Per Capital Personal Income.* http://www.bea.gov/itable/.

Varner J.M., D.R. Gordon, F.E. Putz, and J.K. Hiers, 2005. Restoring fire to long unburned Pinus palustris ecosystems: Novel fire effects and consequences for long unburned ecosystems. Restoration Ecology 13:539-544.

Visit Florida! 2013. *2013 Florida Visitor Survey*. Tallahassee, Florida.

Ward, D.B. 1963. Contributions to the flora of Florida-2, Pinus (Pinaceae). C astanea 28:1-10.

Addendum 4—Soil Descriptions

6 – Dorovan muck, frequently flooded - This nearly level, very poorly drained soil is in large hardwood swamps and on flood plains along drainageways. Slopes are dominantly less than 2 percent. On 95 percent of the acreage mapped as Dorovan muck, frequently flooded, Dorovan and similar soils make up 88 to 100 percent of the mapped areas. Dissimilar soils make up 0-12 percent. Dissimilar soils included with this soil in mapping are Rutledge, Bibb, Kinston, and Leon soils. Rutlege soils are mineral soils and are around the perimeter of the unit. Bibb and Kinston soils are stratified mineral soils. Leon soils have a firm, sandy subsoil.

Typically, the surface layer of the Dorovan soil is very dark grayish brown mucky peat about 4 inches thick. Below this to a depth of 80 inches or more is black and very dark brown muck. Permeability is moderate in the Dorovan soil. The available water capacity is high. The water table is near or above the surface for most of the year. The soil is flooded more than once every 2 years for periods of more than 1 month. Natural fertility is medium. The content of organic matter is high. The internal drainage rate is slow because of the high water table. The soil responds well to artificial drainage.

The natural vegetation consists mostly of bald cypress, blackgum, red maple, and water tupelo and an understory of buttonbush and dahoon holly.

12 – Lakeland sand, 0 to 5 percent slopes – This nearly level or gently sloping, excessively drained soil is on broad ridgetops in the uplands. Slopes are dominantly less than 5 percent. Individual areas range from about 5 to 1,000 acres in size. On 95 percent of the acreage mapped, Lakeland and similar soils make up 90-99 percent of the mapped areas. Dissimilar soils make up 1 to 10 percent. Dissimilar soils included with this soil in mapping are Chipley and Foxworth soils. Chipley and Foxworth soils are in the lower landscape positions and are somewhat poorly drained and moderately well drained.

Typically, the surface layer of the Lakeland soil is dark grayish brown sand about 6 inches thick. The underlying material to a depth of 80 inches or more is sand. The upper part is brownish yellow, the next par is yellowish brown, and the lower part is yellow. Permeability is rapid. The available water capacity is very low. Runoff is slow. Yhe seasonal high water table is at a depth of more than 80 inches. The soil dries quickly after rains. Natural fertility is low.

The natural vegetation consists of longleaf pine, sand pine, turkey oak, live oak and saw palmetto. The understory includes aster, brackenfern, partridge pea, pineland beggarweed, and wild indigo. Native grasses include hairy panicum, yellow indiangrass, low panicum, and pineywoods dropseed.

14 - Lakeland sand, 12 to 30 percent slopes – This moderately steep or steep, excessively drained soil is on upland side slopes leading to drainageways and depressional areas. Individual areas range from about 20 to 80 acres in size.

On 96 percent of the acreage mapped as Lakeland sand, 12 to 30 percent slopes, Lakeland and similar soils make up 88 to 100 percent of the mapped areas. Dissimilar soils make up 0 to 12 percent. Dissimilar soils included with this soil in mapping are Bonifay and Foxworth soils. Bonifay soils have a loamy subsoil and have a water table within a depth of 60 inches. Foxworth soils are in swales and are somewhat poorly drained.

Typically, the surface layer of the Lakeland soil is dark grayish brown and grayish brown sand about 6 inches thick. The underlying material to a depth of 80 inches or more is and. The upper part is brownish yellow, the next part is yellowish brown and the lower part is yellow. Permeability is rapid in the Lakeland soils. The available water capacity is very low. Runoff is slow. The seasonal high water table is at a depth of more than 80 inches. The soil dries quickly after rains. Natural fertility is low.

The natural vegetation generally consists of longleaf pine, turkey oak, live oak and saw palmetto. The understory includes aster, bracken fern, partridge pea, pineland beggerweed and wild indigo. The most common native grass is wiregrass.

22 – Rutlege fine sand, depressional – This very poorly drained, nearly level soil is in shallow depressional areas, such as ponds, bays, or sinks; on flood plains along streams and creeks; or on upland flats. Individual areas range from 5 to 80 acres in size. Slopes are smooth or concave and are less than 1 percent.

On 94 percent of the acreage mapped as Rutlege sand, depressional, Rutlege and similar soils make up 86 70 99 percent of the mapped areas. Dissimilar soils make up 1 to 14 percent. Dissimilar soils included with this soil in mapping are Leon and Dorovan soils. Leon soils are in the slightly higher landscape positions. They have a subsoil horizon that is stained with organic material. Dorovan soils are organic. They are in the slightly lower landscape positions.

Typically, the surface layer of the Rutlege sols is black sand about 8 inches thick. The subsurface layer is very dark gray sand about 5 inches thick. The underlying material to a depth of 80 inches or more is sand. The upper part is dark gray, the next part is gray, and the lower part is light brownish gray. The Rutlege soil has awtaer table at or near the surface for long periods during the year. Ponding is common. Flooding is common on the flood plains. The available water capacity is high in the surface layer and low in the substratum. Permeability is rapid throughout, but internal drainage is slow because of the high water table. Natural fertility is medium and the content of organic matter is moderate.

The natural vegetation consists mostly of bald cypress, black gum, red maple and water tupelo and an understory of buttonbush and dahoon holly.

Addendum 5—Plant and Animal List

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

LICHENS

Resurrection cladonia ..... *Cladonia prostrata*
Reindeer lichen ..... *Cladonia spp.*

PTERIDOPHYTES

Southern club moss..... *Lycopodiella appressa*
Feather-stem club moss..... *Lycopodiella prostrata*
Cinnamon fern..... *Osmunda cinnamomea*
Royal fern ..... *Osmunda regalis var. spectabilis*
Tailed bracken fern ..... *Pteridium aquilinum var. pseudocaudatum*
Resurrection fern ..... *Pleopeltis polypodioides var. michauxiana*
Hairy maiden fern ..... *Thelypteris hispidula var. versicolor*
Marsh fern ..... *Thelypteris palustris var. pubescens*
Netted chain fern ..... *Woodwardia areolata*
Virginia chain fern..... *Woodwardia virginica*

GYMNOSPERMS

Southern red cedar ..... *Juniperus silicicola*
Sand pine ..... *Pinus clausa*
Slash pine..... *Pinus elliottii*
Longleaf pine..... *Pinus palustris*
Pond cypress..... *Taxodium ascendens*

ANGIOSPERMS

Slender threeseed mercury ..... *Acalypha gracilens*
Red maple..... *Acer rubrum*
Red buckeye..... *Aesculus pavia*
Lesser snakeroot..... *Ageratina aromatica*
Mimosa..... *Albizia julibrissin**
Alligator weed ..... *Alternanthera philoxeroides**
Hazel alder..... *Alnus serrulata*
Common ragweed..... *Ambrosia artemisiifolia*
Common serviceberry..... *Amelanchier arborea*
Bastard false indigo..... *Amorpha fruticosa*
Fringed bluestar..... *Amsonia ciliata*
Purple bluestem..... *Andropogon glomeratus var glaucopsis*
Splitbeard bluestem ..... *Andropogon ternarius*
Broomsedge bluestem ..... *Andropogon virginicus*
Green sikyscale ..... *Anthaenantia villosa*
Big threeawn..... *Aristida condensata*
Whoolysheath threeawn..... *Aristida lanosa*
Arrowfeather threeawn ..... *Aristida purpurascens*

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Wiregrass	*Aristida stricta*	
Switchcane	*Arundinaria gigantea*	
Butterfly milkweed	*Asclepias tuberosa*	
Smallflower pawpaw	*Asimina parviflora*	
Smooth yellow false foxglove	*Aureolaria flava*	
Common carpetgrass	*Axonopus fissifolius*	
Groundsel tree	*Baccharis halimifolia*	
Coastalplain honeycombhead	*Balduina angustifolia*	
Gopherweed	*Baptisia lanceolata*	
Hairy Florida wild indigo	*Baptisia calycosa var. villosa*	MTC
Soft greeneyes	*Berlandiera pumila*	
Crossvine	*Bignonia capreolata*	
Softfruit beggarsticks	*Bidens mitis*	
False nettle, Bog hemp	*Boehmeria cylindrica*	
Watershield	*Brasenia schreberi*	
Capillary hairsedge	*Bulbostylis ciliatifolia*	
Bluethread	*Burmannia biflora*	
Scarlet calamint	*Calamintha coccinea*	
American beautyberry	*Callicarpa americana*	
Prickly bog sedge	*Carex atlantica subsp. capillacea*	
Baltzell's sedge	*Carex baltzellii*	UHF
Sandywoods sedge	*Carex dasycarpa*	
Elliot's sedge	*Carex elliottii*	
Clustered sedge	*Carex glaucescens*	
Vanillaleaf	*Carphephorus odoratissimus*	
Wild olive	*Cartrema americana*	
Pignut hickory	*Carya glabra*	
Mockernut hickory	*Carya tomentosa*	
Chinquapin	*Castanea pumila*	
Sugarberry	*Celtis laevigata*	
Coastal sandbur	*Cenchrus spinifex*	
Spadeleaf	*Centella asiatica*	
Spurred butterfly pea	*Centrosema virginianum*	
Common buttonbush	*Cephalanthus occidentalis*	
Florida rosemary	*Ceratiola ericoides*	
Partridge pea	*Chamaecrista fasciculata*	
Sensitive pea	*Chamaecrista nictitans*	
Hyssopleaf sandmat	*Chamaesyce hyssopifolia*	
Spotted sandmat	*Chamaesyce maculata*	
Whooley sunbonnets	*Chaptalia tomentosa*	
Slender woodoats	*Chasmanthium laxum*	
Longleaf woodoats	*Chasmanthium laxum var. sessiliflorum*	
White fringetree	*Chionanthus virginicus*	
Woody goldenrod	*Chrysoma pauciflosculosa*	
Goldenaster	*Chrysopsis gossypina ssp. hyssopifolia*	
Jamaican swamp sawgrass	*Cladium jamaicense*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Coastal sweetpepperbush	*Clethra alnifolia*	
Black titi	*Cliftonia monophylla*	
Atlantic pigeonwings	*Clitoria mariana*	
Tread-softly	*Cnidoscolus stimulosus*	
Whitemouth dayflower	*Commelina erecta*	
Blue mistflower	*Conoclinium coelestinum*	
False rosemary	*Conradina canescens*	
Canadian horseweed	*Conyza canadensis*	
Coastalplains tickseed	*Coreopsis falcata*	
Flowering dogwood	*Cornus florida*	
Seven sisters, String-lily	*Crinum americanum*	
Rabbitbells	*Crotalaria rotundifolia*	
Silver croton	*Croton argyranthemus*	
Slender scratchdaisy	*Croptilon divaricatum*	
Toothachegrass	*Ctenium aromaticum*	
Pinebarrens flatsedge	*Cyperus ovatus*	
Baldwin's flatsedge	*Cyperus croceus*	
Wiry flatsedge	*Cyperus filiculmis*	
Haspan flatsedge	*Cyperus haspan*	
Bristly flatsedge	*Cyperus hystricinus*	
Laconte's flatsedge	*Cyperus lecontei*	
Fragrent flatsedge	*Cyperus odoratus*	
Titi	*Cyrilla racemiflora*	
Downy danthonia	*Danthonia sericea*	
Willow-herb, Swamp loosestrife	*Decodon verticillatus*	
Velvetleaf ticktrefoil	*Desmodium viridiflorum*	
Smooth ticktrefoil	*Desmodium laevigatum*	
Panicled ticktrefoil	*Desmodium paniculatum*	
Needleleaf witchgrass	*Dichanthelium aciculare*	
Tapered witchgrass	*Dichanthelium acuminatum*	
Variable witchgrass	*Dichanthelium commutatum*	
Eggleaf witchgrass	*Dichanthelium ovale*	
Cypress witchgrass	*Dichanthelium dichotomum*	
Southern crabgrass	*Digitaria ciliaris*	
Virginia buttonweed	*Diodia virginiana*	
Common persimmon	*Diospyros virginiana*	
Saltgrass	*Distichlis spicata*	
Gulf sebastian-bush	*Ditrysinia fruticosa*	
Spoonleaf sundew	*Drosera intermedia*	WF, BG, SHB, SSL
Threeway sedge	*Dulichium arundinaceum*	
Baldwin's spikerush	*Eleocharis baldwinii*	
Gulf coast spikerush	*Eleocharis cellulosa*	
Jointed spikerush	*Eleocharis equisetoides*	
Yellow spikerush	*Eleocharis flavescens*	
Brightgreen spikerush	*Eleocharis olivacea*	
Robbin's spikerush	*Eleocharis robbinsii*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Devil's gradmother	*Elephantopus tomentosus*	
Virginia wildrye	*Elymus virginicus*	
Red lovegrass	*Eragrostis secundiflora subsp. oxylepis*	
American burnweed	*Erechtites hieraciifolius*	
Prairie fleabane	*Erigeron strigosus*	
Flattened pipewort	*Eriocaulon compressum*	
Dogtongue wild buckwheat	*Eriogonum tomentosum*	
Coralbean	*Erythrina herbacea*	
Button rattlesnake maker	*Eryngium yuccifolium*	
Swamp doghobble	*Eubotrys racemosa*	
Pinewooods fingergrass	*Eustachys petraea*	
Dogfennel	*Eupatorium capillifolium*	
Yankeeweed	*Eupatorium compositifolium*	
Summer spurge	*Euphorbia discoidalis*	
Greater Florida spurge	*Euphorbia floridana*	
Slender flattop goldenrod	*Euthamia caroliniana*	
Flattop goldenrod	*Euthamia graminifolia*	
American beech	*Fagus grandifolia*	
Marsh fimbry	*Fimbristylis spadicea*	
Cottonweed	*Froelichia floridana*	
Southern umbrellasedge	*Fuirena scirpoidea*	
Eastern milkpea	*Galactia volubilis*	
Downy milkpea	*Galactia regularis*	
Coastal bedstraw	*Galium hispidulum*	
Hairy bedstraw	*Galium pilosum*	
Spoonleaf purple everlasting	*Gamochaeta purpurea*	
Slenderstalk beeblossom	*Gaura filipes*	
Dwarf huckleberry	*Gaylussacia dumosa*	
Wooly huckleberry	*Gaylussacia mosieri*	
Blue huckleberry	*Gaylussacia frondosa var. tomentosa*	
Yellow jessamine	*Gelsemium sempervirens*	
Carolina cranesbill	*Geranium carolinianum*	
Waterspider false reinorchid	*Habenaria repens*	
Two-wing silverbell	*Halesia diptera*	
American witchhazel	*Hamamelis virginiana*	
Innocence	*Houstonia procumbens*	
Stiff sunflower	*Helianthus radula*	
Georgia frostweed	*Helianthemum georgianum*	
Camphorweed	*Heterotheca subaxillaris*	
Spiked crested coralroot	*Hexalectris spicata*	MEH
Comfortroot	*Hibiscus aculeatus*	
Queen-devil	*Hieracium gronovii*	
Little barley	*Hordeum pusillum*	
Largeleaf marshpennywort	*Hydrocotyle bonariensis*	
Manyflower marshpennywort	*Hydrocotyle umbellata*	
Roundpod St. John's-wort	*Hypericum cistifolium*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Peelbark St. John's-wort	*Hypericum fasciculatum*	
Pineweeds	*Hypericum gentianoides*	
Carolina St. John's-wort	*Hypericum nitidum*	
Atlantic St. John's-wort	*Hypericum reductum*	
Dahoon	*Ilex cassine*	
Myrtle dahoon	*Ilex cassine var. myrtifolia*	
Large gallberry	*Ilex coriacea*	
Possumhaw	*Ilex decidua*	
Inkberry, Gallberry	*Ilex glabra*	
American holly	*Ilex opaca*	
Yaupon	*Ilex vomitoria*	
Florida anise	*Illicium floridanum*	
Cogan grass	*Imperata cylindrical**	
Carolina indigo	*Indigofera caroliniana*	
Man-of-the-earth	*Ipomoea pandurata*	
Saltmarsh morning-glory	*Ipomoea sagittata*	
Virginia willow	*Itea virginica*	
Bigleaf sumpweed	*Iva frutescens*	
Leathery rush	*Juncus coriaceus*	
Forked rush	*Juncus dichotomus*	
Soft rush	*Juncus effusus subsp. solutus*	
Shore rush	*Juncus marginatus*	
Lesser creeping rush	*Juncus repens*	
Needle rush, Black rush	*Juncus roemerianus*	
Needlepod rush	*Juncus scirpoides*	
Roundhead rush	*Juncus validus*	
Virginia saltmarsh mallow	*Kosteletzkya virginica*	
Sandspur	*Krameria lanceolata*	
Whitehead bogbutton	*Lachnocaulon anceps*	
Canada lettuce	*Lactuca canadensis*	
Grassleaf lettuce	*Lactuca graminifolia*	
Lantana	*Lantana camara**	
Hairy pinweed	*Lechea mucronata*	
Virginia pepperweed	*Lepidium virginicum*	
Hairy lespedeza	*Lespedeza hirta*	
Creeping lespedeza	*Lespedeza repens*	
Shortleaf gayfeather	*Liatris tenuifolia*	
Appalachian gayfeather	*Liatris squarrulosa*	
Slender gayfeather	*Liatris gracilis*	
Piedmont gayfeather	*Liatris pauciflora var. secunda*	
Gopher apple	*Licania michauxii*	
Canadian toadflax	*Linaria canadensis*	
Yellow toadflax	*Linum floridanum*	
Pondspice	*Litsea aestivalis*	DM, MF
Sweetgum	*Liquidambar styraciflua*	
Florida lobelia	*Lobelia floridana*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Japanese honeysuckle	*Lonicera japonica**	
Coral honeysuckle	*Lonicera sempervirens*	
Seedbox	*Ludwigia alternifolia*	
Anglestem primrosewillow	*Ludwigia leptocarpa*	
Seaside primrosewillow	*Ludwigia maritima*	
Mexican primrosewillow	*Ludwigia octovalvis*	
Marsh seedbox	*Ludwigia palustris*	
Hairy primrosewillow	*Ludwigia pilosa*	
Gulf Coast lupine	*Lupinus westianus*	SC, SH
Southern watergrass	*Luziola fluitans*	
Taperleaf waterhorehound	*Lycopus rubellus*	
Rusty staggerbush	*Lyonia ferruginea*	
Fetterbush	*Lyonia lucida*	
Wand loosetrife	*Lythrum lineare*	
Southern magnolia	*Magnolia grandiflora*	
Sweetbay	*Magnolia virginiana*	
Stream bogmoss	*Mayaca fluviatilis*	
Twoflower melicgrass	*Melica mutica*	
Creeping cucumber	*Melothria pendula*	
Shade mudflower	*Micranthemum umbros*	
Climbing hempvine	*Mikania scandens*	
Sensitive briar	*Mimosa quadrivalvis var. angustata*	
Pinebarren stitchwort	*Minuartia caroliniana*	
Partridgeberry	*Mitchella repens*	
Indianpipe	*Monotropa uniflora*	
Red mulberry	*Morus rubra*	
Southern bayberry, Wax myrtle	*Myrica cerifera*	
Oderless bayberry	*Myrica inodora*	
Loose Watermilfoil	*Myriophyllum laxum*	
Spatterdock, Yellow pondlily	*Nuphar advena*	
American white waterlily	*Nymphaea odorata*	
Big floatingheart	*Nymphoides aquatica*	
Swamp tupelo, Blackgum	*Nyssa sylvatica var. biflora*	
Seabeach eveningprimrose	*Oenothera humifusa*	
Clustered mille graines	*Oldenlandia uniflora*	
Flase gromwell	*Onosmodium virginianum*	
Pricklypear	*Opuntia humifusa*	
Goldenclub	*Orontium aquaticum*	
Eastern hophornbeam	*Ostrya virginiana*	
Tufted yellow woodsorrel	*Oxalis macrantha*	
Sourwood	*Oxydendrum arboreum*	
Beaked panicum	*Panicum anceps*	
Maidencane	*Panicum hemitomon*	
Switchgrass	*Panicum virgatum*	
Pineland nailwort	*Paronychia patula*	
Thin paspalum	*Paspalum setaceum*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Virginia creeper	*Parthenocissus quinquefolia*	
White arrow arum, Spoonflower	*Peltandra sagittifolia*	
Red bay	*Persea borbonia*	
Swamp bay	*Persea palustris*	
Turkey tangle fogfruit	*Phyla nodiflora*	
Yellow fringed orchid	*Platanthera ciliaris*	WF, SHB, SSL
Rosy camphorweed	*Pluchea baccharis*	
Common reed	*Phragmites australis*	
Red chokeberry	*Photinia pyrifolia*	
American pokeweed	*Phytolacca americana*	
Florida phlox	*Phlox floridana*	
Downy phlox	*Phlox pilosa*	
Coastal groundcherry	*Physalis angustifolia*	
Narrowleaf silkgrass	*Pityopsis graminifolia*	
Blackseed needlegrass	*Piptochaetium avenaceum*	
Virginia plantain	*Plantago virginica*	
Stinking camphorweed	*Pluchea foetida*	
Rosy camphorweed	*Pluchea baccharis*	
Paintedleaf	*Poinsettia cyathophora*	
Littleleaf milkwort	*Polygala brevifolia*	
Orange milkwort	*Polygala lutea*	
Racemed milkwort	*Polygala polygama*	
Tall jointweed	*Polygonella gracilis*	
Largeleaf jointweed	*Polygonella macrophylla*	SC, SH, UC
October flower	*Polygonella polygama*	
Mild waterpepper	*Polygonum hydropiperoides*	
Dotted smartweed	*Polygonum punctatum*	
Rustweed	*Polypremum procumbens*	
Pickerelweed	*Pontederia cordata*	
Marsh mermaidweed	*Proserpinaca palustris*	
Combleaf mermaidweed	*Proserpinaca pectinata*	
Alabama cherry	*Prunus serotina var. alabamensis*	
Flatwoods plum	*Prunus umbellata*	
Sweet everlasting	*Pseudognaphalium obtusifolium*	
Carolina desertchicory	*Pyrrhopappus carolinianus*	
White oak	*Quercus alba*	
Arkansas oak	*Quercus arkansana*	MTC
Chapman's oak	*Quercus chapmanii*	
Southern red oak	*Quercus falcata*	
Sand live oak	*Quercus geminata*	
Bluejack oak	*Quercus incana*	
Turkey oak	*Quercus laevis*	
Laurel oak	*Quercus laurifolia*	
Sand post oak	*Quercus margaretta*	
Blackjack oak	*Quercus marilandica*	
Myrtle oak	*Quercus myrtifolia*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Water oak	*Quercus nigra*	
Live oak	*Quercus virginiana*	
Post oak	*Quercus stellata*	
Running oak	*Quercus pumila*	
Post oak	*Quercus stellata*	
Savannah meadowbeauty	*Rhexia alifanus*	
Yellow meadowbeauty	*Rhexia lutea*	
Swamp azalea	*Rhododendron viscosum*	
Winged sumac	*Rhus copallinum*	
Royal snoutbean	*Rhynchosia cytisoides*	
Dollarleaf	*Rhynchosia reniformis*	
Bunched beaksedge	*Rhynchospora cephalantha*	
Loosehead beaksedge	*Rhynchospora chalarocephala*	
Shortbristle horned beaksedge	*Rhynchospora corniculata*	
Fascicled beaksedge	*Rhynchospora fascicularis*	
Threadleaf beaksedge	*Rhynchospora filifolia*	
Globe beaksedge	*Rhynchospora globularis*	
Slender beaksedge	*Rhynchospora gracilenta*	
Giant whitetop	*Rhynchospora latifolia*	
Brownish beaksedge	*Rhynchospora leptocarpa*	
Sandyfield beaksedge	*Rhynchospora megalocarpa*	
Bunched beaksedge	*Rhynchospora microcephala*	
Shortbeak beaksedge	*Rhynchospora nitens*	
Sand blackberry	*Rubus cuneifolius*	
Sawtooth blackberry	*Rubus pensilvanicus*	
Southern dewberry	*Rubus trivialis*	
Blackeyed susan	*Rudbeckia hirta*	
Carolina wild petunia	*Ruellia caroliniensis*	
Wigeongrass	*Ruppia maritima*	
Silver plumegrass	*Saccharum alopecuroides*	
American cupscale	*Sacciolepis striata*	
Quillwort arrowhead	*Sagittaria isoetiformis*	
Bulltounge arrowhead	*Sagittaria lancifolia*	
Black willow	*Salix nigra*	
Popcorntree, Chinese tallowtree	*Sapium sebiferum* *	
Azure blue sage	*Salvia azurea*	
Lyreleaf sage	*Salvia lyrata*	
Canadian blacksnakeroot	*Sanicula canadensis*	
Whitetop pitcherplant	*Sarracenia leucophylla*	SSL, SHB
Parrot pitcherplant	*Sarracenia psittacina*	BG, WF, SHB, SSL
Gulf purple pitcherplant	*Sarracenia rosea*	BG, WF, SHB, SSL
Gulf Coast redflower pitcherplant	*Sarracenia rubra subsp. gulfensis*	SHB, SSL
Lizard's tail	*Saururus cernuus*	
Little bluestem	*Schizachyrium scoparium*	
Threesquare bullrush	*Schoenoplectus pungens*	
Woolgrass	*Scirpus cyperinus*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Tall nutgrass	*Scleria triglomerata*	
Saw palmetto	*Serenoa repens*	
Cuban jute, Indian hemp	*Sida rhombifolia*	
Gum bully	*Sideroxylon lanuginosum*	
Sleepy catchfly	*Silene antirrhina*	
Wild pink, Carolina catchfly	*Silene caroliniana*	DV
Starry rosinweed	*Silphium asteriscus*	
Kidneyleaf rosinweed	*Silphium compositum*	
Carolina horsenettle	*Solanum carolinense*	
Carolina goldenrod	*Solidago arguta var. caroliniana*	
Dixie goldenrod	*Solidago brachyphylla*	
Canada goldenrod	*Solidago Canadensis var. scabra*	
Pinebarren goldenrod	*Solidago fistulosa*	
Sweet goldenrod	*Solidago odora*	
Downy ragged goldenrod	*Solidago petiolaris*	
Downy goldenrod	*Solidago puberula var. pulverulenta*	
Seaside goldenrod	*Solidago sempervirens*	
Slender indiangrass	*Sorghastrum elliottii*	
Saltmarsh cordgrass	*Spartina alterniflora*	
Saltmeadow cordgrass	*Spartina patens*	
Bristly scaleseed	*Spermolepis echinata*	
Prairie wedgescale	*Sphenopholis obtusata*	
Hidden dropseed	*Sporobolus compositus var. clandestinus*	
Pineywoods dropseed	*Sporobolus junceus*	
Seashore dropseed	*Sporobolus virginicus*	
Earleaf greenbrier	*Smilax auriculata*	
Saw greenbrier	*Smilax bona-nox*	
Cat greenbrier	*Smilax glauca*	
Laurel greenbrier	*Smilax laurifolia*	
Sarsaparilla vine	*Smilax pumila*	
Lanceleaf greenbrier	*Smilax smallii*	
Greenvein ladiestresses	*Spiranthes praecox*	
Queensdelight	*Stillingia sylvatica*	
Trailing fuzzybean	*Strophostyles helvola*	
Coastalplain dawnflower	*Stylisma patens*	
Rice button aster	*Symphyotrichum dumosum*	
Yellow hatpins	*Syngonanthus flavidulus*	
Scurf hoarypea	*Tephrosia chrysophylla*	
Goat's rue	*Tephrosia virginiana*	
Water cowbane	*Tiedemannia filiformis*	
Carolina basswood	*Tilia americana var. caroliniana*	
Eastern poison ivy	*Toxicodendron radicans*	
Poison sumac	*Toxicodendron vernix*	
Small's noseburn	*Tragia smallii*	
Wavylength noseburn	*Tragia urens*	
Forked bluecurls	*Trichostema dichotomum*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Tall redtop	*Tridens flavus*	
Arrowgrass	*Triglochin striata*	
Purple sandgrass	*Triplasis purpurea*	
Eastern gamagrass	*Tripsacum dactyloides*	
Broadleaf cattail	*Typha latifolia*	
Two-flower bladderwort	*Utricularia biflora*	
Zigzag bladderwort	*Utricularia subulata*	
Sparkleberry	*Vaccinium arboreum*	
Highbush blueberry	*Vaccinium corymbosum*	
Darrow's blueberry	*Vaccinium darrowii*	
Shiny blueberry	*Vaccinium myrsinites*	
Texas vervain	*Verbena officinalis subsp. halei*	
Giant ironweed	*Vernonia gigantea*	
Possumhaw	*Viburnum nudum*	
Rusty blackhaw	*Viburnum rufidulum*	
Summer grape	*Vitis aestivalis*	
Muscadine	*Vitis rotundifolia*	
Bog white violet	*Viola lanceolata*	
American wisteria	*Wisteria frutescens*	
Coastalplain yelloweyed grass	*Xyris ambigua*	
Carolina yelloweyed grass	*Xyris caroliniana*	
Fringed yelloweyed grass	*Xyris fimbriata*	
Richard's yelloweyed grass	*Xyris jupicai*	
Acidswamp yelloweyed grass	*Xyris serotina*	
Adam's needle	*Yucca filamentosa*	

* Non-native Species

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

AMPHIBIANS

Florida cricket frog	*Acris gryllus dorsalis*	MTC
One-toed amphiuma	*Amphiuma pholeter*	SHB, SSL
Two-toed amphiuma	*Amphiuma means*	SHB, SSL, WF
Oak toad	*Anaxyrus quercicus*	MTC
Southern toad	*Anaxyrus terrestris*	MTC
Three-lined salamander	*Eurycea guttolineata*	MTC
Southern two-lined salamander	*Eurycea cirrigera*	MTC
Eastern narrow-mouthed toad	*Gastrophryne carolinensis*	MTC
Bird-voiced treefrog	*Hyla avivoca*	WF, SHB, BG, DM
Gray treefrog	*Hyla chrysoscelis*	MTC
Green treefrog	*Hyla cinerea*	MTC
Pine woods treefrog	*Hyla femoralis*	MF, WF, BG, SHB
Barking treefrog	*Hyla gratiosa*	MTC
Squirrel treefrog	*Hyla squirella*	MTC
Bullfrog	*Lithobates catesbeianis*	DM, SST, FM
Bronze frog	*Lithobates clamitans*	DM, SST, FM
Pig frog	*Lithobates gryllio*	DM, SST, FM
Southern leopard frog	*Lithobates sphenocephalus*	MTC
Northern slimy salamander	*Plethodon glutinosus*	DM, SST, SHB, SSL
Southern spring peeper	*Pseudacris crucifer bartramiana*	MTC
Southern chorus frog	*Pseudacris nigrita nigrita*	MTC
Mud salamander	*Pseudotriton montanus*	SHB, SSL
Red salamander	*Pseudotriton ruber*	MTC
Eastern newt	*Notophthalmus viridescens*	DM, SST, FM

REPTILES

Florida cottonmouth	*Agkistrodon piscivorus conanti*	MTC
American alligator	*Alligator mississippiensis*	DM, SST, FM
Green anole	*Anolis carolinensis carolinensis*	MTC
Florida softshell turtle	*Apalone ferox*	MTC
Common snapping turtle	*Chelydra serpentina*	SST, FM
Six-lined Racerrunner	*Cnemidophorus sexlineatus sexlineatus*	MTC
Southern Black Racer	*Coluber constrictor priapus*	MTC
Eastern Coachwhip	*Coluber flagellum flagellum*	MTC
Eastern Diamondback Rattlesnake	*Crotalus adamanteus*	MTC
Chicken turtle	*Deirochelys reticularia*	DM, SST, FM
Southern ringneck snake	*Diadophis punctatus punctatus*	MTC
Mud snake	*Farancia abacura*	MTC
Rainbow snake	*Farancia erytrogramma*	MCT
Gopher tortoise	*Gopherus polyphemus*	SH, SC, UC
Corn Snake	*Pantherophis guttatus guttatus*	MTC
Five-lined skink	*Eumeces fasciatus*	MTC
Southeastern five-lined skink	*Eumeces inexpectatus*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Broad-headed skink	*Eumeces laticeps*	MEH, DEV, SC
Eastern kingsnake	*Lampropeltis getulus getulus*	WF, MF, SST, SHB
Scarlet kingsnake	*Lampropeltis triangulum elapsoides*	SH, MF, SCF
Ground skink	*Scincella lateralis*	MTC
Eastern coachwhip	*Masticophis flagellum flagellum*	MF, SC, SH, SCF
Banded water snake	*Natix fasciata confluens*	DM, SST, FM
Eastern glass lizard	*Ophisaurus ventralis*	MTC
Southern fence lizard	*Sceloporus undulatus undulatus*	MTC
Dusky pigmy rattlesnake	*Sistrurus miliarius barbouri*	MTC
Common musk turtle	*Sternotherus odoratus*	DM, SST, FM
Gulf Coast box turtle	*Terrapene carolina major*	MTC
Eastern ribbon snake	*Thamnophis sauritus sauritus*	MTC
Eastern garter snake	*Thamnophis sirtalis sirtalis*	MTC
Gulf Coast spiny softshell	*Trionyx spiniferus asperus*	DM, SST, FM

BIRDS

Geese

Canada goose	*Branta canadensis*	OF

Ducks

Wood duck	*Aix sponsa*	SST, SSL, FM, DM
Northern pintail	*Anas acuta*	AW, SST, FM
American wigeon	*Anas americana*	AW, SST, FM
Green-winged teal	*Anas carolinensis*	AW, SST, FM
Northern shovler	*Anas clypeata*	AW, SST, FM
Blue-winged teal	*Anas discors*	AW, SST, FM
Mallard	*Anas platyrhynchos*	AW, SST, FM, DM
Gadwall	*Anas strepera*	AW, SST, FM
Lesser scaup	*Aythya affinis*	AW
Redhead	*Aythya americana*	AW
Ring-necked duck	*Aythya collaris*	AW
Greater scaup	*Aythya marila*	AW
Canvasback	*Aythya valisineria*	AW
Bufflehead	*Bucephala albeola*	AW
Common goldeneye	*Bucephala clangula*	AW
Hooded merganser	*Lophodytes cucullatus*	AW
Red-breasted merganser	*Mergus serrator*	AW, FM

Loons

Common loon	*Gavia immer*	AW

Grebes

Horned grebe	*Podiceps auritus*	AW
Pied-billed grebe	*Podilymbus podiceps*	SST, FM

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Pelicans		
Brown pelican	*Pelecanus occidentalis*	AW, EUS
American white pelican	*Pelecanus erythrorhynchos*	AW, OF
Cormorants		
Double-crested cormorant	*Phalacrocorax auritus*	AW, OF
Darters		
Anhinga	*Anhinga anhinga*	SST, SSL, FM
Bitterns and Herons		
Great egret	*Ardea alba*	SST, FM, DM
Great blue heron	*Ardea herodias*	MTC
American bittern	*Botaurus lentiginosus*	SST, FM, DM
Cattle egret	*Bubulcus ibis*	MTC
Green heron	*Butorides virescens*	SST, FM, DM
Little blue heron	*Egretta caerulea*	MTC
Snowy egret	*Egretta thula*	MTC
Tricolored heron	*Egretta tricolor*	MTC
Ibises and Spoonbills		
White ibis	*Eudocimus albus*	MTC
Roseate spoonbill	*Platalea ajaja*	FM, SST
Vultures		
Turkey vulture	*Cathartes aura*	OF
Black vulture	*Coragyps atratus*	OF
Ospreys		
Osprey	*Pandion haliaetus*	MTC
Hawks, Eagles and Kites		
Cooper's hawk	*Accipiter cooperii*	MTC
Sharp-shinned hawk	*Accipiter striatus*	MTC
Red-tailed hawk	*Buteo jamaicensis*	MTC
Red-shouldered hawk	*Buteo lineatus*	MTC
Broad-winged hawk	*Buteo platypterus*	OF
Northern harrier	*Circus cyaneus*	OF
Swallow-tailed kite	*Elanoides forficatus*	OF
Bald eagle	*Haliaeetus leucocephalus*	MTC
Mississippi kite	*Ictinia mississippiensis*	OF
Falcons		
Merlin	*Falco columbarius*	MTC
Peregrine falcon	*Falco peregrinus*	MTC
Southeastern American kestrel	*Falco sparverius paulus*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Rails and Coots		
American coot	*Fulica americana*	SST, AW, FM
Common gallinule	*Gallinula galeata*	SST, AW, DM, FM
Sora	*Porzana carolina*	SST, DM, FM
Clapper rail	*Rallus longirostris*	SST, DM, FM
Virginia rail	*Rallus limicola*	SST, DM, FM
Plovers		
Killdeer	*Charadrius vociferus*	MTC
Snipes and Sandpipers		
Spotted sandpiper	*Actitis macularius*	EUS
Ruddy turnstone	*Arenaria interpres*	EUS
Sanderling	*Calidris alba*	EUS
Wilson's snipe	*Gallinago delicata*	SST, SSL, DM, FM
Western willet	*Tringa semipalmata inornata*	EUS, FM
Eastern willet	*Tringa semipalmata semipalmata*	EUS, FM
Woodcock		SST, SSL, DM
Gulls and Terns		
Black tern	*Chlidonias niger*	AW, OF
Bonaparte's gull	*Chroicocephalus philadelphia*	AW, OF
Caspian tern	*Hydroprogne caspia*	AW, OF
Laughing gull	*Leucophaeus atricilla*	AW, OF, DV
Ring-billed gull	*Larus delawarensis*	AW, OF
Great black-backed gull	*Larus marinus*	AW, OF
Herring gull	*Larus smithsonianus*	AW, OF
Least tern	*Sternula antillarum*	AW, OF
Common tern	*Sterna hirundo*	AW, OF
Forster's tern	*Sterna forsteri*	AW, OF
Royal tern	*Thalasseus maximus*	AW, OF
Sandwich tern	*Thalasseus sandvicensis*	AW, OF
Doves		
Rock pigeon	*Columba livia**	DV
Common ground-dove	*Columbina passerina*	MTC
Eurasian collared dove	*Streptopelia decaocto**	DV
Mourning dove	*Zenaida macroura*	MTC
Cuckoos		
Yellow-billed cuckoo	*Coccyzus americanus*	MTC
Black-billed cuckoo	*Coccyzus erythropthalmus*	MTC
Owls		
Barred owl	*Strix varia*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Great horned owl	*Bubo virginianus*	MTC
Eastern screech-owl	*Megascops asio*	MTC
Goatsuckers		
Chuck-will's-widow	*Antrostomus carolinensis*	MTC
Whip-poor-will	*Antrostomus vociferus*	MTC
Common nighthawk	*Chordeiles minor*	MTC
Swifts		
Chimney swift	*Chaetura pelagica*	OF
Hummingbirds		
Ruby-throated hummingbird	*Archilochus colubris*	MTC
Kingfishers		
Belted kingfisher	*Megaceryle alcyon*	SST, AW
Woodpeckers		
Northern flicker	*Colaptes auratus*	MTC
Pileated woodpecker	*Dryocopus pileatus*	MTC
Red-bellied woodpecker	*Melanerpes carolinus*	MTC
Red-headed woodpecker	*Melanerpes erythrocephalus*	MTC
Downy woodpecker	*Picoides pubescens*	MTC
Hairy woodpecker	*Picoides villosus*	MTC
Yellow-bellied sapsucker	*Sphyrapicus varius*	MTC
Flycatchers and Kingbirds		
Eastern wood-Pewee	*Contopus virens*	WF, UHF, MEH
Least flycatcher	*Empidonax minimus*	WF, UHF, MEH
Acadian flycatcher	*Empidonax virescens*	WF, UHF, MEH
Great-crested flycatcher	*Myiarchus crinitus*	MTC
Eastern phoebe	*Sayornis phoebe*	MTC
Eastern kingbird	*Tyrannus tyrannus*	MTC
Shrikes		
Loggerhead shrike	*Lanius ludovicianus*	MTC
Vireos		
Yellow-throated vireo	*Vireo flavifrons*	MF, WF, MEH
White-eyed vireo	*Vireo griseus*	MTC
Red-eyed vireo	*Vireo olivaceus*	MTC
Blue-headed vireo	*Vireo solitarius*	MF, WF, MEH
Philadelphia vireo	*Vireo philadelphicus*	UHF, MEH
Jays and Crows		
American crow	*Corvus brachyrhynchos*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Fish crow	*Corvus ossifragus*	MTC
Blue jay	*Cyanocitta cristata*	MTC
Swallows and Martins		
Barn swallow	*Hirundo rustica*	DV, OF
Purple martin	*Progne subis*	OF
Bank swallow	*Riparia riparia*	OF
Northern rough-winged swallow	*Stelgidopteryx serripennis*	OF
Tree swallow	*Tachycineta bicolor*	OF
Titmice and Chickadees		
Tufted titmouse	*Baeolophus bicolor*	MAH, MF
Carolina chickadee	*Poecile carolinensis*	MTC
Nuthatches		
Red-breasted nuthatch	*Sitta canadensis*	MF
Brown-headed nuthatch	*Sitta pusilla*	MTC
Creepers		
Brown creeper	*Certhia Americana*	MF
Wrens		
Marsh wren	*Cistothorus palustris*	SST, FM
Carolina wren	*Thryothorus ludovicianus*	MTC
House wren	*Troglodytes aedon*	MTC
Kinglets		
Ruby-crowned kinglet	*Regulus calendula*	MTC
Golden-crowned kinglet	*Regulus satrapa*	MTC
Gnatcatchers		
Blue-gray gnatcatcher	*Polioptila caerulea*	MTC
Thrushes		
Veery	*Catharus fuscescens*	MTC
Hermit thrush	*Catharus guttatus*	MTC
Gray-cheeked thrush	*Catharus minimus*	MF, SC, MEH
Swainson's thrush	*Catharus ustulatus*	MF, SC, MEH
Wood thrush	*Hylocichla mustelina*	MTC
Eastern bluebird	*Sialia sialis*	MTC
American robin	*Turdus migratorius*	MTC
Thrashers		
Gray catbird	*Dumetella carolinensis*	MTC
Northern mockingbird	*Mimus polyglottos*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Brown thrasher	*Toxostoma rufum*	MTC
Starlings		
European starling	*Sturnus vulgaris**	DV
Waxwings		
Cedar waxwing	*Bombycilla cedrorum*	MTC
Warblers		
Common yellowthroat	*Geothlypis trichas*	SST, SSL, FM
Worm-eating warbler	*Helmitheros vermivorum*	BG, UHF, SST
Yellow-breasted chat	*Icteria virens*	MTC
Black-and-white warbler	*Mniotilta varia*	MTC
Orange-crowned warbler	*Oreothlypis celata*	MEH, MF, SH, SC
Tennessee warbler	*Oreothlypis peregrina*	DM, WF, SST
Prothonotary warbler	*Protonotaria citrea*	MTC
Ovenbird	*Seiurus aurocapilla*	MTC
Northern parula	*Setophaga americana*	MTC
Bay breasted warbler	*Setophaga castanea*	MEH, MF, SC
Black-throated blue warbler	*Setophaga caerulescens*	MTC
Hooded warbler	*Setophaga citrina*	MTC
Yellow-rumped warbler	*Setophaga coronata coronata*	MTC
Prairie warbler	*Setophaga discolor*	MTC
Yellow-throated warbler	*Setophaga dominica*	MTC
Blackburnian warbler	*Setophaga fusca*	MTC
Magnolia warbler	*Setophaga magnolia*	MTC
Palm warbler	*Setophaga palmarum*	MTC
Yellow warbler	*Setophaga petechia*	MTC
Chestnut-sided warbler	*Setophaga pensylvanica*	MTC
Pine warbler	*Setophaga pinus*	MTC
American redstart	*Setophaga ruticilla*	MTC
Blackpoll warbler	*Setophaga striata*	MTC
Cape May warbler	*Setophaga tigrina*	MTC
Black-throated green warbler	*Setophaga virens*	MTC
Blue-winged warbler	*Vermivora cyanoptera*	MTC
Golden-winged warbler	*Vermivora chrysoptera*	MTC
Sparrows		
Savannah sparrow	*Passerculus sandwichensis*	MTC
Chipping sparrow	*Spizella passerina*	MTC
Field sparrow	*Spizella pusilla*	MTC
White-throated sparrow	*Zonotrichia albicollis*	MTC
Vesper sparrow	*Pooecetes gramineus*	MTC
Song sparrow	*Melospiza melodi*	MTC
Swamp sparrow	*Melospiza georgiana*	FM, SST, DM
White-crowned sparrow	*Zonotrichia leucophrys*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Cardinals, Tanagers, Grosbeaks, and Buntings		
Northern cardinal	*Cardinalis cardinalis*	MTC
Blue grosbeak	*Passerina caerulea*	MEH, MF, WF
Indigo bunting	*Passerina cyanea*	MTC
Rose-breasted grosbeak	*Pheucticus ludovicianus*	MEH, UHF, DM
Scarlet tanager	*Piranga olivacea*	MTC
Summer tanager	*Piranga rubra*	MAH
Towhees		
Eastern towhee	*Pipilo erythrophthalmus*	MTC
Meadowlarks, Blackbirds and Orioles		
Red-winged blackbird	*Agelaius phoeniceus*	MTC
Rusty blackbird	*Euphagus carolinus*	MTC
Brewer's blackbird	*Euphagus cyanocephalus*	MTC
Baltimore oriole	*Icterus galbula*	MTC
Orchard oriole	*Icterus spurius*	MTC
Common grackle	*Quiscalus quiscula*	MTC
Eastern meadowlark	*Sturnella magna*	MTC
Cowbirds		
Brown-headed cowbird	*Molothrus ater*	MTC
Finches		
American goldfinch	*Carduelis tristis*	MEH, DV
House finch	*Haemorhous mexicanus*	MTC
Old World Sparrows		
House sparrow	*Passer domesticus**	DV
MAMMALS		
Cigulata		
Nine-banded armadillo	*Dasypus novemcinctus**	MTC
Didelphids		
Virginia opossum	*Didelphis virginiana*	MTC
Lagomorphs		
Eastern cottontail	*Sylvilagus floridanus*	MTC
Marsh rabbit	*Sylvilagus palustris*	MTC
Soricomorphs		
Eastern mole	*Scalopus aquaticus*	MTC
Rodents		

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Cotton mouse	*Peromyscus gossypinus*	MTC
Eastern gray squirrel	*Sciurus carolinensis*	MTC
Hispid cotton rat	*Sigmodon hispidus*	MTC
North American beaver	*Castor canadensis*	SST
Carnivores		
Coyote	*Canis latrans**	MTC
Striped skunk	*Mephitis mephitis*	MTC
Bobcat	*Lynx rufus*	MTC
Raccoon	*Procyon lotor*	MTC
Florida black bear	*Scalopus aquaticus*	MTC
Gray fox	*Urocyon cinereoargenteus*	MTC
Sirens		
Florida manatee	*Trichechus manatus*	AW, MSGB
Ungulates		
White-tailed deer	*Odocoileus virginianus*	MTC
BUTTERFLIES AND MOTHS		
Gulf Fritillary	*Agraulis vanillae*	
Common roadside-skipper	*Amblyscirtes vialis*	SC
Pipevine Swallowtail	*Battus philenor*	
Eastern pine elfin	*Callophrys niphon*	UHF
Red-Banded Hairstreak	*Calycopis cecrops*	
Summer Spring Azure	*Celastrina neglecta*	
Barred Yellow	*Cidaria fulvata*	
Monarch	*Danaus plexippus*	
Silver Spotted Skipper	*Epargyreus clarus*	
Funereal duskywing	*Erynnis funeralis*	SH
Horace's Duskywing	*Erynnis horatius*	
Variegated Fritillary	*Euptoieta claudia*	
Little Yellow	*Eurema lisa*	
Sleepy Orange	*Eurema nicippe*	
Carolina Satyr	*Hermeuptychia sosybius*	
Fiery Skipper	*Hylephila phyleus*	
Common Buckeye	*Junonia coenia*	
Clouded Skipper	*Lerema accius*	
Eufala Skipper	*Lerodea eufala*	
Viceroy	*Limenitis archippus*	
Red-Spotted Purple	*Limenitis arthemis*	
Cofaqui Giant Skipper	*Megathymus cofaqui*	
Little Wood Satyr	*Megisto cymela*	
Swarthy Skipper	*Nastra lherminier*	
Ocola Skipper	*Panoquina ocola*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Eastern Tiger Swallowtail	*Papilio glaucus*	
Palamedes Swallowtail	*Papilio palamedes*	
Spicebush Swallowtail	*Papilio troilus*	
White M hairstreak	*Parrhasius m-album*	
Checkered White	*Pontia protodice*	
Cloudless Sulphur	*Phoebis sennae*	
Phaon Crescent	*Phyciodes phaon*	
Pearl Crescent	*Phyciodes tharos*	
Cabbage White	*Pieris rapae*	
Tawny-edged Skipper	*Polites themistocles*	
Whirlabout	*Polites vibex*	
Zebra Swallowtail	*Protographium marcellus*	
White Checkered Skipper	*Pyrgus albescens*	
Tropical Checkered Skipper	*Pyrgus oileus*	
Banded Hairstreak	*Satyrium calanus*	
Gray hairstreak	*Strymon melinus*	
Long-Tailed Skipper	*Urbanus proteus*	
American Lady	*Vanessa virginiensis*	
Southern Broken Dash	*Wallengrenia otho*	

* Non-native Species

TERRESTRIAL

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

PALUSTRINE

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

Wet Prairie ..... WP

LACUSTRINE

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

RIVERINE

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

SUBTERRANEAN

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

ESTUARINE

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

MARINE

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

ALTERED LANDCOVER TYPES

Abandoned field ..... ABF
Abandoned pasture ..... ABP
Agriculture ..... AG
Canal/ditch ..... CD
Clearcut pine plantation ..... CPP
Clearing CL
Developed ..... DV
Impoundment/artificial pond ..... IAP
Invasive exotic monoculture ..... IEM
Pasture - improved ..... PI
Pasture - semi-improved ..... PSI
Pine plantation ..... PP
Road ..... RD
Spoil area ..... SA
Successional hardwood forest ..... SHF
Utility corridor ..... UC

MISCELLANEOUS

Many Types of Communities ..... MTC
Overflying ..... OF

Addendum 6—Imperiled Species Ranking Definitions

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

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

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

FNAI GLOBAL RANK DEFINITIONS

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

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

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

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

G5 ..... demonstrably secure globally

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

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

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

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

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

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

G#Q..... rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)

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

LEGAL STATUS

FEDERAL

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

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

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

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

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

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

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

STATE

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

FE .....Federally-designated Endangered

FT .....Federally-designated Threatened

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

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

ST.....Listed as Threatened Species by the FWC. Defined as a species, subspecies, or isolated population, which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat, is decreasing in area at a rapid rate and therefore is destined or very likely to become an endangered species within the near future.

SSC.....Listed as Species of Special Concern by the FWC. Defined as a population which warrants special protection, recognition or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance or substantial human exploitation that, in the near future, may result in its becoming a threatened species.

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

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

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

Addendum 7—Cultural Information

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

A. General Discussion

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

B. Agency Responsibilities

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

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

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

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

C. Statutory Authority

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

D. Management Implementation

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

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

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

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

E. Minimum Review Documentation Requirements

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

* * *

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

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

Phone: (850) 245-6425
Toll Free: (800) 847-7278
Fax: (850) 245-6435

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

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

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

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

- **a)** a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
- **b)** a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- **c)** a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
- **d)** a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; or 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
- **e)** a property achieving significance within the past 50 years, if it is of exceptional importance.

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

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

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

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