FLORIDA DEPARTMENT OF
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

June 17, 2019

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

RE: San Felasco Hammock Preserve State Park – Lease No. 2839

Dear Mr. Cutshaw:

On **June 14, 2019**, the Acquisition and Restoration Council (ARC) recommended approval of the **San Felasco Hammock Preserve State Park** management plan. Therefore, Division of State Lands, Office of Environmental Services (OES), acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **San Felasco Hammock Preserve State Park** management plan. The next management plan update is due June 14, 2029.

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. 259.036(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.

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 Acquisition and Restoration Council (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.

Conditional 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

San Felasco Hammock Preserve State Park

Approved

Unit Management Plan

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks

June 2019

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INTRODUCTION

San Felasco Hammock Preserve State Park is located in Alachua County just northwest of the City of Gainesville and south of the City of Alachua (see Vicinity Map). Public access to the preserve is via Millhopper Road (State Road 232), about 5.5 miles west of State Road 121 and 7 miles west of U.S. Highway 441. A second entrance is located on Progress Center Boulevard via U.S. Highway 441.

San Felasco Hammock Preserve State Park was initially acquired in 1974 under the EEL Program (see Addendum 1). Currently, the park is comprised of 7,353.40 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on August 31st, 1974, the Trustees leased (Lease Number 2839) the property to DRP under a 60-year lease. The current lease will expire on July 30th, 2034.

San Felasco Hammock Preserve State Park is designated single-use to provide public outdoor recreation and conservation. There are no legislative or executive directives that constrain the use of this property (see Addendum 1).

Purpose and Significance of the Park

San Felasco Hammock is a 7,353.40-acre preserve home to one of the finest and largest remaining examples of mature upland hardwood forest, Florida's richest, most diverse and complex upland ecosystem. Its unique topography and limestone outcrops provide ideal conditions for over 20 natural communities including several champion trees, sinks, ravines, creeks and steep slopes. Preservation of the area ensures saving samples of nearly every landscape type in North Central Florida.

Due to the importance of preserving the richness of the natural community types found exclusively in the area, San Felasco Hammock Preserve State Park was acquired in 1974 as a part of the state's Environmentally Endangered Lands Program, with the solid support and assistance of many local citizens, environmentalists and politicians. However, the park's history goes much further back into the past. Historically, the preserve was used by Native Americans for thousands of years. Artifacts found within park boundary indicate that aboriginals inhabited the area since 8,000 B.C. Change came to the Native American culture with the introduction of the Spanish mission system controlled by the Franciscans and Jesuits. San Felasco is believed to be the mission site of late 17th century San Francisco de Potano. Potano was the name of the Native American culture living in the area at the time of the Spanish settlement of Florida. The area was also the site of conflict between the Seminoles and the Florida militia during the Second Seminole War from 1835-1842. Col. John Warren and his men, along with the aid of a cannon, fought off a party of Seminoles through a one hour-and-a-half long battle. The preserve name originates from the name "San Francisco", which was

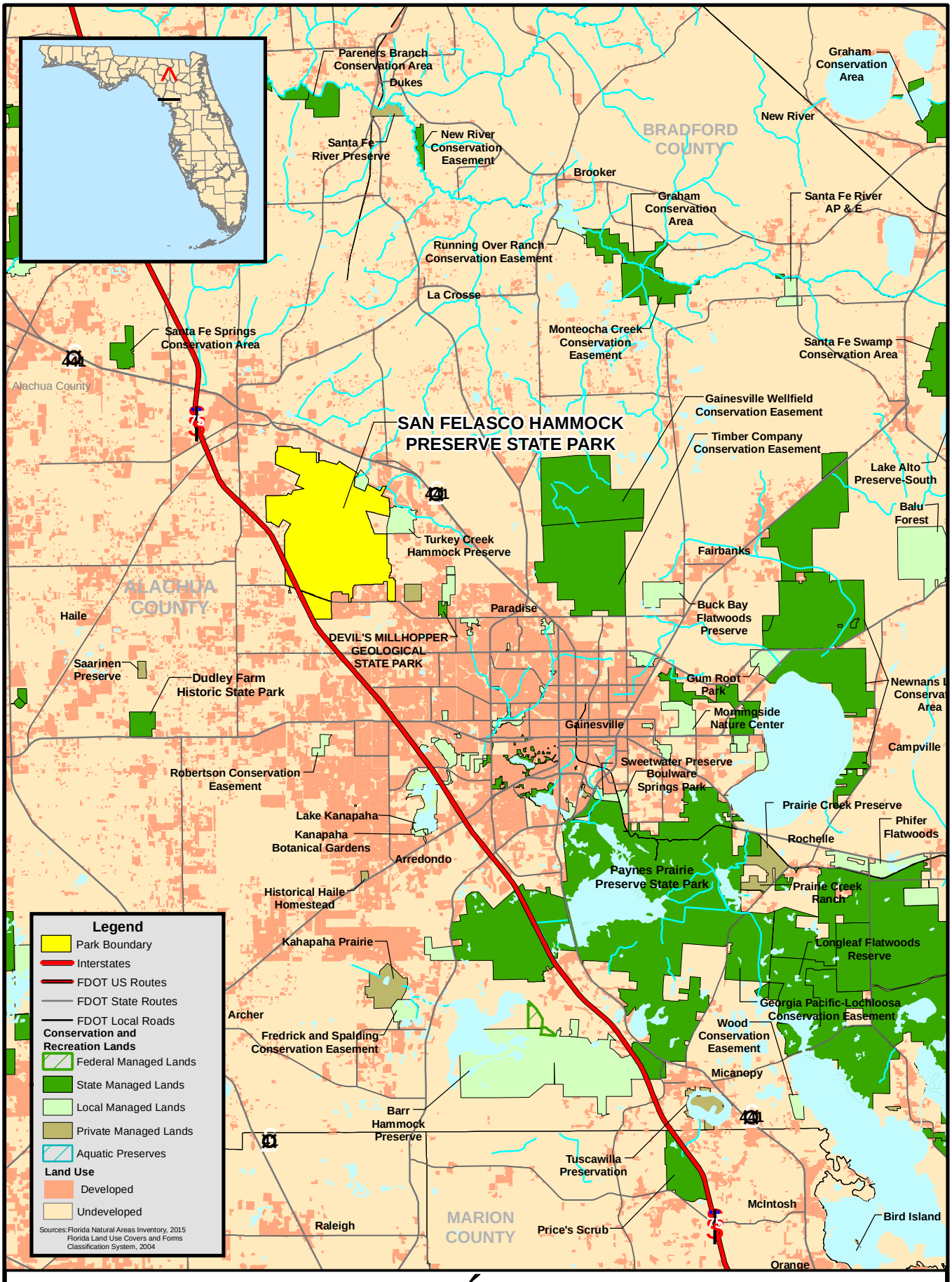
morphed into “San Felasco” due to consistent mispronunciation by the Native Americans and early settlers over the years.

The incredible diversity of the natural resources at San Felasco create ideal conditions for several different types of outdoor recreation activities. The extreme changes in elevation and shady canopy of the hammock make the park an attractive destination for hikers and cyclists, as well as equestrian riders. The park provides over 40 miles of diverse, challenging single-track trail for off-road cycling. Two well-established bike trails at the north entrance trailhead are Cellon Creek and Tung Nut loop. The park is also popular among mountain bikers due to an annual event named “Tour de Felasco”, a 100-mile endurance ride through the preserve’s challenging and extensive system of biking trails. Horseback riders also have a designated trail system encompassing over 15 miles of trail through shady woods, creeks, open fields and wooded forests. Additional recreation activities at San Felasco include picnicking and wildlife viewing. The park is also pet-friendly and is popular among pet-owners who enjoy long hikes in nature.

San Felasco Hammock Preserve State Park is classified as a preserve in the DRP’s unit classification system. In the management of a preserve, preservation and enhancement of natural conditions is all important. Resource considerations are given priority over user considerations and development is restricted to the minimum necessary for ensuring its protection and maintenance, limited access, user safety and convenience, and appropriate interpretation. Permitted uses are primarily of a passive nature, related to the aesthetic, educational and recreational enjoyment of the preserve, although other compatible uses are permitted in limited amounts. Program emphasis is placed on interpretation of the natural and cultural attributes of the preserve.

Purpose and Scope of the Plan

This plan serves as the basic statement of policy and direction for the management of San Felasco Hammock Preserve 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 2005 approved plan.

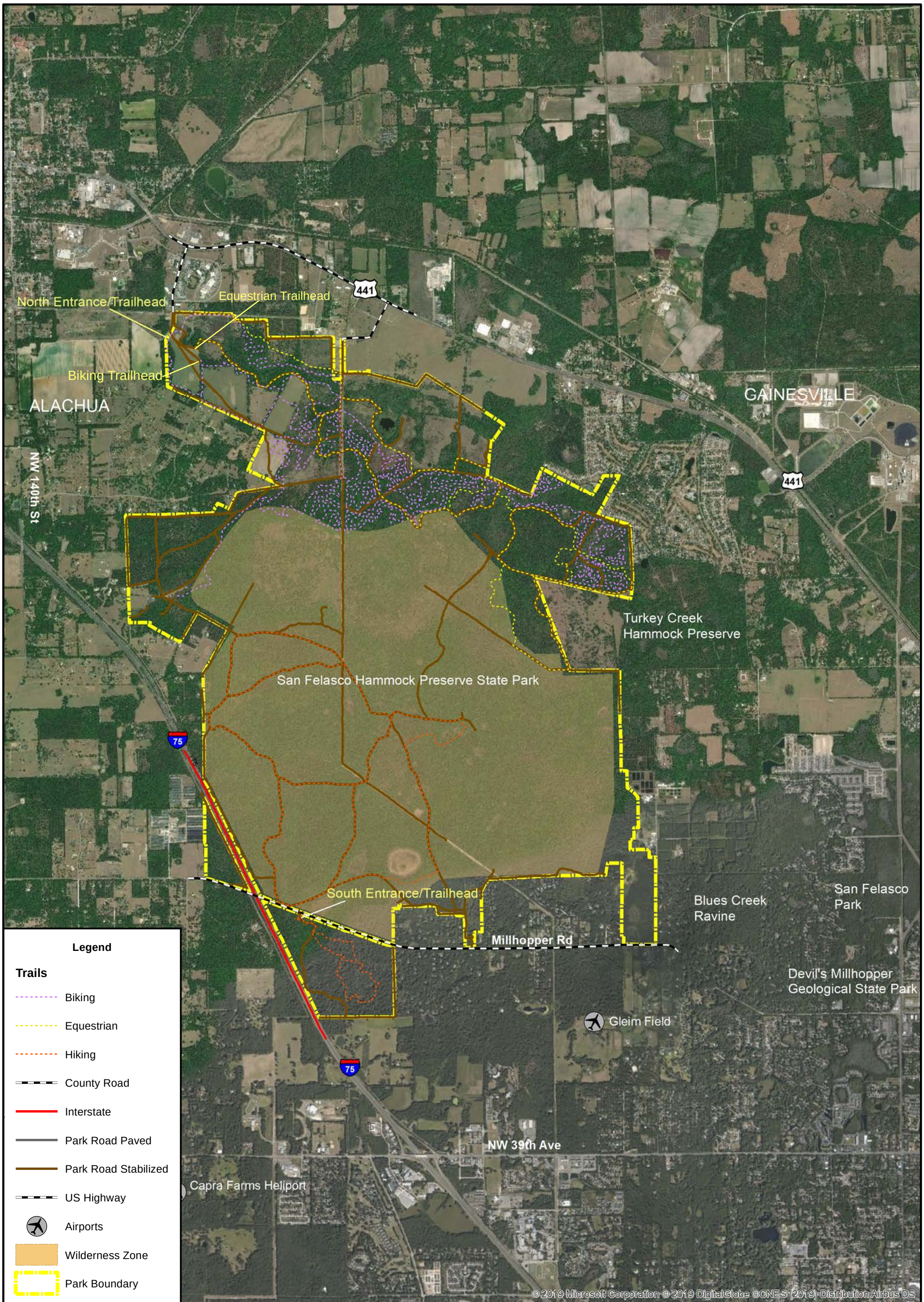


SAN FELASCO HAMMOCK PRESERVE STATE PARK

0 1.25 2.5 5 Miles

Florida Department of Environmental Protection
Division of Recreation and Parks

VICINITY MAP



SAN FELASCO HAMMOCK
STATE PARK

N

0 0.15 0.3 0.6 Miles

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

REFERENCE MAP

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

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

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

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 accordance with 253.034(5) F.S., the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, it was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation.

DRP has determined that uses such as, water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically

identified in this plan) would not be consistent with this plan or the management purposes of the park and should be discouraged.

In accordance with 253.034(5) F.S. The potential for generating revenue to enhance management was also analyzed. Visitor fees and charges are the principal source of revenue generated by the park. It was determined that multiple-use management activities would not be appropriate as a means of generating revenues for land management. Instead, techniques such as entrance fees, concessions and similar measures will be employed on a case-by-case basis as a means of supplementing park management funding.

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.*

Many operating procedures are standardized system-wide and are set by internal direction. These procedures are outlined in the Operations Manual (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) and Florida Forest Service (FFS) assists DRP staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FWC) assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within the park. In addition, the FWC aids DRP with wildlife management programs, including imperiled species management. The Florida Department of State (FDOS), Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites.

Public Participation

DRP provided an opportunity for public input by conducting a public workshop and an Advisory Group meeting to present the draft management plan to the public. These meetings were held on Tuesday January 29, 2019 and Wednesday January 30, 2019, respectively. Meeting notices were published in the Florida Administrative Register on January 22, 2019, VOL45/14, 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

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

All waters within the park have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302, Florida Administrative Code. Surface waters in this park are also classified as Class III waters by the Department. This park is not within or adjacent to an aquatic preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

Introduction

The Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) in accordance with Chapter 258, Florida Statutes, has implemented resource management programs for preserving for all time the representative examples of natural and cultural resources of statewide significance under its administration. This component of the unit plan describes the natural and cultural resources of the park and identifies the methods that will be used to manage them. Management measures expressed in this plan are consistent with the 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. San Felasco Hammock Preserve State Park Management Zones			
Management Zone	**Acreage**	**Managed with Prescribed Fire**	**Contains Known Cultural Resources**
SFH-1An	169.49	Y	Y
SFH-1Aw	245.19	Y	Y
SFH-1B	44.26	Y	
SFH-1C	168.77	Y	
SFH-2A	55.03	Y	
SFH-2B	39.69	Y	
SFH-2C	321.43	Y	Y
SFH-2D	567.75	Y	Y
SFH-2E	245.55	Y	
SFH-2F	140.55	Y	Y
SFH-2G	297.44	Y	Y
SFH-2H	61.34	Y	
SFH-2K	422.17	Y	Y
SFH-2L	168.00	Y	Y
SFH-2M	101.24	Y	Y
SFH-2N	431.16	Y	Y
SFH-2P	96.41	Y	Y
SFH-2Q	289.43	Y	Y
SFH-2R	108.30	Y	
SFH-2S	306.83	N	Y
SFH-3A	146.23	Y	Y
SFH-3B	128.39	Y	
SFH-3C	216.80	Y	Y
SFH-3D	409.25	Y	Y
SFH-3E	130.96	Y	Y
SFH-3F	85.93	Y	Y
SFH-3G	247.01	Y	Y
SFH-3H	102.43	Y	Y
SFH-3J	305.15	Y	Y
SFH-3K	66.69	Y	Y
SFH-4A	129.86	Y	Y
SFH-4Be	136.68	Y	Y
SFH-4Bw	57.19	Y	
SFH-4C	206.33	Y	Y
SFH-4De	50.08	Y	
SFH-4Dw	91.61	Y	
SFH-4E	87.98	Y	Y
SFH-4Fe	51.41	Y	Y
SFH-4Fw	83.65	Y	Y
SFH-4G	102.16	Y	Y
SFH-4H	50.71	Y	Y
SFH-4J	56.37	Y	Y

SFH-4C
SFH-4Dw
SFH-4De
SFH-4Bw
SFH-4Be
SFH-4E
SFH-4J
SFH-4Fw
SFH-4G
SFH-4H
SFH-4A
SFH-4Fe
SFH-3E
SFH-3K
SFH-1An
SFH-3F
SFH-3H
SFH-1C
SFH-3A
SFH-3G
SFH-3B
SFH-1Aw
SFH-2C
SFH-3C
SFH-1B
SFH-2K
SFH-3J
SFH-2D
SFH-2P
SFH-3D
SFH-2M
SFH-2N
SFH-2E
SFH-5A
SFH-2Q
SFH-2L
SFH-2S
SFH-2H
SFH-2B
SFH-2R
SFH-2A
SFH-5B
SFH-2F
SFH-2G

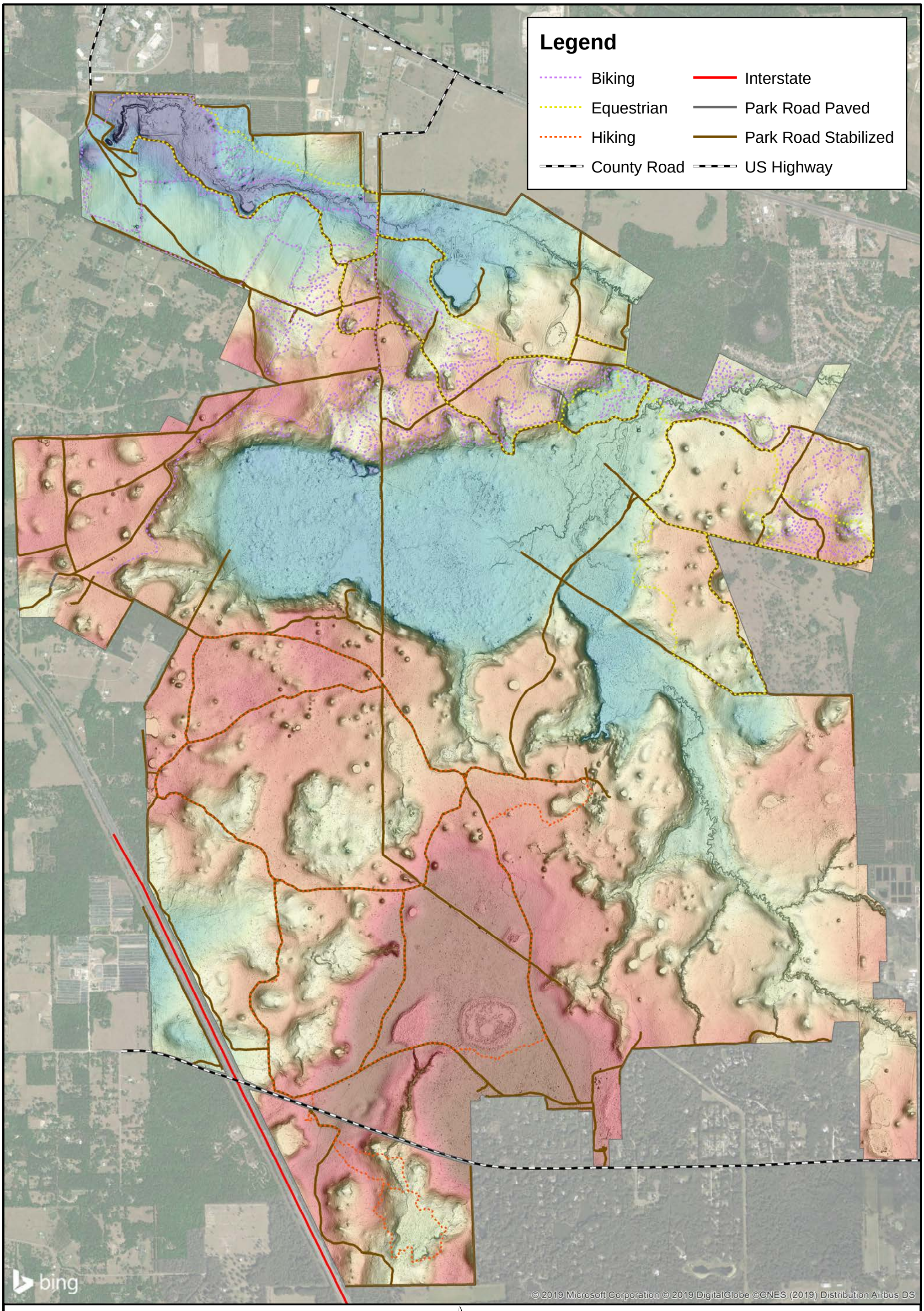
bing

SAN FELASCO HAMMOCK
PRESERVE STATE PARK

0 750 1,500 3,000 Feet

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2016

MANAGEMENT ZONE MAP



SAN FELASCO HAMMOCK
PRESERVE STATE PARK

N

0 750 1,500 3,000 Feet

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

TOPOGRAPHIC MAP

SFH-5A	45.77	N	Y
SFH-5B	89.79	Y	Y

Resource Description and Assessment

Natural Resources

Topography

San Felasco Hammock Preserve State Park is located in Alachua County at the boundary of two physiographic regions, namely the Northern Highlands and the Western Valley (White 1970; Hoenstine and Lane 1991; SRWMD 2013). The Northern Highlands consists of a relatively flat upland plateau capped by fairly impermeable, clay-rich sediments, with elevations typically greater than 150 feet mean sea level (msl). In this region, karst development is minor and a high degree of surface drainage exists; consequently, these uplands have an extensive development of streams, lakes and wetlands (Champion and Upchurch 2003). The Western Valley is a relict coastal marine terrace with subtle relief, underlain by a thin veneer of sand over limestone, with elevations typically between 25 and 75 feet msl. Limestone deposits in the Western Valley form a mature karst plain characterized by rapid recharge and numerous sinkholes (Upchurch et al. 2011).

Underlying the Northern Highlands is a moderately erosion-resistant sediment layer called the Hawthorn Group (Scott 1988; Martin and Dean 2001). At San Felasco Hammock, along the western edge of the upland plateau, ancient shoreline processes through geologic time have eroded limestone and soil deposits within the Hawthorn Group to create a distinct feature called the Cody Escarpment, familiarly known as the Cody Scarp (Upchurch 2002). This feature is a transitional area between the plateau and adjacent lowlands with topographic relief up to 80 feet and can vary from 1.5 to over 7 miles in width where it occurs (Puri and Vernon 1964; Williams et al. 1977).

The Cody Scarp constitutes one of the most persistent topographic breaks in the state, its continuity unbroken except by valleys of major streams. The abundance of sinkholes and stream-to-sink features (i.e. swallets) in this karst region profoundly influence the topographical and hydrological characteristics of the region (Butt et al. 2006). A large portion of the surface runoff from the Northern Highlands drains across the Cody Scarp, rapidly infiltrates the subsurface limestone, and becomes groundwater as it reaches conduits in the Upper Floridan aquifer.

Topographic relief at San Felasco is characterized by gently rolling uplands interspersed with numerous karst features, depression wetlands, seepage creeks, and four prominent blackwater stream systems. Elevations range from about 200 feet msl at the southern portion of the preserve to about 52 feet msl near Lee Sink in the northwest corner. Sanchez Prairie, Turkey, Blues, Cellon and Moonshine Creeks are all among the most significant topographic features of the park. Numerous examples characteristic of karst topography can be found all across the park including sinkholes, sinkhole lakes, enormous limestone outcrops and large stream-incised ravines, some that terminate their entire streamflow directly

underground via a karst window or swallet. As an example, Blues and Turkey Creek's both flow into two separate karst windows within the boundaries of San Felasco Hammock Preserve State Park, one called the Big Otter Ravine and the other the Split Rock Sink.

Artificial changes in the preserve's topography include drainage swales and borrow pits associated with the construction of Interstate 75, a tramway located in the southeastern portion of the preserve, numerous fire plow scars, roadways, powerline corridors, and hydrologic alterations such as canals, impoundments, and berms in the Cellon Creek system.

Geology

The principal geological structure of the area is called the Ocala uplift, whose arch traverses southwestern Alachua County. Due to folding associated with the uplift, beds of Tertiary Age limestones of the Ocala Group are now at or near the surface along the crest and flank of the arch. The structural forces that produced the arching and folding caused additional faulting and fracturing of rock in the area; these are characteristic features of San Felasco Hammock Preserve State Park. It is important to note that these faulted formations make up the Cross-County Fracture Zone (Vernon 1951), which in Alachua County extends from Orange Lake in the east to the Santa Fe River Basin in the west (Williams et al. 1977).

The preserve is underlain by the following deposits, listed in descending order of age: Plio-Pleistocene Terrace Deposits, the Alachua Formation, the Hawthorn Group, Ocala Group, Avon Park Limestone, Lake City Limestone, Oldsmar Limestone and Cedar Key Limestone.

The upper surficial material consists of Recent Age deposits mixed with Pleistocene Age sediments that were laid down as terraces when sea levels fluctuated in response to successive glacial periods. These Pleistocene deposits are mostly fine-grained sands, clayey at the surface, but coarser with increasing depth. Large pebbles of phosphate and quartz are commonly found at the base of the sand. Recent and Pleistocene deposits within the preserve range in thickness from 20 to 45 feet.

The Alachua Formation, of Miocene or Pliocene Age, contains sand and sandy clay beds. It is not as calcareous and phosphatic as similar beds in the older Hawthorn Group. Silicified pieces of the underlying limestone are generally incorporated into beds near the base of the formation. The Alachua Formation ranges in thickness from 25 to 35 feet.

The Hawthorn Group, of Middle Miocene Age, consists of quartz sand, sandy clay, and clay interbedded with hard phosphatic or dolomitic limestone layers and fine to coarse phosphatic sands. This deposit rests atop the irregular, solution-pitted

surface of the Ocala Group. Within the preserve, the Hawthorn may reach 160 to 170 feet in thickness.

The Ocala Group is an Eocene deposit consisting of three limestone formations of similar character. From youngest to oldest, these are the Crystal River, Williston and Inglis Formations. The limestones of the Ocala Group range from a loose coquina composed of large foraminifera and shells to solution-riddled, echinoid-rich limestone that is 98 percent calcium carbonate. The Ocala deposit ranges in thickness from 150 to 250 feet. Commonly, the top of the Ocala limestone has been silicified to form chert. Large outcrops of chert are found in Chert Swamp, located in the Blues Creek floodplain north of Big Otter Ravine.

Avon Park Limestone consists of dark brown dolomite alternating with layers of chalky limestone; both may contain chert and gypsum. Thickness of this formation varies from 170 to 270 feet.

The Lake City Limestone, another Eocene formation, is composed of alternate layers of dark brown dolomite and chalky limestone, both of which may contain chert and gypsum. Gypsum and anhydrite may occur at the base of the formation. The upper part of the deposit may contain carbonaceous material and green clay. The Lake City Limestone attains a thickness of 500 feet.

The last formation of Eocene Age is the Oldsmar Limestone. While the top half of the formation is a very porous, brown limestone with some gypsum and anhydrite, the bottom half consists of a thick zone of dolomite with chert or anhydrite. Oldsmar Limestone ranges between 250 and 350 feet in thickness.

The Cedar Keys Limestone is a Paleocene deposit. Its lower section is dolomitic. Near the middle is a distinct marker bed of clay. The greater part of the formation is a gray, white, or brown color, is dense to porous in consistency, and is comprised of fragmental limestone impregnated with gypsum and anhydrite. Red calcareous clay and pyrite may be present. This formation may be 400 to 450 feet thick.

The modern geology of the preserve is subject to alteration due to natural processes. Sinkhole formation, for example, continues to be a relatively common phenomenon in the preserve. At least four new sinkholes are known to have formed within the past several years. Human activities such as mining, however, apparently have not been a major factor in the geologic history of the preserve.

Soils

Over 35 percent of the soil types recorded in Alachua County by the Natural Resources Conservation Service (NRCS) are present in San Felasco Hammock Preserve State Park (Thomas et al, 1985). This high degree of soil diversity can be attributed to north Florida's climate and to the complex geology and hydrology of the region. The NRCS soil survey classifies the preserve's soils in 26 map units consisting of 20 soil series (see Soils Map). In this plan, Addendum 4 contains detailed soil descriptions.

Most soil disturbances identified in various parts of the preserve are the result of past agricultural and silvicultural practices. These practices included the cultivation of citrus and cotton, the production of tung oil and turpentine, and the harvesting of pines for pulpwood and saw logs. These activities depleted the soil of nutrients and increased the area's susceptibility to erosion.

Areas within the preserve that are prone to significant soil erosion include service roads, footpaths, and areas of high visitor use including the San Felasco Recreational Trail System. Some of San Felasco trails were created prior to 1999, but since that year the equestrian and bike trails have rapidly expanded their distances. The entire trail system accommodates multiple user groups including hikers, off-road mountain bikes and equestrians. As of 2016, these trails equaled a total of 64 miles for all user groups.

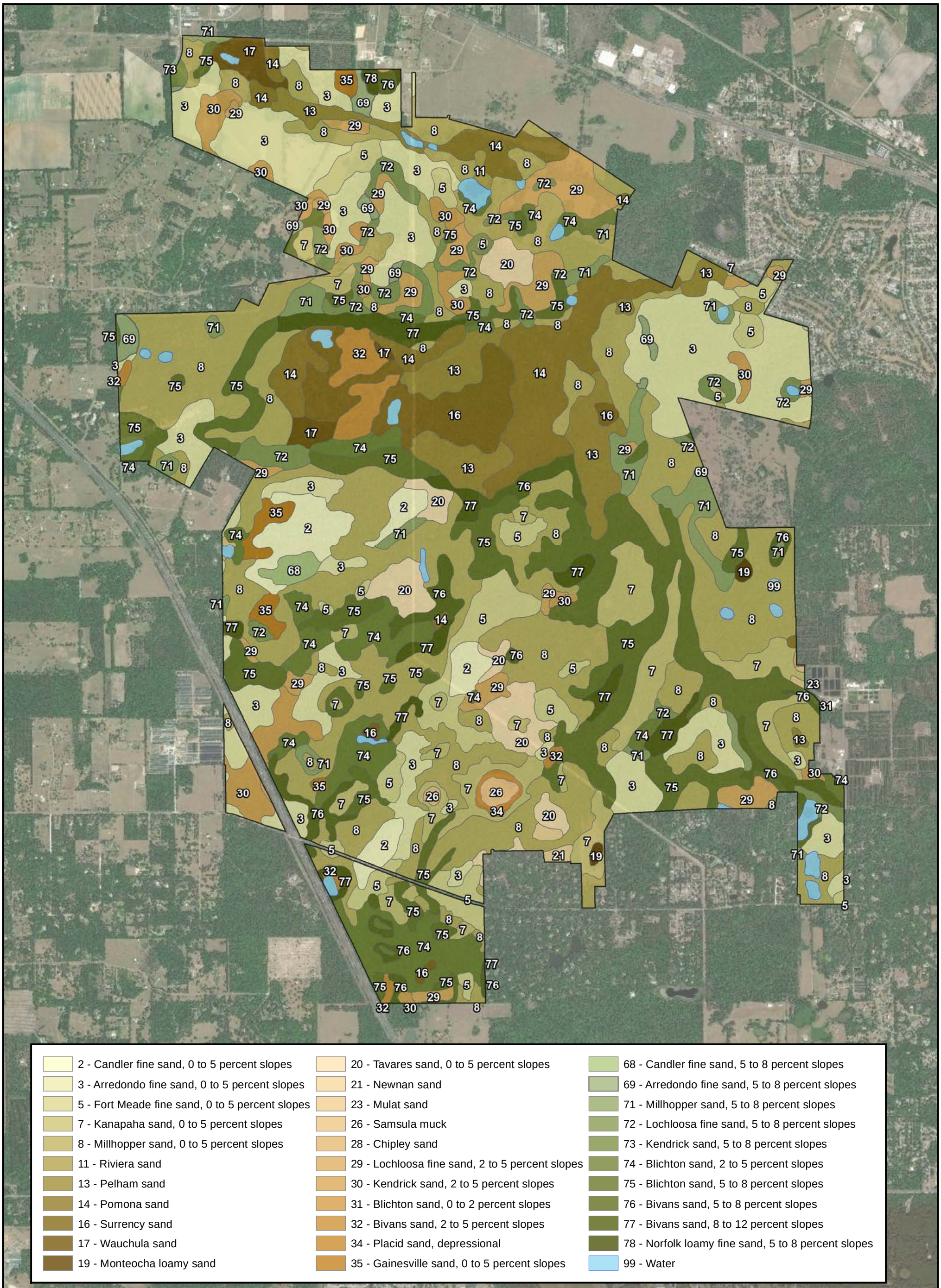
Many trails at the preserve follow gently undulating topography, however because of the high occurrence of karst features and rapid elevation changes throughout the preserve, the trail routes often utilize erosion-prone slopes. Topographic features such as wetland depressions, sinkholes, streams, and especially the slopes adjacent to Sanchez Prairie are highly vulnerable to increased rates of soil erosion. Trails are excluded from the most sensitive areas, especially within the preserve’s wilderness zone.

Considering its age, the trail system remains in fairly good shape given the high erosion rate potential. However, it is well known that all trails, regardless of complexity, will eventually suffer from the effects of soil erosion (Bratton et al. 1979). The areas that experience increased rates of erosion are those sections that contain steep slopes, sensitive wetland and karst features, large trees with extensive root systems, and/or improper trail placement.

There are several areas where soil erosion has taken a significant toll and impacted the topography within the preserve. A considerable amount of natural community restoration will be necessary to repair disturbances from agricultural uses in the northern portion of the preserve. Past land uses include clearing for improved bahiagrass pastures, ditching and berming to drain wetlands, and cattle operations along Cellon Creek that eroded streambed and riparian areas.

Several upland areas, mainly those with steep slopes, continue to experience severe soil erosion. These include certain unpaved park service roads, multiple-use recreational trails, and areas with significant feral hog rooting. Logging activities to control southern pine beetles also caused erosion impacts to some steep slopes of the preserve. Management activities will follow generally accepted best management practices to prevent soil erosion and conserve soil and water resources on site.

San Felasco Hammock Preserve also contains a historic arsenic contamination site from a former cattle dipping operation on the property. The area that was affected



SAN FELASCO HAMMOCK
PRESERVE STATE PARK

0 750 1,500 3,000 Feet

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

SOIL MAP

by the dip vat sits on a 24-acre hillside parcel south of Cellon Creek. Constructed in the early 1900s, an in-ground dipping vat was used to immerse cattle in a chemical bath as a preventative for infectious insect-borne diseases at a time when Texas tick fever was a major problem in the cattle industry (Hope 2005). Soil cores and groundwater well monitoring have verified that the San Felasco dip vat site was contaminated with arsenic and chlorinated hydrocarbons originating from these former cattle operations. Soil deposits surrounding historic dip vat sites throughout the state have been identified as sources of arsenic and other poisons that have the potential to contaminate groundwater (CH2M Hill 1993). Additional discussion of this issue appears in the Hydrology section below.

Minerals

Limestone deposits and the Hawthorn Group, which may contain phosphatic ore, underlie much of the preserve. The commercial value of potential deposits in the preserve has not been determined. According to the Bureau of Geology, the economic potential of the area for mineral development or oil and gas production is low.

Hydrology

San Felasco Hammock Preserve State Park is situated in a hydrologically unique region of north-central Florida. The parks most prominent hydrological features are the Sanchez Prairie wetland system and several prominent blackwater streams including Cellon Creek, Blues Creek, Turkey Creek, and Moonshine Creek.

The karst terrain of San Felasco has encouraged the development of a diverse system of wetlands, ponds and streams within the unit. Sanchez Prairie and many associated drainage systems within the preserve are complex assemblages of creeks, ravines, sinks, swallets, floodplain swamps, alluvial forests, and bottomland forests. Three of the unit's largest blackwater streams Cellon Creek, Blues Creek, and Turkey Creek originate outside the preserve in separate headwater wetlands. Moonshine Creek, a fourth blackwater stream, lies entirely within the preserve. All four of these waterbodies are stream-to-sink creeks that terminate within the preserve at a recognized karst feature and funnel surface water directly into the Upper Floridan aquifer.

Sanchez Prairie, or "pond", located in the northern half of the preserve, is an 80-foot deep and two-mile wide, elongated solution basin or karst prairie that captures the flow of a medium-sized blackwater stream called Turkey Creek. The term "prairie" may be somewhat of a misnomer since forests completely cover the basin except for a few open water areas. In one respect, however, prairie might be an appropriate identifier. According to one theory, Sanchez Prairie may represent an early stage in the formation of a basin marsh such as the huge one at Paynes Prairie (Williams et al. 1977; Dunn, 1982).

Smaller creeks within the preserve and especially along the steep slopes of Sanchez Prairie typically descend to a lowland area and can anastomose. Channeled flow

from these creeks can also become sheet flow when sinks that drain the system cannot adequately convey their total discharge. Floodplain swamps have also formed as a result of creek flooding. Concentric rings of alluvial and bottomland forest are communities are often associated with floodplain swamps in Sanchez Prairie. Depression marshes, baygalls, and clastic upland lakes have developed in association with several of the preserve's seepage systems. All of this wetland diversity at San Felasco, including the stream-to-sink features, are strongly defined by local karst geology, but more specifically by the Cody Scarp.

As mentioned, San Felasco straddles a portion of the Cody Scarp, one of the most recognizable hydrogeologic and topographic features in the state (Puri and Vernon 1964; Upchurch 2002; White 1970). As with most stream systems that cross this scarp, a sizeable proportion of the surface water flow often disappears underground at sinks/swallets and reemerges at various resurgence points after mixing with groundwater in the Floridan aquifer (Copeland 2003; Martin and Dean 2001; Upchurch 2002). There are numerous stream-to-sink discharges and resurgence waterbody examples all throughout the Suwannee River Basin of north-central Florida including large waterbodies like the Santa Fe River, Ichetucknee River and Peacock Springs River Slough. It important to note the high potential for surface water contaminants that pass through swallets directly into the Upper Floridan aquifer can degrade groundwater quality and have numerous significant implications that will be discussed below (Macesich 1988; Means and Scott 2005).

Because of dye trace evidence and extensive cave mapping, water scientists are now confident that a significant connectivity exists between surface water and groundwater sources in western Alachua County (i.e. Alachua Stream System) and the Lower Santa Fe River (Aley 1999; Meyer 1962; Martin and Screaton 2001; Moore et al. 2009). The Alachua Stream System includes karst features at San Felasco and is one of the most recognizable and highly researched internally drained swallet regions in the state (Foose 1981; Williams et al. 1977). This region corresponds strongly with the underground parallel fault system of significantly fractured limestone that is often exposed along the Cody Scarp. These faulted formations make up the Cross-County Fracture Zone mentioned above in the geology section (Vernon 1951; Williams et al. 1977). The Santa Fe River is one of three major tributaries of the Suwannee River, drains nearly 1,400 square miles, and is designated as a "Special Water" under Florida's Outstanding Florida Water Administrative Code (Chapter. 62-302.700[9][i][34], F.A.C.) (Clark et al. 1964; Berndt et al. 1996). Additionally, Cellon, Turkey and Blues Creeks are also designated Outstanding Florida Waters (OFW). These OFW's are those state waters with "exceptional recreational or ecological significance" (Chapter 62-302.700[3], F.A.C.). Portions of the Santa Fe River are impaired and a Basin Management Action Plan has been developed for that water body (FDEP 2012). One of the best documented examples of an internally drained systems of the Lower Santa Fe River is Cellon Creek at San Felasco.

<u>Cellon Creek</u>

The Cellon Creek watershed lies at the northern half of the preserve and occupies a total area of just over 11 square miles. Cellon Creek originates in three small

headwater areas north of the town of Hague. Two of the headwaters are located on the University of Florida's Agriculture Experimental Farm, while the third one is a forested wetland located upstream from an industrial complex. Flows from these three headwaters converge just west of Hague to form the main stem of Cellon Creek. Cellon's flow moves south under U.S. 441 and west for a short distance before it enters San Felasco east of a fairly large circular-shaped natural waterbody locally known as Itchy Bottom Lake. Many of the wetlands around the perimeter of Itchy Bottom Lake have undergone severe historic alterations.

The natural hydrology of the Cellon Creek/Itchy Bottom Lake complex is a unique combination of stream, lake and forested "sheetflow" wetlands all of which are functionally dependent on both local aquifer levels and upstream discharge rates. All of the area between Itchy Bottom Lake and the northern extent of Cellon Creek is defined as the "Cellon sheetflow wetland". In the 1950's, landowners channelized and rerouted Cellon Creek directly into Itchy Bottom Lake via a berm/canal structure (i.e. Cellon Creek berm). This localized diversion of the historic stream course significantly changed the hydrology of the Cellon sheetflow wetland. In 2003, Suwannee River Water Management District (SRWMD) and park management implemented a phased wetland restoration project at the Cellon sheetflow wetland.

When the stream exits the Cellon Creek/Itchy Bottom Lake complex, it meanders through alluvial forest and marsh communities for nearly two miles before draining into a karst feature called Lee Sink. Aesthetically, Lee Sink appears to the untrained eye to be simply a large 20-foot deep disturbed depression, perhaps even artificial. Dye trace evidence in 2005 confirmed that the surface water entering Lee Sink funnels directly through a swallow hole into the Floridan aquifer and, as groundwater, then proceeds to the Santa Fe River near the Hornsby Spring complex in northwest Alachua County via the Cross-County Fracture Zone (Brooks 1967, Williams et al. 1977; Butt et al. 2006). The total stream length of Cellon Creek above Lee Sink is approximately 4.5 miles. The Cellon Creek/Itchy Bottom Lake to Lee Sink system is a stream-to-sink hydrologic feature quite similar to all three of the other prominent creeks found at the park, all equally important to the hydrology of the region (Williams et al. 1977).

Blues Creek

The Blues Creek to Big Otter Ravine is the second major stream-to-sink system in the preserve. Blues Creek headwaters are situated about two miles east of the preserve in northwest Gainesville in a large forested wetland dominated by cypress, red maple and swamp black gum. The drainage from these eastern headwaters flows west under Northwest 43rd Street and through several subdivisions before entering the preserve at its southeast boundary near a wetland called Fox Pond. The Blues Creek watershed occupies a nearly eight square mile area, and as of 2004 approximately 30% of this landscape was urbanized (ACEPD 2004). Comparatively, only 13% of the Blues Creek watershed was urbanized in 1986 (Meier and Crisman 1986).

In the early 1980s, residential urbanization began within the landscape surrounding Upper Blues Creek headwaters. In 2016, this residential development consisted of

twelve separate subdivisions throughout the area, each having a potential to impact the water resources of Blues Creek. The state of Florida requires stormwater management plans for all residential developments, but for those that discharge to OFW's, such as Blues Creek, the standards are even more stringent following legislation in Chapter 62-40 FAC (FDEP 2007).

A large portion of urban stormwater runoff from each subdivision is captured by a series of retention/detention control structures placed strategically throughout each development. Additionally, a United States Department of the Interior, National Fisheries Research Center (NFRC) also lies within a separate unnamed tributary that flows into the main channel of Blues Creek. Periodic discharges from this facility may affect Blues Creek. Water resources of the preserve could be adversely impacted by changes in quantity (i.e. rate of discharge) and/or quality of stormwater runoff into the Blues Creek watershed from these developments. Impacts to streams associated with land use changes will continue to intensify as the Cities of Gainesville and Alachua encroach upon the preserve. Efforts will need be taken to improve the condition of all streams entering the preserve since, collectively; they provide significant recharge to the Floridan aquifer.

Once Blues Creek enters the preserve boundary, its flow continues in a northwesterly direction for about two miles, before it enters a large floodplain swamp locally known as Chert Swamp. Blues Creek ultimately drops into a named swallow hole called Big Otter Ravine, and directly enters the Floridan aquifer. At least four smaller tributaries join the main channel of Blues Creek in the preserve. There is one named tributary, Twin Creek, and three unnamed including the NFRC stream mentioned above. The total length of Blues Creek is approximately 4.5 miles. The Blues Creek/Chert Swamp/Big Otter Ravine and Cellon/Itchy Bottom Lake/Lee Sink systems both appear to be slightly smaller versions of the largest stream-to-sink feature in the preserve, namely the Turkey Creek/Sanchez Pond/Split Rock system.

Turkey Creek

The Turkey Creek watershed extends southeast from the park for nearly 5 miles and occupies an area of nearly 12.5 square miles. The creek headwaters originate in extensive hardwood swamps that the run parallel to U.S. 441 between Gainesville and the City of Alachua. There are at least eight well-defined tributaries in the Turkey Creek watershed. One has its origins as an unnamed small magnitude spring and a second receives a major anthropogenic influence from the Deerhaven industrial power plant (Breedlove and Associates 1976). Base flow discharge from the creek flows westerly through or adjacent to at least four subdivisions within its headwaters before entering the preserve at its northeast boundary. In the late 1970s, discharge (i.e. blowdown) from the Deerhaven Plant was generally considered to dominate the base flow of Turkey Creek. Once Turkey Creek enters the preserve, it then meanders southwest through the park for almost two miles before discharging to the Floridan aquifer at a sink known as Split Rock, located on the southern edge of Sanchez Prairie. The total length of this medium-sized blackwater stream is about 6 miles.

There are also numerous other stream systems scattered across the preserve that are located entirely within the boundary. Sometimes these waterbodies are named, such as Maple Branch, Twin Creek or Moonshine Creek, but most often they remain unnamed. Nevertheless, these small, permanent or intermittent streams comprise some of the preserve's most distinctive landscape features that help to define its unique character. Many of these watercourses originate as small seepage streams that emerge from the soil/bedrock, flow for a distance on the surface, sometimes creating ravines or gullies, and then disappear underground. Maple Branch, one of the larger seepage systems within the preserve, is typical of this type of seepage pattern.

A good number of San Felasco's seepage streams have their headwaters within a perched wetland that overflows downslope. Moonshine Creek is an example of a larger ravine system that originates within the preserve from a large perched wetland north of Millhopper Road. Moonshine then flows southward for about one mile, passes under Millhopper Road and eventually discharges into at least two unnamed swallets near the south boundary of the preserve. In 2015 it was observed that a new sinkhole had developed to the northwest of the swallets, capturing some of the flow from Moonshine Creek. Anthropogenic influences including stormwater runoff, erosion from foot traffic, and feral hog damage have resulted in impacts to this water resource.

Water Issues

The three most important water quantity and quality issues that influence the water resources at San Felasco Hammock are erosion and sedimentation associated with creeks, wetlands or sensitive karst features, alteration of the natural hydroperiod of preserve stream systems and Sanchez Prairie, and regional surface and groundwater contamination. As described above in the Soils and Hydrology sections, water issues tend to be the most severe in the three main waterbodies that originate from outside the preserve, namely Cellon, Turkey and Blues Creeks. Urbanization such as industrial facilities, residential developments, as well as impervious roadways within the watershed of these stream systems can significantly influence stormwater effects on the preserve.

Erosion/sedimentation

Because of its strategic position along the Cody Scarp, San Felasco Hammock Preserve contains an incredibly high number of sensitive karst features scattered all across its landscape. Within the preserve, swallets that have a direct aquifer connection, such as Split Rock Sink, Big Otter Ravine or Lee Sink, are all located within steeply-sloped topography with variably wet soil conditions that create a very high potential for erosion. Preserve staff must continually be vigilant to protect these karst sites from any potential impacts from erosion. Many of these karst features are closed to access to preserve the soil stability and overall integrity of these sensitive resources. Historically, some karst features in the preserve were severely eroded because of issues associated with unrestricted access.

There are a number of erosion and sedimentation issues within the preserve that continue to challenge staff including unpaved service roads and recreational trails in

areas with intermittent seepage streams. When a road or trail is placed within a highly sloped landscape with wet soil conditions, the probability of erosion will substantially increase, while its long-term sustainability will generally decrease (Bratton et al. 1979). Several of the service roads in the preserve have been impacted by severe erosion including some that have been abandoned because they can no longer be safely used for access. It is important to understand and use the best available management techniques, perhaps including a gradient/slope analysis, for sustainable road and trail development.

Heavy storm events can accelerate unnatural siltation into wetland communities. Increased stormwater runoff into preserve sinkholes or other depression wetlands will be identified and corrections made using the best available management practices. In some cases where service roads have been abandoned, such as at Twin Creeks Road or the old bridge crossing at Turkey Creek, additional restoration work may be necessary at stream crossings.

Staff frequently discover previously unmapped seepage wetland communities within the preserve, particularly during periods of high rainfall. Significant seepage wetlands, including newly discovered seeps, will be best protected from erosion and sedimentation by allowing temporary closures of affected roads and trails or even rerouting the road or trail around sensitive areas.

Hydroperiod alteration

Urbanization has the ability to significantly modify the character and biological integrity of a wetland or stream ecosystem and associated riparian habitats (Suau 2005; White and Greer 2006). When the footprint of a development creates impervious surfaces within the boundary of a watershed, storage capacity and flow volumes may be altered (Fletcher et. al. 2013). Increased impervious surfaces can reduce the available surface area of a wetland, and therefore decrease its storage capacity and subsequently increase flow volumes. Changes to these physical attributes can affect the natural hydroperiod of a watershed. Stream characteristics and ecological function are modified and changes to downstream habitats can be expected.

At San Felasco during the late 1970s, for example, natural communities within Sanchez Prairie were impacted by a significant flood event that was triggered by large quantities of blowdown discharge that originated from the Deerhaven power plant. This upstream event altered the natural hydroperiod of Sanchez Prairie, created excessive flood conditions beyond the normal stream phenology, and caused a significant hardwoods mortality event to planer trees (*Planera aquatica*) adjacent to Sanchez Prairie. In order to correct the situation, GRU was required to build onsite wastewater treatment ponds on their property in order to dampen the hydroperiod, and increase wetland storage capacity for a more controlled rate of discharge through the Turkey Creek system.

Excess flooding is similarly a concern for management of the Blues Creek stream-to-sink waterbody. The upper Blues Creek watershed has been subject to intense residential development since the early 1980s. The rate of discharge from the Blues

Creek watershed has been a major permitting consideration to ensure downstream natural resources remain unaffected by stormwater discharge into the system. In addition to the use of stormwater ponds in the upper Blues Creek watershed, regulators also required a more stringent reduction of peak creek discharge by allowing a controlled-rate release weir structure to be constructed within the main upper basin branch below these developments.

Surface and groundwater contamination

The hydrogeological significance of San Felasco's location along the Cody Scarp cannot be overstated. The highly porous geologic nature of the San Felasco landscape as well as its regional surface water influence (i.e. Blues, Cellon, and Turkey) is paramount at multiple ecological scales (Williams et al. 1977). As swallets in the preserve capture surfacewater and mix with the adjacent groundwater associated with the Alachua Stream System, limestone caverns that lie along the Santa Fe River are constantly being replenished via these interconnected watersheds.

Baseline assessments followed by routine monitoring of water levels (i.e. hydroperiod), surface/groundwater pollution loads, and land use changes are essential components needed to understand changes and the magnitude of impact of these upgradient stream/wetland ecosystems on recipient downstream watersheds. The Alachua County Environmental Protection Department (ACEPD) has also long played a key role in watershed monitoring throughout the county, including Blues, Turkey and Cellon Creeks. Since 1979, ACEPD has routinely conducted assessments to monitor a variety of water parameters at a number of permanent stations along each of these three stream systems. Park and District DRP staff have also collected water samples from these three major streams as part of the LAKEWATCH program since 2008 (LAKEWATCH 2016). No water quality or quantity monitoring has ever occurred in Moonshine Creek. Much of the hydrological information that has been collected, stored, and managed by state water management agencies can now be accessed through a variety of web-based filters (USGS 2016; SRWMD 2016; FDEP 2016a, FDEP 2016b).

The first comprehensive assessment of the Blues Creek watershed was a one-year study from 1985 through 1986 (Meier and Crisman 1986). This in-stream biological and water chemistry study was put in place as a baseline assessment due to increased urbanization within the upper reaches of this sensitive watershed (Fletcher et al. 2013). During this study, water scientists analyzed data from five stations along the entire creek, including three within the preserve. In their final assessment, researchers characterized this freshwater system as a healthy intermittent low discharge, well oxygenated and slightly alkaline waterbody with an extremely robust diversity of macroinvertebrates, especially at one particular study location (i.e. Station 3 on San Felasco near Fox Pond). In fact, the researchers recommended that station as the ideal location for future comparative assessments to monitor shifts in macroinvertebrate diversity in response to pollution.

The first long-term discharge/water level data analysis was conducted by the United States Geologic Survey (USGS) during the period from 1984-1994. During this

period, USGS and District 2 DRP staff collected discharge/stage data (USGS #02322016) at several stations within the Blues Creek watershed (USGS 2016; District 2 DRP files). Within this period, Blues Creek had an average annual flow of 3.43 cubic feet per second (cfs) and a harmonic mean of 0.72 cfs (N= 3762; Maximum= 147 cfs, Minimum= 0.1 cfs). Similarly, ACEPD collected and analyzed flow measurements at Blues Creek during the period from 1998 to 2011 and reported discharge as an annual harmonic mean at 0.02 cfs (ACEPD 2012).

Given the periodic increases in fecal bacteria levels, decreased discharge and highly intermittent nature of Blues Creek, the overall habitat assessment of this stream ecosystem oddly enough still appears to remain healthy with an adequate suite of water quality parameters and continued robust macroinvertebrate diversity (ACEPD 2012).

The Cellon Creek watershed has also undergone a fairly extensive level of biological and water chemistry monitoring going back to at least 1980, primarily because of a rechargeable battery manufacturing facility (FDEP Site ID # FLD043860451) that is located in one of the upper tributaries of this stream's headwaters (Water and Air Research (WAR) 1980). This industrial facility was built in 1963, has changed ownership numerous times, and was declared a Hazardous Waste Management Area by FDEP and U.S. Environmental Protection Agency (USEPA) in late 1980's due to its regular chemical releases into the Cellon watershed (WAR 2012; WAR 2015). Besides this facility and the previously mentioned Cellon sheetflow wetland, other significant urbanization influences in the Cellon basin comes from light industry, cattle grazing, and a large research complex (i.e. Progress Center Research and Technology Park) located adjacent to Lee Sink.

The battery manufacturing facility, mentioned above, was not even considered for inclusion into EPA's National Pollution Discharge Elimination System (NPDES) permit system until after 1975 (USEPA 1975). Interestingly, watershed science was only in its infancy at that time, and federal and state protections for isolated wetlands were not as stringent as they are today. During the first 20 years of operations at the facility, a suite of hazardous waste chemicals used in the battery manufacturing process were stored onsite in outdoor holding ponds and landfill locations adjacent to Cellon Creek and were periodically discharged into this waterbody.

One of the first known assessments of the effects on Cellon Creek occurred in August 1980 (WAR 1980). Even though this manufacturing plant used all the required protective precautions at its hazardous waste containment areas, significant soil and groundwater contamination occurred at this site. Cadmium and nickel are two of the primary inorganic compounds of concern at the site, but high levels of cobalt and nitrates were also present. This facility annually discharged, from 1963-2004, substantial amounts of waste material into a drainage ditch that moved downstream into the Cellon Creek watershed (Geraughty and Miller Incorporated 1981). The EPA tracked all hazardous effluent releases from this facility (USEPA TRI ID #32602GTSNRHIGHW) into Cellon Creek during the period from 1987-2004 (USEPA 2016). In 1987, 2001 and 2002, for example, an annual maximum effluent release of 250 pounds (lbs.) of cadmium and 250 lbs. nickel

occurred from the facility into the drainage ditch. In 1998 and 1999, an annual maximum effluent release of 683 lbs. and 550 lbs. of nitrate compounds similarly occurred. Perhaps in response to the large cadmium releases in 2001/02, FDEP conducted stream condition health assessment monitoring at the battery facility property (FDEP 2004). From the conclusions of this work, researchers determined that Class III water quality standards were still being exceeded for both cadmium and nickel concentrations through the end of 2003. Additionally, FDEP suggested that given the high detection level of cadmium in the creek during their sampling, any stream macroinvertebrates within the Cellon system were undoubtedly exposed to toxic concentrations.

In 1987, the battery facility was issued a hazardous waste Closure Permit (#HF01-149565) under the guidance of FDEP and USEPA (WAR 2015; USEPA 2016). During the period from 1991 through 2016, the facility has been required to undergo substantial soil and groundwater remediation cleanup efforts (WAR 2015; FDEP 2016c). The facility uses a groundwater recovery and treatment technology whereby water from the surficial, intermediate and Floridan Aquifer is extracted, treated and subsequently discharged back via a surface spray field (USEPA 2000). During a one-year period from June 2014 to June 2015, for example, this facility extracted and processed a total volume of contaminated groundwater of close to 2 million gallons (WAR 2015).

In 1987 the University of Florida (UF) Foundation began to develop a large research hub known as Progress Center Research and Technology Park on a piece of property adjacent to Cellon Creek near its terminus at Lee Sink. One condition of the 1987 City of Alachua Development Order for this Development of Regional Impact (DRI) was a requirement to monitor water quality of Cellon Creek. Annual surface water, groundwater and sediment monitoring from 1988-1995 was conducted using five shallow water wells and two surface locations on Cellon Creek (CH2M Hill 1995).

During the initial 1988 baseline monitoring efforts for the Progress Center, FDEP was informed that sediments in the lower sections of Cellon Creek were contaminated with heavy metals, including cadmium, very similar to those sampled upstream at the battery plant (CH2M Hill 1988). Much different from the battery plant facility, however, monitoring results for the Lower Cellon Creek indicated that heavy metals were only present in the sediments and not detectable within the surface water or groundwater. Furthermore, the metals in the lower Cellon were determined to be much less toxic in their current state unless drastic pH changes were to occur in the water of the stream (FDEP 1991).

Nonetheless, in the early 1990s, as DRP was acquiring a nearly 900-acre tract from the UF Foundation, the heavy metals issue of Cellon Creek became an important consideration to the state. Important waterbodies associated with the 900-acre acquisition included a large segment of lower Cellon Creek, Lee Sink, and Itchy Bottom Lake wetland complex. One condition of the purchase of this tract, was a FDEP recommendation that future recreational activity along Cellon Creek be severely limited to ensure that the stream sediments would not be re-suspended

because of visitor activities. The UF Foundation continues to hold easement rights for the development of stormwater treatment and discharge facilities in areas upslope of Cellon Creek and Lee Sink. As these research facilities are developed the hydrology of Cellon Creek may be further impacted.

Similar to Blues Creek, ACEPD collected and analyzed flow measurements at Cellon Creek during the period from 2002 to 2012 and reported discharge as an annual harmonic mean at 0.02 cfs (ACEPD 2012). Even with the frequent exceedances in fecal bacteria levels, high background level of heavy metals, and highly intermittent nature of Cellon Creek, the overall habitat assessment of this stream ecosystem does still appear to be healthy with a high abundance and diversity of benthic macroinvertebrates (ACEPD 2012).

Even though Turkey Creek has also undergone numerous biological and water chemistry monitoring efforts since 1979, there is a paucity of available assessments to evaluate the condition of this important stream to sink watershed. In addition to stormwater runoff, one other important surface and groundwater concern is the Deerhaven industrial power plant.

The Deerhaven power plant is a coal-fired industrial facility that operates under a FDEP NPDES stormwater monitoring permit (FDEP NPDES Facility ID # FLR05B392). In 1987, FDEP outlined certification conditions for the facility (FDEP 1987). The EPA also tracked all hazardous effluent releases onto land and surface waters within this facility (USEPA TRI ID #32653GNSVL10001) during the period from 1998-2014 (USEPA 2016). The toxic waste chemicals produced by this plant are managed onsite within landfill and holding ponds, however there is an intricate connection between these contaminant sites and a facility stormwater system which ultimately discharges into Turkey Creek (Innovative Waste Consultant Services (IWCS) LLC 2015; IWCS 2016). This facility undergoes periodic inspections for hazardous materials compliance (FDEP 2009).

At this time it is unclear, from the available documents, what percentage of stormwater runoff generated by this facility and subsequently discharged to Turkey Creek contained hazardous effluent contaminates, nonetheless, incidents have occurred periodically (Gainesville Regional Utilities 1992). According to the EPA toxic release inventory, extremely large amounts of chemical waste are generated at this facility (USEPA 2016). In 2012, one watchdog organization provided documented concerns about potential groundwater leaks within the containment system of at least two of the onsite holding ponds at this facility (Clean Water Action of Florida 2013).

ACEPD has conducted numerous chemical and biological assessments within the Turkey Creek watershed going as far back as 1979 (WAR 2004). ACEPD has collected and analyzed flow measurements at Turkey Creek during the period from 1999 to 2012 and reported discharge as an annual harmonic mean at 0.02 cfs (ACEPD 2012). According to the ACEPD assessments, fecal coliforms and in-stream erosion levels have caused some upper watershed sections of Turkey Creek to be classified as impaired up through 2012.

Water managers have long recognized that urbanized watersheds, especially in highly karst areas like Gainesville, can create serious water quality issues (Best et al 1995; Cichon et al. 2004; ACEPD 2007; ACEPD 2008). State water managers have monitored groundwater quality in numerous types of wells over the past 30 years.

Within Gainesville and near San Felasco Hammock Preserve, over 450 different wells are used to track groundwater quality in the area (FDEP 2016a). Some of the wells have served to document changes associated with known contaminated sites, while others are associated with a Very Intense Study Area (VISA) monitoring, (Maddox et al. 1998). In the City of Gainesville, there are at least 21 VISA wells that monitor contamination of Upper Floridan aquifer, with the majority of these sites near or west of the Interstate 75 corridor. There is also a USEPA Superfund site within the Gainesville city limits (USEPA 2006; Mercer et al. 2007).

The FDEP monitors a significant number of groundwater wells within the region, including Background monitoring wells, VISA wells, Class V Non-ASR and Class I underground injection wells, Storage Tank Contamination wells, NPDES wells, hazardous waste site wells, industrial power plant wells and Superfund site wells. Additionally, the Florida Geological Survey tracks the intermediate, upper, and lower Floridan aquifers using over 150 groundwater monitoring wells that are scattered throughout the Gainesville region, including at least 11 that are located adjacent to the park. Potentiometric groundwater levels from wells situated near Big Otter Ravine(#S091938002) at San Felasco have also been collected by SRWMD since 1980 (SRWMD 2016).

One specific subset of well and soil testing data important to San Felasco is that associated with an abandoned cattle dipping site at an old dairy site located in SFH-4A adjacent the power lines (CH2M Hill 1993). This is the only known cattle dip vat in the park. In 1993, the DRP contracted out an assessment of the site and both groundwater and soils were found to be contaminated with arsenic, toxaphene and other pesticides. This testing was completed prior to the final purchase of the UF Foundation addition. Additional environmental assessments were completed in 1992. The recommendation made to DRP was to restrict access to this site with fence.

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 26 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.

Limestone Outcrop

Desired future condition: Limestone outcrops are associated with karst topography and are often found within other features such as sinkholes, or as isolated features within mesic hammocks and upland hardwood forests. Various ferns, mosses and smaller herbs typically grow on the limestone surface or in crevices. Characteristic species in north Florida will include partridgeberry (*Mitchella repens*), brittle maidenhair fern (*Adiantum tenerum*), netted chain fern (*Woodwardia areolata*), jack-in-the-pulpit (*Arisaema triphyllum*), southern shield fern (*Thelypteris kunthii*), and various species of panicgrass (*Panicum* spp.). Other rare fern species may also occur on limestone outcrops.

Description and assessment: As might be expected given their location amidst the karst landscape of the Cody Scarp, San Felasco Hammock contains numerous limestone exposures. These occur as limestone outcrops situated along the sides of sinkholes and as large limestone boulders associated with disappearing streams. Due to their limited size and erratic distribution, only selected larger limestone outcrops and boulders are included on the natural community maps for the park. The most significant examples are located within Big Otter Ravine and Split Rock where Blues Creek and Turkey Creek enter sinks.

The limestone outcrops are considered to be in good to excellent condition. Most are located well away from trails or roads or are screened from public view by abundant vegetation or undulating terrain. The exotic fern Japanese false spleenwort (*Deparia petersenii*) is an FLEPPC category I invasive species and is established at Big Otter Ravine and other areas with exposed limestone in the park. Rare or imperiled plant species recorded at limestone outcrop or boulder sites include San Felasco spleenwort (*Asplenium monanthes*), although it has not been documented in the park in at least several decades.

General management measures: Limestone outcrops must be protected from disturbance, particularly that caused by foot, bicycle, or horse traffic. Most of the outcrops are within areas where public access is already restricted. Still, the park should take measures to prevent runoff and erosion from degrading the limestone outcrops, particularly near existing trails or roadways. Personnel involved in the control of exotic plants in sinkholes and upland hardwood or bottomland forests should consider it likely that limestone outcrops or boulders harboring rare plants are nearby, and should minimize ground disturbance and overspray of herbicide as much as possible. Treatment of invasive exotic plants on limestone outcroppings will require careful planning and caution to avoid impacts to native species. Mapping of significant limestone outcrops, accompanied by surveys for imperiled plant species, will be necessary to ensure their long-term protection.

Mesic Flatwoods

Desired future condition: In the typical mesic flatwoods of north Florida, the dominant pine will usually be longleaf pine (*Pinus palustris*). Native herbaceous groundcover will cover at least 50% of the area at a height of less than three feet. Saw palmetto (*Serenoa repens*) will comprise no more than 50% of the total shrub cover, also at a height of less than 3 feet. Other shrub species may include gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), runner oak (*Quercus elliottii*), dwarf live oak (*Quercus minima*), shiny blueberry (*Vaccinium myrsinites*), and dwarf huckleberry (*Gaylussacia dumosa*). These shrubs will generally be knee-high or less in height. Few if any large trunks of saw palmetto will run prostrate along the ground. The optimal fire return interval for this community is two to three years.

Description and assessment: The most extensive area of mesic flatwoods within the preserve lies north of Millhopper Road adjacent to The Hammock subdivision. This flatwoods is relatively unique in that it occupies the highest elevations within the preserve. The existence of a flatwoods at this site would seem to indicate the presence of an impermeable layer, or hardpan, in the soil, although Dunn (1982) states that the soils here typically lack such a layer. North of the flatwoods is a wide transition zone of upland pine that grades into an expanse of upland hardwood forest. Upland hardwood forest is also found to the west of the site, while to the east is a dome community.

Longleaf pine (*Pinus palustris*) originally dominated the flatwoods canopy; however, the southern pine beetle outbreak in 1994-95 decimated the longleaf pine forest on this site. In response to the pine beetle threat, nearly all the standing timber on

about 40 acres of the mesic flatwoods was clear-cut, including hardwoods removed in the process of felling the infested pines. Before the beetle infestation, growing season fires had dramatically reduced the density and stature of invasive off-site hardwoods. The loss of the longleaf pines removed the major fuel source for growing season fires. As a result, this site is overgrown by species such as sweetgum, laurel oak, and water oak. Herbaceous components are still present and some younger longleaf are present, but they are suffering from competition from hardwoods and loblolly pines. Many hardwood sprouts have reached a size that may require mechanical or chemical control before prescribed fire can be successful at the site. Wiregrass (*Aristida beyrichiana*) persists in scattered patches and composites such as blazing star (*Liatris* spp.) are still present. The herbaceous layer is currently characterized by dwarf live oak (*Quercus minima*), bracken fern (*Pteridium aquilinum*), shiny blueberry (*Vaccinium myrsinites*), saw palmetto (*Serenoa repens*), and broomsedges. The initial round of longleaf pine planting occurred in 1999.

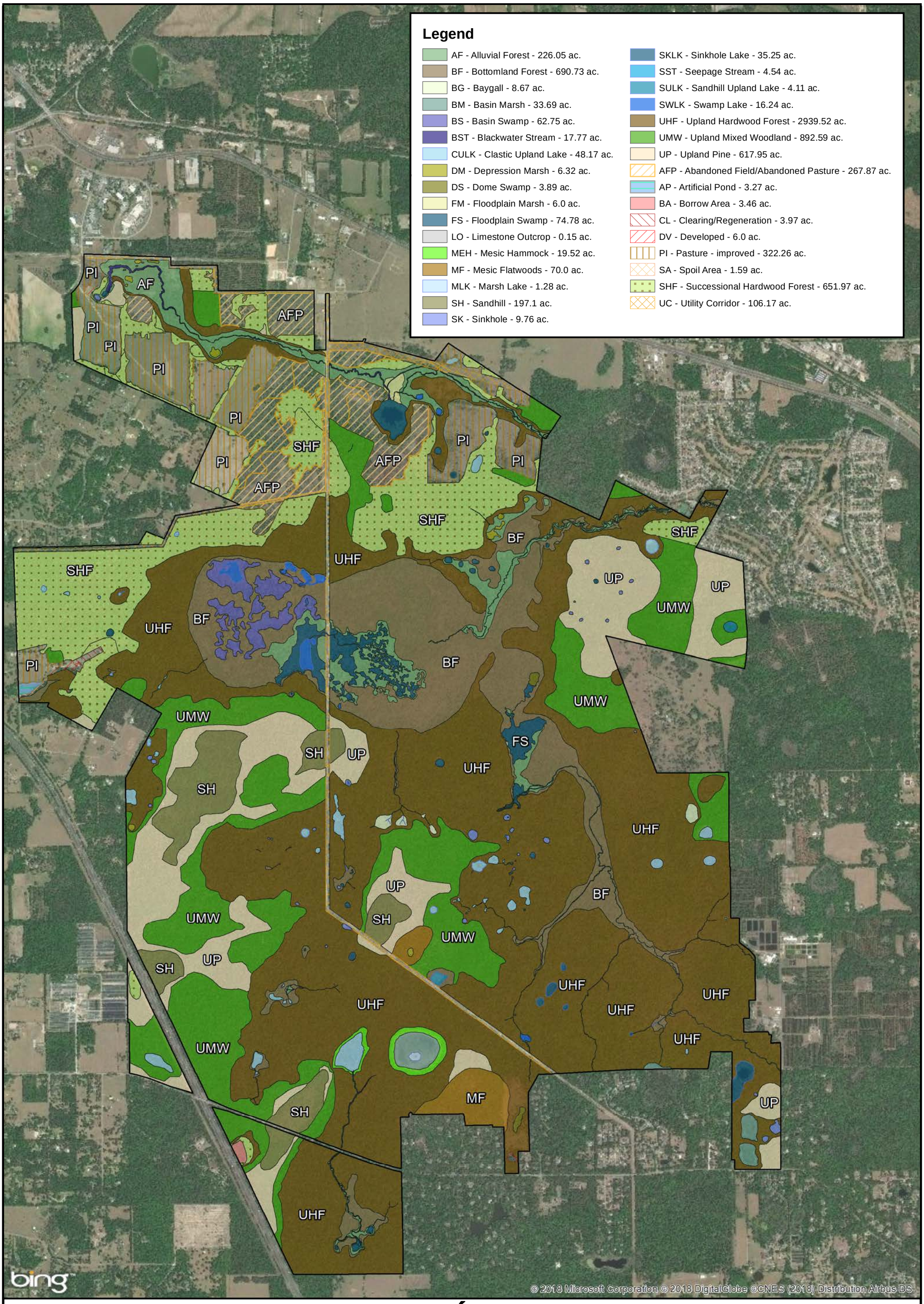
In 2015, a smaller infestation of southern pine beetles and other bark beetles was detected along the eastern border of the mesic flatwoods. A salvage cut was conducted in 2016 to control the infestation. As part of this timber operation loblolly pines were thinned and offsite hardwoods were removed in the overgrown portions of the mesic flatwoods.

Another area of mesic flatwoods is located within an upland pine area just north of the powerline easement in the center of the preserve. It occurs as a transitional band between a small depressional wetland and the surrounding upland pine. Before clear-cutting to control southern pine beetles in 1995, this area was thought to be overgrown upland pine or upland hardwood forest. Removal of the tree canopy stimulated the growth of many plant species more typical of mesic flatwoods. These include gallberry (*Ilex glabra*), and fetterbush (*Lyonia lucida*). Rarer species that appeared after the disturbance included pine lily (*Lilium catesbaei*) and yellow-fringed orchid (*Platanthera ciliaris*). Restoration of these mesic flatwoods will continue with periodic prescribed fires.

General management measures: Frequent prescribed fires will be an essential part of the management of the mesic flatwoods. In some areas, mechanical removal of offsite hardwoods and loblolly pines will be necessary to release groundcover and longleaf pines and increase the success of prescribed fires. Additional planting of longleaf pines may also be necessary.

Mesic Hammock

Desired future condition: Mesic hammock is a well-developed evergreen hardwood and/or palm forest which can occur, with variation, through much of peninsular Florida. The often dense canopy will typically be dominated by live oak (*Quercus virginiana*) with cabbage palm (*Sabal palmetto*) mixed into the understory. Southern magnolia (*Magnolia grandiflora*) and pignut hickory (*Carya glabra*) can be common components in the subcanopy as well. The shrubby understory may be dense or open, tall or short, and will typically be composed of saw palmetto (*Serenoa repens*), beautyberry (*Callicarpa americana*), American holly (*Ilex opaca*),



SAN FELASCO HAMMOCK
PRESERVE STATE PARK

0 750 1,500 3,000 Feet

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

NATURAL COMMUNITIES MAP
EXISTING CONDITIONS

gallberry (*Ilex glabra*) and sparkleberry (*Vaccinium arboreum*). The groundcover may be sparse and patchy but generally contains panicgrasses (*Panicum* spp.), switchgrass (*Panicum virgatum*), sedges, as well as various ferns and forbs. Abundant vines and epiphytes will occur on live oaks and cabbage palms and other subcanopy trees. Mesic hammocks will generally contain sandy soils with organic materials and may have a thick layer of leaf litter at the surface. Mesic hammocks will rarely be inundated, are not considered to be fire-adapted communities and will typically be shielded from fire.

Description and assessment: Mesic hammocks occur in isolated basins within the Preserve. The delineation of mesic hammock, upland hardwood forest and bottomland forest is difficult due to similar vegetative characteristics and topography. In general, bottomland forests are low plateaus and are influenced by the flooding of blackwater streams, while mesic hammocks occur as bands of vegetation on the low slopes above wetlands. Mesic hammocks grade into upland hardwood forests upslope.

The mesic hammock community within the preserve is considered to be in good to very good condition, depending on past logging impacts. As with the bottomland forests, these areas were timbered for live oak and other valuable hardwoods. In most cases, these areas have restored naturally and trees are beginning to approach their former stature.

General management measures: The primary management measures required for mesic hammocks will be control of invasive exotic plants and removal of feral hogs.

Sandhill

Desired future condition: The dominant tree in the sandhills of north Florida will be longleaf pine (*Pinus palustris*). Herbaceous cover, dominated by wiregrass (*Aristida beyrichiana*), will be 80% or greater and reach a height of less than three feet. In addition to the characteristic groundcover species and longleaf pines, the sandhill community will contain scattered individual trees, clumps, or ridges of onsite oak species such as turkey oak (*Quercus laevis*), sand post oak (*Quercus margaretta*), and bluejack oak (*Quercus incana*). In old growth conditions, sand post oaks will commonly be 150-200 years old, and some turkey oaks will be over 100 years old. The optimal fire return interval for this community is two to three years.

Description and assessment: The sandhill community occurs on four sites in the western half of the preserve. It occurs at slightly higher elevations along ridge tops within the upland pine community. Sandhill is often distinguished from upland pine by the presence of turkey oaks (*Quercus laevis*). Both communities are characterized by the presence of longleaf pine and wiregrass. The transition between sandhill and upland pine is often subtle, although soil differences, mainly in drainage characteristics, play a role.

Most of the sandhill within the preserve is in fair to good condition despite harvesting of longleaf pines in the distant past. Several areas were impacted by southern pine beetle infestations in 1994-95 and in 2001. Longleaf pines and

loblolly pines (*Pinus taeda*) infested with beetles were felled or harvested. About 23 acres of sandhill were clear-cut. The cutting of clusters of infested pines (group selection harvesting) significantly impacted additional areas. In addition, most of the remaining sandhills in the preserve suffered some level of impact from the felling of scattered pines that were threatened by beetles. Prior to the southern pine beetle outbreak, prescribed fires had succeeded in reducing hardwood encroachment in most areas of sandhill. The suspension of prescribed burning in the preserve during the beetle outbreaks slowed the restoration of some of these areas.

Due to a lack of significant burning since 2009, none of the preserve's sandhills are within their fire-return interval as of 2016. Several sandhill areas are now considered to be only in fair condition due to extensive hardwood invasion caused by a lack of adequate fire. All of the sandhill areas are expected to improve with the resumption of regular prescribed burning.

General management measures: Frequent prescribed fires will greatly improve the condition of the sandhills in the preserve. In some areas it will be necessary to mechanically and chemically treat invasive offsite hardwoods that have become established due to the long fire return intervals in the sandhills.

Sinkhole

Desired future condition: Sinkholes are cylindrical or conical depressions with limestone or sand walls. Unlike sinkhole lakes, they do not contain standing water for long periods. The vegetation that is predominant in a sinkhole depends upon the age of the sinkhole. For example, the vegetation in older sand-walled sinkholes in north Florida will form a well-developed forest that includes species such as southern magnolia (*Magnolia grandiflora*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), pignut hickory (*Carya glabra*), wax myrtle (*Myrica cerifera*), Virginia creeper (*Parthenocissus quinquefolia*), and grape vines (*Vitis* spp.). Older sinkholes with vertical limestone walls will be covered by a variety of mosses, liverworts, ferns and small herbs. Sinkholes will generally have a very moist microclimate due to seepage along the slopes and to buffering from local environmental influences that a lower elevation and a dense tree canopy provide. The desired future condition for sinkholes can be attained by limiting unnatural erosion and protecting the microclimate from disturbance.

Description and assessment: San Felasco Hammock is located in a geologically active karst region. It contains numerous karst depressions, sinkholes, and sinkhole lakes. Since many sinkholes periodically hold water or dry out, there is often an artificial dichotomy between them and sinkhole lakes. Mapping of many of the sinkholes was possible using a GIS-based digital elevation model derived from LIDAR data. Sinkholes in the preserve range from older depressions with gentle slopes and established vegetation, to smaller, steep sided sinkholes that are relatively young in age and still actively expanding in size. The most significant impacts to sinkholes in the preserve is primarily soil disturbance from the rooting of feral hogs.

General management measures: Sinkholes will be protected from erosion and kept clear of invasive plant species. Feral hog control continues to be a priority within the preserve.

Upland Hardwood Forest

Desired future condition: Upland hardwood forest is a mature, closed-canopy hardwood forest typically occurring on slopes and rolling hills under generally mesic conditions. Overstory tree species in north Florida will generally include southern magnolia (*Magnolia grandiflora*), pignut hickory (*Carya glabra*), sweetgum (*Liquidambar styraciflua*), live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), Florida maple (*Acer saccharum* subsp. *floridanum*), spruce pine (*Pinus glabra*), and swamp chestnut oak (*Quercus michauxii*). Understory species will include trees and shrubs such as American holly (*Ilex opaca*), flowering dogwood (*Cornus florida*), eastern hophornbeam (*Ostrya virginiana*), American hornbeam (*Carpinus caroliniana*), eastern redbud (*Cercis canadensis*), red bay (*Persea borbonia*), horse sugar (*Symplocos tinctoria*), and beautyberry (*Callicarpa americana*). The groundcover will consist of shade tolerant herbaceous species, sedges and vines.

Description and assessment: The upland hardwood forest is the most extensive community within the preserve and is one of the finest examples of its kind in the state. This community has very high species diversity and includes locally uncommon species such as bluff oak (*Quercus austrina*), shumard oak (*Quercus shumardii*), and spruce pine (*Pinus glabra*). Dominant canopy species include pignut hickory (*Carya glabra*), southern magnolia (*Magnolia grandiflora*), Florida maple (*Acer saccharum* subsp. *floridanum*), and swamp chestnut oak (*Quercus michauxii*). The majority of this community is in excellent condition despite selective logging during the past two centuries. Traces of past timbering have all but disappeared. For example, several areas in the southeastern part of the preserve that were logged prior to 1937 have naturally regenerated to upland hardwood forest (Dunn, 1982).

Unfortunately, the loblolly and spruce pines in the upland hardwood forest were not spared by the southern pine beetle outbreak. Over 40 acres at several locations within the preserve were cleared of pines. Many of the other areas were impacted by group selection harvesting of pines. Restoration of the upland hardwood forest at these sites will proceed naturally as native hardwoods and pines gradually re-colonize the disturbed patches.

Other disturbances of the preserve's upland hardwood forest in the past included the conversion of woods to pasture. Such was the fate of an area in the northern part of the preserve west of Turkey Creek. Aerial photographs of this area taken in 1937 show that extensive clearing had already taken place. According to more recent aerial photographs, the cleared areas were apparently converted to improved pasture sometime between 1949 and 1955. The 165-acre site is currently dominated by hardwoods interspersed with clearings of bahia grass (*Paspalum notatum*).

Many small household dumpsites can still be found within the upland hardwood forest, although they are considered relatively inert. Fire plow scars are also located within the upland hardwood forest, primarily near fire-adapted and wetland communities. Two powerline rights-of-way pass through the upland hardwood forest within the preserve, one active and one abandoned. The active easement is maintained by Duke Energy (formerly Florida Power Corporation). The abandoned right-of-way is expected to continue its natural succession to upland hardwood forest. Additional utility easements within the preserve will be actively discouraged, particularly within upland hardwood forest.

The upland hardwood forest includes small areas of other natural communities such as sinkholes, blackwater streams and seepage streams. In most cases, the upland hardwood forest grades into upland pine on the higher elevations. Decades of fire suppression have further blurred the subtle transition zones between these two communities.

The greatest threats to the upland hardwood forest are invasive species. Coral ardisia (*Ardisia crenata*) is expanding throughout the upland hardwood forest. Although the densest infestations are south of Millhopper Road, dispersal of the edible fruits by birds and mammals has created scattered clumps throughout the preserve, particularly in the fertile soils of the upland hardwood forest. For several years from 2008 to 2011, manual removal was done during organized volunteer workdays, but this failed to contain the spread. Intensive herbicide treatment projects began in 2015.

Another impact to the upland hardwood forest was the loss of the adult red bays (*Persea borbonia*) from the tree canopy. The red bay ambrosia beetle (*Xyloborus glabratus*) was first detected in the United States in southeast Georgia. The beetle carries the fungal pathogen (*Raffaelea lauricola*) which it transmits to red bay trees and other species in the Lauraceae family, causing laurel wilt disease and death. The beetle and its associated pathogen spread rapidly, and by 2005 it had appeared in Duval County, Florida. In 2007, the disease was discovered in Alachua County. Since that time, most of the adult red bays in the preserve have died. The beetle (and laurel wilt) has now spread throughout most of Florida and into many of the neighboring states. Although most of the adult red bays have been top-killed, the trees continue to resprout from their roots, and smaller saplings are usually not affected by the disease.

In 2017 park staff and visitors observed evidence of vine cutting in certain areas of the upland hardwood forest. Vines were cut off a few feet above the ground surface with some sort of cutter or saw and the vines had been left to die in the canopy. Multiple species of vines, including grapevine and Virginia creeper were affected. The rationale behind the cutting the vines was not determined, but cut vines were located and mapped near the southern end of the preserve as well as deep within the central areas of the preserve. The overall extent of the damage is still being assessed, and it is not known when the cutting began. By 2018 it appeared that the vandalism had been discontinued, but park staff will continue to monitor the upland

hardwood forest for any evidence of further damage. Recovery from the loss of the older established canopy vines may take decades in the hardest hit areas.

Feral hogs and armadillos cause extensive damage to the upland hardwood forest through rooting up the soil layers and consuming all forms of plants, invertebrates and other small leaf litter animal species. Control of feral hogs continues to be a high priority within the preserve.

General management measures: Removal of invasive exotics will be the primary management measure in the upland hardwood forest. Natural succession will suffice in many cases to restore disturbed areas of upland hardwood forest. Control of southern pine beetle outbreaks may also be necessary to limit the loss of spruce and loblolly pines in upland hardwood areas.

Upland Mixed Woodland

Desired future condition: Dominant tree species in north Florida will include longleaf pine (*Pinus palustris*), southern red oak (*Quercus falcata*), sand post oak (*Quercus margaretta*), and mockernut hickory (*Carya tomentosa*). Hardwood tree species will frequently be dominant or co-dominant with pines. Flowering dogwood (*Cornus florida*) and pignut hickory (*Carya glabra*) may be present, as well as sub-canopy species such as sparkleberry (*Vaccinium arboreum*). Percent herbaceous cover will be comparable to that of sandhill, attaining a height of 3-4 feet during spring and summer. In some areas, grasses and forbs will reach heights of 6-8 feet or more during the fall due to blooming of taller grass species such as yellow indiangrass (*Sorghastrum nutans*), silver plumegrass (*Saccharum alopecuroides*), and big bluestem (*Andropogon gerardii*). In old growth conditions, the oaks and hickories are commonly 150-200 years old. The optimal fire return interval for this community is two to five years, depending on the fire frequency in adjacent natural communities.

Upland Pine

Desired future condition: The dominant tree species in this community in north Florida will be longleaf pine (*Pinus palustris*). Herbaceous cover will be comparable to that in the sandhill community, but may have a higher density of understory shrubs and saplings. Height of the herbaceous cover will generally be less than three feet. An intermittent sub-canopy of smaller hardwood trees will be scattered throughout, usually consisting of southern red oak (*Quercus falcata*), sand post oak (*Quercus margaretta*), mockernut hickory (*Carya tomentosa*), flowering dogwood (*Cornus florida*), bluejack oak (*Quercus incana*), and sassafras (*Sassafras albidum*). In old growth conditions, the oaks and hickories will commonly be 150-200 years old. Wiregrass (*Aristida stricta* var. *beyrichiana*) will dominate the groundcover, but little bluestem (*Schizachyrium scoparium*), broomsedge bluestem (*Andropogon virginicus*), and indiangrass (*Sorghastrum* spp.) will also be present. Typical forbs will include narrowleaf silkgrass (*Pityopsis graminifolia*), bracken fern (*Pteridium aquilinum*), goldenrod (*Solidago* spp.), squarehead (*Tetragonotheca helianthoides*), soft greeneyes (*Berlandiera pumila*), and yellow jessamine (*Gelsemium sempervirens*). The optimal fire return interval for this community is two to three years.

Description and assessment: Upland pine and upland mixed woodland occur in relatively broad bands between the upland hardwood forest and sandhill at San Felasco Hammock. The distinction between upland mixed woodland and upland pine is difficult in fire-suppressed areas, and is even more difficult in areas where the ground cover has been heavily altered or converted to pasture grasses. Within the preserve, the upland pine and upland mixed woodland occupy an intermediate elevation between the sandhill and upland hardwood forest. The upland pine and upland mixed woodland soils are more fertile and less well drained than the sandhill, contributing to the differences in flora. Both upland pine and upland mixed woodland are defined in part by the presence of southern red oak (*Quercus falcata*) and mockernut hickory (*Carya alba*) and the absence of turkey oak. Other diagnostic plant species include beargrass (*Yucca flaccida*), woodland poppy mallow (*Callirhoe papaver*), white wild indigo (*Baptisia alba*), sassafras (*Sassafras albidum*), sparkleberry (*Vaccinium arboreum*), and slim-leafed paw paw (*Asimina angustifolia*). The groundcover of upland pine is typically dominated by wiregrass, but wiregrass may be absent in upland mixed woodland. In upland pine the longleaf pine dominates the canopy with the native hardwoods being somewhat suppressed by frequent fire. In upland mixed woodland the tree canopy is made up of longleaf pine with native hardwoods as co-dominants. In fire-suppressed areas, upland pine may lose its characteristic wiregrass due to shading by offsite hardwoods, and the canopy may be dominated by hardwoods causing the upland pine to appear more like upland mixed woodland. Likewise, fire suppressed upland mixed woodland also becomes dominated by offsite hardwoods and both communities can appear superficially like a successional upland hardwood forest.

Most of the upland pine and upland mixed woodland areas in the core of the preserve, south of Sanchez Prairie are in fair to good condition. About 1000 acres remain in relatively good condition despite the past timbering of longleaf pines with subsequent heavy colonization of cutover sites by loblolly pines. Some of these cutover areas were used for pasturing cattle for a period, but the pastures were abandoned before 1949. Scattered longleaf pines remain in the less disturbed areas. Despite a long history of fire suppression in these forested areas, the herbaceous component is relatively intact except where extensive soil disturbances occurred. The implementation of regular prescribed burning helped restore most of these areas to a good condition, however recent lack of fire has allowed an increase in offsite hardwoods, primarily laurel oaks and sweetgums. Some areas are still only in fair condition due to insufficient burning, but habitat improvement is expected as the prescribed burn program progresses.

The upland pine and upland mixed woodland areas that were heavily colonized by loblolly pines more than 50 years ago served as the epicenter for the southern pine beetle outbreak in 1994-95 and again in 2001. The dense stands of mature loblolly pines provided an ideal site for the southern pine beetle population to expand to epidemic proportions. Once the beetle population reached a certain threshold, even healthy longleaf pines were susceptible to infestation. As a result, the upland pine and upland mixed woodland in the preserve were the areas hardest hit by the clear cutting and group selection harvesting of infested pines of all species. The largest

clearcut in 1994-95 encompassed about 80 acres, but virtually all of the forested areas were impacted to some degree by pine beetle suppression efforts. Over 300 acres of upland pine and upland mixed woodland are estimated to have been cleared of pines during the two outbreaks. Restoration efforts in the clearcuts included planting of longleaf pines and prescribed fire.

Much of the original upland mixed woodland and upland pine in Alachua County was cutover for the valuable longleaf pines and converted to agricultural uses. The northern end of the preserve was heavily timbered long ago and then converted to pastures. In one of these areas southeast of Turkey Creek, scattered canopy trees were left in the pasture to provide shade. The eastern portion of this particular area was timbered and converted to pasture before 1937, while the western portion appears to have been cut after 1937 and converted to pasture some time after 1949. The center part of this area, which retained a relatively dense canopy, seemed to have been spared any heavy logging. In the pasture areas southeast of Turkey Creek, there has been some natural regeneration of canopy species such as southern red oak and longleaf pine. However, in 2001 about 100 acres of this site were clear-cut to suppress Southern pine beetles. Longleaf pine seedlings have been planted in many of these areas. The herbaceous component, however, is still overwhelmed by Bahia grass, but some persistent native species, such as beargrass, and longleaf pawpaw, remain. This area also supports a large population of woodland poppy mallow. This area as a whole is considered to be in fair to poor condition.

The other large area of highly degraded upland pine and upland mixed woodland lies northwest of Turkey Creek; it consists of over 1000 acres of Bahia grass pastures that are virtually devoid of any upland pine or upland mixed woodland remnants. Much of this area is located in the 1995 and 2011 additions to the preserve, although an extensive amount lies within the former preserve boundaries. The majority of these areas were cleared and converted to agricultural fields and pastures prior to 1937; some were cleared perhaps as long ago as the mid-nineteenth century (Buchholz, 1929 in Dunn, 1982). Between 1937 and 1949, most of the pastures were converted to tung tree (*Aleurites fordii*) plantations. These plantations were active until the early 1960s. By 1968, most of the plantations had been converted back to pastures (Dunn, 1982).

These areas have since been invaded to varying degrees by loblolly pine, sweetgum (*Liquidambar styraciflua*), laurel oaks, and sand blackberry (*Rubus cuneifolius*). Tropical soda apple (*Solanum viarum*) was discovered in the pastures on the 1995 addition of the preserve. Fortunately, eradication efforts have been successful in controlling this species. Most of these former or current pastures are mapped as altered landcover types. Gainesville Regional Utilities and Duke Energy maintain active powerline right-of-ways that pass through this area that are mapped as utility corridors. Some of the western pastures were used as hay fields up until at least 2013. The haying operation provided hay for state park livestock at several parks, and arrested successional processes by preventing the establishment of offsite hardwoods. These are classified as improved pastures. The pastures that are periodically burned are classified as abandoned field/abandoned pasture. The older

pastures areas, mostly within the original preserve boundary, have succeeded rapidly to closed canopy stands of loblolly pines and hardwoods. Some stands are mostly hardwoods, with sweetgum usually the dominant species, and others are nearly pure stands of loblolly pines. These stands are all mapped as successional hardwood forest. While the loblolly stands are atypical for successional hardwood forest, the lack of site preparation and other silivicultural alterations preclude classifying them as pine plantations.

General management measures: Frequent prescribed fire will be the most important and cost-effective management measure for the upland mixed woodland and upland pine natural communities. However, certain areas will require chemical or mechanical removal of offsite hardwoods and timbering of dense loblolly pine stands. Selective timber harvesting and hardwood chipping/biomass production may be appropriate in this community. The lack of fire, historically and recently, has led to dense closed canopy stands that will require substantial efforts to reintroduce natural fire regimes. Supplemental planting of longleaf pines will be necessary in some areas. Certain zones will also require supplemental planting or seeding of groundcover species. Control of cogon grass and other fire-adapted invasive exotic plants will also be required. Feral hog control will also be essential to protecting the native groundcover.

Alluvial Forest

Desired future condition: Alluvial forests are hardwood forests found in river floodplains on ridges or slight elevations above floodplain swamp. Generally they are flooded for one to four months of the year during the growing season. In north Florida, typical overstory trees will include overcup oak (*Quercus lyrata*), laurel oak (*Quercus laurifolia*), water hickory (*Carya aquatica*), American elm (*Ulmus americana*), and red maple (*Acer rubrum*). Understory species may include swamp dogwood (*Cornus foemina*), willow (*Salix* spp.), and American hornbeam (*Carpinus caroliniana*). Presence of groundcover will be variable. Netted chain fern (*Woodwardia areolata*) and other shade-tolerant herbaceous species will often be present.

Description and assessment: Alluvial forest occurs below the bottomland forest and may be associated with floodplain swamps along the major stream systems within the preserve. Alluvial forest is distinguished from floodplain swamp by the relative absence of bald cypress (*Taxodium distichum*), partly due to a shorter hydroperiod. However, Alluvial forest does flood more frequently than bottomland forest.

Stream/floodplain systems within the preserve are complicated by the active nature of the local geology. The four streams involved (Blues Creek, Turkey Creek, Cellon Creek, and Moonshine Creek) all discharge at a swallow or sink. During periods of high precipitation and increased stream discharge, these sinks cannot accept stream flow quickly enough to prevent overflowing of banks and backing up of water into adjacent floodplain. Sanchez Prairie is the largest of these stream/floodplain systems, while Moonshine Creek is the smallest. These systems are considered by some geologists to represent an early stage in the formation of

large wetland depression systems such as Paynes Prairie and Levy Prairie, both located south of Gainesville.

Like the bottomland forest, the rooting of feral hogs has impacted much of the alluvial forest in the preserve.

General management measures: The primary management measures required for alluvial forests will be control of invasive exotic plants and removal of feral hogs.

Basin Marsh

Desired future condition: Basin marshes include emergent herbaceous and low shrub species dominating most of the area with an open vista. Trees will be few and if present occur primarily in the deeper portions of the community. There will be accumulation of dead vegetation and organic matter due to infrequent burning. Dominant vegetation in basin marsh will include maidencane (*Panicum hemitomon*), cutgrass (*Leersia* sp.), common reed (*Phragmites australis*), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* sp.), buttonbush (*Cephalanthus occidentalis*), St. John's wort (*Hypericum fasciculatum*), red maple, and coastalplain willow (*Salix caroliniana*). The Optimal Fire Return Interval for this community is 10-20 years since it is embedded within non-pyrogenic natural communities.

Description and assessment: A large basin marsh is located in the southern half of the preserve. The marsh is surrounded by mesic hammock and upland hardwood forest. A woody transition zone, dominated by dahoon holly (*Ilex cassine*) encircles the marsh, hence its name, Dahoon Pond. The small area of open water within the marsh is classified as a marsh lake. This area may be kept open by alligator activity.

Although logging once occurred in the upland hardwood forest nearby, the marsh appears to have been little impacted and is considered to be in very good condition. The marsh has not burned in recent years, which is expected since it is surrounded by non-pyrogenic natural communities. During severe droughts, the marsh lake may dry up almost completely.

General management measures: Feral hogs are the greatest current threat to the basin marsh and must be controlled. Although exotic plants are not a current threat, the site is appropriate for Chinese tallowtree, so periodic surveys will be conducted to prevent establishment of exotic plant species.

Basin Swamp

Desired future condition: Basin swamps are forested basin wetlands that are highly variable in size, shape, and species composition and often hold water most days of the year. While mixed species canopies are common, the dominant trees in north Florida will be pond cypress (*Taxodium ascendens*) and swamp tupelo (*Nyssa sylvatica* var. *biflora*). Other canopy species will typically include slash pine (*Pinus elliottii*), red maple (*Acer rubrum*), dahoon holly (*Ilex cassine*), sweetbay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), and sweetgum (*Liquidambar*

styraciflua). Depending upon fire history and hydroperiod, the understory shrub component will be distributed throughout or concentrated around the perimeter. Shrubs will include a variety of species including Virginia willow (*Itea virginica*), swamp dogwood (*Cornus foemina*), wax myrtle (*Myrica cerifera*), and titi (*Cyrilla racemiflora*). The herbaceous component will also be variable and may include a wide variety of species such as maidencane (*Panicum hemitomon*), ferns, arrowheads (*Sagittaria* spp.), lizard's tail (*Saururus cernuus*), false nettle (*Boehmeria cylindrica*), and sphagnum moss (*Sphagnum* spp.). Soils will typically be acidic nutrient-poor peats, often overlying a clay lens or other impervious layer.

Description and assessment: Basin swamps occur within the preserve, but is often difficult to distinguish from floodplain swamp due to a high degree of species overlap. In general, basin swamps are not associated with rivers or streams and do not normally receive channelized flow, though there may be outflow. The majority of the swamp associated with Sanchez Prairie has been classified as floodplain swamp due to the influence of Turkey Creek. The swamps surrounding Rookery Pond located northwest of Split Rock, however, are relatively unaffected by the Turkey Creek system and may be classified as true basin swamps. The Rookery Pond sub basin is normally hydrologically isolated from the Turkey Creek floodplain swamp to the east by a low ridge of bottomland forest. However, following excessive rainfall events, the capacity of the Split Rock sink can be exceeded, and the entire Sanchez Prairie may flood.

The basin swamps associated with Rookery Pond are considered to be in good condition. It is likely that the area was logged within the last century. No other impacts to this area are currently recognized.

General management measures: The primary management measures required for basin swamps will be control of invasive exotic plants and removal of feral hogs. Monitoring of hydrological impacts from outside the park boundary will also be necessary.

Baygall

Desired future condition: Baygall consists of a wet densely forested, peat filled depression typically near the base of a slope. Seepage from adjacent uplands will maintain saturated conditions. Medium to tall trees will mainly consist of sweetbay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), and/or swamp bay (*Persea palustris*). Occasionally sparse pines (*Pinus* spp.) may also exist. A thick understory consisting of gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), dahoon (*Ilex cassine*), titi (*Cyrilla racemiflora*), and red maple (*Acer rubrum*) will be typical with climbing vines such as greenbriar (*Smilax* spp.) and muscadine grape (*Vitis* spp.) will usually be abundant. The dominant baygall species are fire intolerant indicating an infrequent Optimal Fire Return Interval of 25-100 years. Frequent fires from adjacent communities should be allowed to enter baygall ecotone however, being aware of the problems associated with peat fires.

Description and assessment: Baygalls are formed by seepage and are usually found on the edges or bottoms of slopes. Baygalls are scattered through the preserve,

with several located south of Sanchez Prairie on slopes within the upland hardwood forest. These baygalls are associated with small seepage streams which may spread out as they flow across terraces, forming braided flows that create additional baygalls downslope. Flow from these baygalls often coalesces again before continuing downslope. Many of the clastic upland lakes in the preserve are also formed by seepage over a clay subsurface. The shallower clastic upland lakes often share vegetative characteristics with baygalls and distinguishing them may be difficult. All of the baygalls within the preserve are considered to be in good condition. Feral hog rooting within the baygalls and in the adjacent seepage areas is a current threat.

General management measures: Protection of the seepage areas that flow into the baygalls is an important management measure to maintain a natural hydroperiod. Removal of feral hogs is critical for the protection of baygalls and other wetlands in the preserve. Periodic surveys for invasive exotic plants will also be necessary.

Bottomland Forest

Desired future condition: Bottomland forest is a fairly low-lying, mesic to hydric community prone to periodic flooding. It is found on terraces and levees in river floodplains and in shallow depressions. Bottomland forest will typically have a closed canopy of mature deciduous and evergreen trees. The overstory in north Florida will usually contain species such as sweetgum (*Liquidambar styraciflua)*, sweetbay *(Magnolia viginiana)*, loblolly bay (*Gordonia lasianthus*), water oak (*Quercus nigra*), live oak (*Quercus virginiana*), swamp chestnut oak (*Quercus michauxii*), loblolly pine (*Pinus taeda*), and spruce pine (*Pinus glabra*). Red maple (*Acer rubrum*) and bald cypress (*Taxodium distichum*) may also be present. The understory will be open or dense. Understory species will typically include wax myrtle (*Myrica cerifera*), dwarf palmetto (*Sabal minor*), and swamp dogwood (*Cornus foemina*). Groundcover presence will be variable and may consist of witchgrass (*Dicanthelium* sp.) and various sedges (*Carex* spp.).

Description and assessment: Bottomland forest, usually found at a slightly higher elevation than alluvial forest, is not inundated on an annual basis. At San Felasco Hammock bottomland forest is found paralleling stream systems, including Turkey, Blues, and Moonshine Creeks, and on the low flats within Sanchez Prairie and north of Chert Swamp. Thin bands of bottomland forest may also occur in the transition zone between upland communities and isolated wetlands. In many cases, it is difficult to distinguish bottomland forest from the superficially similar hydric hammock. In general, stream flooding heavily influences bottomland forests, while hydric hammocks receive hydrologic inputs from a variety of sources.

The largest area of bottomland forest in the preserve is associated with the Sanchez Prairie/Turkey Creek drainage. Generally, the bottomland along the creek is a relatively thin strip lying just above the floodplain. At Sanchez Prairie, however, the bottomland forest broadens to occupy a wide flat plain above the floodplain of Turkey Creek. Here the bottomland forest is dominated by laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), sweetgum, and loblolly pine. The herbaceous layer is better developed than in the floodplain and is dominated by

greenbriers (*Smilax* spp.). A thin isthmus of bottomland forest connects Sanchez Prairie to the Blues Creek/Chert Swamp drainage, which itself contains a large area of bottomland forest north of Chert Swamp.

The condition of the bottomland forest within the preserve ranges from fair to very good depending on the intensity of past logging activities. Rapid regeneration in these fertile forests has obliterated most traces of logging, but the reduced stature of many of the trees attests to past disturbances. The bottomland forest has also been impacted by Deerhaven power plant discharge, which greatly exaggerated the hydroperiod of Sanchez Prairie during the mid-1970s and affected the plant species composition of several natural communities. More recently, the rooting of feral hogs, particularly within Sanchez Prairie, has impacted the bottomland forests.

General management measures: The primary management measures required for bottomland forests will be control of invasive exotic plants and removal of feral hogs. Monitoring of hydrological changes outside the park boundary will also be important in protecting the bottomland forests.

Depression Marsh

Desired future condition: Depression marshes in north Florida will characteristically be open vista wetlands dominated by low, emergent herbaceous and shrub species. Trees, if present, will be few and will occur primarily in the deeper portions of the community. There will be little accumulation of dead grassy fuels due to frequent burning. The soil surface will often be visible through the vegetation when the community is not inundated. Dominant vegetation will typically include maidencane (*Panicum hemitomon*), panicgrasses (*Panicum* spp.), cutgrass (*Leersia* sp.), common reed (*Phragmites australis*), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* spp.), common buttonbush (*Cephalanthus occidentalis*), St. John's-wort (*Hypericum fasciculatum*), and coastalplain willow (*Salix caroliniana*). The optimal fire return interval for this community is two to ten years depending on the fire frequency of adjacent communities.

Description and assessment: Several depression marshes are located in the preserve. They are considered to be in fair to good condition depending on the extent of hardwood invasion due to lack of sufficient fire. Depression marshes are important breeding sites for upland amphibian species. At San Felasco Hammock, the shallow clay layers create numerous perched wetlands. At times, it may be difficult to distinguish more permanent depression marshes from shallow clastic upland lakes. Typically, depression marshes are found within fire-adapted natural communities such as mesic flatwoods, sandhills or upland pine and upland mixed woodland. In addition, they are usually dominated by herbaceous vegetation. Similar wetlands within the upland hardwood forest tend to be ephemeral or semi-permanent ponds with more shading and less emergent vegetation. These are classified as clastic upland lakes in most cases.

General management measures: Prescribed fire will be necessary to maintain depression marshes and reduce hardwood invasion. Where fire is not able to burn across depression marshes, mechanical removal or hardwoods will be considered.

Dome Swamp

Desired future condition: Dome swamp is an isolated, forested depression wetland occurring within a fire-maintained matrix such as mesic flatwoods. The characteristic dome appearance is attributable to the growth of smaller trees on the outer edge (shallower water and less peat) and larger trees in the interior. Pond cypress (*Taxodium ascendens*) will typically dominate, but swamp tupelo (*Nyssa sylvatica* var*. biflora*) may also form a pure stand or occur as a co-dominant. Sub-canopy species in north Florida will generally include red maple (*Acer rubrum*), dahoon holly (*Ilex cassine*), swamp bay (*Persea palustris*), sweetbay (*Magnolia viginiana*), and loblolly bay (*Gordonia lasianthus*). Shrubs will be absent to moderately common (a function of fire frequency), and may include Virginia willow (*Itea virginica*), fetterbush (*Lyonia lucida*), buttonbush (*Cephalanthus occidentalis*), wax myrtle (*Myrica cerifera*), and titi (*Cyrilla racemiflora*). Herbaceous cover will be absent to dense and include ferns, maidencane (*Panicum hemitomon*), sawgrass (*Cladium jamaicense*), sedges (*Carex* spp.), lizards tail (*Saururus cernuus*), and sphagnum moss (*Sphagnum* spp.). Vines and epiphytes will be common. Maintaining the appropriate hydrology and fire frequency will be critical for preserving the structure and species composition of the community. Dome swamps should generally burn on the same frequency as adjacent fire-type communities, with fires being allowed to burn across ecotones naturally. Fires in dome swamps should be appropriately planned for intervals of two to ten years to avoid buildup of high fuel loads.

Description and assessment: Two domes occur within the preserve. The first dome is located north of Millhopper Road just east of the mesic flatwoods. It is dominated by black gum and sweetgum; cypress is conspicuously absent. Close inspection reveals signs that the cypress component was probably logged out many years ago. Due to the lack of cypress regeneration and disturbance of the adjacent uplands, this dome is considered to be in fair condition. The second dome community lies north of Chert Swamp surrounded by bottomland forest. This area was also logged for cypress, but it has regenerated relatively well. It is considered to be in very good condition.

General management measures: Control of invasive exotic plants and removal of feral hogs are the most critical management measures for dome swamps in the preserve. Prescribed fires should be allowed to burn into the edges of the dome swamps to maintain a natural ecotone.

Floodplain Marsh

Desired future condition: Floodplain marsh can be characterized as including emergent low herbaceous and shrub species that are dominant over most of the area, and there is an open vista. Trees will be few and if present, will occur primarily in the deeper portions of the community. There will be accumulation of dead vegetation and organic matter due to infrequent burning. Dominant vegetation in floodplain marsh will include maidencane (*Panicum hemitomon*), panicgrasses (*Panicum* spp.), cutgrass (*Leersia* sp.), common reed (*Phragmites australis*),

pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* spp.) , buttonbush (*Cephalanthus occidentalis*), St. John's wort (*Hypericum fasciculatum*), and coastal plain willow (*Salix caroliniana*). The Optimal Fire Return Interval for this community is 10-20 years since it is embedded within non-pyrogenic natural communities.

Description and assessment: An area of floodplain marsh occurs along the drainage way between Cellon Creek and the large sinkhole lake located south and upslope of the creek. This area was manipulated extensively in the past, presumably for drainage or water retention purposes. A hydrological restoration project in 2003 removed some of the artificial berms from this area and removed many of the invasive exotic plants. It is considered to be in fair to good condition.

General management measures: Continued control of invasive exotic plants and feral hogs will be important in the management of the floodplain marsh. Additional hydrological restoration efforts may also be needed.

Floodplain Swamp

Desired future condition: Floodplain swamp in north Florida occurs in low-lying areas along streams and rivers; it will be frequently or permanently flooded. Soils will consist of a mixture of sand, organics, and alluvial materials. The closed canopy will typically be dominated by bald cypress (*Taxodium distichum*), but commonly will include tupelo species (*Nyssa* spp.) as well as water hickory (*Carya aquatica*), red maple (*Acer rubrum*) and overcup oak (*Quercus lyrata*). Trees bases will typically be buttressed. The understory and groundcover will usually be sparse.

Description and assessment: Floodplain swamps are found within the Preserve associated with the major stream systems. The largest area of floodplain swamp is located in the Turkey Creek floodplain where the creek enters Sanchez Prairie and becomes a poorly defined, braided stream before emptying into Sanchez Pond. Portions of this swamp were once dominated by bald cypress and planer-tree. Sulfate-rich discharge from the Deerhaven power plant into Turkey Creek was responsible for the abnormally high mortality of these trees in Sanchez Prairie in the mid-1970s (Simons et al, 1989). These areas are presently considered to be in good condition, and they are expected to continue their slow recovery. The remainder of the floodplain swamp along Turkey Creek is considered to be in good to very good condition.

The Blues Creek system also has floodplain swamp, which is located upstream from the sink at Big Otter Ravine. The majority of the swamp in this system is located within Chert Swamp, whose flooding occurs primarily when Blues Creek "backs up" from the sink during periods of high discharge. Chert Swamp is recovering from the extensive cutting of cypress over the last century and is now considered to be in good condition. Several large, hollow cypress trunks attest to past logging activity. The floodplain swamp along Blues Creek and in Chert Swamp is one of the southernmost known localities for the sensitive fern (*Onoclea sensibilis*).

The Cellon Creek system also contains some areas of floodplain swamp near the entry point of the creek into the preserve. Finally, the Moonshine Creek

stream/floodplain system, which lies wholly within the preserve, also has some floodplain swamp. Moonshine Creek empties into two or three unnamed sinks located south of Millhopper Road. The floodplain swamp is located in a large depression just northeast of the sinks and along the creek itself.

The rooting of feral hogs has impacted many of the floodplain swamps in the preserve.

General management measures: Maintaining a natural hydrological regime is critical to the preservation of floodplain swamps. Control of invasive exotic plants and feral hogs will also be essential.

Clastic Upland Lake

Desired future condition: These lakes are shallow to deep, irregularly shaped depressions or basins in upland areas with clay substrates, often lacking significant outflows. Typical vegetation can vary significantly. Emergent shoreline vegetation may include common buttonbush (*Cephalanthus occidentalis*), Virginia willow (*Itea virginica*), wax myrtle (*Myrica cerifera*), St. John's wort (*Hypericum* spp.) and elderberry (*Sambucus nigra* ssp. *canadensis*). The shoreline may be dominated by herbaceous species instead, including various sedges (*Cyperus* spp.), grasses (Poaceae) and rushes (*Juncus* spp.). Others may be surrounded by hydrophytic trees, including swamp tupelo (*Nyssa sylvatica* var. *biflora*). Shallow areas may have concentric bands of vegetation including pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* spp.), yellow waterlily (*Nymphaea mexicana*), pondlilies (*Nuphar* spp.), and white waterlily (*Nymphaea odorata*), along with submerged aquatics. These lakes typically have fish and various reptile and amphibian species that are adapted to semi-permanent waterbodies.

Description and assessment: Many of the lakes within the preserve are classified as clastic upland lakes. These lakes tend to have a clay layer underneath and are more irregular in shape than typical sandhill upland lakes. Most of these lakes occur within the upland hardwood forest where soils may have a higher clay content. In many cases, it is difficult to distinguish clastic upland lakes from sinkhole lakes since the former may have a connection to the aquifer while the latter may be plugged with clay. The clastic upland lakes vary greatly in size, and many are fed by seepage stream from surrounding slopes. In many cases, the lakes also have an overflow channel that feeds downslope seepages when groundwater levels are high. Shallow clastic upland lakes with emergent woody shrubs may appear similar to baygalls. Most of the clastic upland lakes within the preserve are surrounded by a ring of buttressed swamp tupelos.

The clastic upland lakes within the preserve are considered to be in good to very good condition. One of these lakes straddles the western boundary and is partially on private land. Runoff from the private residence on the site may impact the lake, especially if fertilizers or other pollutants are present. Feral hog rooting along the perimeter of the lakes is also a potential impact.

General management measures: Maintenance of a natural hydroperiod is critical for management of clastic upland lakes. Control of feral hogs and invasive exotic plants will also be necessary.

Marsh Lake

Desired future condition: Marsh lakes are often associated with depression marshes and are characterized as shallow, generally round or elliptical depressions, vegetated with concentric bands of aquatic vegetation. Depending upon the depth and slope of the depression, an open water zone, with or without floating plants, may occur at the center. The open water zone will be considered to be a marsh lake if it is small in comparison to the surrounding marsh. Otherwise, the system will be considered to be a flatwoods lake or a prairie lake, depending upon the surrounding community. The hydrosoil will typically be acidic sand with some peat and occasionally a clay lens. Although water levels may fluctuate significantly, water will typically be present year-round.

Description and assessment: A small marsh lake occurs within the large basin marsh in the southern part of the preserve. A small open water zone is surrounded by floating aquatic vegetation. The marsh lake has remained consistent in size and location since 1937 and is considered to be in very good condition. The lake is surrounded by the emergent vegetation of the basin marsh.

General management measures: Maintenance of a natural hydrological regime will be the most important management measure for the marsh lake.

Sandhill Upland Lake

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

Description and assessment: Sandhill upland lakes are scattered within the sandhill, upland pine, and upland mixed woodland communities within the preserve. Most of these lakes are in fair to good condition due to a lack of fire in the surrounding uplands. Many have been invaded by shrubby hardwoods. Some examples that held water as recently as the 1970s, are now dry. Like the clastic upland lakes within the upland hardwood forest, the sandhill upland lakes typically have an organic or clay substrate that retains water derived from seepage from surrounding slopes.

General management measures: Allowing fires from the surrounding uplands to burn into the fringes of the sandhill upland lakes should improve their condition. Control of feral hogs and invasive exotic plants will also be a priority.

Sinkhole Lake

Desired future condition: Sinkhole lakes are relatively permanent, typically deep lakes formed in depressions in a limestone substrate. These lakes characteristically will contain clear water with a high mineral content. Vegetation may be completely absent from some sinkhole lakes, while in others the vegetative cover may range from a fringe of emergent species to complete coverage by floating plants. Typical plant species in north Florida will include smartweed (*Polygonum hydropiperoides*), duckweed (*Lemna* spp.), bladderwort (*Utricularia* spp.), and rushes (*Juncus* spp.). Important management goals will include limiting disturbances that may cause unnatural erosion and sedimentation, and minimizing possible sources of pollution that might affect connected aquifer systems.

Description and assessment: Numerous sinkhole lakes occur within the upland hardwood forests of San Felasco Hammock. Mapping of many of the sinkhole lakes was possible using a GIS-based digital elevation model derived from LIDAR data.

Four sinkholes within the preserve receive direct flow from blackwater streams and serve as direct inputs to the Floridan aquifer. Split Rock drains the Turkey Creek/Sanchez Prairie system, Big Otter drains the Blues Creek/Chert Swamp system, Lee Sink drains the Cellon Creek system, and an unnamed sink drains the Moonshine Creek system. Many other smaller sinkholes receive input from seepage streams and drain into the Floridan aquifer on a smaller scale. The large sinkhole lake known as Itchy-Bottom Lake is located south of Cellon Creek near the east boundary of the new addition. It is linked to Cellon Creek by way of several manmade dikes and ditches, but it may have served as the main drain for the Cellon Creek system when it was an active sink. Although there is no evidence that it is currently active, it appears physically very similar to other sinkhole lakes that serve as inputs to the Floridan aquifer.

The majority of the sinkhole lakes within the original preserve boundary are in very good to excellent condition. Lee Sink and Itchy-Bottom Lake, however, were impacted in the past by cattle ranching activities, and water quality issues with Cellon Creek may affect them as well. Several areas, notably Big Otter Ravine, were severely eroded by foot traffic and off-road motorcycles prior to state acquisition. Big Otter Ravine is currently a restricted zone; erosion continues to occur at low levels, however. Although these areas have recovered from previous abuses, any increase in visitation to sensitive sink areas can be expected to have adverse effects. An additional concern for the static sinkhole lakes is the proliferation of water spangles, an aquatic fern (*Salvinia minima*), which is considered an exotic plant within Florida.

General management measures: Management of sinkhole lakes will emphasize protection from erosion and protection of water quality of associated streams and seepage areas.

Swamp Lake

Desired future condition: Swamp lake communities are characterized as shallow open-water zones, with or without floating or submerged aquatic plants, which are surrounded by basin swamp or floodplain swamp. Although water levels may fluctuate substantially, swamp lakes will typically be permanent water bodies, but they may become dry during extreme droughts. Water flow in a swamp lake will generally be non-existent to very slow moving. Characteristic vegetation will include American white waterlily (*Nymphaea odorata*), American lotus (*Nelumbo lutea*), spatterdock (*Nuphar advena*), duckweed (*Lemna* sp.), coontail (*Ceratophyllum dermersum*), watermilfoil (*Heterophyllum* sp.), and bladderwort (*Utricularia* sp.). Emergent plants may also occur, but the community should be considered a marsh if emergents dominate the water body. Substrates will be variable and may be comprised of peat, sand, alluvial clay or any combination of these. The water column will typically be highly tannic, with a moderate mineral content. An important management goal will be to minimize disturbances in adjacent uplands that could cause increased sedimentation.

Description and assessment: Several swamp lakes occur within the preserve, some of considerable size. The two largest are Sanchez Pond and Rookery Pond. Both are located within the Sanchez Prairie basin along with numerous other smaller swamp lakes. A series of swamp lakes occurs along Turkey Creek where it enters the Sanchez Prairie basin. Smaller swamp lakes are associated with Blues and Cellon Creeks.

All the swamp lakes are considered to be in good to excellent condition, although Sanchez and Rookery Ponds may have been impacted by the artificially extended hydroperiods caused by the Deerhaven power plant in the mid-1970s. These lakes are expected to receive few or no additional impacts as long as natural hydroperiods are maintained in the surrounding wetlands and streams.

General management measures: Maintenance of the natural hydroperiod and protection from feral hogs are the primary management measures.

Blackwater Stream

Desired future condition: Blackwater streams are characterized as perennial or intermittent watercourses originating in lowlands where extensive wetlands with organic soils collect rainfall and runoff, discharging it slowly to the stream. The brown-stained waters will be laden with tannins, particulates, and dissolved organic matter derived from drainage through adjacent swamps, producing streams that have sandy bottoms overlain by organic matter. Emergent and floating vegetation including golden club (*Orontium aquaticum*), smartweeds (*Polygonum* spp.), grasses and sedges will sometimes occur, but they are often limited by steep banks and dramatic seasonal fluctuations in water levels. Minimizing disturbances and alterations and preserving adjacent natural communities will be important considerations during management.

Description and assessment: Several blackwater streams occur either partially or wholly within the preserve. These include Turkey, Blues, Cellon, and Moonshine Creeks. In general, these streams begin within swamp systems and then flow

through well-defined channels. Near the discharge point, the streams often widen and become braided as they enter floodplain swamps before entering the Floridan aquifer via a sink or swallow. More detailed descriptions of the individual stream systems may be found within the *Hydrology* section of this component.

Turkey Creek has a history of impacts from outside the preserve. Between mid-1972 and the early 1980s, the creek received cooling water flow from a power plant located near its headwaters. The artificially lengthened hydroperiod resulted in the death of many acres of trees within Sanchez Prairie. The creek also passes through or near residential areas and may be prone to erosion or contamination as a result. The creek is considered to be in good condition at present.

The water quality and hydroperiod of Blues Creek may be threatened by a number of potential impacts. The U.S. Fish and Wildlife Service facility adjacent to the preserve periodically releases water from fishponds that may negatively affect the creek, especially if the frequency of release increases. The possibility of accidental escape of exotic fish species is also a concern. Blues Creek also passes directly through a residential subdivision; hence, the potential exists for contamination by fertilizers, pesticides, sewage, silt, and other pollutants. Now the creek is in good condition.

Cellon Creek is known to be impacted directly from several sources, including a former cattle ranching operation upstream. Portions of the stream bank have been seriously eroded and water quality is poor in some stretches. The creek passes near industrial facilities and the University of Florida's Dairy Research Unit near its headwaters. The streambed is known to contain heavy metal contamination. The present course of action is to prevent any disturbance of those sediments. Between 1949 and 1956, the main channel of the creek was ditched, diked, and diverted into Itchy Bottom Lake. Over time the original channel appears to have become reestablished so that flow continued to Lee Sink. Additional restoration efforts were conducted by the SRWMD to remove several berms near Itchy Bottom Lake and restore a more natural flow pattern. Based on all these factors, the creek is considered to be in poor condition.

Moonshine Creek is located entirely within the preserve and is in good condition. It has been somewhat impacted by erosion from foot traffic along the public trail system. Runoff carrying pollutants from Millhopper Road may become a concern in the future. Many of the seepage areas that feed Moonshine Creek are also infested with dense stands of coral ardisia. Treatment contracts were initiated in 2015 to control the infestation in the Moonshine Creek floodplain and surrounded uplands.

General management measures: Protection of the creeks from erosion and feral hog damage will be a priority, as will removal of invasive exotic plants. Maintenance of a natural hydroperiod will also be critical. Monitoring of outside impacts to the headwaters of the creeks outside the preserve will be continued.

Seepage Stream

Desired future condition: A seepage stream can be characterized as a narrow, relatively short perennial or intermittent stream formed by percolating water from adjacent uplands. As they are typically sheltered by a dense overstory of broad-leaved hardwoods which block out much of the sunlight, the flora within seepage streams is often depauperate but may include filamentous algae, ferns and liverworts growing in clumps at the streams edge. Water color will be clear to slightly colored, with a fairly slow flow rate and fairly constant temperature. Bottom substrate is typically sandy, but may include gravel or limestone.

Description and assessment: Numerous seepage streams of varying size and length occur within the preserve. Most if not all of the seepage streams are entirely within the preserve and are in good to excellent condition. Recent advances in LIDAR has allowed mapping of numerous seepage areas using a digital elevation model. Maple Branch is probably the most well developed seepage and ravine system in San Felasco Hammock. Many others exist along the south and north rims of Sanchez Prairie. Several have well-developed baygall communities around the heads of seeps, while others are located completely within upland hardwood forest. The west side of San Felasco Hammock has several areas of seepage near Interstate 75 that are originate along the edges of upland pine, upland mixed woodland or sandhill. One seepage area south of Millhopper Road near Interstate 75 is above a borrow pit excavated during construction of the interstate. Although it was probably once a natural seepage area, the soil disturbance has altered it severely. That, along with the presence of numerous fire plow scars and clearcutting in the surrounding uplands in 2001 to suppress Southern pine beetles, has downgraded the condition of the latter seeps to poor. Several seepage areas north of Sanchez Prairie have been impacted by the placement of offroad bicycle and equestrian trails. Many of the trails were established during dry periods when the intermittent seepage streams were not flowing.

General management measures: Seepage streams must be protected from erosion and feral hog damage. Seepages are also prone to invasion by coral ardisia and other invasive exotic plants. Prudent re-routing of recreational trails and service roads that are impacting seepage areas should suffice to project impacted seepage streams.

Aquatic and Terrestrial Cave

Desired future condition: Caves are characterized as cavities below the ground surface in karst areas. A cave system may contain portions classified as terrestrial cave and portions classified as aquatic cave. The latter vary from shallow pools highly susceptible to disturbance to systems that are more stable and totally submerged. Because all caves develop under aquatic conditions, terrestrial caves may be considered as essentially dry aquatic caves. Near a cave entrance, the vegetation may be typical of the surrounding natural community. Within the cave, illumination levels and therefore vegetation densities drop rapidly. Mosses, algae, and liverworts will sometimes be present. However, plant life may be absent or limited to a few inconspicuous species of fungus that grow on guano or other organic debris. Cave systems are extremely fragile. Desired future management will include maintenance as systems protected from alterations that may affect light

penetration, air circulation or microclimate, or increase pollution in aquatic situations.

Description and assessment: The extents of the aquatic and terrestrial caves within the preserve are unknown since the openings to the surface are relatively small and inaccessible to humans. Caves exist in at least two locations where streams go underground. Blues Creek submerges into a series of small openings within the Big Otter Ravine near the center of the preserve. After passing through Sanchez Pond, the flow from Turkey Creek is channeled into a stream that enters the ground at an opening named Split Rock, also known as Moose's Echo. Since these caves are inaccessible to humans, they are likely to be in good to excellent condition.

General management measures: Protection of the aquatic and terrestrial caves from erosion and maintenance of a natural hydroperiod are the primary management measures.

Altered Landcover Types

Abandoned Field/Abandoned Pasture

The abandoned pastures are primarily located in the northern end of the preserve. These are dominated by broomsedges, sand blackberries, and other woody shrubs along with the remaining bahiagrass. Most of these areas are included in the prescribed fire program to reduce the influence of offsite hardwoods like sweetgum, laurel oak, black cherry, and persimmon. Several areas were replanted with longleaf pines as early as the 1980s. Recent efforts have been coupled with herbiciding of hardwoods prior to longleaf plantings. The desired future condition for these areas is either upland pine or upland mixed woodland. Like the improved pasture areas, restoration will be a long term and intensive process. Management of these areas will include removal of all priority invasive exotic plants (FLEPPC Category I and II species).

Borrow Area

During the construction of I-75, a low lying area east of the highway right-of-way south of Millhopper Road was used as a borrow site. Although appearing like a natural pond, it does not appear on any aerial photos before the construction of the interstate. The area adjacent to the interstate periodically holds water. The slopes to the east appear to have been scraped during construction of the highway from 1964 aerial photography. The desired future condition for this area is upland hardwood forest on the slopes above the pond. There are no plans to fill in the borrow area due to the continuing stormwater runoff from I-75.

Developed

Very little acreage is developed within the preserve. The only developments are a small parking lot on Millhopper Road; a park residence, a small shop and office complex, a pole barn, a CSO building, and a horse stable on the west side of the preserve; a former park residence site along Millhopper Road; and a trail-head parking area in the northwest corner for access to the hiking, equestrian and biking trails north of Sanchez Prairie.

Management of the developed areas will include removal of all priority invasive exotic plants (FLEPPC Category I and II species). Other management measures will include proper storm water management and the designing of future development so that it is compatible with prescribed fire management in adjacent natural areas.

Artificial Pond

The pond located along the shop entrance road in the northwest part of the preserve receives runoff from I-75 via a ditch. It appears to have been recontoured and is significantly larger than it was prior to the construction of the interstate in 1963-64. The shop entrance road is built on artificial berm that passes through the original footprint of the pond. A second berm was constructed around 2004 west of the park boundary on private land effectively dividing the pond. Stormwater from I-75 now appears to flow only into the private half of the pond. The pond functions as a natural water body, particularly since the pulses of stormwater from I-75 are now excluded. The desired future condition is clastic upland lake, but no special restoration efforts should be required.

Pasture – Improved

Improved pastures are located in portions of resource management zones SFH-4A, SFH-4B, and SFH-4C. These areas were improved pastures when added to the state preserve in 1995. Since that time, they have been utilized as hay fields in order to arrest succession and prevent the establishment of offsite hardwoods. The desired future condition for these pastures is either upland pine or upland mixed woodland. Given the near complete loss of all native groundcovers, restoration will be a long term and intensive process. In the meantime, if they are not used for haying operations, they should be periodically burned to exclude offsite hardwoods. Management of these areas will include removal of all priority invasive exotic plants (FLEPPC Category I and II species).

Successional Hardwood Forest

Most of the successional hardwood forests occur on abandoned pastures that were acquired in the original land purchase in 1974. Some areas are dominated by sweetgums, while most areas are dominated by loblolly pines with scattered hardwoods. Bahiagrass persists in many of these areas, and native groundcover species are rare to non-existent. The desired future condition for the successional hardwood forest is either upland pine or upland mixed woodland. Restoration efforts will require removal of the offsite loblolly and hardwoods and control of the remaining bahiagrass prior to replanting with longleaf pines, native hardwoods, and native groundcovers. It will be a long term and intensive project. Management of these areas will include removal of all priority invasive exotic plants (FLEPPC Category I and II species). Selective timber harvesting and hardwood chipping/biomass production may be appropriate in this altered land cover type.

Utility Corridor

Utility corridors are located along the north boundary of the preserve, along the west side of I-75, and through the center of the preserve. While the utility corridors have little impact on the surrounding pastures at the north end of the preserve, the

central powerline that runs through the center of the preserve bisects Sanchez Prairie and significant areas of upland hardwood forest. The easement through the center of the preserve is 100 feet in width and is maintained through mowing and herbicide application by Duke Energy. Where the easement passes through upland pine, sandhill, and upland mixed woodland areas, gopher tortoises are common. In 2015 Duke Energy began a project to replace the power poles which will require temporary relocation of gopher tortoises and construction of low water crossings in wetland areas within the easement. Given that abandonment of any of the utility corridors is unlikely, there are no restoration plans for these areas. Park and District staff will continue to work with the utility companies to mitigate the impact of their activities on the state preserve. Management of these areas will include removal of all priority invasive exotic plants (FLEPPC Category I and II species).

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.

San Felasco Hammock Preserve State Park, by virtue of its large size and high diversity of pristine natural communities, contains numerous imperiled plant and animal species. Some of the significant plant species protected within the preserve include upland pine and upland mixed woodland species such as Flyr's brickell-bush (*Brickellia cordifolia*), Woodland poppymallow (*Callirhoe papaver*), Florida milkvine (*Matelea floridana*), nettleleaf sage (*Salvia urticifolia*) and many orchid species. Big Otter Ravine is also one of the only known locations for the San Felasco spleenwort (*Asplenium monanthes*) within the state. This species has not been observed since 1983, however, and may be extirpated.

The Florida black bear (*Ursus americanus floridanus*) historically occurred within the preserve and occasionally passes through the preserve. Many of the other imperiled vertebrate species are associated with the sandhill and upland pine communities. Years of fire suppression have altered much of this habitat statewide, resulting in the endangerment of a number of species that depend upon these areas. These species include the Southern fox squirrel (*Sciurus niger*), Florida mouse (*Podomys floridanus*), gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon couperi*), short-tailed kingsnake (*Lampropeltis extenuata*), Florida pine snake (*Pituophis melanoleucus mugitus*), and southeastern kestrel (*Falco sparverius paulus*). The gopher tortoises and their commensals are concentrated within the sandhills, upland pine, and upland mixed woodland that remain in good condition as well as the sandy soil areas within the utility corridors and abandoned pastures. Staff will continue to refer to the FWC Gopher Tortoise Management Plan (FWC 2012) to guide management of this imperiled species.

Imperiled bird species recorded within the park include several species of herons, egrets, and raptors. Wood storks (*Mycteria americana*) are known to roost and

forage in the preserve. The little blue heron (*Egretta caerulea*) is known to nest within the preserve in a mixed species rookery within Sanchez Prairie. These populations are probably not seriously threatened at present, although continued habitat loss outside the preserve and human disturbance may ultimately change that situation. The heron rookery located at Rookery Pond within Sanchez Prairie must be shielded from human disturbance during the nesting season. Visitation to the site should be restricted during April through July.

In most cases, the policy of natural systems management will suffice to protect imperiled species within lands managed by the Division of Recreation and Parks. The maintenance of natural hydrological regimes and fire cycles is essential in preserving and restoring natural communities, and as a result, preserving those imperiled species dependent on those communities. Many of the wetlands within the preserve have suffered from altered hydroperiods due to external manipulations of the streams that ultimately discharge within the preserve. Some of these same areas have suffered from soil erosion due to recent foot traffic and motorcycle traffic in the past. Many of the areas most prone to damage from hydroperiod changes and direct human impact are also the preferred sites of several listed plant species. Big Otter Ravine is a prime example. Increased siltation and discharge within the Blues Creek watershed may have caused the extirpation of the San Felasco spleenwort according to Dr. Daniel Ward of the University of Florida Botany Department. Careful monitoring of the creeks within the preserve, and their headwaters outside the preserve, is essential to detecting and preventing such detrimental events. In addition, sensitive areas like Big Otter Ravine, and other ravine systems and sinks, must be classified as restricted zones within the protected zones of the preserve. Access to these sites must be limited to infrequent ranger-guided tours only.

The guidance of local botanists should be solicited in order to identify and protect fragile plant populations. Additional surveys for imperiled species should also be encouraged. The recruitment of researchers from the University of Florida and other institutions is encouraged to provide baseline data on the occurrence and status of species. Assistance from FNAI will also be sought to update the rare plant element occurrence records.

At San Felasco Hammock Preserve State Park, the continuation of an active prescribed fire program will benefit many of the imperiled species that require large tracts of fire-adapted natural communities. As more sandhills, upland pine, and upland mixed woodland are restored through fire, species such as gopher tortoises, indigo snakes, short-tailed kingsnakes, Florida mice, and southeastern kestrels are expected to increase. Pastures, which will be restored to upland pine and upland mixed woodland, are expected to be recolonized from adjacent natural areas.

Surveys of Florida mice date back to the 1950s when Jim Layne of the Archbold Biological Station began range-wide trapping of Florida mice (Layne 1992). District and park staff trapped two locations over the course of one year in the preserve and documented good populations of Florida mice in the early 1990s. More recent research by the University of Florida has centered on relocating Layne's original

trap sites for a genetic analysis. Analysis of genetic heterozygosity comparing DNA sample from the 1950s to recent samples (2009) has shown a reduction in genetic variability probably due to a decrease in population size (Rivadeneira 2010; Reed 2012).

A Southern fox squirrel reintroduction project was initiated in the fall and spring of 1995. The project was a cooperative venture between FWC and the Division of Recreation and Parks and was funded by the Nongame Wildlife Program. Squirrels were trapped from Alachua or surrounding counties and transported to the preserve where they were placed in large holding cages for several days prior to be being released and radio-tracked. Unfortunately, all of the squirrels released eventually dispersed out of the preserve, and the project was curtailed. Fox squirrels have been sporadically sighted within the preserve in the mesic flatwoods along the south boundary, and in degraded upland pine areas in the northwest section of the preserve. Sightings of fox squirrels are recorded by staff.

In 2012, District 2 staff initiated surveys for the southern dusky salamander (*Desmognathus auriculatus*). There are historical records from the 1970s and before at nearby Devil's Millhopper Geological State Park and from 1937 at San Felasco Hammock. However, this species has suffered dramatic declines in Florida over recent decades (Dodd 1998; Means and Travis 2007). Surveys for striped newts (*Notophthalmus perstriatus*), Florida gopher frogs (*Lithobates capito*), and tiger salamanders (*Ambystoma tigrinum*) are also ongoing in the preserve in cooperation with FWC.

District and park staff also contribute sightings of imperiled upland snake species to FWC online databases. Primary species tracked are eastern indigo snake, Florida pine snake, southern hognose, short-tailed kingsnake, and eastern diamondback rattlesnake. Gopher tortoise surveys were conducted in 2015 along the entire length of the Duke Energy utility corridor and those data were provided to the Division in ArcGIS shapefile format. Any future gopher tortoise surveys conducted at the preserve by Division staff will follow the LTDS protocols recommended by FWC (Smith et al. 2009). FWC lists San Felasco Hammock is a Tier 1, or highest, priority for future LTDS surveys. After an initial survey, resurveys should occur on a 5 to 10-year interval.

Several imperiled invertebrates are known from San Felasco Hammock including Say's spiketail dragonfly (*Cordulegaster sayi*) and the Florida scorpionfly (*Panorpa floridana*). The Say's spiketail adults fly for a few short weeks in the spring in sandhill habitats but the larvae persist for many years in adjacent seepage areas. Prescribed burning of the sandhills and protection of seepage areas are both necessary for the persistent of this rare species. The Florida scorpionfly is known from only a few sites in Alachua and Clay Counties, including San Felasco Hammock. A specimen was collected in 1982 at Mike Roess Gold Head Branch State Park and the species was not seen again until a single individual was photographed at that location in 2010 (Somma et al 2013). In November of 2014, a specimen was collected at San Felasco Hammock Preserve State Park by a researcher, the first since 1970 (Bicha 2015). Annual surveys by District staff have documented Say's spiketail at San Felasco, but have not yet documented the Florida scorpionfly.

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						
San Felasco spleenwort *Asplenium monanthes*			E	G4,S1	9,10	Tier 2
Southern lady fern *Athyrium filix-femina asplenioides*			T		9,10	Tier 1
Crested coralroot *Hexalectris spicata*			E		10	Tier 1
Pine lily *Lilium catesbaei*			T		1,6,7	Tier 1
Southern twayblade orchid *Listera australis*			T		9,10	Tier 1
Green adder's-mouth orchid *Malaxis unifolia*			E	G5,S3	9,10	Tier 1
Yellow fringed orchid *Platanthera ciliaris*			T		1,6,7	Tier 1
Oval ladies'-tresses *Spiranthes ovalis*			E		10	Tier 1
Crane-fly orchid *Tipularia discolor*			T		10	Tier 1
Three-birds orchid *Triphora trianthophora*			T		10	Tier 1

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Flyr's brickell-bush *Brickellia cordifolia*			E	G2G3, S2	1,6,7	Tier 2
Woodland poppymallow *Callirhoe papaver*			E	G5,S2	1,6,7, 10	Tier 1
Godfrey's Swampprivet *Forestiera godfreyi*			E	G2,S2	10	Tier 1
Cardinal flower *Lobelia cardinalis*			T		9,10	Tier 1
Southern crabapple *Malus angustifolia*			T			Tier 1
Florida milkvine *Matelea floridana*			E	G2,S2	1,6,7	Tier 1
Yellow butterwort *Pinguicula lutea*			T		1,4,6,7	Tier 1
Florida mountain mint *Pycnanthemum floridanum*			T	G3,S3	1,6,7	Tier 1
Nettleleaf sage *Salvia urticifolia*			E	G5,S1	1,6,7, 10	Tier 2
INVERTEBRATES						
Pill Scarab Beetle *Ceratocanthus aeneus*				G2G3, S2		Tier 1
Florida Cebrionid Beetle *Selonodon floridensis*				G2G4, S2S4		Tier 1
Alachua Pleasing Fungus Beetle *Triplax alachuae*				G2G4, S2S4		Tier 1
Say's Spiketail *Cordulegaster sayi*				G2,S3	1,4,6,7	Tier 2
Florida Scorpionfly *Panorpa floridana*				G1,S1	4,10	Tier 2

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Cofaqui Giant-Skipper *Megathymus cofaqui cofaqui*				G3G4T3, S2S4	10	Tier 2
Yehl Skipper *Poanes yehl*				G4, S2S3	10	Tier 2
King's hairstreak *Satyrium kingi*				G3G4, S2	1	Tier 2
AMPHIBIANS						
Southern dusky salamander *Desmognathus auriculatus*				G4, S1S2		Tier 2
Striped newt *Notophthalmus perstriatus*		C		G2G3, S2		Tier 2
REPTILES						
American alligator *Alligator mississippiensis*	FT(S/A)	SAT		G5,S4	4,10,13	Tier 1
Eastern indigo snake *Drymarchon couperi*	FT	LT		G3Q,S3	1,6,7, 13	Tier 1
Gopher tortoise *Gopherus polyphemus*	ST			G3,S3	1,6,7, 10,13	Tier 1
Southern hognose snake *Heterodon simus*				G2,S2	1,6	Tier 1
Short-tailed kingsnake *Lampropeltis extenuata*	ST			G3,S3	1.6	Tier 1
Florida pine snake *Pituophis melanoleucus mugitus*	ST			G4,S3	1,6	Tier 1
BIRDS						

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Little blue heron *Egretta caerulea*	ST			G5,S4	4	Tier 1
Tricolored heron *Egretta tricolor*	ST			G5,S4	4	Tier 1
Swallow-tailed kite *Elanoides forficatus*				G5,S2	1	Tier 1
Southeastern American kestrel *Falco sparverius paulus*	ST			G5T4, S3	1,5,6,7	Tier 1
Florida sandhill crane *Grus canadensis pratensis*	ST			G5T2T3 ,S2S3	1,10	Tier 1
Wood stork *Mycteria americana*	FT	LT		G4,S2	4	Tier 1
Painted bunting *Passerina ciris*				G5T3T4 S1S2	10	Tier 1
Kirtland's Warbler *Setophaga kirtlandii*	FE	LE		G3G4, S1	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.

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.

San Felasco has a diversity of invasive exotic plants in part because it has a diversity of natural communities as well as an ever increasing urban interface. Some species like tung oil tree (*Aleurites fordii*) and hardy orange (*Poncirus trifoliata*) are relicts of past agricultural activities. Cogon grass (*Imperata cylindrica*) may have been introduced by logging activities in the preserve. Other species like

Aridisia crenata and *Ardisia japonica* are ornamental plants that moved in from neighbors' yards.

North of Millhopper Road the infestations of exotic plants tend to be more scattered and ardisia is less frequent there. The worst coral ardisia infestation occurs on the south side of the road. Chinese tallow can be found in wetlands and creeks throughout the preserve. In particular, it is scattered along Cellon Creek. Recently a new invasive fern, Japanese false spleenwort (*Deparia petersenii*) was found within the preserve. It appears to be replacing native ferns on limestone outcroppings and along creeks. Further information on the extent of colonization in the preserve by this species is needed, particularly in areas of high fern diversity, before control measures can be instituted. Control of this species will be difficult and will require precise methods to limit damage to adjacent native species.

The relatively large size of San Felasco Hammock and the extensive urban interface increase the difficulty of controlling exotics in this park. Regular surveys are conducted. Treatments and surveys are tracked in a statewide database. A combination of AmeriCorps and in-house labor, contracts and targeted treatment areas are used to control the exotic plants. Primary control efforts focus on specific species and areas within the preserve. Volunteers and staff work to keep *Ardisa crenata* contained south of Millhopper road as much as possible; Cellon Creek and other wetlands are targeted for Chinese tallow (*Sapium sebiferum*) treatment; silverthorn is currently contained to the northeast area of the park and cogon grass and Japanese climbing fern (*Lygodium japonicum*) are regularly treated. Air potato (*Dioscorea bulbifera*) is controlled by the biological control leaf beetle *Lilioceris cheni* which has been spreading throughout the area. In spite of these efforts much more work to control exotics is needed at the preserve. Since many plants cross into the preserve from adjacent neighborhoods, a concerted outreach and education effort could help reduce the number of species and individual plants entering the preserve. Staff will also seek funding for additional exotic control. Since the Unit Management Plan was approved in 2005, 1024 acres of invasive exotic plants have been treated primarily through in-house efforts.

Three plant species that are not FLEPPC Category I or II need management action. Hardy orange (*Poncirus trifoliata*) is wide spread along Cellon Creek and in fields at the north end of San Felasco. Along the creek it forms an almost impenetrable hedge and has displaced native species. The park is treating this species and will continue to do so. With a concerted effort it may be possible to eliminate it. Centipede grass (*Eremochloa ophiuroides*) was previously planted along woods roads to stabilize them. In sandhill, upland mixed woodland and other fire type communities the grass can suppress the native groundcover if it gets established. Care should be taken to not move this grass into these natural communities with equipment. It should be treated where it is found within native groundcover. In recent years the widely used ornamental *Liriope* sp. has been found in San Felasco Hammock and other parks. Park staff should learn to recognize this genus and remove plants as they are found.

Table 3 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive, exotic plant species found within the preserve (FLEPPC 2017). 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 preserve, 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			
Albizia julibrissin mimosa	I	2	SFH-4J, SFH-5B, SFH-2Q
Ardisia crenata coral ardisia	I	1	SFH-1C
		2	SFH-2F, SFH-2P, SFH-2Q, SFH-2R, SFH-3K
		3	SFH-5B
		4	SFH-2G
Cinnamomum camphora camphor-tree	I	1	SFH-2F, SFH-3C, SFH-3G, SFH-1B
		2	SFH-1C, SFH-2R, SFH-4C
Colocasia esculenta wild taro	I	2	SFH-3H, SFH-3J, SFH-3K, SFH-2N, SFH-2R, SFH-3G
		4	SFH-3J
Deparia petersenii Japanese false spleenwort	I	2	SFH-3J, SFH-2R
Dioscorea bulbifera air-potato	I	1	SFH-2H
		2	SFH-3K
Eichhornia crassipes water-hyacinth	I	4	SFH-4J
Imperata cylindrica cogon grass	I	1	SFH-2E, SFH-5B
		2	SFH-2E, SFH-2G, SFH-5B
Lantana camara lantana	I	2	SFH-4J

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	**FLEPPC Category**	**Distribution**	**Management Zone (s)**
Ligustrum lucidum glossy privet	I	1	SFH-5B
Lygodium japonicum Japanese climbing fern	I	1	SFH-2H, SFH-3D, SFH-3G, SFH-3H, SFH-4H, SFH-2G
		2	SFH-3J, SFH-1Aw, SFH-2N, SFH-1C, SFH-2Q, SFH-2S, SFH-1B
		3	SFH-3B, SFH-2G
Nephrolepis cordifolia tuberous sword fern	I	2	SFH-1B
Paederia foetida skunk vine	I	1	SFH-3E
Sapium sebiferum Chinese tallow tree	I	1	SFH-5A, SFH-1Aw, SFH-2D, SFH-4H, SFH-3G, SFH-4De, SFH-4Fe, SFH-4G, SFH-3A
		2	SFH-3D, SFH-2C, SFH-2S, SFH-3C, SFH-3F, SFH-3G, SFH-3H, SFH-3J, SFH-3K, SFH-4Bw, SFH-4Dw, SFH-4E, SFH-4Fw, SFH-4J, SFH-3B, SFH-2R
		3	SFH-2Q, SFH-2K
Solanum viarum tropical soda apple	I	1	SFH-4A, SFH-4G, SFH-2G
		2	SFH-4J, SFH-4E, SFH-3G, SFH-3K
Aleurites fordii tung oil tree	II	2	SFH-4De, SFH-4E, SFH-3G, SFH-3E, SFH-

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	**FLEPPC Category**	**Distribution**	**Management Zone (s)**
			1Aw, SFH-4H
		3	SFH-4G, SFH-4J
Elaeagnus pungens silverthorn	II	1	SFH-5B, SFH-4G
		2	SFH-3K, SFH-3B
Koelreuteria elegans flamegold tree	II	2	SFH-5B
Melia azedarach Chinaberry	II	1	SFH-3G, SFH-1Aw, SFH-4H, SFH-4G, SFH-4A
		2	SFH-1B, SFH-1C, SFH-3B, SFH-4Be, SFH-4De, SFH-4E
		3	SFH-4Bw, SFH-4C, SFH-4J
Wisteria sinensis Chinese wisteria	II	1	SFH-5B

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.

By far the greatest threat to natural communities from exotic animals in the preserve is the presence of feral hogs (*Sus scrofa*). In the past, hogs were virtually extirpated from the preserve. Beginning around 1999 feral hogs began dispersing into the preserve. By 2000, they had spread rapidly throughout the Sanchez and Chert Swamp basins. By the end of 2001, they had expanded into the Moonshine Creek system. The damage caused by their rooting activities is well documented, and many rare plant populations in the preserve will be imperiled if the hogs continue to increase. The removal of feral hogs remains an urgent priority considering the real threat to the preserve's wetlands and upland hardwood forests. The park has utilized the services of the USDA Wildlife Services as well as private

hog contractors, volunteers, and staff to remove feral hogs. Formal trapping agreements are in place to supplement staff efforts. Trapping efforts should focus on removal of whole groups of hogs using larger traps instead of trapping single hogs or partial groups.

There are relatively few other exotic animals in the preserve. Nine-banded armadillo (*Dasypus novemcinctus*) populations, however, abound in the preserve. Armadillos cause extensive erosional damage along sinkhole and ravine slopes, and are a significant predator on ground nests of native reptiles. Armadillos are so pervasive throughout the preserve that it is doubtful that the species may ever be eradicated. However, the current policy of removal as opportunity permits should continue as this practice may at least keep populations down to a less damaging level. Coyotes (*Canis latrans*) and capybara (*Hydrochoerus hydrochoerus*) have been sighted within the preserve. No control measures are recommended for coyotes at this time. Capybaras will be removed from the preserve if possible.

Due to the increasing number of residential areas bordering the preserve, the incidences of free-ranging or feral dogs and cats within the preserve are likely to increase. Dogs and cats will be removed from the preserve according to Division guidelines in cooperation with Alachua County Animal Services.

Since approval of the last Unit Management Plan for San Felasco Hammock Preserve in 2005, through FY 2014/15, more than 1,000 nuisance or exotic animals, comprising nine different species, have been removed from the preserve. The majority of these animals have been feral hogs.

In 2002, the red bay ambrosia beetle (*Xyloborus glabratus*) was first detected in the United States in southeast Georgia. The beetle carries the fungal pathogen (*Raffaelea lauricola*) which it transmits to red bay trees (*Persea borbonia*) and other species in the Lauraceae family, causing laurel wilt disease and death. The beetle and its associated pathogen spread rapidly, and by 2005 it had appeared in Duval County, Florida. In 2007, the disease was discovered in Alachua County. Since that time, most of the adult red bays in the preserve have died. The beetle (and laurel wilt) has now spread throughout most of Florida and into many of the neighboring states. Although most of the adult red bays have been top-killed, the trees continue to resprout from their roots. It may be that members of the Lauraceae family will continue to survive in shrub form as the remnant tree root systems continue to resprout. At this point, much remains unknown about the long term impacts of this disease on red bays and other Lauraceae. Staff should continue to restrict the movement of firewood into and out of the preserve and educate visitors about the issue.

Special Natural Features

The San Felasco Hammock has long been recognized as an outstanding and unique natural resource. The hammock represents our finest and largest remaining example of mature upland hardwood forest, Florida's richest, most diverse and complex ecosystem. In addition, the area contains a richness of natural community

types exceeded nowhere else in the state, and thus preservation of the area ensures saving samples of nearly every landscape type in North Central Florida. For these reasons, the San Felasco Hammock Preserve State Park was acquired in 1974 as part of the state's Environmentally Endangered Lands Program, with the solid support and assistance of many local citizens, environmentalists, and politicians.

The upland hardwood forest in the preserve represents the climax plant association of this part of Florida.

> "Besides harboring most of the larger far-ranging vertebrates of the region, this community has a distinctive fauna of its own, comprising a diverse array of smaller vertebrates and invertebrates that flourish in the filtered light, high humidity, and damped temperature changes that prevail in such woods…. Delicate crane flies that would quickly dry up in the pine woods outside, here dance with impunity."
>
> - Archie F. Carr, 1973

Although much of the forest here has experienced some selective logging, the broken terrain created by the numerous sinks and ravines, creeks, and steep slopes has kept timbering operations out of several large patches of forest, and these remain as virgin stands, almost completely undisturbed.

Sanchez Prairie, a large elongate karstic solution basin, encompasses several lowland communities, interspersed with patches of flowing open water. One of the rarest plant associations in Florida or anywhere, are the stands of planertree and pop ash (*Fraxinus caroliniana*) that dominate several hundred acres of the Turkey Creek floodplain in Sanchez Prairie. These majestic planertrees in turn harbor a myriad of epiphytic plants.

Among the most visually spectacular features of the San Felasco Hammock are the ravines. Big Otter Ravine is the most dramatic, though several other ravine systems share its interesting attributes. Steep ravine slopes are saturated with seepage moisture, and provide a cool, sheltered habitat, ideal for many rare species of ferns and vascular plants. Large outcrops of exposed limestone are common in these areas. A number of plant species with a more northerly range thrive on these fragile slopes.

Each of the three major streams on the preserve, Blues, Turkey, and Cellon Creeks, directly enters the Floridan aquifer on the unit by entering a swallow or cave system. Each of these injection points is a spectacular example of karstic phenomena. The importance of protecting the surface water quality is emphasized as local groundwater supplies may easily be tainted by the insurgence of pollutants along with these sinking creeks.

Other significant natural features include the diversity of wetland systems: ponds, basin swamps, marshes, as well as the fine examples of rapidly disappearing upland communities such as sandhill, and in particular, the extensive acreage of upland pine and upland mixed woodland dominated by longleaf pine and southern

red oak. The incredible diversity of natural communities attests to the unique and active geology of the area, which is in part due to the preserve spanning multiple physiographic zones.

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: Fifty-six archaeological sites of which one is National Register listed, and one historic structure are recorded with the FMSF. The cultural periods represented by sites within the preserve span all of the cultural periods except the Second Seminole War. While there is documentary evidence suggesting that an early battle of the Second Seminole War occurred in San Felasco Hammock, likely within the preserve (Wheeler and Newman 1997), no sites have been found. Many of the archaeological sites at San Felasco Hammock are multi-component with features that range from the Paleoindian period (10,000 B.C. – 8,000 BC) through historic times including the 20th Century. Most sites are prehistoric or have a prehistoric component. Historic sites at San Felasco encompass the Spanish mission period, the 19th Century Spanish land grant era to the mid-20th Century.

During the period of initial Native American – European contact, the Potano-Timucua Indians inhabited San Felasco (Collins et al. 2012). In the second half of the 16th Century and early part of the 17th Century the Spanish established missions in north Florida and Georgia in four regions. One of these regions was known as Timucua and encompassed the area between the St Johns River and the Suwannee River. The first mission (AL272) in the Florida interior was established in San Felasco in 1606. Subsequent conflicts between the Native Americans, the Spanish, other Europeans and the effects of introduced disease and forced labor on the native inhabitants resulted in a decline in population in Florida in the 1700s. In 1790 the Spanish offered Land Grants in Florida to encourage settlement. An initial grant of 6000 acres to S.D. Fernandez occurred in what is now the preserve. Additional land grants in San Felasco occurred later (Collins et al. 2012). Florida became a US territory in 1822 and a state in 1845. In the early 20th Century tung

nuts were grown for oil and a dairy was present within the current preserve boundary.

Several prehistoric sites are habitations (AL272, AL276, AL288, AL304, AL305, AL307, AL309, AL310, AL447, AL461, AL3393, AL3395, AL3399, AL3412, AL3414 and AL3417) or quarry sites (AL155, AL306, AL446, AL447, AL448, and AL449). Lithic components rather than ceramics are more often represented in these sites. One prehistoric mound occurs within the preserve (AL3403). Recent efforts to relocate the site have been unsuccessful.

The preserve's most significant historic period site is the National Register Listed (NRL) Mission San Francisco de Potano (AL272). It encompasses what was the primary town of the Potano-Timucua at the time of Spanish contact as well as the location of the mission that was built in 1606. It included a Spanish military encampment and a school for children. It survived until 1706, the last mission in the Florida system to be abandoned. Four National Register Eligible sites (AL310, AL3412, AL3413, AL3417 are associated with development following the creation of the Sanchez and Fernandez Spanish Lands and indicate early 19th Century occupation of the modern preserve. They may have been part of a settlement from the 1830s to the 1840s known as Spring Grove which was abandoned due to conflicts with Native Americans. Chert Swamp Rock Trough (AL5770) may date from the 19th or early 20th Century. Its function is unknown and needs further investigation. Other historic sites represent 20th Century activities including moonshine stills (AL3397, AL3421), ruins of farm buildings (AL3398), the remains of a dairy and tung oil operation from the 1920s to the 1950s (AL3411), and 19th and 20th Century habitation and commune remains (AL3401). While in existence, the Commune was visited by one of Gainesville's citizens important to the future of San Felasco Hammock Preserve who was instrumental in convincing the state to acquire and preserve San Felasco Hammock (Simons pers. comm.).

More archaeological sites certainly exist within the preserve and need to be recorded with the FMSF. Examples include old roads like Ray's Trail. It is possible that portions of the Florida Santa Fe Trail and the road to Fort King pass through the preserve.

A predictive model for the park was completed in 2011 (Collins et al. 2012).

Condition Assessment: All sites are currently in good condition. Historically some looting has occurred but no recent looting has been observed. The primary threat to archaeological sites currently is the impact of roads, firebreaks, feral hogs and incidental collection by park visitors if they encounter exposed artifacts.

General Management Measures: All cultural sites should be visited on a regular basis to ensure protection from looting, feral hog damage, erosion and trail impacts. The park should devise and implement a method and schedule to visit, monitor and document any changes in the condition of cultural sites.

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: The Park has one recorded historic structure, AL04980 Agricultural Structure #1, also known as the Tung Nut Depot. The structure is thought to have been the depot where tung nuts (*Aleurites fordii*) were gathered from nearby groves during the 1930s. Tung trees, originally from China, were grown for oil produced by the nuts. By 1927 10,000 acres of tung plantations existed in Alachua County (Brown and Keeler 2005). Just prior to World War II the oil was declared a strategic item for defense.

It is not completely clear that the Tung Nut Depot existed in its current location in the 1930s. During historic structure testing in 2004 Bland and Associates, Inc. examined aerial photos from 1937 through 1956. From those photos it is not clear that the structure existed at its current site. Topographic maps from 1966 forward do show the depot building in its current location.

One unrecorded historic structure also exists at the park, the park shop and office. This structure was constructed between 1964 and 1968 according to aerial photography and needs to be recorded with the FMSF. The original use of this structure is uncertain.

Condition Assessment:
The condition of AL4980 is fair. The condition of the unrecorded historic shop structure is considered fair also because it needs a new roof.

General Management Measures:
AL04980 should be stabilized as needed. A new building is planned to house the preserve shop and office at a nearby location.

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: San Felasco Hammock does not have any collections.

Condition Assessment: Not applicable.
General Management Measures: Not applicable.

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**
AL00137 Cellon Fence Line	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL00141 NN	Alachua A.D., 1250-A.D. 1600	Archaeological Site	NE	G	P
AL00155 Flint Sink	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL00272 San Francisco De Potano	Alachua A.D., 1250-A.D. 1600; Archaic, 8500 B.C.-1000 B.C.; Potano; First Spanish, Early 1600-1699	Archaeological Site	NRL	G	P
AL00275 NN	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL00276 NN	Alachua A.D., 1250-A.D. 1600; Archaic, 8500 B.C.-1000 B.C.	Archaeological Site	NE	G	P
AL00288 NN	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL00304 Old Road	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL00305 Sandhill Cutoff	Alachua A.D., 1250-A.D. 1600; Weeden Island, A.D. 450-1000	Archaeological Site	NE	G	P
AL00306 Chert Swamp	Archaic, 8500 B.C.-1000 B.C.	Archaeological Site	NE	G	P
AL00307 NN	Archaic, 8500 B.C.-1000 B.C.	Archaeological Site	NE	G	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
AL00309 NN	Alachua A.D., 1250-A.D. 1600; Cades Pond, 300 B.C.-A.D. 800; Deptford, 700 B.C.-300 B.C.	Archaeological Site	NE	G	P
AL00310 Colding	Alachua A.D., 1250-A.D. 1600; American Acquisition/Territorial Development 1821-45; Hickory Pond, A.D. 800-1250	Archaeological Site	NE	G	P
AL00446 Hargraves	Archaic, 8500 B.C.-1000 B.C.; Deptford, 700 B.C.-300 B.C.	Archaeological Site	NS	G	P
AL00447 Cellon	Archaic, 8500 B.C.-1000 B.C.; Deptford, 700 B.C.-300 B.C.	Archaeological Site	NE	G	P
AL00448 NN	Archaic, 8500 B.C.-1000 B.C.	Archaeological Site	NE	G	P
AL00449 NN	Archaic, 8500 B.C.-1000 B.C.	Archaeological Site	NE	G	P
AL00461 San Felasco Hammock	Early Archaic	Archaeological Site	NE	G	P
AL02471 Twin Ponds Site	Prehistoric/Unspecified	Archaeological Site	NS	G	P
AL02472 Cellon Creek Site	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL03127 Sandhill	Unspecified	Archaeological Site	NE	G	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
AL03128 Mesic Hammock	Unspecified	Archaeological Site	NE	G	P
AL03393 Itchy Bottom	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL03394 West Cut	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL03395 Sanchez Pond	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL03396 Culvert	Prehistoric/Unspecified; First Spanish, 1513-1599	Archaeological Site	NE	G	P
AL03397 Moonshine Creek Still	Twentieth century American, 1900-present	Archaeological Site	NE	G	P
AL03398 Bucket	Twentieth century American, 1900-present	Archaeological Site	NE	G	P
AL03399 Depot	Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL03400 North Prairie	Early Archaic; Paleoindian, 10,000 B.C.-8500 B.C.	Archaeological Site	NE	G	P
AL03401 Commune	Nineteenth century American, 1821-1899; Twentieth century American, 1900-present; Prehistoric/Unspecified	Archaeological Site	NE	G	P
AL03402 Inholding Road	Prehistoric/Unspecified	Archaeological Site	NE	G	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
AL03403 Big Oak Mound	Prehistoric	Archaeological Site	NE	G	P
AL03411 Dairy Barn	Twentieth century American, 1900-present	Archaeological Site	NE	G	P
AL03412 J M Sanchez Place	American Acquisition/Territorial Development 1821-45; Prehistoric	Archaeological Site	NE	G	P
AL03413 Headquarters	American Acquisition/Territorial Development 1821-45; Prehistoric	Archaeological Site	NE	G	P
AL03414 Big Magnolia	Alachua A.D., 1250-A.D. 1600; Leon-Jefferson	Archaeological Site	NE	G	P
AL03415 Blues Creek Road	Prehistoric	Archaeological Site	NE	G	P
AL03416 Turkey Creek	Prehistoric	Archaeological Site	NE	G	P
AL03417 F. R. Sanchez	American Acquisition/Territorial Development 1821-45	Archaeological Site	NE	G	P
AL03421 Blues Creek Still	Twentieth century American, 1900-present	Archaeological Site	NE	G	P
AL03422 Old Tractor	Twentieth century American, 1900-present	Archaeological Site	NE	G	P
AL03519 South Side	Archaic, 8500 B.C.-1000 B.C.	Archaeological Site	NE	G	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
AL04980 Agricultural Structure #1	c. 1925	Historic Structure	NE	F	P
AL05160 A-13	Other	Archaeological Site	NS	G	P
AL05161 A-11	Prehistoric	Archaeological Site	NS	G	P
AL05162 A-15	Other	Archaeological Site	NS	G	P
AL05163 A-16	Prehistoric	Archaeological Site	NS	G	P
AL05164 A-17	Prehistoric	Archaeological Site	NS	G	P
AL05165 A-18	Prehistoric	Archaeological Site	NS	G	P
AL05166 A-22	Other	Archaeological Site	NS	G	P
AL05167 A-14	Prehistoric	Archaeological Site	NS	G	P
AL05743 GH-115	Cades Pond, 300 B.C.	Archaeological Site	NE	G	P
AL05744 GH-115	Prehistoric	Archaeological Site	NE	G	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
AL05745 GH130/131	Middle Archaic	Archaeological Site	NE	G	P
AL05770 Chert Swamp Rock Trough	Probably 19th or early 20th Century	Archaeological Site	NE	G	P
AL05803 Mill Hopper Station	Prehistoric; Weeden Island, A.D. 450-1000	Archaeological Site	NE	G	P

Significance:

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

Condition

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

Recommended Treatment:

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

Resource Management Program

Management Goals, Objectives and Actions

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

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

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

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

Natural Resource Management

Hydrological Management

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

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

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

Action 1 Continue to cooperate with state and federal agencies and independent researchers regarding hydrological research and monitoring programs within the preserve

Action 2 Continue to monitor, review and comment on proposed land use/zoning changes that may influence the water resources of the preserve

Action 3 Continue to seek expertise and funding opportunities for dye trace studies to determine the groundwater sources, especially additional groundwater connections to the Santa Fe River

Action 4 Cooperate and seek expertise from SRWMD and Alachua County EPD for continued implementation of water quality and quantity monitoring in the three significant blackwater stream systems of the preserve, including Cellon, Turkey, and Blues Creeks

Action 5 Staff will seek guidance from appropriate agencies and assess the feasibility of installing continuous stage recorders in Blues, Turkey and Cellon Creeks to monitor flows

Action 6 Staff will seek guidance from SRWMD develop and implement a water monitoring plan in Moonshine Creek

The most significant hydrological features in the park include the Sanchez Prairie wetland system and several blackwater streams including four prominent creek systems, namely Cellon, Blues, Turkey, and Moonshine creeks. All four of these waterbodies are stream-to-sink creeks that terminate within the preserve at a recognized karst feature and funnel surface water directly into the Upper Floridan aquifer. Control of erosion and sedimentation along each of these important waterbodies as well as preservation of surface water and groundwater quality and quantity at the park will remain top priorities for the Division. The following are the hydrological assessment actions recommended for the preserve.

The DRP will continue its tradition of close cooperation with state and federal agencies and independent researchers engaged in hydrological research and monitoring in the park, and it will encourage and facilitate additional research in those areas. To facilitate that process, DRP will rely upon agencies such as the Alachua County EPD, SRWMD, USGS, and FDEP to keep it apprised of any declines in surface water quality or any additional suspected contamination of groundwater in the region.

District staff will continue to monitor Environmental Resource Permit and Water Use Permit requests for the region in order to provide timely and constructive comments that promote protection of the preserve's water resources. Additional cooperative efforts may include facilitating the review and approval of research permits and providing researchers with assistance in the field, including orientation to park resources. Recommendations derived from these monitoring and research activities will be essential to the decision making process during management planning. One activity worthy of DRP support is continued groundwater monitoring of all important wells and water bodies under the park's jurisdiction.

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

In order for water managers to adequately protect water quality at San Felasco and the downstream watersheds such as the Santa Fe River, they will have to know the extent of the interconnectedness of the Alachua Steam System as mentioned in the Hydrology section above. However, the proximal and distal sources of flow through the Floridan aquifer are still unknown. To remedy that, the DRP will encourage hydrological research, including dye trace studies, designed to facilitate springshed delineation throughout the Santa Fe River Basin.

Objective B: Restore natural hydrological conditions and functions to approximately 2 miles of blackwater stream and 10 acres of sinkhole lake natural community.

Action 1 Continue to seek expertise from SRWMD and pursue funding to determine the degree of hydrological restoration that is needed in the Itchy Bottom Lake/Cellon Creek system, and, if necessary, to develop and implement additional restoration projects

The DRP will evaluate the condition of Itchy Bottom Lake/Cellon Creek sheetflow wetland system at San Felasco by mapping, reconnaissance, and determining their current ecological status. District and park staff will determine if it is possible to restore these wetland communities, specifically the removal of any old berms and canals. If staff determines that further restoration is possible, alternatives will be developed and implemented. Park staff will comply with best management practices to maintain the existing water quality on site and will take appropriate action to prevent soil erosion or other impacts to water resources.

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

Action 1 Implement the Trail Management Plan for the park's recreational trails

Action 2 Regularly monitor all park service roads and trails that are subject to significant erosion, implement corrective measures as necessary complying with best management practices for surface and ground water quality

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

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

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

Objective D: Monitor and evaluate the impacts of historic cattle dipping operations at San Felasco.

Action 1 Seek guidance from appropriate experts and implement a monitoring plan for the cattle dip vat site at the park

A 900-acre tract managed by the Division as part of San Felasco Hammock Preserve State Park was purchased from the UF Foundation because it contained an extremely important surface and groundwater linkage, namely Cellon Creek and Lee Sink. Prior to acquisition, the Division had identified a single significant area of concern within the tract where previous landowners had conducted intensive cattle dipping operations. Rigorous groundwater and soil sampling in vicinity of the dip vat revealed that soils in the area were contaminated. According to the contamination experts, DRP was recommended to restrict access to the dip vat area by fencing.

The DRP will continue to cooperate with appropriate experts within FDEP or other agencies concerning the long-term monitoring of water quality and soils in the area where cattle dipping operations had occurred. The DRP will mitigate impacts as needed, using the best available means of remediation.

Natural Communities Management

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

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

Objective A: Conduct floral and faunal surveys and update the park's baseline plant and animal list.

Since the last management plan update, several properties have been purchased and added to the preserve. The Fox Pond addition in the southeast corner was purchased and includes additional land formerly managed by the University of Florida. Other additions include properties in the northeast portion of the preserve purchased by Alachua County Forever and leased to the Division for management.

Additional floral and faunal surveys should be conducted on these additions to update the preserve's plant and animal species lists. District and park staff will also continue to work with researchers working in the preserve to supplement the plant and animal species lists.

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 B: Within 10 years, have 2000 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 600 - 1530 acres annually.

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)
Upland Mixed Woodland	893	2-5
Upland Pine	618	2-3
Sandhill	197	2-3
Mesic Flatwoods	70	2-3
Basin Marsh	34	10-20
Depression Marsh	6	2-5
Successional Hardwood Forest	652	2-10
Pasture – Improved	322	2-10
Abandoned Field/Abandoned Pasture	134	2-10
Annual Target Acreage	600 - 1530	

Prescribed fire is planned for each burn zone on the appropriate interval. The park's burn plan is updated annually because fire management is a dynamic process. To

provide adaptive responses to changing conditions, fire management requires careful planning based on annual and very specific burn objectives. Each annual burn plan is developed to support and implement the broader objectives and actions outlined in this ten-year management plan. The park will enlist the assistance of the District Fire Management Officer, District Fire Team, and staff from other parks to accomplish these objectives. Contracted burn augmentation teams will also be made available to the park for prescribed fires and fire preparation activities.

San Felasco Hammock Preserve State Park contains a significant amount of fire adapted habitat. Natural communities within the park that are naturally maintained by fire include upland mixed woodland, upland pine, sandhills, mesic flatwoods, and basin and depression marshes. The preserve also includes natural communities, such as domes and basin swamps that are dependent on intermittent fire. Altered landcover types that are managed with fire include improved pasture, abandoned pasture, and successional hardwood forest.

Fire-return intervals follow those generally recommended by the Florida Natural Areas Inventory (FNAI 2010). Sandhills and upland pine should be burned every 2 to 3 years with upland mixed woodland burning somewhat less frequently at 2 to 5 years. However, the upland mixed woodland needs more frequent fires to speed restoration. Ideally, it should be burned as frequently as it will carry fire. Mesic flatwoods should be burned every 2 to 3 years, although patchy or low fuel conditions may prevent shorter fire return intervals during the restoration phase. Fire return intervals for marsh systems are quite variable depending on water levels and the frequency of fire in surrounding communities. Natural fires in basin and depression marshes often consumed some of the accumulated peat deposits during drought periods. Such fires are difficult to mimic with prescribed fire due to smoke management concerns. The target fire acreage for the preserve is 600 to 1530 acres per year.

Most of the management zones in the preserve contain significant burn habitat. Firebreaks consist of existing features such as service roads, trails, and park boundary lines, as well as natural firebreaks such as mesic woods or watercourses. Construction of additional internal firebreaks, other than temporary hand or wet lines, is discouraged, and will occur only after a thorough review of all options. Maintenance or expansion of perimeter firebreaks, particularly in wildland/urban interface areas, may be needed in certain areas. Where significant archaeological sites occur, soil disturbance in the preparation of firebreaks will be minimized. Careful planning and execution of prescribed fires is essential due to the proximity of Interstate 75, U.S. 441, and State Road 232, along with numerous residential communities.

Much of the burn habitat is in the southwestern part of the preserve. This includes the sandhills, upland mixed woodland, and upland pine on the west side, in the center of the unit, and the sandhills, upland mixed woodland, upland pine, depression marsh, and mesic flatwoods that occur towards the south of the unit. The majority of this habitat is in fair to good condition. Prior to the outbreaks of

southern pine beetles, the main impact on this area was several decades of fire exclusion before the property was acquired. Significant progress towards restoration had been made in most of the zones. The clearcuts and selectively cut over areas that resulted from southern pine beetle control efforts required special fire management to account for logging slash and to prevent invasive hardwoods from expanding into the disturbed areas. Prescribed fire is the most effective restoration tool in most of these impacted areas. However, some of these areas will require other restoration methods such as offsite hardwood removal and thinning or clearcutting of remaining loblolly stands to reduce the threat of southern pine beetles, release longleaf pines, and stimulate herbaceous growth. The most difficult zones to burn are those immediately along Interstate 75. These require a very narrow burn prescription due to smoke management concerns. Prescribed burns cannot be conducted in these tracts during variable or easterly wind conditions. Top priority needs to be given to burning these areas when conditions permit since appropriate burn days are so restricted.

The zones northwest of Sanchez Prairie are comprised of a combination of abandoned pastures and successional hardwood forests that were once upland pine or upland mixed woodland. Prescribed fire will be an integral part of the restoration of the upland pine and upland mixed woodland areas.

Abandoned pastures and overgrown upland pine and upland mixed woodland areas dominate the burn habitat in the northeastern portion of the preserve. Selective cutting of pines for control of southern pine beetles has also affected these areas. Burning in the old pastures is coordinated with re-forestation efforts. The more overgrown forested areas may require some removal of offsite hardwoods and loblolly pine thinning.

Late winter and early spring burns are often more successful in penetrating overgrown areas when canopy trees have lost their leaves, fuels are drier and burn better since more sunlight reaches the forest floor. The ultimate goal, however, is to restore natural lightning season burns to all zones.

The University of Florida Foundation Addition at the north end of the preserve consists of improved pastures, abandoned pastures and upland pine/upland mixed woodland remnants. Prescribed fire and haying of improved pastures are used to maintain the pastures free of invasive woody plant species until restoration efforts can begin. Fire is also used in the control and elimination of tropical soda apple. Ultimately, the majority of these pastures will be restored to upland pine and upland mixed woodland.

Many wildlife species in the preserve are dependent on frequent natural fires. The gopher tortoise prefers open canopied areas of sandy soils with dense herbaceous groundcover. Burrow commensals include the eastern indigo snake, Florida pine snake, eastern diamondback rattlesnake, gopher frog, Florida mice, and hundreds of other species. Likewise, many rare plant species like the woodland poppy mallow and Flyr's brickell-bush require periodic fires and respond quickly after fires.

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.

San Felasco Hammock faces several challenges in the restoration of its upland natural communities. Large expanses of improved pasture that were once upland pine and upland mixed woodland have been cleared of native vegetation and cultivated for up to 150 years. Other sites have been impacted by outbreaks of the southern pine beetle and retain few adult pines. Previous disturbances and fire suppression have left these areas with only scattered patches of native groundcover. Natural community improvement efforts are being directed at the upland pine and upland mixed woodland areas that retain some native components and are adjacent to undisturbed areas. These disturbed areas require intervention sooner than the less dynamic pasture areas that are unlikely to degrade any further in the short term. One of the initial goals in upland pine and upland mixed woodland restoration is the resumption of a more natural fire regime. Creation of a continuous fuel bed is a critical part of the process.

Restoration of the pine beetle areas emphasize both groundcover and overstory restoration. Longleaf pine tublings have been planted in the impacted areas. If necessary, groundcover restoration will be accomplished using plugs of wiregrass in conjunction with direct seeding using seeds harvested from local upland pine or sandhill areas. Preparation of a receptive seed bed usually requires prescribed fire.

In many cases this is not possible due to a discontinuous fuel bed. Mechanical raking or light disking of the soil surface can be used to prepare the seed bed where burning is not possible. Previous groundcover restoration efforts in pine beetle clearcuts at O'Leno State Park have proven to be very encouraging. One of the great benefits of direct seeding, in addition to the lower cost, is that the seed mix includes a broad variety of native groundcover species as well as the dominant wiregrass. Control of offsite hardwood species is a critical component in these restoration efforts. Loss of the pine canopy stimulates hardwood growth to the detriment of groundcover species and seedling longleaf pines. Selective herbiciding of hardwoods has been necessary to reduce their dominance in the clearcuts.

Pasture restoration is a more difficult proposition since these areas have been cleared of native vegetation for many years. Past land use practices such as disking, tung nut orchards, fertilization, and livestock ranching may have altered the basic characteristics of the upland soils. Removal of the pasture grasses can be accomplished through a combination of repeated disking and herbicides. However this disturbance often stimulates the germination of weed species in the seed bank. It is likely that additional herbicide applications will be required before native groundcover species can be effectively restored. Several pasture areas have been replanted with longleaf pines, but groundcover restoration has not been initiated in the improved or abandoned pasture areas. Future groundcover restoration will likely make use of containerized wiregrass plugs, and direct seeding of a variety of groundcover species using a locally collected seed mix.

Following are the natural community/habitat restoration and maintenance actions recommended to create the desired future conditions in the upland mixed woodland, sandhill, mesic flatwoods, and upland pine communities (see Desired Future Conditions Map).

Objective C: Conduct habitat/natural community restoration activities on 212 acres of upland mixed woodland and upland pine natural communities.

Action 1	Increase fire frequency and chemically or mechanically remove offsite hardwoods and loblolly pines in the upland mixed woodland and upland pine in zones SFH-3A and SFH-3B.
Action 2	Plant additional longleaf pines.
Action 3	Assess the need for groundcover restoration and implement if necessary

The objective is move the habitat closer to the desired future condition for upland pine and upland mixed woodland by removing loblolly pines, laurel oaks, sweetgums and other off-site hardwoods and replanting longleaf pines. These zones also contain one of the few populations of the state endangered poppy mallow which must be protected during any community improvement actions. Portions of these zones were once improved or semi-improved pastures and may need groundcover restoration once the canopy is open and a natural fire regime is in place. Restoration of zones SFH-3A and 3B are a higher priority than the

abandoned pastures north of Sanchez Prairie since Zones SFH-3A and 3B retain patches of remnant groundcover species.

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 D: Conduct natural community/habitat improvement activities on 218 acres of sandhill/upland pine natural communities.

Action 1 Increase fire frequency and chemically or mechanically remove offsite hardwoods and loblolly pines in a portion of the sandhill in portions of zone 2D and 2C.
Action 2 Supplement remaining longleaf pines with additional planting.

This area contains sandhill that is being invaded by loblolly pines and hardwoods due to fire exclusion. Fire frequency needs to be increased in these zones. Native groundcover in the zone has historically been very good and its protection should be a consideration during any management actions.

Objective E: Conduct natural community/habitat improvement activities on 30 acres of sandhill and mesic f.twoods natural communities.

Action 1 Control hardwood regrowth by chemical and/ or mechanical methods.
Action 2 Replant with longleaf pine.

Loblolly pines and off-site hardwoods in zone SFH-2R were removed due to a pine beetle infestation. Mechanical and/or chemical treatment is needed to prepare the zone for planting longleaf pines. Fire frequency needs to be increased in this zone.

Objective F: Conduct natural community/habitat improvement activities on 64 acres of mesic flatwoods natural community.

Action 1 Chemically or mechanically remove offsite hardwoods in the flatwoods in zones SFH-2A and SFH-2B.

Due to infrequent fire in these zones after a pine beetle cut in the 1990s, offsite hardwoods have increased in density. Increase fire frequency and remove offsite hardwoods as needed.

Objective G: Conduct natural community/habitat improvement activities on 245 acres of sandhill and upland mixed woodland natural communities.

Action 1 Chemically or mechanically remove offsite hardwoods in the sandhill and upland mixed woodland communities in zone SFH-2E.
Action 2 Plant additional longleaf pines as necessary

Off-site hardwoods have increased in zone SFH-2E due to infrequent fire. Laurel oaks, water oaks and sweetgums are the primary species that need to be removed. Due to the small diameter of the hardwood stems mowing or other mechanical methods followed by chemical treatment will be necessary.

Objective H: Conduct natural community/habitat improvement activities on 200 acres of sandhill and upland mixed woodland natural communities.

Action 1 Remove off-site hardwoods in zones SFH-2M and SFH-2N through increased fire frequency and chemical/mechanical methods.
Action 2 Remove loblolly pines to prevent outbreaks of southern pine beetles.
Action 3 Plant longleaf pines after loblolly pine removing and off-site hardwood removal.

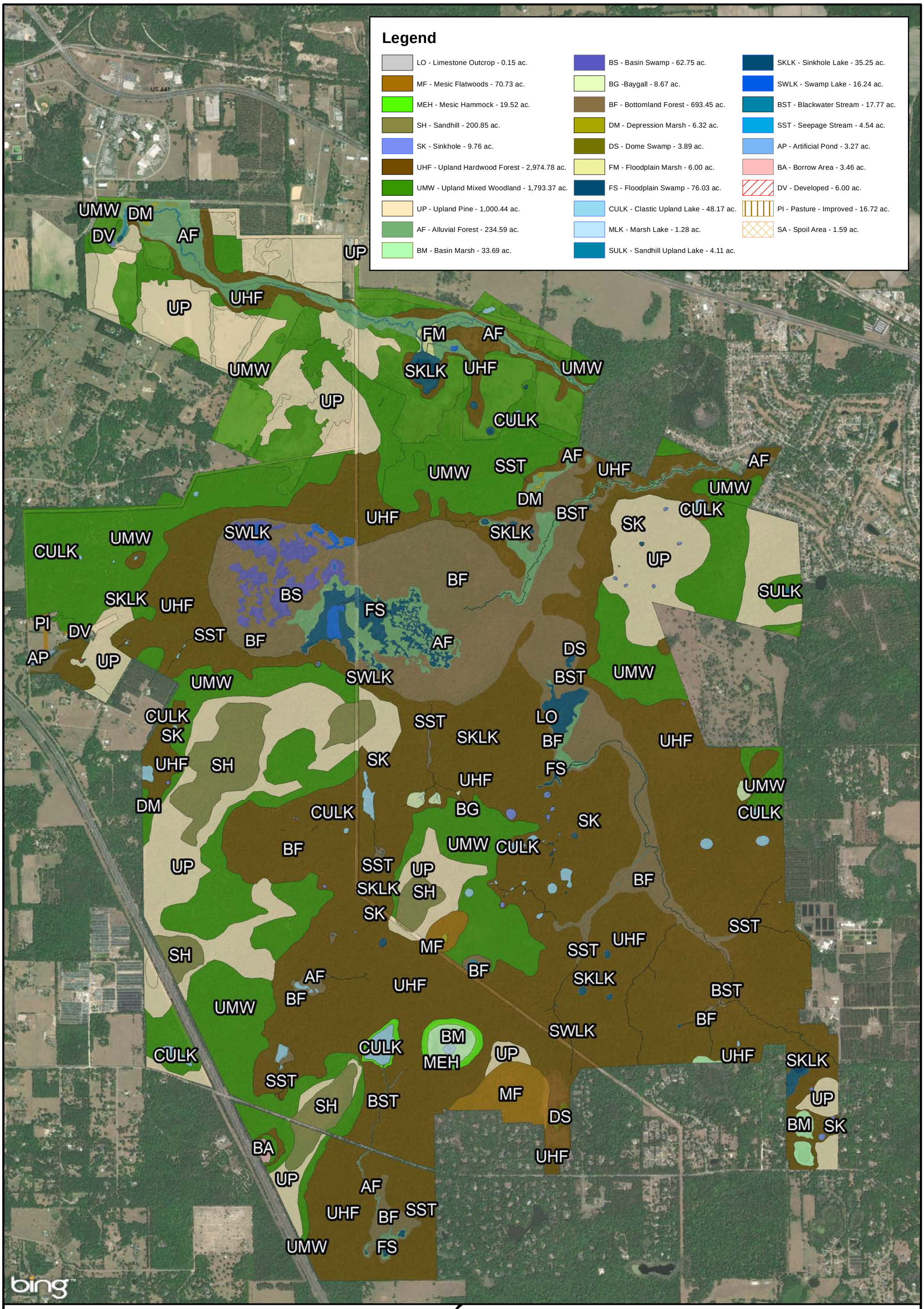
Off-site hardwoods and loblolly pines have increased in zone SFH-2M and SFH-2N due to infrequent fire. Laurel oaks, water oaks and sweetgums are the primary hardwood species that need to be removed. Loblolly pines should be removed and replaced with longleaf pines to reduce future susceptibility to southern pine beetle. Use fire as the initial tool to remove off-site hardwoods. Evaluate the zone following fire and determine if additional treatment methods are needed. Mechanical treatment of hardwoods will need follow-up chemical control. Plant longleaf pines after removing loblolly pines.

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



SAN FELASCO HAMMOCK
PRESERVE STATE PARK

0 750 1,500 3,000 Feet

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

NATURAL COMMUNITIES MAP
DESIRED FUTURE CONDITIONS

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. Management of imperiled species will be guided by Florida's Imperiled Species Management Plan (FWC 2016) and appropriate Species Action Plans.

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.

Objective B: Monitor and document 9 selected imperiled animal species in the park.

Action 1	Develop monitoring protocols for 1 selected imperiled animal species including the Florida mouse.
Action 2	Implement monitoring protocols for 9 imperiled animal species including those listed in Action 1 above and striped newt, southern dusky salamander, tiger salamander, eastern indigo snake, Florida pine snake, short-tailed kingsnake, eastern diamondback rattlesnake, and Southern fox squirrel.

Florida mice have been trapped at the preserve since the 1950s. Staff conducted trapping in the early 1990s and the University of Florida has conducted limited trapping more recently in 2009. Future monitoring of Florida mice will be conducted in cooperation with ongoing University of Florida and FWC research projects. Surveys for amphibians at breeding ponds, including the striped newt, gopher frog, and tiger salamander are conducted in cooperation with ongoing FWC research projects. Upland snake species are documented on a park form and records are entered on an FWC online database. Southern fox squirrel sightings are also documented on a park imperiled species tracking form.

Objective C: Monitor and document 3 selected imperiled plant species in the park.

Action 1 Develop monitoring protocols for 3 selected imperiled plant species including woodland poppy mallow, Flyr's brickell-bush and nettleleaf sage.

Action 2 Implement monitoring protocols for 3 imperiled plant species including those listed in Action 1 above.

Woodland poppy mallow and Flyr's brickell-bush are rare plants that seem to be endemic to the upland mixed woodland and upland pine natural communities in north-central Florida. Both require periodic fires. While the poppy mallow appears to persist in several areas in the preserve, the Flyr's brickell-bush is often not apparent until after certain disturbances that open up the canopy, including removal of offsite hardwoods and relatively intense fires. Monitoring protocols will be developed to track existing populations of poppy mallow and Flyr's brickell-bush, and to detect new populations that may arise during upland pine and upland mixed woodland restoration actions. The nettleleaf sage has not been recently observed despite coordinated efforts with FNAI staff to locate the plants. A monitoring protocol will be developed, and attempt will be made to locate the species.

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 200 infested 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 200 infested acres in the park, annually, and continuing maintenance and follow-up treatments, as needed.

Objective B: Prevent the introduction and spread of invasive exotic plants into the park.

Action 1 Develop and adopt preventative measures to avoid the introduction and spread of invasive exotic plants into the park.

Invasive exotic plants are often introduced or spread to natural areas on equipment, in fill dirt or mulch, and in ornamental plantings. The park should develop and implement a protocol to inspect equipment and fill dirt and ensure that whatever equipment or materials enters the park is exotics free. In addition, the park should develop an invasive exotic plant outreach and education program for the adjacent neighbors that encourages them to remove invasive species and replace them with native plants.

Objective C: Survey the entire park for invasive exotics at least 2 times over 10 years.

Action 1 Develop and implement a method to survey the entire park for invasive exotic plants two times over the course of 10 years.

In areas with high urban interface such as San Felasco Hammock Preserve it is important to quickly detect new and possibly unrecognized invasive plant species. Early detection of exotics through surveying becomes very important. Park surveys should be conducted with the goals of preventing heavy infestations occurring from neighboring properties, finding any new infestations, particularly of unrecognized invasive species quickly so that they can be treated promptly and maintaining treated areas in maintenance condition. Surveys of the park boundary, particularly along urban interfaces, should occur annually and be part of normal patrols within the preserve.

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

Action 1 Continue to remove feral hogs from the park.

The feral hog rooting has caused observable damage to native groundcover species and wetlands in the park. The park should continue to evaluate its current methods of controlling hogs and implement additional methods where possible to increase the number of hogs removed. Efforts should focus on finding methods that capture the entire sounder.

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 San Felasco Hammock Preserve 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 57 of 57 recorded cultural resources in the park.

Action 1	Complete 57 assessments of archaeological sites.
Action 2	Complete no Historic Structures Reports (HSR's) for historic buildings and cultural landscape. Prioritize stabilization, restoration and rehabilitation projects.

All cultural sites should ideally be assessed annually and include both archaeological sites and historical structures. If there are issues like erosion, looting or other negative impacts the sites should be assessed more frequently. Any changes or impacts should be documented.

If any site evaluations are needed they will be conducted by a professional archaeologist.

No Historic Structures Reports (HSR) area needed unless structural changes are planned for AL4980. An HSR should be conducted prior to any changes to the structure.

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 a cultural resource survey for any high probability area where ground disturbing activities are planned.
Action 3	Develop and adopt a Scope of Collections Statement.

The exiting office and shop structure needs to be recorded with the FMSF. All other known sites are recorded but as new sites are found they also should be recorded with the FMSF.

According to the predictability model prepared in 2011, most of San Felasco Hammock has a high probability of archaeological sites. The Division’s matrix should be followed for any area where ground disturbing activities are planned, but further Phase I survey would benefit the park. A high probability area would need a cultural resource survey if ground disturbing activities are planned and no previous survey had been conducted.

Develop a scope of collections statement indicating that the park does not have any collections and that they are not appropriate for the park.

Objective C: Bring 1 of 57 recorded cultural resources into good condition.

Action 1	Design and implement regular monitoring programs for all cultural sites.
Action 2	Create and implement a cyclical maintenance program for each cultural resource.
Action 3	Stabilize the historic structure AL4980 as needed.

Develop and implement a program to monitor all sites at least 1 time every 2 years. Keep a record of each site and the impacts affecting each site.

San Felasco Hammock has only 1 recorded structure that needs cyclical maintenance. A clear method for determining maintenance needs should be documented. Any maintenance needs should be implemented in a timely fashion. The preserve does not have any collections which need cyclical maintenance.

All known sites are in good condition with the exception of the historic structure AL4980 which is in fair condition. It should be stabilized to prevent further deterioration.

Special Management Considerations

Multiple Uses

For this park, it was determined that haying operations on existing improved pastures could be accommodated in a manner that would be compatible and not interfere with the primary purpose of resource-based outdoor recreation and conservation. This compatible secondary management purpose is addressed in the Resource Management Component of the plan. Uses such as, water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan or the management purposes of the park.

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.

San Felasco Hammock State Park (San Felasco) is designated as a single-use park. As such, timber management is only permitted as a method of natural community restoration and maintenance rather than as an ongoing extractive activity. The

feasibility of managing/harvesting timber at San Felasco during the period covered by the UMP was considered pursuant to the DRP statutory responsibilities to analyze 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 natural characteristics to the degree practicable, except in those natural communities specifically managed for a structure that differs from that described in the timber assessment found at reference sites for those communities established by the Florida Natural Areas Inventory (FNAI). In the case of imperiled species, the management of certain natural communities may differ from standard treatments to provide optimum habitat conditions within the park.

Most natural communities evaluated at San Felasco had pine overstory stocking levels within the range identified for corresponding FNAI Reference Sites. Conversely, most natural communities evaluated at the park had hardwood overstory stocking levels above the range identified for corresponding FNAI Reference Sites. The Timber Management Analysis found in Addendum 8 provides additional details. Overstory thinning is a management tool that may be utilized in areas which have overstocked conditions. However, the specific management goals and objectives for each natural community are detailed in the Resource Management Component. Activities related to stand improvement, including palmetto and midstory reduction, are ongoing in many areas, as well.

A Timber Assessment was conducted for San Felasco Hammock Preserve (see Addendum 8). Several areas in the preserve are identified that need off-site hardwood reduction, removal of loblolly pines and longleaf pine reestablishment. Due to a number of years of reduced fire frequency the timber assessment places a high priority on the reintroduction of fire into fire dependent habitats, followed by chemical and mechanical hardwood reduction methods and if necessary the use of thinning to remove off-site hardwoods and pines.

Arthropod Control Plan

All DRP lands are designated as "environmentally sensitive and biologically highly productive" in accordance with Ch. 388 and Ch. 388.4111 Florida Statutes. If a local mosquito control district proposes a treatment plan, the DRP works with the local mosquito control district to achieve consensus. By policy of DEP since 1987, aerial adulticiding is not allowed, but larviciding and ground adulticiding (truck spraying in public use areas) is typically allowed. The DRP does not authorize new physical alterations of marshes through ditching or water control structures. Mosquito control plans temporarily may be set aside under declared threats to public or animal health, or during a Governor's Emergency Proclamation. San Felasco Hammock Preserve State Park does not have an adopted mosquito control plan.

Additional Considerations

Wilderness zone designation and carrying capacities

San Felasco Hammock Preserve State Park was originally proposed for acquisition because it contains not only the largest remnant of high quality upland hardwood forest within the region but also a fine example of the rare southern red oak (upland pine and upland mixed woodland) forest. It also harbors an incredible diversity of natural communities and is relatively pristine, considering its close proximity to a major urban area. The initial purchase was through the Environmentally Endangered Lands Program (EEL); the express purpose of the acquisition was to preserve San Felasco Hammock's valuable natural and cultural resources.

San Felasco Hammock is a haven for many plant and animal species that fare poorly outside large, undisturbed tracts of forest. Certain vertebrate species require vast acreages of undisturbed forest to survive and reproduce. Wide-ranging species like the bobcat persist within San Felasco Hammock. Several local bird species are known to require undisturbed, contiguous woodlands for successful reproduction. Noss (1988) showed that hooded warblers, red-eyed vireos, Acadian flycatchers, and wood thrushes all breed in San Felasco Hammock and avoid habitat edges, preferring the more remote areas of the preserve. Research at the Ding Darling National Wildlife Refuge on Sanibel Island, Florida, has shown that human presence can have negative impacts on bird species (Klein, 1993). Even infrequent human disturbance can affect certain animal species, especially during the breeding season.

Unfortunately, the Cities of Gainesville and Alachua have been rapidly expanding toward the preserve and threaten to engulf it with development. As the human population near the preserve has increased, visitor use has also increased correspondingly. Some of the very attributes that make the preserve so unique and invaluable may now be threatened. Even within current restricted areas in the preserve, visitor use impacts are apparent. The large expanse of the preserve and the remoteness of many areas make it very difficult to enforce restricted area designations. Restricted areas such as Big Otter Ravine and Split Rock contain several rare or endangered plant species that are relatively cryptic. These areas have been damaged by unauthorized footpaths in the past and have always been vulnerable to erosion on the steep slopes. Many smaller sites, just as fragile as Big Otter Ravine, are scattered throughout the preserve, particularly in seepage areas and steeply sloped ravines.

In some areas of the preserve, looting of artifacts has occurred in the past, in part due to the few restrictions placed on visitor access. The Maple Branch area includes a significant archaeological site that has been looted repeatedly, with erosion resulting in the ravine and stream. Numerous other areas within the preserve's stream systems contain artifacts that can easily be removed or disturbed.

In order to protect the unit's resources from overuse, it is necessary to seek a proper balance between recreational use and preservation. Relatively low carrying capacities should be assigned for the more sensitive portions of the preserve, while activity that is more intensive should be concentrated in the less sensitive areas. Accordingly, the center of the preserve where most of the sensitive areas are

located, namely that portion of the preserve located north of Millhopper Road and south of the north rim of Sanchez Prairie, is designated a wilderness zone. San Felasco Hammock meets the criteria for a wilderness zone. The west boundary of the zone parallels Interstate 75, while the east boundary is the current property line at the University of Florida Agricultural Experiment Station.

Visitor use in this core area is controlled through the establishment of carrying capacities based on traditional limits such as parking lot size and number of public access points. Staff-guided tours allow public access to the few areas that have traditionally been restricted. Although the core of the preserve continues to face increased recreational pressure, other less fragile areas of the preserve have been developed for increased recreational access. These areas, encompassing several thousand acres, consist of large expanses of the preserve north and east of Sanchez Prairie, including the University of Florida Foundation addition, as well as the tract south of Millhopper Road. These have been developed to accommodate an increased level of hiking, jogging, and other passive recreational activities. Recreational opportunities within the preserve were expanded in 2001 when equestrian, biking, and hiking trails were opened on the University of Florida Foundation addition and portions of the original preserve north and east of Sanchez Prairie. Because of the steady increase in use of this trail system, staff have developed a trail management plan to help mitigate soil erosion and prevent water quality impacts near Cellon Creek, Turkey Creek, and numerous seepage areas on the rim of Sanchez Prairie.

The spirit of the public campaign to purchase San Felasco Hammock during the 1970s was to protect and preserve this unique and special place for future generations to enjoy. Keeping a portion of the unit as a wilderness zone will help to ensure that the fragile core of the preserve is properly protected, while more resilient portions of the preserve experience increased public use.

Southern pine beetle outbreaks

A combination of past land use patterns, drought, and other natural stresses created favorable conditions for southern pine beetle outbreaks in Alachua County. Historical removal of longleaf pines in many areas, along with fire exclusion, resulted in a gradual shift from longleaf to loblolly pine as the dominant tree species in much of the upland pine and upland mixed woodland. The presence of dense stands of mature loblolly pines on abandoned agricultural fields within the preserve allowed the southern pine beetle outbreak to reach epidemic proportions. During 1994-1995 and again in 2001, San Felasco Hammock sustained significant losses of its pine tree overstory due to the southern pine beetle infestation. Over 25,000 of the preserve's pines were lost in 1994-1995 alone, with most losses occurring in upland pine and upland mixed woodland areas. Approximately 250 acres were clear-cut at that time, and nearly all parts of the preserve were affected to a lesser extent by group selection harvesting of impacted pines and the cutting of pine-free buffer zones around beetle-infested areas. The 2001 southern pine beetle outbreak resulted in the loss of an additional 15,000 trees covering a total of 175 acres. Since that time, smaller infestations of southern pine beetles and other pine beetle species have been detected and control measures have been

implemented when necessary. In 2016 approximately 30 acres in zone SFH-2R was timbered to control a southern pine beetle infestation, reduce offsite hardwoods, and thin loblolly pines. Early in 2018 another southern pine beetle outbreak was detected in management zones SFH-2N and SFH-2M. Control of the outbreak was initiated in February 2018 by clearing the infected and dead timber. Additional thinning of uninfected loblolly pines and offsite hardwoods in the vicinity was included in the timber sale to help discourage future outbreaks and speed restoration of the upland pine and upland mixed woodland.

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.

San Felasco Hammock Preserve State Park was subject to a land management review on October 17, 2017. 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) and 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.

San Felasco Hammock Preserve State Park is located within Alachua County, about 8 miles northwest of Gainesville in the north central part of the state. Approximately 435,800 people live within 30 miles of the park (US Census 2010). According to US Census data, approximately 30% of residents in Alachua County identify as black, Hispanic or Latino, Asian, or another minority group. 73.5% of the population in Alachua County are considered to be of

working age, which is classified as being between the age of 16 and 65 (US Census 2010). Alachua County's per capita personal income of $41,008 ranked 21st in the state, lower than the statewide average of $45,953 (US Bureau of Economic Analysis 2016).
The table below identifies significant resource-based recreation opportunities within 15 miles of San Felasco Hammock Preserve State Park.

Table 6. Resource-Based Recreational Opportunities near San Felasco Hammock Preserve State Park

Name	Biking	Hiking	Swim / Beach Access	Boating / Paddling	Fishing	Wildlife Viewing	Camping	Picnicking	Hunting	Equestrian
Alachua Conservation Trust										
Prairie Creek Lodge								✓		
Saarinen Preserve	✓	✓				✓		✓		✓
Historic Haile Homestead		✓						✓		
Alachua County / City of Gainesville										
Barr Hammock Preserve	✓	✓				✓				✓
Bivens Arm Nature Park		✓				✓		✓		
Boulware Springs Nature Park	✓	✓				✓		✓		✓
Loblolly Woods Nature Park	✓	✓				✓		✓		
Mill Creek Nature Preserve	✓	✓				✓				
Morningside Nature Center		✓				✓		✓		
Palm Point Nature Park		✓			✓	✓		✓		
Poe Springs Park		✓	✓	✓	✓	✓		✓		
San Felasco Park		✓				✓		✓		
Sweetwater Preserve	✓	✓				✓				
Turkey Creek Hammock Preserve		✓				✓				
Florida Fish and Wildlife Conservation Commission										

Bell Ridge Longleaf Wildlife and Environmental Area		✓				✓				
Watermelon Pond Wildlife and Environmental Area	✓	✓		✓	✓	✓				
Florida Forest Service										
Goethe State Forest	✓	✓			✓			✓	✓	✓
Newnans Lake State Forest	✓	✓				✓			✓	
Florida Park Service										
Devil's Millhopper Geological State Park		✓				✓		✓		
Dudley Farm Historic State Park		✓				✓		✓		
Gainesville-to-Hawthorne State Trail	✓	✓			✓					✓
Nature Coast State Trail	✓	✓				✓		✓		✓
O'Leno State Park	✓	✓	✓	✓	✓	✓	✓	✓		
Paynes Prairie Preserve State Park	✓	✓		✓	✓	✓	✓	✓		✓
River Rise Preserve State Park	✓	✓		✓	✓	✓	✓	✓		✓
St. Johns River Water Management District										
Newnans Lake Conservation Area	✓	✓				✓			✓	✓
Suwannee River Water Management District										
Graham Conservation Area	✓	✓				✓				✓
Pareners Branch Conservation Area	✓	✓			✓	✓				✓
Santa Fe Springs Conservation Area	✓	✓			✓	✓				✓

The park is located in the North Central Vacation Region, which includes Alachua, Bradford, Columbia, Dixie, Gadsden, Gilchrist, Hamilton, Jefferson, Lafayette, Leon, Levy, Madison, Suwannee, Taylor, Union, and Wakulla counties (Visit Florida 2014). According to the 2014 Florida Visitor Survey, approximately 1.8% of domestic visitors to Florida visited this region. Roughly 89% visitors to the region traveled to the North Central for leisure purposes. The top activities for domestic visitors were visiting friends or relatives. Winter (36%) was the most popular travel season, but fall visitation was a close second at 34%. Nearly all visitors traveled by non-air (91%), reporting an average of 3.7 nights and spending an average of $63 per person per day (Visit Florida 2014).

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

Existing Use of Adjacent Lands

Situated between Alachua and Gainesville, the park falls within the jurisdictional boundaries of the City of Alachua and Alachua County. While the majority of the park is within Alachua County, the northern quarter is within the City of Alachua's jurisdiction. Major roadway corridors bound the park to the north and southwest. US Highway 441 is just north of the park boundary, buffered from the park by a strip of assorted land uses. These land uses include agriculture, sparse commercial concentrated along the roadway, an industrial park, and a medium-density residential development that includes a golf course and associated facilities. Interstate 75 runs along the southwest boundary of the park, and a small portion of the property is split from the larger parcel by the Interstate. The adjacent land uses to the west and south of the park consist of low-density residential housing. Along the eastern boundary, a scientific research complex exists, occupied by entities such as the University of Florida, US Geological Survey, and the Florida Fish and Wildlife Conservation Commission. The Turkey Creek Hammock Preserve and Freeland Conservation Easement are adjacent to the northeast boundary of the park.

Planned Use of Adjacent Lands

The future land use in the areas surrounding the western, southern, and eastern boundaries of the park is not expected to deviate dramatically from its current usage. In these areas, the future land use designations are agriculture,

conservation, low-density residential, and public institution, all of which are the current uses of the adjacent lands. A small pocket along the eastern boundary north of the existing scientific research complex has a future land use designation of moderate residential development, which allows for up to 4 dwelling units per acre.

Increased residential, commercial, and light industrial development could take place on the northern boundary along US Highway 441. The intersection of US Highway 441 and County Road 237 has been designated as a “rural cluster” location (Alachua County 2017). These locations are intended to preserve the historic rural character of the surrounding area and promote the development of distinguishable focal points with facilities that support agricultural activities. An intercity transit corridor that would utilize US Highway 441 has been identified as a need in the Gainesville Urbanized Area 2040 Long Range Transportation Plan (MTPO 2015). This proposed intercity transit corridor would run from High Springs and Alachua to Gainesville along US Highway 441.
The table below identifies the zoning and future land use designations for parcels in Alachua County and the City of Alachua that are adjacent to San Felasco Hammock Preserve State Park.

Table 7. Zoning and Future Land Use Designations Alachua County* and the City of Alachua**				
Future Land Use Designation	**Allowable Uses**	**Maximum Density (Dwelling Units per Acre)**	**Other Noteworthy Considerations**	**Adjacent Management Zone(s)**
Agriculture*	Commercial agriculture, forestry, cattle grazing, dairy farming	1 du/5 acres	Transfer of development rights can be applied to increase density	SFH-4De, 4Dw, 4C, 4Bw, 4A, 1An, 1C, 1B, 2D, 3D, 3C, 3B
Estate Residential*	Residential	1 du/2 acres	Located in the urban cluster adjacent to preservation areas as transitional zone	SFH-2R, 2S, 5B
Low-Density Residential*	Residential	1-4 du/acre	Accessory dwelling units can be built without being included in parcel density calculations	SFH-2G, 2F, 2A, 2R
Medium Density Residential**	Residential, live/work units, mixed use planned developments, community centers	4-8 du/acre	Mixed-use planned developments must follow traditional neighborhood design planned development guidelines	SFH-3B, 3K
Moderate Density Residential**	Residential, community centers	0-4 du/acre	Accessory dwelling units are considered	SFH-3D, 4J, 4E
Rural Agriculture**	Residential, community centers, agri-business uses	1 du/5 acres	Conservation subdivisions must follow standards set by the City	SFH-2D, 2E, 2H, 2G, 3K, 3H, 3F, 4H, 4J

* Alachua County. 2017. Alachua County Comprehensive Plan 2017. Alachua County, Florida.
** City of Alachua. 2017. City of Alachua Comprehensive Plan 2017. City of Alachua, Florida.

Florida Greenways and Trails System (FGTS)

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

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

The FGTS 2018-2022 Plan Update has identified two priority trail corridors and one opportunity corridors that could potentially encourage increased trail activity in the area around the park. The two priority trail corridors are the High Springs to Newberry Corridor and the Gainesville to Newberry Corridor. These priority corridors would create trail connections between High Springs and Gainesville along US Highway 41 and State Road 26. The opportunity corridor would connect High Springs and Gainesville through Alachua along US Highway 441. Developing these identified trail corridors would create a 50+ mile loop around the Gainesville area (see Recreation Lands Map), and San Felasco Hammock Preserve State Park could potentially be a destination location along a trail system that could attract significant trail tourism.

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

San Felasco Hammock Preserve State Park consists of over 7,000 acres of upland and wetland natural communities. The intricate karst geography of the area, combined with a near-pristine quality of the upland hardwood forest community and the quality of the sandhill community were the primary incentives for the original 1974 purchase. The addition in 1994 of nearly 900 acres of pastureland north of the original boundary has provided opportunity for more active recreational activities.

Water Area

San Felasco is popular for its hidden and unique sinkholes and creeks. Blues Creek, Turkey Creek and Cellon Creek all enter San Felasco from outside the park boundary and flow through the park, finally dropping into swallows, which drain back into the aquifer. Turkey, Cellon, and Moonshine Creeks are in-boundary popular destinations for visitors interested in viewing unique Florida streams. Split Rock Sink, Big Otter Ravine, and other difficult-access sink holes are an important and highly sensitive part of the park that are only available for visitation through ranger-guided events.

Natural Scenery

San Felasco Hammock Preserve State Park is home to one of the few remaining mature hardwood forests in Florida. The limestone outcrops and extreme changes in elevation provide ideal conditions for many species of hardwood trees such as champion trees, creating a beautiful, pristine natural scenery that is rarely seen in Florida. The shady canopy of the Hammock paired with the

slopes of the ravines and sinkholes provide a peaceful atmosphere and unique landscape at San Felasco Hammock Preserve State Park.

Significant Habitat

The state preserve provides significant wildlife habitat within a developing suburban land use pattern. Wildlife viewing opportunities add greatly to the outstanding aesthetic qualities and experience. Care should be taken to incorporate these opportunities in the planning and layout of trails and overlook facilities. Equally important to visitor use and enjoyment of the preserve is habitat preservation for continued wildlife health. For this reason, use within the designated Wilderness Zone is closely monitored.

Natural Features

The outstanding geological features of the preserve are Sanchez Prairie, Big Otter Ravine and Split Rock Sink. These features, as well as other sinkholes and creek shorelines are extremely sensitive to impacts from visitor access and will continue to be accessible only through ranger-guided events.

Archaeological and Historical Features

San Felasco Hammock Preserve State Park has 57 identified prehistoric and historic sites spanning almost all the major cultural periods. Prehistoric sites include burial mounds, artifact scatters, village sites and a quarry site. Evidence of the historic period encompass the time of first European contact through a visible record of local agricultural land uses during the 1800s to mid-1900s. An Indian village site thought to be associated with a Spanish mission, evidence of agricultural endeavors, and homestead sites associated with a small settlement called Spring Grove are some of the documented cultural sites.

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

Recent historical uses were agriculture, silviculture, moonshine production, and hunting. These practices included the cultivation of citrus and cotton, harvesting of pine for pulpwood and saw logs, the production of tung oil and turpentine,

and cattle production. Physical evidence is found in the tung nut depot, a calf barn, and an abandoned cattle dip vat used to control “tick fever” in the 1930s. All of these historical facilities are located in the northern portion of the park.

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.

Most of the park has future land use designations such as conservation and preservation that are consistent with the mission of DRP. A portion of the park near the shop area has an agriculture designation on the future land use map for the City of Alachua, which could be changed to conservation for consistency with the adjacent park parcels. There are two other parcels, one in the southeastern portion and another in the northern portion of the park, that have future land use designations that could be changed to be consistent with conservation and resource-based recreation. These two parcels were amended to the park boundary in 2009 and 2011, and the future land use designations are estate residential and moderate-density residential, respectively. After further investigation, the rezoning process of these parcels will not be pursued at this time because traditional park uses are less than what the current zoning allows. Should the decision be made to sell or surplus the parcels in the future considerations will be made for rezoning at that point in time

Current Recreational Use and Visitor Programs

San Felasco Hammock Preserve State Park recorded 57,293 visitors in Fiscal Year (FY) 2016/2017. By DRP estimates, the FY 2016/2017 visitors contributed approximately $5.4 million in direct economic impact, the equivalent of adding 88 jobs to the local economy (FDEP 2017).

San Felasco Preserve State Park consists of an extensive system of trails that provides a variety of recreational opportunities for visitors. Current recreational opportunities at the park include hiking, off-road biking, horseback riding, horse carriage events, picnicking and nature study. Interpretive programs available include the Tour De Felasco Mountain Bike event, static displays of seasonal flora and fauna found within the park and invasive plant species identification workshops. The park is most popular for its mountain bike and horseback riding recreation opportunities.

Other Uses

There are two powerline easements running from north to south through the center of the property. Horses used for official state park functions are stabled in the shop area.

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 San Felasco Hammock Preserve State Park, all wetlands and floodplain as well as 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

There are two existing recreational use areas at San Felasco Hammock Preserve State Park. Accessed from US Highway 441, the north trailhead offers a parking area that can accommodate horse trailers, a restroom, and a large picnic pavilion. Along with the equestrian trails, the extensive network of mountain biking trails can be accessed from this north trailhead. The other recreational use area is in the southern portion of the park. A trailhead and parking area is accessed from State Road 232 (Millhopper Road). This use area has a similar set of amenities to the north trailhead with a restroom and small picnic pavilion, but access is hiking only. The park's 16 miles of hiking trails and wilderness area can be accessed from this southern trailhead (see Base Map).

The park has two support areas that provide park staff with amenities such as residences, a shop building, storage facilities, an office, and horse stables. One of the support areas is in the west central portion of the park and is accessed on park roads from the north trailhead. The other support area is in the southern portion of the park, accessed from State Road 232 (Millhopper Road).

Recreation Facilities

North Trailhead
Parking Area
Restroom
Picnic Pavilion (Large)

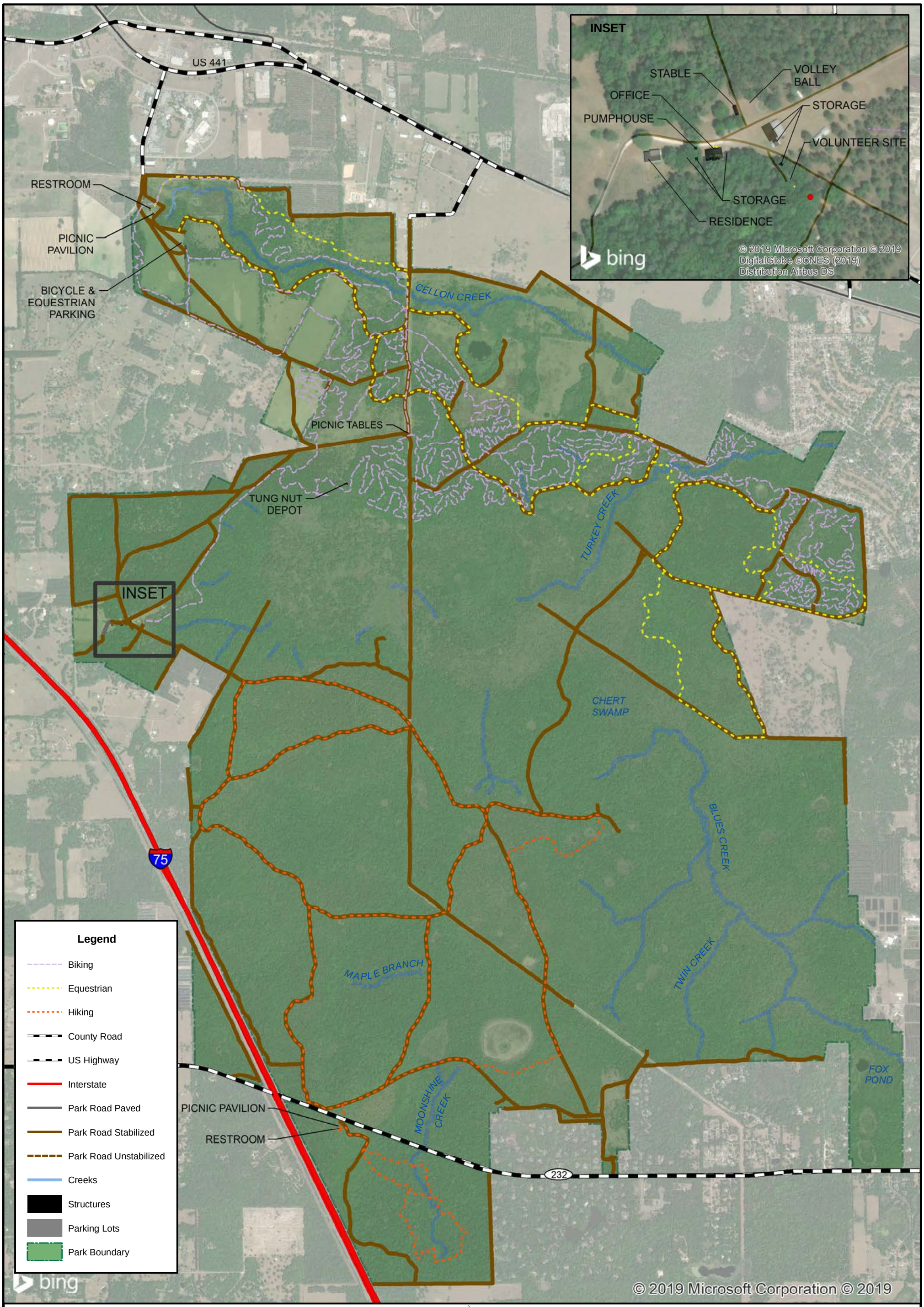
Millhopper Road Trailhead
Parking Area
Restroom
Picnic Pavilion (Small)

Trails
Biking (37 miles)
Hiking (13 miles)
Equestrian (13 miles)

Support Facilities

Shop/Residence Area
Residence
Stable
Shop

Office
CSO Building
Pole Barn
Volunteer Campsite



SAN FELASCO HAMMOCK
PRESERVE STATE PARK

N

0 750 1,500 3,000 Feet

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

BASE MAP

Conceptual Land Use Plan

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

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

Potential Uses

Public Access and Recreational Opportunities

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

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

***Objective: Maintain the park's current recreational carrying capacity of 1,932 users per day*.**

The park will continue to provide opportunities for hiking, biking, horseback riding, picnicking and wildlife observation. Interpretive programs will continue to be offered.

Objective: Expand the park's recreational carrying capacity by 72 users per day.

Picnicking opportunities will be expanded at the north trailhead with the addition of picnic pavilions. Hiking opportunities will be added at the north trailhead with the development of a nature trail around Lee Sink.

Objective: Continue to provide the current repertoire of 4 interpretive, educational and recreational programs on a regular basis.

San Felasco Hammock Preserve State Park currently offers four educational, recreational and interpretive programs and events. The educational and interpretive programs focus primarily on the park's natural resources. The goal of these programs is to facilitate an appreciation and understanding of the resources within the park. Current interpretive programs include the Tour De Felasco, a mountain bike ride through all the ecosystems of the park; guided walks with a ranger, static displays of seasonal flora and fauna found within the park and invasive plant species identification workshops.

Objective: Develop 2 new interpretive, educational and recreational programs.

The park will develop an interpretive program on the history of San Felasco Hammock Preserve as a cattle ranch, and how "cattle gaps" played a role in the area and are still visible today. Displays of the remaining "cattle gaps" are proposed, along with interpretive panels explaining the history and context. An oral history project documenting the history of previous land owners and tenants of the park is also proposed as a new interpretive program.

Proposed Facilities

Capital Facilities and Infrastructure

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

The existing facilities of this state park are appropriate to the natural and cultural resources contained in the park and should be maintained. New construction, as discussed further below, is recommended to improve the quality and safety of the recreational opportunities, to improve the protection of park resources, and to streamline the efficiency of park operations. The following is a summary of improved and/or new facilities needed to implement the conceptual land use plan for San Felasco Hammock Preserve 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 5 existing facilities and 0.5 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 (a top priority for all facilities maintained by DRP). The following discussion of other recommended improvements and repairs are organized by use area within the park.

North Trailhead: Recommended improvements include the upgrade of the park entrance with better signage and the redesign of driveways and parking areas to welcome/orient visitors and guide them to their intended destinations. The addition of two small picnic pavilions including two tables each will be added near the equestrian and bike trailheads to provide more picnicking options. A short nature trail will be developed from the picnic area to Lee Sink where an interpretive panel will be installed to provide visitors with information about the park's unique hydrology. A restroom will be provided at a convenient location between the equestrian and biking trailheads.

Itchy Bottom Lake Picnic Area: The installation of a pavilion on the bank of the lake will provide trail users with a scenic resting and picnicking spot overlooking the lake. The pavilion should be a rustic/pole barn type of structure with a stabilized floor rather than concrete. Two more picnic tables will be provided at this site.

Millhopper Road Trailhead: It is recommended that the parking area be redesigned to improve the flow of traffic and create more efficient parking**.** The redesign should provide six additional parking spaces to accommodate the recreational carrying capacity for the adjacent trail system. A new restroom will be provided at this location with an accessible path to the parking lot. Additional interpretive materials will be provided to enhance the visitor experience.

Trails: It is recommended that a bridge be constructed across Turkey Creek at an appropriate location to improve visitor access and park operations/management.

Shop/Residence Area: The existing shop building will be replaced with a new facility.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Ten-Year Implementation Schedule and Cost Estimates (Table 9) 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:

North Trailhead
Driveway/parking redesign
Small picnic pavilions (2)
Nature trail (0.5 mi.)
Interpretive kiosk
Wayside interpretive signs
Restroom

Itchy Bottom Lake Picnic Area
Large picnic pavilion
Picnic tables (2)

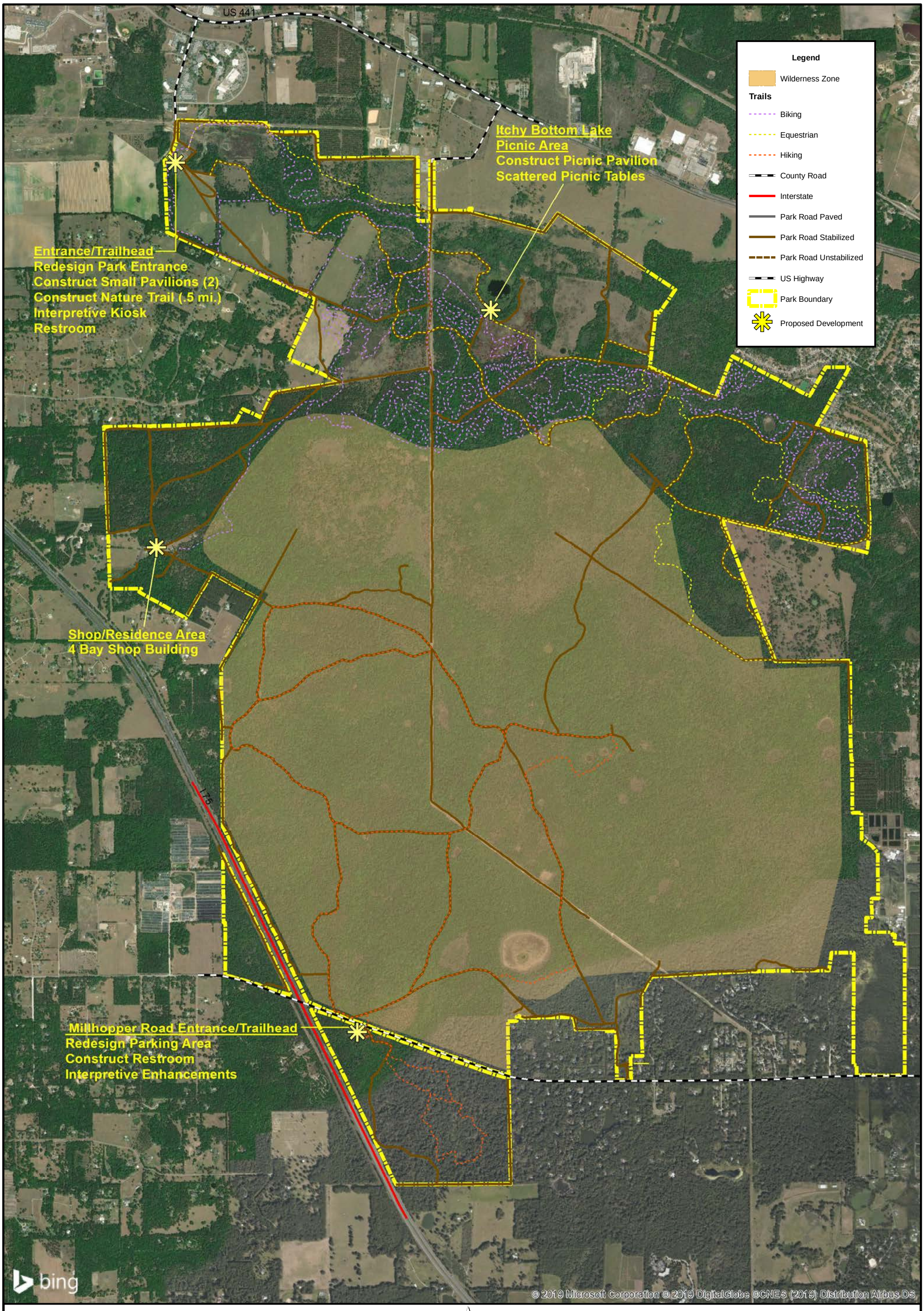
Millhopper Road Trailhead
Parking area redesign
Restroom
Interpretive enhancements

Trails
Turkey Creek bridge

Shop/Residence Area
4-Bay 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



SAN FELASCO HAMMOCK
PRESERVE STATE PARK

N

0 0.1 0.2 0.4 Miles

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

CONCEPTUAL LAND USE PLAN

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 8).

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 8.

Table 8. Recreational Carrying Capacity

	Existing Capacity*		Proposed Additional Capacity		Estimated Recreational Capacity	
Activity/Facility	**One Time**	**Daily**	**One Time**	**Daily**	**One Time**	**Daily**
Trails						
Hiking/Wilderness	50	100			50	100
Hiking	20	80	20	40	40	120
Biking	370	1,480			370	1,480
Equestrian	120	240			120	240
Picnicking	16	32	16	32	32	64
TOTAL	**576**	**1,932**	**36**	**72**	**612**	**2,004**

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

Optimum Boundary

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

changes on adjacent property, modification of the park's optimum boundary may be necessary.

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

The optimum boundary for San Felasco Hammock State Park includes approximately 970 acres in ten separate parcels along the park's northern, eastern, and western boundaries. The acquisition of these properties would serve to better protect the park's resources and improve overall park operations and management.

Legend

- Park Boundary
- Optimum Boundary
- Proposed Optimum Boundary

SAN FELASCO HAMMOCK PRESERVE STATE PARK

0 750 1,500 3,000 Feet

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2016

OPTIMUM BOUNDARY MAP

IMPLEMENTATION COMPONENT

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

MANAGEMENT PROGRESS

Since the approval of the last management plan for San Felasco Hammock Preserve State Park in 2005, significant work has been accomplished and progress made towards meeting the DRP's management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and the DRP.

Acquisition

- IFAS/UF Foundation Property transferred in 2007 (59 acres)
- Bryant Property added in 2008 (77 acres)
- Winter Property added in 2009 (22 acres)
- Martin Property added in 2010 (23 acres) leased from Alachua County
- White Property added in 2010 (41 acres) leased from Alachua County
- Rolling Meadows Property added in 2010 (208 acres) leased from Alachua County

Park Administration and Operations

- Reorganization of ranger shift assignments and a change in operational focus resulted in increase in productivity, lowered operational costs and created a new balance between natural resources and visitor use.
- The park has established a better relationship with volunteers to aid in ranger shift coverage and to improve the management of staff-time spent on events such as the Cracker Horse Parade.
- The park improved mowing operations for efficiency, less fuel cost and less wear on equipment.
- Changed garbage removal contract to better reflect usage and decrease costs.
- Certain operational expenses such as portable toilet rentals, a portion of the electric bill, and fuel usage costs were transferred to the Friends of San Felasco CSO in order to decrease operational costs.
- Park changed printer contract and administrative assistant duties to increase efficiency in administrative office.

- Development of an annual volunteer appreciation event where local businesses, volunteers, local government agencies, civic organizations and members of the community are recognized for their contributions to recreation and conservation.
- Streamlined payment and honor receipt processing to increase efficiency and accuracy.

Resource Management

Natural Resources

- Fire line and boundary restoration. Wildland urban interface boundaries widened and cleaned up through private contacting and in-house effort
- Mechanical treatment of overgrown and fire suppressed burn communities. 113 acres in house in FY16/17. 350 acres mechanically treated with low ground pressure mowers by a private contractor.
- The park burned 766 acres from 2012-present, averaging 153 acres per year
- Timber Assessment of all pine-dominated stands through F4Tech Contract.
- Exotic plant management contracts and in-house treatment were conducted on over 1,431 acres.
- Total of 69 research permits specific to San Felasco Hammock issued between 2012-present. Many scientific peer-reviewed publications and technical reports have been published by researchers.
- Removal of cross fencing throughout portions of most recent acquisitions
- Continued removal of feral hogs by private contractor and staff. 1222 hogs removed since 2004.
- Boundary fencing repaired and replace in areas of high feral hog activity and in areas of high human encroachment.

Cultural Resources

- Historic dip vat contaminate abatement with FDEP, Division of Waste Management, State-Owned Lands Cleanup Program (SOLCP).

Recreation and Visitor Services

- Increased ridership in the annual Tour De Felasco
- Added two running events: The “Gate to Gate Ultramarathon” and “trial Endurance Run”
- Increased participation in the International Glider Festival, Florida Soaring competitions, the Rides-Cops Against Cancer, 4H and regional clubs.
- The park added an Eco Tour hike for participants in annual volunteer appreciation event.
- CSO became completely responsible for leading night hikes and biking events.

Park Facilities

- North Trailhead Entrance design and Installation.
- Service roads repaired to better provide access for land management efforts.

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 9) 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, several 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 9 may need to be adjusted during the ten-year management planning cycle.

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	**$322,000**
Objective B	**Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.**	Administrative support expanded	UFN	**$12,000**
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Conduct/obtain an assessment of the park's hydrological needs.**	Assessment conducted	LT	**$64,000**
Action 1	Continue to cooperate with state and federal agencies and independent researchers regarding hydrological research and monitoring programs within the preserve	Monitoring continued	C	$3,500
Action 2	Continue to monitor, review and comment on proposed land use/zoning changes that may influence the water resources of the preserve	Monitoring continued	C	$2,800
Action 3	Continue to seek expertise and funding opportunities for dye trace studies to determine the groundwater sources, especially additional groundwater connections to the Santa Fe River	Funding opportunities sought	C	$35,000
Action 4	Cooperate and seek expertise from SRWMD and Alachua County EPD for continued implementation of water quality and quantity monitoring in the three significant blackwater stream systems of the preserve, including Cellon, Turkey, and Blues Creeks	Monitoring continued	C	$2,800
Action 5	Staff will seek guidance from appropriate agencies and assess the feasibility of installing continuous stage recorders in Blues, Turkey and Cellon Creeks to monitor flows	Feasibility assessed	LT	$18,200
Action 6	Staff will seek guidance from SRWMD develop and implement a water monitoring plan in Moonshine Creek	Monitoring plan implemented	UFN	$1,700
Objective B	**Restore natural hydrological conditions and functions to approximately 2 miles of blackwater stream and 10 acres of sinkhole lake natural community.**	# Acres restored or with restoration underway	**UFN**	**$12,500**
Action 1	Continue to seek expertise from SRWMD and pursue funding to determine the degree of hydrological restoration that is needed in the Itchy Bottom Lake/Cellon Creek system, and, if necessary, to develop and implement additional restoration projects	# Miles of ditches filled	UFN	$12,500
Objective C	**Evaluate and mitigate the impacts of soil erosion in the park.**	Evaluation conducted/mitigation implemented	**UFN**	**$8,500**

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

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.				
Action 1	Implement the Trail Management Plan for the park's recreational trails	Plan implemented	UFN	$2,000
Action 2	Regularly monitor all park service roads and trails that are subject to significant erosion, implement corrective measures as necessary complying with best management practices for surface and ground water quality	Monitoring conducted/measures implemented	UFN	$6,500
Objective D	**Monitor and evaluate the impacts of historic cattle dipping operations at San Felasco.**	Impacts monitored/evaluated	LT	**$3,500**
Action 1	Seek guidance from appropriate experts and implement a monitoring plan for the cattle dip vat site at the park	Monitoring implemented	LT	$3,500
Goal III: Restore and maintain the natural communities/habitats of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Conduct floral and faunal surveys and update the park's baseline plant and animal list.**	List updated	C	**$10,000**
Objective B	**Within 10 years have 2000 acres of the park maintained within optimal fire return interval.**	# Acres within fire return interval target	LT	**$786,000**
Action 1	Develop/update annual burn plan.	Plan updated	C	$16,000
Action 2	Manage fire dependent communities for ecosystem function, structure and processes by burning between 600 - 1530 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	$770,000
Objective C	**Conduct habitat/natural community restoration activities on 212 acres of upland mixed woodland and upland pine natural communities**	# Acres restored or with restoration underway	**UFN**	**$132,000**
Action 1	Increase fire frequency and chemically or mechanically remove offsite hardwoods and loblolly pines in the upland mixed woodland and upland pine in zones SFH-3A and SFH-3B.	Plan developed/updated	UFN	$88,000
Action 2	Plant additional longleaf pines.	# Acres planted	UFN	$32,000
Action 3	Assess the need for groundcover restoration and implement if necessary	Assessment conducted	UFN	$12,000
Objective D	**Conduct natural community/habitat improvement activities on 218 acres of sandhill/upland pine natural communities.**	# Acres improved or with improvements underway	**UFN**	**$145,000**
Action 1	Increase fire frequency and chemically or mechanically remove offsite hardwoods and loblolly pines in a portion of the sandhill in portions of zone 2D and 2C.	# Acres with improvement underway	UFN	$111,500
Action 2	Supplement remaining longleaf pines with additional planting.		UFN	$33,500
Objective E	**Conduct natural community/habitat improvement activities on 30 acres of sandhill and mesic flatwoods natural communities.**	# Acres with improvement underway	**UFN**	**$13,000**
Action 1	Control hardwood regrowth by chemical and/ or mechanical methods.	# Acres treated	UFN	$7,500
Action 2	Replant with longleaf pine.	# Acres planted	UFN	$5,500
Objective F	**Conduct natural community/habitat improvement activities on 64 acres of mesic flatwoods natural community.**	# Acres with improvement underway	**UFN**	**$14,000**

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UFN = currently unfunded need

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.				
Action 1	Chemically or mechanically remove offsite hardwoods in the flatwoods in zones SFH-2A and SFH-2B.	# Acres treated	UFN	$14,000
Objective G	**Conduct natural community/habitat improvement activities on 245 acres of sandhill and upland mixed woodland natural communities.**	# Acres with improvement underway	**UFN**	**$82,500**
Action 1	Chemically or mechanically remove offsite hardwoods in the sandhill and upland mixed woodland communities in zone SFH-2E.	# Acres treated	UFN	$50,500
Action 2	Plant additional longleaf pines as necessary	# Acres planted	UFN	$32,000
Objective H	**Conduct natural community/habitat improvement activities on 200 acres of sandhill and upland mixed woodland natural communities.**	# Acres with improvement underway	**UFN**	**$64,000**
Action 1	Remove off-site hardwoods in zones SFH-2M and SFH-2N through increased fire frequency and chemical/mechanical methods.	# Acres treated	UFN	$64,000
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**	**$3,000**
Objective B	**Monitor and document 9 selected imperiled animal species in the park.**	# Species monitored	**C**	**$10,000**
Action 1	Develop monitoring protocols for 1 selected imperiled animal species including the Florida mouse.	# Protocols developed	ST	$300
Action 2	Implement monitoring protocols for 9 imperiled animal species including those listed in Action 1 above and striped newt, southern dusky salamander, tiger salamander, eastern indigo snake, Florida pine snake, short-tailed kingsnake, eastern diamondback rattlesnake, and Sherman's fox squirrel.	# Species monitored	C	$9,700
Objective C	**Monitor and document 3 selected imperiled plant species in the park.**	# Species monitored	**C**	**$3,500**
Action 1	Develop monitoring protocols for 3 selected imperiled plant species including woodland poppy mallow, Flyr's brickell-bush and nettleleaf sage.	# Protocols developed	ST	$500
Action 2	Implement monitoring protocols for 3 imperiled plant species including those listed in Action 1 above.	# Species monitored	C	$3,000
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 200 acres of exotic plant species in the park.**	# Acres treated	**C**	**$510,000**
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	$10,000

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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.				
Action 2	Implement annual work plan by treating 200 acres in park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented	**C**	$500,000
Objective B	**Prevent the introduction and spread of invasive exotic plants into the park.**	Measures implemented	**C**	**$10,000**
Action 1	Develop and adopt preventative measures to avoid the introduction and spread of invasive exotic plants into the park.	Measures implemented	ST	$10,000
Objective C	**Survey the entire park for invasive exotics at least 2 times over 10 years.**	# Surveys conducted	**LT**	**$25,600**
Action 1	Develop and implement a method to survey the entire park for invasive exotic plants two times over the course of 10 years.	# Surveys conducted	LT	$25,600
Objective D	**Implement control measures on 1 exotic and nuisance animal species in the park.**	# Species for which control measures implemented	**C**	**$70,000**
Action 1	Continue to remove feral hogs from the park.	Removal efforts implemented	C	$70,000
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 53 of 53 recorded cultural resources in the park.**	Documentation complete	**LT**	**$7,000**
Action 1	Complete 53 assessments of archaeological sites.	Assessments complete	LT	$7,000
Action 2	Complete no Historic Structures Reports (HSR's) for historic buildings and cultural landscape. Prioritize stabilization, restoration and rehabilitation projects.	Reports and priority lists completed	LT	$0
Objective B	**Compile reliable documentation for all recorded historic and archaeological sites.**	Documentation complete	**LT**	**$26,000**
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	$5,000
Action 2	Conduct a cultural resource survey for any high probability area where ground disturbing activities are planned.	Probability Map completed	ST	$20,000
Action 3	Develop and adopt a Scope of Collections Statement.	Document completed	ST	$1,000
Objective C	**Bring 1 of 53 recorded cultural resources into good condition.**	# Sites in good condition	**LT**	**$75,000**
Action 1	Design and implement regular monitoring programs for all cultural sites	# Sites monitored	C	$67,000
Action 2	Create and implement a cyclical maintenance program for each cultural resource.	Programs implemented	C	$3,000
Action 3	Stabilize the historic structure AL4980 as needed.	Projects completed	LT	$5,000

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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 1932 users per day.**	# Recreation/visitor	C	**$322,000**
Objective B	**Expand the park's recreational carrying capacity by 72 users per day.**	# Recreation/visitor	UFN	**$12,000**
Objective C	**Continue to provide the current repertoire of 4 interpretive, educational and recreational programs on a regular basis.**	# Interpretive/education programs	C	**$20,000**
Objective D	**Develop 2 new interpretive, educational and recreational programs.**	# Interpretive/education programs	UFN	**$14,000**
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	**$361,000**
Objective B	**Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.**	Plan implemented	ST or LT	**$200,000**
Objective C	**Improve and/or repair 5 existing facilities] and .5 miles of trail.**	# Facilities/Miles of Trail	UFN	**$1,247,000**
Objective E	**Expand maintenance activities as existing facilities are improved and new facilities are developed.**	Facilities maintained	UFN	**$50,000**

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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		**$2,062,100**
Administration and Support		**$334,000**
Capital Improvements		**$1,297,000**
Recreation Visitor Services		**$334,000**
Law Enforcement Activities	Note: Law enforcement activities in Florida State Parks are conducted by the FWC Division of Law Enforcement and by local law enforcement agencies.	

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UFN = currently unfunded need

Addendum 1—Acquisition History

LAND ACQUISITION HISTORY REPORT

Park Name	San Felasco Hammock Preserve State Park
Date Updated	5/8/2018
County	Alachua County, Florida
Trustees Lease Number	Trustees Lease No. 2839
Legal Description	A legal description is available upon request from the Department of Environmental Protection
Current Park Size	7,353.40 acres
Purpose of Acquisition	The State of Florida acqured San Felasco Hammock Preserve State Park to protect the natural and cultural resoruces and to provide public park and recreation.

Acquisition History (includes only an acquisition of a parcel/parcels with 10 acres or more)

Parcel Name or Parcel DM-ID	Date Acquired	Initial Seller	Initial Purchaser	Size in acres	Instrument Type
DMID 3495	9/27/1974	Context Development Co.	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees)	1713.935	Warranty Deed
DMID3488	10/22/1974	Abraham H. Schwartz and et al	Trustees	1577.08	Warranty Deed
DMID 3496	8/31/1974	Arch W. Roberts and his wife Joanne H. Roberts	Trustees	1209.351	Indenture
DMID 3491	9/18/1974	Ellis W. Holder and Elizabeth D. Holder	Trustees	215.288	Warranty Deed
DMID3500	6/8/1983	Samuel A. Goodrich, Individually; Samuel A. Goodrich, as Trustee under the family Trust and will of Libbie T. Goodrich etal.	Trustees	204.726	Warranty Deed
DMID 3489	11/5/1974	Herschel Elliot	Trustees	84.99	Indenture
DMID 3492	9/18/1974	Richard D. Hodgkinson	Trustees	36.924	Warranty Deed
DMID 3499	2/9/1983	City of Gainesville	Trustees	28.729	Warranty Deed
DMID 331262	2/25/1999	University of Florida Foundation, Inc.	Trustees	23.967	Warranty Deed
DMID 353450	4/14/2008	Sallie Dreyer	Trustees	22.982	Warranty Deed
DMID 3498	12/18/1986	Martine G. Oakley	Trustee	11.94	Warranty Deed

Management Lease

Parcel Name or Lease Number	Date Leased	Initial Lessor	Initial Lessee	Current Term	Expiration Date
Lease No. 2839	6/2/1975	State of Florida Department of Natural Resources for the use and benefit of the Division of Recreation and Parks	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida	50 years	7/30/2034

Outstanding Issue	Type of Instrument	Brief Description of the Outstanding Issue	Term of the Outstanding Issue
There is no known deed-related outstanding issue such as reverter and/or reservation that applies to San Felasco Hammock Presereve State Park			

Addendum 2—Advisory Group Members and Report

Gib Coerper
Mayor
City of Alachua

Charles Chesnut
Vice Chair
Alachua County Commission

Archie Matthews
Secretary
Alachua Soil and Water

Jess Rodriguez
Regional Biologist
FWC North Central Region

Doug Longshore
State Lands Management Coordinator
Florida Forest Service

Robert Dampman
Park Manager
Division of Recreation and Parks

John & Ann Shermyen
Local Property Owner

Mark Elliott
President
Florida Native Plant-Paynes Prairie

Debra Segal
President
Alachua County Audubon

Bob Simons
President
Sierra Club Suwannee-St Johns

Chip Sullivan
Owner
The Adventure Club Gainesville

Jeff Glen
Chair
Florida Trail Association-Sandhill

Kathy Munden
Staff Liason
Alachua County TDC

Judy Talton
President
Friends of San Felasco

Carl Zalak
Chair
Marion County Commission

Justin Albright
Supervisor
Marion Soil and Water

Donald Forgione
Park Manager
Division of Recreation and Parks

Peggy Carr
Local Property Owner

Judy Greenberg
Representative
Marion Audubon

Helen Koehler
President
The Goethe Trail Inc

Loretta Shafter
Director
Marion County TDC

Perran Ross
President
Friends of Paynes Prairie

Karen Garren
Representative
Florida Native Plant

The Advisory Group meeting to review the proposed unit management plans (UMP) for San Felasco Hammock Preserve State Park and Price's Scrub State Park was held in Gainesville at the Florida State Parks Division 2 Training Room on Wednesday January 30, 2019 at 9:00 AM.

Corry Locke joined Loretta Shafter in representing the Marion County Tourist Development Council. Appointed members unable to attend included Charles Chesnut, Archie Matthews, John and Ann Shermyen, Debra Segal, Chip Sullivan, Jeff Glen, Kathy Munden, Judy Talton, Carl Zalak, Justin Albright, and Peggy Carr.

Attending Division of Recreation and Parks (DRP) staff members from the two parks, district office, and the Office of Park Planning were Richard Owen, Daniel Pearson, Robert Dampman, Anne Barkdoll, Brian Fugate, Clif Maxwell, Donald Forgione, Craig Parenteau, Heather Grames, Holly Cramer, and Joel Allbritton.

Mr. Allbritton began the meeting by explaining the purpose of the advisory group and thanking advisory group members for being patient in the rescheduling of the meetings due to Hurricane Michael. Mr. Allbritton then asked each member of the advisory group to express their comments on the draft management plans. After all the comments were shared, Mr. Allbritton described the next steps for drafting the plans and the meeting was adjourned.

Summary of Advisory Group Comments

Karen Garren (Florida Native Plant) began the meeting by noting that the San Felasco management plan was well written and inclusive to all elements. She stated that she would like to see additional language on the connectivity of the park as well as the addition of notices for ranger led tours and the need for more volunteers at the park.

Perran Ross (Friends of Paynes Prairie) stated that Price's Scrub is a small appendage and extension to Paynes Prairie and congratulated the authors of plan. He also shared that even though Price's Scrub is such a small piece of property that it still contains a lot of fine detail. He stated that there are a lot of dead-end trails at Price's Scrub that should be fixed to provide a better experience. Additionally stated was the interesting fact that although Paynes Prairie is so large but not all areas are open to the public. Mr. Ross stated that Price's Scrub could help Paynes Prairie in that they could accommodate more intensive public recreation.

Bob Simons (Sierra Club) commented that he was one of the original individuals to propose acquisition of the San Felasco property and that he spent a lot of time on the property before it was a state park. Mr. Simons stated that he likes the management plan and the objectives, especially in terms of prescribed fire as a means of helping the threatening changes in the hardwood forests. One of Mr. Simons concerns is that we need more staffing to achieve the objectives that we are setting out in the plan and to implement the plan. Mr. Simons described how in the early days he would walk in the Upland Hardwood Forest and would see spiders

and their expansive webs and that now he hardly ever sees spiders. Mr. Simons detailed the problem that is causing the spiders to disappear and the bird populations to decrease is the global collapse of insect populations that these species depend on. Additionally Mr. Simons detailed the issue of vine cutting in the park and in the area as well as how these vines provide structure and support for trees. Once the vines are cut they do not come back and that is a major problem that he estimates to be well over a million dollars' worth of damage. Perran Ross asked if we know who is doing the vine cutting to which Mr. Simons replied that it is an individual or group that just don't know that the vines are good for the trees. Mr. Simons suggested adding signage about the vine cutting and how the vines are good for trees as well as doing a thorough inventory of the issue throughout the park. Dan Pearson commented that a form of vine census is already being done at Devil's Millhopper. Perran Ross asked if we allow student research to which park staff responded that yes, we do and that one of the reasons San Felasco was purchased was to be an outdoor classroom. Dan Pearson commented that we recognize the challenges that we have in terms of prescribed fire and that we are working to move some of the burn areas to be more manageable as well as that the district has just hired a new burn boss and that San Felasco is a top priority moving forward. Dan also commented that the Upland Mixed Woodland and Upland Pine Forest are botanically rich and that staff is working on restoring these rare community types.

Doug Longshore (Florida Forest Service) asked if there was a Timber Assessment for San Felasco because he did not see it in the plan. Dan Pearson commented that we are currently finalizing the draft timber assessment and that it was delayed due to pine beetle control and other management activities. Mr. Longshore asked if he could have an opportunity to review the timber assessment to which Dan Pearson replied yes. Mr. Longshore asked about the pasture areas that are planned to be restored to which Dan Pearson replied that management activities are being done and detailed that DRP had previously received a grant from Forestry to plant longleaf in the northern part of the preserve. Dan Pearson then detailed that the current focus is on the main core of the preserve that could be lost if we don't concentrate management activities on improving those natural areas. In addition, restoration of the pastures to a natural community take a great deal of effort and resources. The initial hurdle of getting rid of the Bahia Grass is difficult. Mr. Longshore asked if in the meantime that establishing long leaf pine is out of the question. Dan Pearson responded that we are doing that in the areas that we can. Mr. Longshore commented that it could be 20 years before these areas are able to be worked on and that if pines are planted now they could have time to grow while the pasture waits.

Jess Rodriguez (Florida Fish and Wildlife Commission) stated that there have been some updates to the species lists. Dan Pearson responded that he has seen the updates and that we will fix the lists. Jess and Dan then exchanged notes on which species are still listed or not. Someone asked if San Felasco has Fox Squirrels to which Dan responded yes there are a few of them in the park, but they may not necessarily live in the park. Karen Garren asked if any of the squirrels have been

marked to which Dan responded that we try to monitor them the best we can with pictures and descriptions. Mrs. Rodriguez commented that it is good that some of the same species are recorded in the park. Mrs. Rodriguez also stated that FWC has an exhaustive sighting list that we can use to easily organize our sighting records. Bob Simons detailed the Kestrel box program and how they put up maybe 100 boxes in the area and are checking the boxes regularly. Karen Garren asked where exactly the boxes should be placed to which Bob detailed that the best locations are lone trees or power poles to ensure the chicks are not bothered. Mrs. Rodriguez commented that FWC could provide signs for Rookery nesting areas to help ensure that they are not disturbed. Dan Pearson stated that the signs may not be necessary as it may attract more people to the areas. Mrs. Rodriguez ended her comments by stating that Prices Scrub species lists need to be changed and updated as well.

Helen Koehler (The Goethe Trail) stated that the trail map for Price's Scrub is not helpful and that equestrians should not bother unless there are at least 10 miles because it is not worth the hassle of loading and transporting horses for less mileage. Mrs. Koehler also stated that the park boundaries should be used as the biggest loop trail and that equestrian users are not concerned about the aesthetic value of the trail but are concerned with the length of the trails. Loretta Shafter commented that we really don't need overdone trails and that the trails should stay natural because that is what is preferred anyways. Mrs. Koehler stated that there is a growing trend of carriage driving and that she misses the days of park horses and that it is a shame that there are not ranger led horse tours and park horses used by staff anymore. Loretta Shafter commented that she shared the same sentiment but that funding is likely one of the reasons that this is no longer possible. Mrs. Shafter asked if there could be horse outfitter services in the parks. Donald Forgione responded that we have reached out to the private sector but horse related insurance is just so high that it is nearly impossible. Mrs. Koehler added that the trails can make money for the parks if they are planned correctly. Anne Barkdoll commented on the current trail system and the updates that are being done to make a better experience and that the new trail map will be added into the plan. Mrs. Koehler stated that all the trails should oriented to going one way and additional spur trails from the main trail with updated trail markers to better orient the trail users. Perran Ross commented that the friends' group are working on new trails maps for Paynes Prairie and could also work with publishing and printing trail maps for Price's Scrub. Donald commented that the majority of the users of Price's Scrub are actually equestrian riders. Anne Barkdoll commented that she liked hearing that outside boundaries are acceptable to equestrian users because that will make it much easier to plan future trails. Anne Barkdoll asked Mrs. Koehler a question about carriage riding at Price's Scrub. The question is how carriages are used when the trails are so wet and flooded. Mrs. Koehler answered that it really isn't a problem and that it is what it is. Perran Ross commented that this brought up an issue that the plans may not address, Climate Change, he then asked if we are factoring this into plans. Joel Allbritton answered that yes we are taking this issue into consideration into all of our plans and are bolstering the section of the plans

that talk about climate change and sea level rise. Perran Ross commented that this is good and it is good to have a flexible approach when planning for these issues.

Judy Greenberg (Marion Audubon) commented on the planning and how we should look at how we use park lands. Mrs. Greenberg stated that as citizens we cannot expect more from lands for recreation than is actually appropriate for the lands. Mrs. Greenberg explained that the biggest issue for state parks is the expectation from the public for recreation use. Mrs. Greenberg also stated that we should give the land time and prepare for a long term 50-year vision for the park by looking at surrounding lands for sale that we can acquire to help the regional hydrology. Mrs. Greenberg asked about carrying capacity and why the number of users for Price's Scrub was high. Joel Allbritton, Holly Cramer, and Dan Pearson explained carrying capacity and how the focus is being shifted to a new approach that is long term visioning for a more proactive approach than reactive and how this will be better for the parks.

Gib Coerper (Mayor City of Alachua) stated that he appreciated the comments that were made at the public meeting and the advisory group meeting in the trails and trail management. Mr. Coerper mentioned progress park, growth projections for the area, and how they had received a grant for a road that will connect highway 241 to highway 441 and would run next to the entrance of San Felasco. Mr. Coerper commented that the entrance to San Felasco should be coordinated with the city manager so that there will be easy access from the road straight into the park. Mr. Coerper recommended that there be sidewalks and a paved entrance into the park from this road expansion. Clif Maxwell expressed interest in having road frontage to help San Felasco with visitation increases. Perran Ross commented that this brings up another issue that the 10-year management plans may not be thinking far enough in advance and that we should look more into long-range efforts for connectivity and development. Loretta Shafter asked if there is connectivity between counties with the help of Audubon to which Judy Greenberg responded and talked about the possible connectivity and bird counting.

Loretta Shafter (Marion TDC) explained that the tourism office is about to present their 5-year plan and that they have been trying to listen to their community about their outdoor components. Mrs. Shafter asked how they can help to better tell the story by helping to provide kiosks, education, etc. on local public lands. Mrs. Shafter also state that Marion County is working on bettering partnerships with their stakeholders and trying to establish better education opportunities so that visitors are outdoor stewards of the environment. Joel Allbritton asked if there were any additional comments or go backs on anything. Perran Ross stated that they are very interested in the management of exotics and imperiled species and we should be careful as more use of the trails could introduce more exotics. Bob Simons commented that the species list may be incomplete and Karen Garren commented that there are insufficient citations in the plans for species lists. Dan Pearson explained that we would look into the species list and that the documentation for species is in paper form in the district office files.

Written Advisory Group Comments

"Hi Joel,
I'm back at reading and preparing. I found some typographical errors and what I think might be errors in the San Felasco plan. I have attached a word file with page numbers. I have also inserted comments on the pdf file. Just in case you wanted to clean it up before the meetings.

Mark S. Elliott
President
Paynes Prairie Chapter
Florida Native Plant Society"

Staff Recommendations

- Following further assessment at Price's Scrub the trail system will be reorganized to provide a better visitor experience and provide loop trails instead of spur trails.
- The species lists for both parks will be updated to reflect updated statuses of plants and animals.
- Additions to the Price's Scrub Optimum boundary will be made for more connectivity opportunities that stretch to Paynes Prairie.

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 DRP's intent in making these appointments is to create a group that represents a balanced cross-section of the park's stakeholders. Decisions on appointments are made on a case-by-case basis by Division of Recreation and Parks staff.

Addendum 3—References Cited

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Addendum 4—Soil Descriptions

(2) Candler fine sand, 0 to 5 percent slopes - This nearly level to gently sloping, excessively drained soil is in the deep, sandy uplands. Slopes are nearly smooth to convex.

Typically, the surface layer is very dark grayish brown fine sand about 6 inches thick. The underlying layers are fine sand to a depth of 82 inches or more. The upper 10 inches is pale brown, and the next 12 inches is light yellowish brown. Below that is a 29-inch layer that is yellow and a 13-inch layer that is very pale brown. The lowest 12-inch layer is very pale brown, with thin bands of brownish yellow loamy sand lamellae.

This soil has low available water capacity, with the water table at a depth of more than 72 inches. Permeability is rapid, and surface runoff is very slow. Organic matter content of the surface layer is low to very low, and natural fertility of the soil is low.

(3) Arrendondo fine sand, 0 to 5 percent slopes - This nearly level to gently sloping, well drained soil is in both small and large areas of uplands. Slopes are smooth to convex.

Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The subsurface layer is fine sand to a depth of 49 inches. The upper 23 inches is yellowish brown, and the lower 18 inches is brownish yellow. The subsoil extends to a depth of 86 inches or more. The upper 5 inches is yellowish brown loamy sand, the next 10-inch layer is yellowish brown sandy clay loam, and the lowest 22-inch layer is dark yellowish brown sandy clay and sandy clay loam.

In this soil, the available water capacity is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil. The water table is at a depth of more than 72 inches. Permeability is rapid in the surface and subsurface layers and moderately slow to moderate in the loamy subsoil. Surface runoff is slow. Organic matter content is low. Natural fertility is low in the sandy surface and subsurface layers, and moderate in the finer textured subsoil.

(5) Fort Meade fine sand, 0 to 5 percent slopes - The nearly level to gently sloping, well drained soil is in both small and large areas on the gently rolling uplands.

Typically, the surface layer is fine sand about 14 inches thick. The upper 10 inches is very dark brown, and the lower 4 inches is very dark grayish brown. The underlying layer is fine sand to a depth of 80 inches or more. In sequence from the top: the upper 20 inches is dark brown; the next 9 inches is dark yellowish brown; the next 28 inches is yellowish brown; and lower 14 inches is dark brown.

In this soil, the available water capacity is low to medium. Permeability is rapid, and surface runoff is slow. The water table is more than 72 inches below the surface. Organic matter content of the surface layer is moderately low to high, and natural fertility is low.

(7) Kanapaha sand, 0 to 5 percent slopes - This nearly level to gently sloping, poorly drained soil is in small to relatively large areas on uplands. Slopes are nearly smooth to slightly convex.

Typically, the surface layer is dark gray sand about 8 inches thick. The subsurface layer is sand about 36 inches thick. The upper 5 inches is light brownish gray, and the lower 31 inches is light gray. The subsoil is sandy clay loam to a depth of 80 inches or more. The upper 6 inches is light brownish gray and the lower 30 inches is gray.

This soil has a water table that is less than 10 inches below the surface for 1 to 3 months during most years. Surface runoff is slow. The available water capacity is very low to low in the sandy surface and subsurface layers, and it is low to medium in the subsoil. Permeability is moderately rapid in the surface and subsurface layers and is slow to moderately slow in the subsoil. Organic matter content of the surface layer ranges from moderately low to moderate. Natural fertility is low to medium.

(8) Millhopper sand, 0 to 5 percent slopes - This nearly level to gently sloping, moderately well drained soil is in small and large irregularly shaped areas on uplands and on slightly rolling knolls in the broad flatwoods. Slopes are mostly nearly smooth or convex.

Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer is sand or fine sand about 49 inches thick. The upper 17 inches is yellowish brown, the next 22 inches is light yellowish brown, and the lower 10 inches is very pale brown. The subsoil extends to a depth of 89 inches. The upper 6 inches is yellowish brown loamy sand that has grayish and brownish mottles; the next 22 inches is light gray, mottled sandy clay loam; and the lower 3 inches is light gray, mottled sandy loam.

During most years, this soil has a water table that is at a depth of 40 to 60 inches for 1 to 4 months and at a depth of 60 to 72 inches for 2 to 4 months. In the surface and subsurface layers, the available water capacity is low and permeability is rapid. In the subsoil, the available water capacity is low to medium. In the upper 6 inches of the subsoil, permeability is moderately rapid, and below that depth, it is slow to moderately slow. Organic matter content is low to moderately low, and natural fertility is low.

(11) Riviera sand - This is a nearly level, poorly drained soil that formed in stratified, unconsolidated sandy and loamy materials in the broad flatwoods. Slopes are nearly smooth and are less than 2 percent. Areas are small and irregularly shaped.

Typically, the surface layer is very dark gray sand about 5 inches thick. The subsurface layer is sand about 27 inches thick. The upper 8 inches is grayish brown, and the lower 19 inches is gray. The subsoil is gray sandy clay loam that extends to a depth of 53 inches. The upper 10 inches of the subsoil has large streaks of gray sand. Between depths of 53 and 80 inches, the underlying material is gray, mixed sandy loam, loamy sand, and sand.

In this soil, the water table is less than 10 inches below the surface for 2 to 4 months during most years and at a depth of 10 to 40 inches for much of the remainder of the year. During dry seasons it may recede to a depth of more than 40 inches. Surface runoff is slow. Available water capacity is low to a depth of about 32 inches, medium from 32 to 55 inches, and low below this depth. Permeability is rapid to a depth of about 32 inches, slow from 32 to 55 inches, and moderate to moderately rapid from 55 to 62 inches. Organic matter content is low. Natural fertility is low in the sandy upper 32 inches and medium below this depth.

(13) Pelham sand - This nearly level, poorly drained soil is in small and large areas in the flatwoods. Slopes are nearly smooth and range from 0 to 2 percent.

Typically, the surface layer is sand about 7 inches thick. The upper 4 inches is very dark gray, and the lower 3 inches is dark gray. The subsurface layer is sand about 22 inches thick. The upper 7 inches is light brownish gray and has gray mottles, and the lower 15 inches is gray. The subsoil extends to a depth of 69 inches. The upper 3 inches is gray sandy loam, and the lower 37 inches is gray, mottled sandy clay loam. Between depths of 69 and 80 inches, the underlying material is gray, mottled sandy loam.

This soil has a water table that is less than 10 inches below the surface for 1 to 4 months during most years. During dry seasons, the water table recedes below a depth of 40 inches. The available water capacity is low in the surface and subsurface layers and medium in the loamy subsoil. Surface runoff is slow, and permeability is rapid in the surface and subsurface layers and moderate in the loamy subsoil. The organic matter content is moderately low. Natural fertility is low in the upper 29 inches and medium below that.

(14) Pomona sand - This nearly level, poorly drained soil is in small and large areas in the flatwoods. Slopes are nearly smooth and range from 0 to 2 percent.

Typically, the surface layer is very dark gray sand about 5 inches thick. The subsurface layer is sand to a depth of 16 inches. The upper 4 inches is gray, and the lower 7 inches is light gray. The upper 4 inches of the subsoil is very dark gray sand in which many sand grains are coated with organic material, and the next 4 inches is dark reddish brown sand. The next 8 inches is pale brown sand that has mottles, and the lower 11 inches is very pale brown sand. Below this, a loamy subsoil extends to a depth of 69 inches. The upper 4 inches is light gray fine sandy loam, and the lower 22 inches is gray, mottled sandy clay loam. Between depths of 69 and 84 inches, the underlying material is light gray, mottled fine sandy loam.

The water table in this soil is within 10 inches of the surface for 1 to 3 months during most years. During dry seasons, the water table recedes to a depth of more than 40 inches. Surface runoff is slow. The available water capacity is low to medium in the surface and subsurface layers, and it ranges from low to high in the subsoil. Permeability is rapid to very rapid in the surface and subsurface layers, moderate to rapid in the upper part of the subsoil, and moderately slow to moderate in the lower part.

(16) Surrency sand - This nearly level, very poorly drained soil is in ponds and depressional areas in the broad flatwoods and in areas of wet prairie on uplands. Slopes are less than 1 percent.

Typically, the surface layer is black sand about 15 inches thick. The subsurface layer is light gray sand to a depth of 28 inches. Between 28 and 80 inches, the subsoil is sandy clay loam. The upper 27 inches is gray, and the lower 25 inches is light gray.

The water table in this soil is within 10 inches of the surface for about 6 months or more during most years. Water is on the surface for 4 months or more. The available water capacity ranges from low to high in the surface and subsurface layers and from low to medium in the subsoil. Permeability is moderately rapid to rapid in the sandy surface and subsurface layers and slow to moderately slow in the loamy subsoil. In the surface layer, organic matter content is high to very high and natural fertility is medium. In the subsurface layer and subsoil, natural fertility is low.

(17) Wauchula sand - This nearly level, poorly drained soil is in broad areas of the flatwoods. Slopes are nearly smooth and range from 0 to 2 percent.

Typically, the surface layer is sand about 8 inches thick. The upper 5 inches is black, and lower 3 inches is dark gray. The subsurface layer is light brownish gray sand about 6 inches thick. The upper part of the subsoil is 4 inches of dark reddish brown loamy sand, in which many sand grains have an organic coating, and 5 inches of dark brown sand. Below this is a leached layer of pale brown, mottled fine sand about 5 inches thick. The lower part of the subsoil is a loamy layer that extends to a depth of 62 inches. The upper 9 inches is gray, mottled fine sandy loam; the next 19 inches is light brownish gray, mottled loamy sand; and the lower 6 inches is light gray, mottled fine sandy loam. Between depths of 62 and 80 inches, the underlying material is light gray, mottled sandy clay loam.

The Wauchula soil has a water table that is at a depth of less than 10 inches for 1 to 4 months and 10 to 40 inches for about 6 months. During dry seasons, the water table recedes to a depth of more than 40 inches. The available water capacity is low to medium in the surface layer, very low to low in the subsurface layer, low to high in the upper part of the subsoil, and medium to high in the lower part. Permeability is moderately rapid to rapid in the surface and subsurface layers, moderate to moderately rapid in the upper part of the subsoil, and slow to moderately slow in the lower part. Organic matter content is low. Natural fertility is low in the sandy surface and subsurface layers and low to medium in the subsoil.

(19) Monteocha loamy sand - This nearly level, very poorly drained soil is in wet ponds and shallow depressional areas in the flatwoods. Slopes are less than 2 percent.

Typically, the surface layer is black loamy sand about 12 inches thick. The subsurface layer is light brownish gray sand to a depth of 18 inches. The upper part of the subsoil is brown sand to a depth of 48 inches. Below this, a subsoil of

fine sandy loam extends to a depth of 85 inches. The upper 11 inches is grayish brown, and the lower 26 inches is light brownish gray. Between 85 and 94 inches the underlying material is light gray sand.

During most years, this soil has a water table that is within 10 inches of the surface for more than 6 months; for more than 4 months, most areas are covered with water. Available water capacity is high to very high in the surface layer and medium in the subsurface layer and subsoil. Permeability is rapid in the surface layer, moderately rapid to rapid in the subsurface layer and upper part of the subsoil, and moderately slow to moderate in the lower part. In the surface layer, organic matter content is high to very high. Natural fertility is medium in the surface layer and low in the subsurface layer and subsoil.

(20) Tavares sand, 0 to 5 percent slopes - This is a nearly level to gently sloping, moderately well drained soil. This soil is deep and sandy. It is on slightly convex slopes in broad areas of the flatwoods and along gentle slopes of the rolling uplands.

Typically, the surface layer is dark gray sand about 8 inches thick. The underlying layers are sand to a depth of 80 inches or more. The upper 11 inches is pale brown, the next 17 inches is very pale brown, and the lower 44 inches is very pale brown or white and has mottles.

In this soil, the water table is at a depth of 40 to 72 inches for a cumulative period of 6 months or more during most years. It recedes to more than 72 inches below the surface during droughty periods. Surface runoff is slow, and the available water capacity is very low to low. Permeability is rapid to very rapid. Organic matter content is low to moderate in the surface layer, and natural fertility is low.

(21) Newnan sand - This nearly level, somewhat poorly drained soil is in small to relatively large areas in the flatwoods. Slopes are nearly level to slightly convex and range from 0 to 2 percent.

Typically, the surface layer is dark gray sand about 5 inches thick. The subsurface layer is light brownish gray sand to a depth of 12 inches. The upper part of the subsoil is 4 inches of dark brown sand, in which the sand grains are well coated with organic material, and 4 inches of dark brown sand that is mottled. Below this is a leached layer of light gray to white sand to a depth of 56 inches. The lower part of the subsoil is loamy, light gray, and mottled. The upper 3 inches is loamy sand, the next 16 inches is fine sandy loam, and the lower 7 inches is sandy clay loam.

This soil has a water table that is at a depth of 18 to 30 inches for 1 to 2 months during most years and at a depth of 30 to 60 inches for 2 to 5 months. During drier periods, it is at a depth of more than 60 inches. The available water capacity is very low to low to a depth of about 12 inches and low to medium from 12 to 82 inches. Permeability is rapid to a depth of about 12 inches, moderately rapid from 56 to 59 inches, and slow to moderately slow from 59 to 82 inches. Organic matter content is moderately low. Natural fertility is low in the sandy upper 56 inches and medium in the loamy subsoil below.

(23) Mulat sand – This nearly level, poorly drained soil occurs in broad areas in the flatwoods. Slopes are nearly smooth to slightly concave and range from 0 to 2 percent.

Typically, the surface layer is sand about 8 inches thick where the upper 5 inches is very dark gray and the lower three inches are dark gray. The subsurface layer is grayish brown to light gray sand to 26 inches depth below the surface. The subsoil reaches 54 inches depth and is gray with the upper 4 inches being loamy sand, the next 17 inches is sandy loam, and the lowest 7 inches is loamy sand. Below this to 54 inches, the underlying material is light gray loamy sand.

This soil has slow surface runoff and the available water capacity is low to medium. Permeability in the surface and subsurface layers is moderately rapid to rapid and moderately slow in the subsoil. Organic matter content is moderate to moderately low, and natural fertility is low.

(26) Samsula muck - This nearly level, very poorly drained organic soil is in large and small swamps, marshes, and ponded areas in the broad flatwoods. Slopes are usually slightly concave and range from 0 to 1 percent.

Typically, the surface layer is muck about 35 inches thick. The upper 8 inches is very dark brown, and the lower 27 inches is very dark gray. Between depths of 35 and 75 inches, the underlying layer is sand. The upper 7 inches is dark gray, the next 11 inches is light brownish gray, and the lower 17 inches is light gray.

This soil has water at or on the surface for more than 6 months during most years. For most of the remainder of the year, the water table is within 10 inches of the surface, except during long extended dry periods. The available water capacity is very high in the organic layer and very low in the underlying sandy layer. Permeability is rapid. Organic matter content in the surface layer is very high, and natural fertility is medium.

(28) Chipley sand - This nearly level, somewhat poorly drained soil occurs in broad areas in the flatwoods and is in small and large areas in the transition between flatwoods and rolling uplands. Slopes are nearly level to slightly concave and range from 0 to 2 percent.

Typically, the surface layer is sand about 12 inches thick where the upper 6 inches is very dark gray and the lower six inches are dark grayish brown. The underlying layers are sand to more than 81 inches with the upper 13 inches being grayish brown, the next 24 inches is light gray with yellowish red mottles, and the lowest 32 inches is light gray.

The water table is 20 to 40 inches deep for 2 to 4 months of the year. Surface runoff is slow, and the available water capacity is low. Permeability is rapid to 80 inches depth. Organic matter content is moderate to moderately low, and natural fertility is low.

(29) Lochloosa fine sand, 2 to 5 percent slopes - This gently sloping, somewhat poorly drained soil is in small and large areas on the rolling uplands. Slopes are slightly convex.

Typically, the surface layer is dark gray fine sand about 7 inches thick. The subsurface layer is yellowish brown loamy sand or sand to a depth of 31 inches. It has light gray and yellowish brown mottles below a depth of 21 inches. The subsoil extends to 76 inches. The upper 4 inches is dark gray, mottled fine sandy loam; the next 19 inches is gray sandy loam; and the lower 22 inches is gray sandy clay loam. Between depths of 76 and 83 inches, the underlying material is mixed light gray and greenish gray sandy clay loam.

During most years, the water table is about 30 to 40 inches below the surface for 1 to 4 months and it rises to a depth of 20 to 30 inches for 1 to 3 weeks. Surface runoff is slow. The available water capacity is low to medium in the sandy surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part. Organic matter content is low to moderately low in the surface layer. Natural fertility is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil.

(30) Kendrick sand, 2 to 5 percent slopes - This gently sloping, well drained soil is in both small and large areas on the gently rolling uplands.

Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer is yellowish brown loamy sand to a depth of 26 inches. The subsoil extends to a depth of 90 inches or more. The upper 5 inches is yellowish brown fine sandy loam; the next 20 inches is dark yellowish brown, mottled sandy clay loam; the next 22 inches is dark yellowish brown sandy clay loam; the next 10 inches is yellowish brown, mottled fine sandy loam; and the lowest 7 inches is yellowish brown sandy clay loam.

The water table is more than 72 inches below the surface. The available water capacity is low in the surface and subsurface layers, medium in the upper 5 inches of the subsoil, and medium to high below this depth. Permeability is rapid in the surface and subsurface layers, moderate to moderately rapid in the upper 5 inches of the subsoil, moderately slow to moderate in the next 42 inches, and slow in the lower 17 inches. Surface runoff is moderately slow. Organic matter content is low to moderately low in the surface layer. Natural fertility is low in the sandy surface layer and medium in the loamy subsoil.

(31) Blichton sand, 0 to 2 percent slopes - This nearly level to gently sloping, poorly drained soil is on relatively broad flats and at the base of slopes of the gently rolling uplands.

Typically, the surface layer is very dark gray sand about 6 inches thick. The subsurface layer is light brownish gray sand to a depth of 24 inches and has about 2 percent nodules of ironstone and fragments of phosphatic limestone. The subsoil extends to a depth of 80 inches or more. The upper 6 inches is gray sandy loam; the next 33 inches is gray sandy clay loam that is 7 percent

plinthite, by volume; and the lower 14 inches is mixed gray and olive gray sandy clay loam that has mottles of brown, red, and yellow.

This soil has a water table that is less than 10 inches below the surface for 1 to 4 months during most years. The available water capacity is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil. Surface runoff is slow. Permeability is rapid in the sandy surface and subsurface layers and slow to moderately slow in the loamy subsoil. Organic matter content is moderately low to moderate. Natural fertility is low to medium.

(32) Bivans sand, 2 to 5 percent slopes - This is a gently sloping, poorly drained soil and occurs in relatively broad flats and at the base of slopes in the rolling uplands. The areas are irregular in shape.

Typically, the surface layer is dark gray sand about 6 inches thick. The subsurface layer is gray sand about 9 inches thick and has a few nodules of ironstone and fragments of phosphatic limestone. The subsoil extends to a depth of 61 inches. The upper 12 inches is dark gray sandy clay and a few nodules of ironstone and fragments of phosphatic limestone. The next 29 inches is gray, mottled sandy clay. Beneath this for the next 18 inches is gray, mottled sandy clay, followed by 16 inches of gray, mottled sandy clay loam. Between depths of 61 and 81 inches, the underlying material is gray, mottled sandy clay loam.

In this soil, the subsurface layer and upper part of the subsoil are saturated by a perched water table for 1 to 3 months during most years. Wetness is caused mainly by hillside seepage. Surface runoff is moderate, and the available water capacity is low to medium. Permeability is moderate to moderately rapid in the surface and subsurface layers and very slow to slow in the subsoil. Organic matter content is moderately low to moderate in the surface layer. Natural fertility is low to medium.

(34) Placid sand, depressional - This nearly level, very poorly drained soil is along poorly defined drainageways and in wet depressional areas both in the flatwoods and on sandy ridges. Slopes range from 0 to 2 percent. The areas are circular, elongated, or irregularly shaped.

Typically, the surface layer is sand about 15 inches thick. The upper 8 inches is black, and lower 7 inches is very dark gray. The underlying layers are sand to a depth of more than 82 inches. The upper 6 inches is grayish brown, and next 26 inches is light brownish gray, and the lower 35 inches is light gray.

This soil has a water table that is within 10 inches of the surface for 6 to 12 months of the year. The surface is usually covered with water for 6 months or more. The available water capacity is high to a depth of about 15 inches and low below this depth. Permeability is rapid throughout. Internal drainage is slow because it is impeded by the water table. Natural fertility and organic matter content are high to a depth of about 15 inches and very low below this depth.

(35) Gainesville sand, 0 to 5 percent slopes - This nearly level to gently sloping, well drained soil has sandy texture to a depth of 80 inches or more. It is in both small and large, irregularly shaped areas on the gently rolling uplands.

Typically, the surface layer is dark grayish brown sand about 7 inches thick, with an underlying layer that extends to a depth of 82 inches or more. The upper 22 inches is yellowish brown sand, and the lower 53 inches is strong brown loamy sand.

The water table is more than 72 inches below the surface. In this soil, the available water capacity is low, surface runoff is slow, and permeability is rapid. Organic matter content ranges from low to moderately low, and natural fertility is low.

(68) Candler fine sand, 5 to 8 percent slopes - This sloping, excessively drained soil is in small areas on sharp, breaking slopes and in relatively large areas on long, narrow slopes.

Typically, the surface layer is grayish brown fine sand about 5 inches thick. The underlying layers are fine sand to a depth of 82 inches or more. The upper 57 inches is yellow, while the lower 23 inches is pale brown. The lowest portions have thin bands of yellowish brown loamy sand lamellae.

This soil has low available water capacity, with the water table at a depth of more than 72 inches. Permeability is rapid, and surface runoff is very slow. Organic matter content of the surface layer is very low, and natural fertility of the soil is low.

(69) Arredondo fine sand, 5 to 8 percent slopes - This sloping, well drained soil is in small areas on sharp breaking slopes and in large areas on long slopes of uplands. Slopes are smooth to convex.

Typically, the surface layer is dark grayish brown fine sand about 5 inches thick. The subsurface layer is yellowish brown fine sand to a depth of 65 inches. The subsoil extends down to 88 inches and is yellowish brown sandy loam in the upper 6 inches and yellowish brown sandy clay loam below that.

In the sandy surface and subsurface layers of this soil, the available water capacity is low and permeability is rapid. In the loamy subsoil, the available water capacity is medium, and permeability is moderately slow. Surface runoff is slow. The water table is at a depth of more than 72 inches. Organic matter content is low. Natural fertility is low in the sandy surface and subsurface layers and medium in the finer textured subsoil.

(71) Millhopper sand, 5 to 8 percent slopes - This sloping, moderately well drained soil is in small areas on narrow breaks and on long slopes of rolling uplands.

Typically, the surface layer is dark grayish brown sand about 7 inches thick. The subsurface layer is sand about 47 inches thick, the upper 37 inches is yellowish brown, and the lower 10 inches is pale brown. Mottles of brown and yellow range from nonexistent to common. The subsoil extends to a depth of 80 inches or more. The upper 6 inches is yellowish brown sandy loam that has light gray and strong brown mottles, and the lower 22 inches is light gray sandy clay loam that has gray, strong brown, and very pale brown mottles.

This soil has a water table that is at a depth of 40 to 60 inches for 1 to 2 months and at a depth of 60 to 72 inches for 2 to 3 months during most years. In the surface and subsurface layers, the available water capacity is low, and in the subsoil, it is low to medium. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow to moderately slow in the lower part. Both the organic matter content and natural fertility of this soil are low.

(72) Lochloosa fine sand, 5 to 8 percent slopes - This sloping, somewhat poorly drained soil is in relatively small areas on sharp breaking slopes and along long, narrow slopes of the upland.

Typically, the surface layer is grayish brown fine sand about 5 inches thick. The subsurface layer is light yellowish brown, mottled fine sand to a depth of 25 inches. The subsoil extends to a depth of 67 inches. The upper 5 inches is yellowish brown, mottled sandy loam; the next 5 inches is mottled light yellowish brown and gray sandy clay loam; and the lower 32 inches is gray, mottled sandy clay loam. Between depths of 67 to 80 inches, the underlying material is gray, mottled sandy clay and fine pockets of sandy loam and sandy clay loam.

In this soil, during most years, the water table is about 30 to 40 inches below the surface for 1 to 3 months, but may rise to a depth of 20 to 30 inches for 1 to 3 weeks. Wetness is caused by hillside seepage. The available water capacity is low in the sandy surface layer and medium in the subsoil. Surface runoff is medium, and permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part. Organic matter content is low in the surface layer. Natural fertility is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil.

(73) Kendrick sand, 5 to 8 percent slopes - This sloping, well drained soil is in elongated areas on long slopes of the uplands.

Typically, the surface layer is grayish brown sand about 6 inches thick. The subsurface layer is yellowish brown sand to a depth of 24 inches. The subsoil extends to a depth of 76 inches or more. The upper 5 inches is yellowish brown, mottled sandy loam. The next 27 inches is strong brown sandy clay loam and the deepest 20 inches is yellowish brown, mottled sandy clay loam.

The water table is more than 72 inches below the surface. The available water capacity is low in the surface and subsurface layers, medium in the upper 5 inches of the subsoil, and medium to high below this depth. Surface runoff is medium. Permeability is rapid in the surface and subsurface layers, moderate in the upper subsoil, and slow to moderately slow below that. Organic matter content is low, and natural fertility also is low in the sandy surface layer and medium in the loamy subsoil.

(74) Blichton sand, 2 to 5 percent slopes - This gently sloping, poorly drained soil is on gently rolling uplands. Slopes are slightly convex.

Typically, the surface layer is dark grayish brown sand about 6 inches thick, with about 3 percent nodules of ironstone and fragments and nodules of phosphatic limestone. The subsurface layer extends to a depth of 28 inches. The upper 7 inches is grayish brown sand, and it has about 2 percent nodules of ironstone and fragments of phosphatic limestone. The next 15 inches is light brownish gray loamy sand. The subsoil extends to a depth of 80 inches or more. The upper 6 inches is dark gray sandy clay loam and is about 4 percent nodules of ironstone and fragments of phosphatic limestone. The next 28 inches is dark gray sandy clay loam that is about 10 percent plinthite and about 3 percent nodules of ironstone and weathered phosphatic limestone. The lower 18 inches is gray sandy clay loam that has dark reddish brown mottles.

In this soil, the subsurface layer and upper part of the subsoil are saturated by a perched water table for 1 to 4 months during most years. Surface runoff is medium. The available water capacity is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil. Permeability is rapid in the sandy surface and subsurface layers and slow to moderately slow in the loamy subsoil. Organic matter content is moderately low to moderate, and natural fertility is low to medium.

(75) Blichton sand, 5 to 8 percent slopes - This sloping, poorly drained soil is on the rolling uplands. The areas are irregular in shape and elongated.

Typically, the surface layer is dark gray sand about 5 inches thick, with about 2 percent nodules of ironstone and fragments of phosphatic limestone. The subsurface layer is sand to a depth of 31 inches. The upper 21 inches is gray, and the lower 5 inches is light gray and 2 percent nodules of ironstone and fragments of phosphatic limestone. The subsoil extends to a depth of 78 inches, with the upper 6 inches as a light brownish gray sandy loam and about 4 percent nodules of ironstone and fragments of phosphatic limestone. The next 12 inches is light brownish gray sandy clay loam and is about 2 percent nodules of ironstone and fragments of phosphatic limestone, as well as about 6 percent plinthite, by volume. The next 17 inches, a light gray sandy clay loam, is about 1 percent nodules of ironstone and weathered fragments of phosphatic limestone and about 8 percent plinthite, by volume. The lower 12 inches is light gray sandy clay loam. Between depths of 78 and 80 inches, the underlying material is gray sandy clay loam.

This soil is saturated by a perched water table within 10 inches of the surface for 1 to 4 months during most years. Wetness is caused by hillside seepage. Surface runoff is rapid. The available water capacity is low in the sandy surface and subsurface layers, and it is low to medium in the loamy subsoil. Permeability is rapid in the sandy surface and subsurface layers and slow to moderately slow in the loamy subsoil. Organic matter content is moderately low, and natural fertility is low to medium.

(76) Bivans sand, 5 to 8 percent slopes - This is a sloping, poorly drained soil on short breaking slopes and along hillsides of the uplands. The areas are irregular and elongated in shape.

Typically, the surface layer is dark gray sand about 5 inches thick. The subsurface layer is light brownish gray sand about 5 inches thick, with a few nodules of ironstone and fragments of phosphatic limestone. The subsoil extends to a depth of 59 inches. The upper 20 inches is gray sandy clay and a few nodules of ironstone and fragments of phosphatic limestone. The next 29 inches is gray, mottled sandy clay. Between depths of 59 and 80 inches, the underlying material is gray, mottled sandy clay.

In this soil, the subsurface layer and upper part of the subsoil are saturated by a perched water table for 1 to 3 months during most years. Wetness is caused mainly by hillside seepage. Surface runoff is rapid, and the available water capacity is low to medium. Permeability is moderate to moderately rapid in the surface and subsurface layers and very slow to slow in the subsoil. Organic matter content is moderately low to moderate in the surface layer. Natural fertility is low to medium.

(77) Bivans sand, 8 to 12 percent slopes - This strongly sloping, poorly drained soil is on uplands. The areas are on small, sharp-breaking slopes and long, irregularly shaped, seepy hillsides.

Typically, the surface layer is dark gray sand about 5 inches thick. The subsurface layer is dark grayish brown sand about 6 inches thick. Both layers are about 2 percent nodules of ironstone and fragments of phosphatic limestone. The subsoil is gray sandy clay to a depth of 56 inches and about 3 percent nodules of ironstone and fragments of phosphatic limestone. Between depths of 56 and 80 inches, the underlying material is light gray, mottled sandy clay.

This soil is saturated with a perched water table caused mainly by hillside seepage. The water table is less than 10 inches below the surface for 1 to 3 months during most years. Surface runoff is rapid, and the available water capacity is low to medium. Permeability is moderate to moderately rapid in the sandy surface and subsurface layers and very slow to slow in the subsoil. Organic matter content is moderately low in the surface layer. Natural fertility is medium.

(78) Norfolk loamy fine sand, 5 to 8 percent slopes - This sloping, well drained soil is in irregularly shaped areas on small, sharp-breaking slopes and in irregularly shaped and elongated areas on the long hillsides of the rolling uplands.

Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsurface layer is light yellowish brown loamy sand about 5 inches thick. The subsoil extends to a depth of 75 inches or more. The upper 35 inches is yellowish brown sandy clay loam; the next 16 inches is yellowish brown, mottled sandy clay loam; and the lower 13 inches is mottled, yellowish brown and gray sandy clay.

This soil has a water table that is at a depth of 48 to 72 inches for 1 to 2 months during most years. Wetness is caused by hillside seepage. Surface runoff is rapid. The available moisture capacity is low in the sandy surface and subsurface layers and medium to high in the loamy and clayey subsoil. Permeability is rapid in the surface and subsurface layers, moderately slow in the upper part of the

subsoil, and very slow to slow in the lower part. Organic matter content is low to moderately low. Natural fertility is low in the sandy surface and subsurface layers and medium in the underlying subsoil.

Addendum 5—Plant and Animal List

San Felasco Hammock Preserve State Park Plants

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

FUNGI

	Agaricus abruptibulbus
	Agaricus alachuanus
	Agaricus cylindriceps var. aureus
	Agaricus pocillator
	Agaricus rhoadsii
	Amanita alliacea
	Amanita bisporiga
	Amanita chlorinosma
	Amanita citrine var. citrine
	Amanita flavoconia
	Amanita flavorubescens
	Amanita gemmata
	Amanita hygroscopica
	Amanita inodora
	Amanita jacksonii
	Amanita longipes
	Amanita maculans
	Amanita parva
	Amanita peckiana
	Amanita rhoadsii
	Amanita roanokensis
	Amanita rubescens
	Amanita suballiaceae
	Amanita vaginata
	Amanita virosa
	Amanita volvata
	Armillariella mellea
	Armillariella tabescens
	Boletellus ananas
	Boletellus russellii
	Boletus hypocarycinus
	Boletus miniato-olicaceus
	Boletus pallidus
	Boletus rubellus
	Cantharellus cibarius
	Cantharellus cinnabarinus
	Cantharellus lateritius
	Cantharellus odoratus

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
	Clitocybe gibba	
	Collybia dryophila	
	Collybia iocephala	
	Collybia spongiosa	
	Conocybe lacteal	
	Cortinarius cinnamomeus	
	Cortinarius iodes	
	Cortinarius marylandensis	
	Cortinarius subglaucopus	
	Cortinarius sublilacinus	
	Crepidotus putrigenus	
	Entoloma strictius	
	Entoloma subgriseum	
	Entoloma subserrulatum	
	Gymnopilus fulvosquamulosus	
	Gymnopilus subtropicus	
	Gyropus castaneus	
	Hypogrophus coccineus	
	Hygrophorus hypothejus	
	Hygrophorus puniceus	
	Inocybe fastigiata	
	Lactarius argillaceifolius	
	Lactarius corrugis	
	Lactarius hygrophoroides	
	Lactarius indigo	
	Lactarius luteolus	
	Lactarius piperatus	
	Lactarius piperatus var. piperatus	
	Lactarius thejogalus	
	Lactarius volemus var. flavus	
	Lactarius volemus var. volemus	
	Leccinum albellum	
	Lentinula boryana	
	Lentinus trigrinus	
	Lepiota clypeolaria	
	Lepiota rhacodes var. hortensis	
	Leucoagaricus rubrotinctus	
	Leucoagaricus viridiflavus	
	Leucocoprinus fragilissimus	
	Leucocoprinus longistriatus	

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
	Marasmius caesius	
	Marasmius candidus	
	Marasmius confertus	
	Marasmius coniatus	
	Marasmius sullivanti	
	Mycena renati	
	Omphalotus olearius	
	Oudemansiella canarii	
	Pholiota aurivella	
	Phylloporus rhodoxanthus	
	Pleurotus ostreatus	
	Pluteus cervinus	
	Pluteus floridanus	
	Pluteus pellitus	
	Psilocybe cubensis	
	Russula alutaceiformis	
	Russula fragiloides	
	Russula mariae	
	Russula pectinoides	
	Russula perlactea	
	Russula pusilliformis	
	Russula rosei-isabellina	
	Russula roseitincta	
	Russula rubescens	
	Russula sanguinea	
	Russula silvicola	
	Russula subcyanoxantha	
	Russula virescens	
	Strobilomyces floccopus	
	Suillus hirtellus	
	Tylopilus plumbeoviolaceus	

LICHENS

Smooth eyelash lichen	Bulbothrix confoederata
Carolina shield lichen	Canoparmelia caroliniana
Powdery Texas shield lichen	*Canoparmelia texana*
Sulphur dust lichen	Chrysothrix chlorina
Cotton lobed lichen	Crocynia pyxinoides
Christmas lichen	Cryptothecia rubrocincta

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Wrinkled loop lichen	Hypotrachyna livida	
Salted ruffle lichen	Parmotrema crinitum	
K+ y-r unwhiskered	*Parmotrema cristiferum* complex	
P+ orange powdered	Parmotrema hypoleucinum	
Cracked and salted ruffle	*Parmotrema subisidiosum*	
Unperforated ruffle lichen	*Parmotrema submarginale*	
Bony beard lichen	*Usnea trichodea*	

PTERIDOPHYTES

Bicolored spleenwort	Asplenium heterochroum	
Ebony spleenwort	Asplenium platyneuron	
Southern lady fern	Athyrium filix-femina subsp. aspleniodes	UHF
American waterfern	*Azolla filiculoides*	
Southern grape-fern	Botrychium biternatum	
Rattlesnake fern	Botrychium virginianum	
Japanese netvein holly fern	*Cyrtomium falcatum* *	
Japanese false spleenwort	*Deparia petersenii* *	
Vegetable fern	Diplazium esculentum *	
Southern wood fern	Dryopteris ludoviciana	
Japanese climbing fern	*Lygodium japonicum* *	
Tuberous sword fern	*Nephrolepis cordifolia* *	
Sensitive fern	Onoclea sensibilis	
Cinnamon fern	Osmunda cinnamomea	
Royal fern	Osmunda regalis var. spectabilis	
Resurrection fern	Pleopeltis polypodioides var. michauxiana	
Christmas fern	Polystichum acrostichoides	
Tailed bracken	Pteridium aquilinum var. pseudocaudatum	
Cretan brake	Pteris cretica	
Water spangles	*Salvinia minima*	
Downy maiden fern	Thelypteris dentata *	
Widespread maiden fern	*Thelypteris kunthii*	
Netted chain fern	Woodwardia areolata	
Virginia chain fern	*Woodwardia virginica*	

GYMNOSPERMS

Southern red cedar	Juniperus virginiana	
Slash pine	Pinus elliottii	
Spruce pine	*Pinus glabra*	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Longleaf pine	Pinus palustris	
Loblolly pine	*Pinus taeda*	
Pond cypress	Taxodium ascendens	
Bald cypress	Taxodium distichum	
Coontie; Florida arrowroot	*Zamia pumila*	

ANGIOSPERMS

Monocots

Yellow colicroot	*Aletris lutea*	
Southern colicroot	*Aletris obovata*	
Meadow garlic	Allium canadense	
Big bluestem	Andropogon gerardii	
Purple bluestem	Andropogon glomeratus var. glaucopsis	
Bushy bluestem	Andropogon glomeratus	
Splitbeard bluestem	*Andropogon ternarius*	
Broomsedge bluestem	*Andropogon virginicus*	
Green silkyscale	Anthaenantia villosa	
Nodding nixie	Apteria aphylla	
Greendragon	Arisaema dracontium	
Jack-in-the-pulpit	*Arisaema triphyllum*	
Big threeawn	Aristida condensata	
Southern threeawn	Aristida simpliciflora	
Bottlebrush threeawn	*Aristida spiciformis*	
Wiregrass	Aristida stricta var. beyrichiana	
Switchcane	Arundinaria gigantea	
Common carpetgrass	Axonopus fissifolius	
Big carpetgrass	Axonopus furcatus	
Rescue grass	Bromus catharticus *	
Capillary hairsedge	Bulbostylis ciliatifolia	
Pale grasspink	Calopogon pallidus	
Longhair sedge	*Carex comosa*	
Slender woodland sedge	*Carex digitalis*	
Clustered sedge	Carex glaucescens	
Godfrey's sedge	*Carex godfreyi*	
Greater bladder sedge	*Carex intumescens*	
Long's sedge	*Carex longii*	
Louisiana sedge	Carex louisianica	
Hop sedge	Carex lupulina	
Awlfruit sedge	*Carex stipata*	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Slender woodoats	Chasmanthium laxum	
Longleaf woodoats	Chasmanthium laxum var. sessiliflorum	
Jamaican swamp sawgrass	*Cladium jamaicense*	
Wild taro	Colocasia esculenta *	
Common dayflower	*Commelina diffusa*	
Whitemouth dayflower	*Commelina erecta*	
Spring coralroot	Corallorhiza wisteriana	
Toothache grass	Ctenium aromaticum	
Bermudagrass	Cynodon dactylon *	
Baldwin's flatsedge	*Cyperus croceus*	
Swamp flatsedge	Cyperus distinctus	
Yellow nutgrass	*Cyperus esculentus* *	
Pinebarren flatsedge	*Cyperus ovatus*	
Plukenet's flatsedge	*Cyperus plukenetii*	
Manyspike flatsedge	*Cyperus polystachyos*	
Low flat sedge	*Cyperus pumilus* *	
Strawcolored flatsedge	*Cyperus strigosus*	
Fourangle flatsedge	*Cyperus tetragonus*	
Green flatsedge	*Cyperus virens*	
Durban crowfootgrass	Dactyloctenium aegyptium *	
Needleleaf witchgrass	*Dicanthelium aciculare*	
Tapered witchgrass	Dicanthelium acuminatum	
Bosc's witchgrass	Dichanthelium boscii	
Deertongue witchgrass	Dichanthelium clandestinum	
Variable witchgrass	Dichanthelium commutatum	
Cypress witchgrass	Dichanthelium ensifolium	
Eggleaf witchgrass	*Dichanthelium ovale*	
Southern crabgrass	*Digitaria ciliaris*	
Air potato	Dioscorea bulbifera *	
Florida yam	Dioscorea floridana	
Fourleaf yam	Dioscorea villosa	
Threeway sedge	Dulichium arundinaceum	
Gulf cockspur	Echinochloa crus-pavonis *	
Coast cockspur	Echinochloa walteri	
Creeping burrhead	Echinodorus cordifolius	
Common water-hyacinth	*Eichhornia crassipes* *	
Baldwin's spikerush	*Eleocharis baldwinii*	
Jointed spikerush	Eleocharis equisetoides	
Canada spikerush	Eleocharis geniculata	
Indian goosegrass	*Eleusine indica* *	

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Green-fly orchid	Epidendrum conopseum	
Elliott's lovegrass	*Eragrostis elliottii*	
Bigtop lovegrass	Eragrostis hirsuta	
Purple lovegrass	Eragrostis spectabilis	
Coastal lovegrass	Eragrostis virginica	
Centipedegrass	Eremochloa ophiuroides *	
Flattened pipewort	Eriocaulon compressum	
Tenangle pipewort	Eriocaulon decangulare	
Wild coco	Eulophia alta	
Twospike fingergrass	*Eustachys floridana*	
Pinewoods fingergrass	*Eustachys petraea*	
Bearded skeletongrass	*Gymnopogon ambiguus*	
Waterspider false reinorchid	*Habenaria repens*	
Sweet tanglehead	Heteropogon melanocarpus	
Spiked crested coralroot	*Hexalectris spicata*	UHF
Little barley	Hordeum pusillum	
Common yellow stargrass	*Hypoxis curtissii*	
Cogongrass	Imperata cylindrica *	
Leathery rush	Juncus coriaceus	
Forked rush	Juncus dichotomus	
Soft rush	Juncus effusus subsp. solutus	
Shore rush	Juncus marginatus	
Needlepod rush	Juncus scirpoides	
Carolina redroot	Lachnanthes caroliana	
Whitehead bogbutton	*Lachnocaulon anceps*	
Little duckweed	*Lemna obscura*	
Catesy's lily	*Lilium catesbaei*	MF
American spongeplant	*Limnobium spongia*	
Southern twayblade	*Listera australis*	UHF
Italian ryegrass	*Lolium perenne* *	
Florida addersmouth orchid	*Malaxis spicata*	
Green addersmouth orchid	*Malaxis unifolia*	UHF
Woodsgrass	Oplismenus hirtellus	
Goldenclub	Orontium aquaticum	
Beaked panicum	*Panicum anceps*	
Fall panicgrass	Panicum dichotomiflorum	
Maidencane	Panicum hemitomon	
Torpedograss	Panicum repens *	
Redtop panicum	Panicum rigidulum	
Bahiagrass	Paspalum notatum var. saurae *	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Thin paspalum	Paspalum setaceum	
Vasey grass	Paspalum urvillei *	
Savannah panicum	Phanopyrum gymnocarpon	
Blackseed needlegrass	Piptochaetium avenaceum	
Yellow fringed orchid	*Platanthera ciliaris*	MF
Jug orchid	Platythelys latifolia	
Annual bluegrass	*Poa annua* *	
Smooth Solomon's seal	*Polygonatum biflorum*	
Pickerelweed	Pontederia cordata	
Needle palm	Rhapidophyllum hystrix	
Anglestem beaksedge	*Rhynchospora caduca*	
Starrush whitetop	Rhynchospora colorata	
Shortbristle horned beaksedge	*Rhynchospora corniculata*	
Bunched beaksedge	Rhynchospora microcephala	
Dwarf palmetto	*Sabal minor*	
Cabbage palm	*Sabal palmetto*	
Silver plumegrass	Saccharum alopecuroides	
Narrow plumegrass	Saccharum baldwinii	
Sugarcane plumegrass	*Saccharum giganteum*	
American cupscale	Sacciolepis striata	
Broadleaf arrowhead	*Sagittaria latifolia*	
Crimson bluestem	Schizachyrium sanguineum	
Little bluestem	Schizachyrium scoparium	
Florida feathershank	*Schoenocaulon dubium*	
Woolgrass	Scirpus cyperinus	
Tall nutgrass	Scleria triglomerata	
Cultivated rye	Secale cereale *	
Saw palmetto	Serenoa repens	
Yellow bristlegrass	*Setaria parviflora*	
Narrowleaf blue-eyed grass	Sisyrinchium angustifolium	
Nash's blue-eyed grass	*Sisyrinchium nashii*	
Annual blueeyed grass	*Sisyrinchium rosulatum* *	
Earleaf greenbrier	*Smilax auriculata*	
Saw greenbrier	*Smilax bona-nox*	
Cat greenbrier	*Smilax glauca*	
Blueridge carrionflower	*Smilax lasioneuron*	
Laurel greenbrier	*Smilax laurifolia*	
Sarsaparilla vine	*Smilax pumila*	
Bristly greenbrier	*Smilax tamnoides*	
Coral greenbrier	*Smilax walteri*	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Lopsided Indiangrass	*Sorghastrum secundum*	
Grain sorghum	*Sorghum bicolor* *	
Johnsongrass	Sorghum halepense *	
American burreed	Sparganium americanum	
Prairie wedgescale	Sphenopholis obtusata	
Nodding ladiestresses	*Spiranthes cernua*	
Cranichis ladiestresses	*Spiranthes cranichoides*	
October ladiestresses	*Spiranthes ovalis*	UHF
Greenvein ladiestresses	*Spiranthes praecox*	
Common duckweed	Spirodela polyrhiza	
Smutgrass	Sporobolus indicus *	
Pineywoods dropseed	*Sporobolus junceus*	
St. Augustinegrass	Stenotaphrum secundatum	
American evergreen	*Syngonium podophyllum* *	
Bartram's airplant	Tillandsia bartramii	
Ballmoss	Tillandsia recurvata	
Spanish moss	Tillandsia usneoides	
Crippled cranefly	*Tipularia discolor*	UHF
Small-leaf spiderwort	*Tradescantia fluminensis* *	
Bluejacket; Ohio spiderwort	*Tradescantia ohiensis*	
Spotted wakerobin	*Trillium maculatum*	
Threebirds	Triphora trianthophoros	UHF
Perennial sandgrass	*Triplasis americana*	
Broadleaf cattail	*Typha latifolia*	
Columbia watermeal	*Wolffia columbiana*	
Florida mudmidget	Wolffiella gladiata	
Fringed yelloweyed grass	*Xyris fimbriata*	
Tall yelloweyed grass	*Xyris platylepis*	
Small's yelloweyed grass	*Xyris smalliana*	
Spanish-bayonet	*Yucca aloifolia*	
Adam's needle	Yucca filimentosa	

Dicots

Slender threeseed mercury	*Acalypha gracilens*	
Florida maple	Acer saccharum subsp. floridanum	
Boxelder	Acer negundo	
Red maple	Acer rubrum	
Shyleaf	Aeschynomene americana	
Porcupine jointvetch	Aeschynomene hystrix var. incana *	
Red buckeye	Aesculus pavia	

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Beach false foxglove	*Agalinis fasciculata*	
Hammock snakeroot	*Ageratina jucunda*	
Incised agrimony	*Agrimonia incisa*	
Smallfruit agrimony	*Agrimonia microcarpa*	
Mimosa	Albizia julibrissin *	
Tungoil tree	Aleurites fordii *	
False moneywort	Alysicarpus ovalifolius *	
Slim amaranth	Amaranthus hybridus *	
Spiny amaranth	Amaranthus spinosus *	
Common ragweed	Ambrosia artemisiifolia	
Bastard false indigo	*Amorpha fruticosa*	
Peppervine	Ampelopsis arborea	
American hogpeanut	Amphicarpaea bracteata	
Eastern bluestar	Amsonia tabernaemontana	
Groundnut	Apios americana	
Indianhemp	Apocynum cannabinum	
Devil's walkingstick	*Aralia spinosa*	
Coral ardisia; scratchthroat	*Ardisia crenata* *	
Japanese ardisia	*Ardisia japonica* *	
Bluestem pricklypoppy	*Argemone albiflora*	
Mexican pricklypoppy	*Argemone mexicana*	
Virginia snakeroot	Aristolochia serpentaria	
Florida Indian plantain	*Arnoglossum floridanum*	
Clasping milkweed	Asclepias amplexicaulis	
Pinewoods milkweed	Asclepias humistrata	
Swamp milkweed	Asclepias perennis	
Butterflyweed	Asclepias tuberosa	
Whorled milkweed	Asclepias verticillata	
Showy milkwort	Asemeia violacea	
Slimleaf pawpaw	Asimina angustifolia	
Woolly pawpaw	*Asimina incana*	
Smallflower pawpaw	*Asimina parviflora*	
Netted pawpaw	Asimina reticulata	
Bearded milkvetch	Astragalus villosus	
Smooth yellow false foxglove	*Aureolaria flava*	
Fernleaf yellow false foxglove	*Aureolaria pectinata*	
Groundsel tree; sea-myrtle	*Baccharis halimifolia*	
Coastalplain honeycombhead	*Balduina angustifolia*	
White wild indigo	*Baptisia alba*	
Wax begonia	Begonia cucullata *	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Rattan vine	Berchemia scandens	
Soft greeneyes	Berlandiera pumila	
Florida greeneyes	Berlandiera subacaulis	
Beggarticks	*Bidens alba*	
Spanish needles	*Bidens bipinnata*	
Small beggarticks	*Bidens discoidea*	
Burmarigold	Bidens laevis	
Crossvine	Bignonia capreolata	
False nettle; bog hemp	*Boehmeria cylindrica*	
Watershield	Brasenia schreberi	
Flyr's nemesis	Brickellia cordifolia	UMW
False boneset	Brickellia eupatorioides	
American bluehearts	*Buchnera americana*	
American beautyberry	*Callicarpa americana*	
Woodland poppymallow	*Callirhoe papaver*	UMW
Trumpet creeper	*Campsis radicans*	
Shepherd's purse	Capsella bursa-pastoris *	
Hairy bittercress	Cardamine hirsuta *	
Pennsylvania bittercress	*Cardamine pensylvanica*	
Florida paintbrush	Carphephorus corymbosus	
Vanillaleaf	Carphephorus odoratissimus	
American hornbeam	Carpinus caroliniana	
Wild olive	Cartrema americana	
Pignut hickory	*Carya glabra*	
Pecan	Carya illinoinensis *	
Mockernut hickory	*Carya tomentosa*	
Chinquapin	Castanea pumila	
New Jersey tea	Ceanothus americanus	
Littleleaf buckbrush	Ceanothus microphyllus	
Sugarberry	Celtis laevigata	
Hackberry	Celtis occidentalis	
Spadeleaf	Centella asiatica	
Spurred butterfly pea	*Centrosema virginianum*	
Common buttonbush	Cephalanthus occidentalis	
Mouse-ear chickweed	*Cerastium glomeratum* *	
Redbud	Cercis canadensis	
Hairyfruit chervil	Chaerophyllum tainturieri	
Partridge pea	Chamaecrista fasciculata	
Sensitive pea	Chamaecrista nictitans	
Heartleaf sandmat	Chamaesyce cordifolia	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Pillpod sandmat	*Chamaesyce hirta*	
Hyssopleaf sandmat	Chamaesyce hyssopifolia	
Spotted sandmat	Chamaesyce maculata	
Lamb's-quarters	Chenopodium album	
White fringetree	Chionanthus virginicus	
Cottony goldenaster	*Chrysopsis gossypina*	
Spotted water hemlock	*Cicuta maculata*	
Camphor-tree	Cinnamomum camphora *	
Purple thistle	Cirsium horridulum	
Nuttall's thistle	*Circium nuttalli*	
Watermelon	Citrullus lanatus *	
Key lime	Citrus x aurantiifolia *	
Netleaf leather-flower	*Clematis reticulata*	
Virginsbower	Clematis virginiana	
Atlantic pigeonwings	*Clitoria mariana*	
Tread-softly	Cnidoscolus stimulosus	
Carolina coralbead	*Cocculus carolinus*	
American squawroot	Conopholis americana	
Canadian horseweed	*Conyza canadensis*	
Flowering dogwood	*Cornus florida*	
Swamp dogwood	*Cornus foemina*	
Smallflower fumewort	Corydalis micrantha subsp. australis	
Sulphur cosmos	*Cosmos sulphureus* *	
May haw	Crataegus aestivalis	
Cockspur hawthorn	*Crataegus crus-galli*	
Yellow hawthorn	*Crataegus flava*	
Parsley hawthorn	Crataegus marshallii	
Michaux's hawthorn	*Crataegus michauxii*	
Dwarf hawthorn	Crataegus uniflora	
Green hawthorn	Crataegus viridis	
Carolina frostweed	Crocanthemum carolinianum	
Pinebarren frostweed	Crocanthemum corymbosum	
Slender scratchdaisy	*Croptilon divaricatum*	
Lanceleaf rattlebox	Crotalaria lanceolata *	
Rabbitbells	Crotalaria rotundifolia	
Showy rattlebox	Crotalaria spectabilis *	
Silver croton	Croton argyranthemus	
Woolly croton; hogwort	*Croton capitatus*	
Vente conmigo	Croton glandulosus var. septentrionalis	
Columbian waxweed	Cuphea carthagenensis *	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Compact dodder	Cuscuta compacta	
Scaldweed	Cuscuta gronovii	
Marsh parsley	Cyclospermum leptophyllum *	
Titi	Cyrilla racemiflora	
Whitetassels	Dalea carnea var. albida	
Summer farewell	*Dalea pinnata*	
Jimsonweed	Datura stramonium	
American wild carrot	*Daucus pusillus*	
Willow-herb	Decodon verticillatus	
Climbing hydrangea	*Decumaria barbara*	
Western tansymustard	*Descurainia pinnata*	
Hairy small-leaf ticktrefoil	*Desmodium ciliare*	
Zarzabacoa comun	*Desmodium incanum* *	
Smooth ticktrefoil	Desmodium laevigatum	
Sand ticktrefoil	Desmodium lineatum	
Panicled ticktrefoil	*Desmodium paniculatum*	
Pinebarren ticktrefoil	*Desmodium strictum*	
Velvetleaf ticktrefoil	*Desmodium viridiflorum*	
Carolina ponysfoot	Dichondra carolinensis	
Poor Joe	Diodia teres	
Virginia buttonweed	*Diodia virginiana*	
Common persimmon	Diospyros virginiana	
Pink sundew	Drosera capillaris	
Drymary	Drymaria cordata	
Indian strawberry	*Duchesnea indica* *	
Oblongleaf twinflower	Dyschoriste oblongifolia	
Mexican tea	Dysphania ambrosioides *	
False daisy	Eclipta prostrata	
Silverthorn	Elaeagnus pungens	
Carolina elephantsfoot	Elephantopus carolinianus	
Tall elephantsfoot	*Elephantopus elatus*	
Carolina scalystem	Elytraria caroliniensis	
American burnweed; fireweed	*Erechtites hieraciifolius*	
Oakleaf fleabane	Erigeron quercifolius	
Prairie fleabane	Erigeron strigosus	
Dogtongue wild buckwheat	*Eriogonum tomentosum*	
Fragrant eryngo	Eryngium aromaticum	
Baldwin's eryngo	Eryngium baldwinii	
Creeping eryngo	Eryngium prostratum	
Button rattlesnakemaster	*Eryngium yuccifolium*	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Coralbean; Cherokee bean	*Erythrina herbacea*	
American strawberrybush	*Euonymus americanus*	
White thoroughwort	*Eupatorium album*	
Dogfennel	Eupatorium capillifolium	
Yankeeweed	Eupatorium compositifolium	
Common boneset	Eupatorium perfoliatum	
Slender flattop goldenrod	*Euthamia caroliniana*	
Pink thoroughwort	Fleischmannia incarnata	
Eastern swampprivet	Forestiera acuminata	
Godfrey's swampprivet	*Forestiera godfreyi*	UHF
White ash	Fraxinus americana	
Carolina ash	Fraxinus caroliniana	
Cottonweed	Froelichia floridana	
Lanceleaf blanketflower	*Gaillardia aestivalis*	
Elliott's milkpea	*Galactia elliottii*	
Soft milkpea	Galactia mollis	
Downy milkpea	Galactia regularis	
Eastern milkpea	Galactia volubilis	
Goosegrass	Galium aparine	
Coastal bedstraw	*Galium hispidulum*	
Hairy bedstraw	*Galium pilosum*	
Stiff marsh bedstraw	*Galium tinctorium*	
Pennsylvania everlasting	*Gamochaeta pensylvanica*	
Southern beeblossom	*Gaura angustifolia*	
Dwarf huckleberry	*Gaylussacia dumosa*	
Blue huckleberry	Gaylussacia frondosa var. tomentosa	
Yellow jessamine	Gelsemium sempervirens	
Carolina cranesbill	Geranium carolinianum	
Rose mock vervain	Glandularia canadensis	
Sweet everlasting	Gnaphalium obtusifolium	
Angularfruit milkvine	*Gonolobus suberosus*	UHF
Loblolly bay	Gordonia lasianthus	
Rough hedgehyssop	*Gratiola hispida*	
Shaggy hedgehyssop	*Gratiola pilosa*	
Roundfruit hedgehyssop	*Gratiola virginiana*	
American witchhazel	*Hamamelis virginiana*	
English ivy	*Hedera helix* *	
Purplehead sneezeweed	*Helenium flexuosum*	
Narrowleaf sunflower	Helianthus angustifolius	
Paleleaf woodland sunflower	*Helianthus strumosus*	

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Clasping heliotrope	Heliotropium amplexicaule *	
Camphorweed	Heterotheca subaxillaris	
Queen-devil	Hieracium gronovii	
Innocence; roundleaf bluet	*Houstonia procumbens*	
Manyflower marshpennywort	*Hydrocotyle umbellata*	
Whorled marshpennywort	Hydrocotyle verticillata	
Waterpod	Hydrolea quadrivalvis	
Pointedleaf ticktrefoil	*Hylodesmum glutinosum*	
Nakedflower ticktrefoil	*Hylodesmum nudiflorum*	
Carolina woollywhite	Hymenopappus scabiosaeus	
Roundpod St. John's-wort	*Hypericum cistifolium*	
St. Peter's-wort	Hypericum crux-andreae	
Pineweeds	Hypericum gentianoides	
St. Andrew's-cross	Hypericum hypericoides	
Dwarf St. John's-wort	*Hypericum mutilum*	
Atlantic St. John's-wort	*Hypericum tenuifolium*	
Fourpetal St. John's-wort	*Hypericum tetrapetalum*	
Clustered bushmint	*Hyptis alata*	
Tropical bushmint	*Hyptis mutabilis* *	
Carolina holly	*Ilex ambigua*	
Dahoon	Ilex cassine	
Large gallberry	*Ilex coriacea*	
Possumhaw	Ilex decidua	
Gallberry	Ilex glabra	
American holly	*Ilex opaca*	
Yaupon	Ilex vomitoria	
Carolina indigo	Indigofera caroliniana	
Hairy indigo	Indigofera hirsuta *	
Tievine	Ipomoea cordatotriloba	
Man-of-the-earth	*Ipomoea pandurata*	
Cypressvine	Ipomoea quamoclit *	
Rootstock bloodleaf	*Iresine rhizomatosa*	
Virginia willow	*Itea virginica*	
Hairy clustervine	Jacquemontia tamnifolia	
Virginia dwarfdandelion	*Krigia virginica*	
Japanese clover	Kummerowia striata *	
Woodland lettuce	*Lactuca floridana*	
Grassleaf lettuce	Lactuca graminifolia	
Henbit deadnettle	Lamium amplexicaule *	
Lantana; Shrubverbena	*Lantana camara* *	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Hairy pinweed	Lechea mucronata	
Pineland pinweed	Lechea sessiliflora	
Lion's-ear	Leonotis nepetifolia *	
Virginia pepperweed	*Lepidium virginicum*	
Hairy lespedeza	*Lespedeza hirta*	
Tall lespedeza	Lespedeza stuevei	
Swamp doghobble	Leucothoe racemosa	
Tall gayfeather	*Liatris aspera*	
Pinkscale gayfeather	*Liatris elegans*	
Slender gayfeather	*Liatris gracilis*	
Shortleaf gayfeather	*Liatris tenuifolia*	
Gopher apple	Licania michauxii	
Glossy privet	Ligustrum lucidum *	
Canadian toadflax	*Linaria canadensis*	
Apalachicola toadflax	*Linaria floridana*	
Moistbank pimpernel	*Lindernia dubia*	
Malaysian false pimpernel	*Lindernia crustacea* *	
Sweetgum	Liquidambar styraciflua	
Tuberous gromwell	Lithospermum tuberosum	
False gromwell	Lithospermum virginianum	
Cardinalflower	*Lobelia cardinalis*	FS
Glade lobelia	Lobelia glandulosa	
Downy lobelia	Lobelia puberula	
Japanese honeysuckle	*Lonicera japonica* *	
Coral honeysuckle	Lonicera sempervirens	
Anglestem primrosewillow	*Ludwigia leptocarpa*	
Seaside primrosewillow	*Ludwigia maritima*	
Mexican primrosewillow	*Ludwigia octovalvis*	
Marsh seedbox	Ludwigia palustris	
Peruvian primrosewillow	*Ludwigia peruviana* *	
Shrubby primrosewillow	*Ludwigia suffruticosa*	
Lady lupine	Lupinus villosus	
Taperleaf waterhorehound	*Lycopus rubellus*	
Rose-rush	Lygodesmia aphylla	
Rusty staggerbush	*Lyonia ferruginea*	
Coastalplain staggerbush	*Lyonia fruticosa*	
Fetterbush	Lyonia lucida	
Southern magnolia	Magnolia grandiflora	
Sweetbay	Magnolia virginiana	
Southern crabapple	*Malus angustifolia*	UHF

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Graham's cassava	Manihot grahamii *	
Florida milkvine	*Matelea floridana*	UHF
Trailing milkvine	*Matelea pubiflora*	
Axilflower	Mecardonia acuminata	
Black medick	Medicago lupulina *	
Snow squarestem	*Melanthera nivea*	
Chinaberrytree	Melia azedarach *	
White sweetclover	*Melilotus albus* *	
Creeping cucumber	*Melothria pendula*	
Climbing hempvine	*Mikania scandens*	
Sensitive brier	Mimosa quadrivalvis var. angustata	
Partridgeberry	Mitchella repens	
Carolina bristlemallow	*Modiola caroliniana*	
Indian chickweed	Mollugo verticillata *	
Spotted beebalm	*Monarda punctata*	
Indianpipe	Monotropa uniflora	
Red mulberry	*Morus rubra*	
Wax myrtle	Myrica cerifera	
Heavenly bamboo	*Nandina domestica* *	
Spatterdock	Nuphar lutea subsp. advena	
American white waterlily	*Nymphaea odorata*	
Big floatingheart	Nymphoides aquatica	
Swamp tupelo	Nyssa sylvatica var. biflora	
Blackgum	Nyssa sylvatica	
Common eveningprimrose	*Oenothera biennis*	
Slenderstalk beeblossom	*Oenothera filipes*	
Cutleaf eveningprimrose	*Oenothera laciniata*	
Flattop mille graines	Oldenlandia corymbosa *	
Clustered mille graines	*Oldenlandia uniflora*	
Pricklypear	Opuntia humifusa	
Piedmont leatherroot	*Orbexilum lupinellus*	
Eastern hophornbeam	*Ostrya virginiana*	
Windowbox woodsorrel	*Oxalis articulata* *	
Common yellow woodsorrel	*Oxalis corniculata*	
Skunkvine	Paederia foetida *	
Coastalplain palafox	Palafoxia integrifolia	
Baldwin's nailwort	Paronychia baldwinii	
Virginia creeper	Parthenocissus quinquefolia	
Purple passionflower	*Passiflora incarnata*	
Yellow passionflower	*Passiflora lutea*	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Buckroot	Pediomelum canescens	
Eustis Lake beardtongue	*Penstemon australis*	
Manyflower beardtongue	*Penstemon multiflorus*	
Red bay	Persea borbonia	
Swamp bay	Persea palustris	
Denseflower knotweed	*Persicaria glabra*	
Hairy smartweed	Persicaria hirsuta	
Mild waterpepper	Persicaria hydropiperoides	
Dotted smartweed	Persicaria punctata	
Annual phlox	Phlox drummondii *	
Downy phlox	*Phlox pilosa*	
Oak mistletoe	Phoradendron leucarpum	
Red chokeberry	Photinia pyrifolia	
Turkey tangle fogfruit	*Phyla nodiflora*	
Mascarene Island leafflower	*Phyllanthus tenellus* *	
Chamber bitter	Phyllanthus urinaria *	
Cypresshead groundcherry	*Physalis arenicola*	
Carpenter's groundcherry	*Physalis carpenteri*	
American pokeweed	Phytolacca americana	
Yellow butterwort	*Pinguicula lutea*	MF
Small butterwort	*Pinguicula pumila*	
Pitted stripeseed	Piriqueta cistoides subsp. caroliniana	
Narrowleaf silkgrass	Pityopsis graminifolia	
Waterelm	Planera aquatica	
Virginia plantain	*Plantago virginica*	
Camphorweed	Pluchea camphorata	
Sweetscent	Pluchea odorata	
Fiddler's spurge	Poinsettia heterophylla	
Procession flower	*Polygala incarnata*	
Orange milkwort	*Polygala lutea*	
Candyroot	Polygala nana	
Rustweed	Polypremum procumbens	
Hardy orange	Poncirus trifoliata *	
Marsh mermaidweed	Proserpinaca palustris	
American plum	Prunus americana	
Chickasaw plum	Prunus angustifolia	
Carolina laurelcherry	*Prunus caroliniana*	
Black cherry	Prunus serotina	
Flatwoods plum; Hog plum	*Prunus umbellata*	
Common hoptree	Ptelea trifoliata	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Blackroot	Pterocaulon pycnostachyum	
Mock bishopsweed	Ptilimnium capillaceum	
Kudzu	Pueraria montana var. lobata *	
Florida mountainmint	*Pycnanthemum floridanum*	UMW
Carolina desertchicory	Pyrrhopappus carolinianus	
White oak	Quercus alba	
Bastard white oak	*Quercus austrina*	
Southern red oak	*Quercus falcata*	
Sand live oak	Quercus geminata	
Bluejack oak	Quercus incana	
Turkey oak	Quercus laevis	
Laurel oak; Diamond oak	*Quercus laurifolia*	
Sand post oak	Quercus margarettae	
Swamp chestnut oak	*Quercus michauxii*	
Dwarf live oak	*Quercus minima*	
Water oak	Quercus nigra	
Shumard's oak	Quercus shumardii	
Post oak	Quercus stellata	
Live oak	Quercus virginiana	
Low spearwort	Ranunculus pusillus	
Wild radish	Raphanus raphanistrum *	
Carolina buckthorn	*Rhamnus caroliniana*	
Pale meadowbeauty	*Rhexia mariana*	
Maid Marian	Rhexia nashii	
Winged sumac	Rhus copallinum	
Dollarleaf	Rhynchosia reniformis	
Twining snoutbean	Rhynchosia tomentosa	
Tropical Mexican clover	*Richardia brasiliensis* *	
Rough Mexican clover	*Richardia scabra* *	
Rougeplant	Rivina humilis	
Southern marsh yellowcress	*Rorippa teres*	
Swamp rose	Rosa palustris	
Sand blackberry	Rubus cuneifolius	
Sawtooth blackberry	*Rubus pensylvanicus*	
Southern dewberry	*Rubus trivialis*	
Blackeyed Susan	*Rudbeckia hirta*	
Carolina wild petunia	*Ruellia caroliniensis*	
Britton's wild petunia	*Ruellia simplex* *	
Heartwing dock	Rumex hastatulus	
Tropical dock	*Rumex obovatus*	

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Shortleaf rosegentain	*Sabatia brevifolia*	
Coastal rosegentian	*Sabatia calycina*	
Carolina willow	Salix caroliniana	
Azure blue sage	*Salvia azurea*	
Lyreleaf sage	*Salvia lyrata*	
Nettleleaf sage	*Salvia urticifolia*	UHF
American elder; Elderberry	*Sambucus nigra* subsp. *canadensis*	
Pineland pimpernel	Samolus valerandi subsp. parviflorus	
Canadian blacksnakeroot	*Sanicula canadensis*	
Maryland blacksnakeroot	*Sanicula marilandica*	
Sassafras	Sassafras albidum	
Lizard's tail	Saururus cernuus	
Sweetbroom	Scoparia dulcis	
Small's skullcap	Scutellaria multiglandulosa	
Coffeeweed; sicklepod	*Senna obtusifolia*	
Septicweed	Senna occidentalis	
Whitetop aster	Sericocarpus tortifolius	
Danglepod	Sesbania herbacea	
Rattlebox	Sesbania punicea *	
Bladderpod	Sesbania vesicaria	
Yaupon blacksenna	Seymeria cassioides	
Piedmont blacksenna	*Seymeria pectinata*	
Indian hemp; Cuban jute	*Sida rhombifolia*	
Gum bully	Sideroxylon lanuginosum	
Florida bully	Sideroxylon reclinatum	
Rufous Florida bully	Sideroxylon rufohirtum	
Kidneyleaf rosinweed	*Silphium compositum*	
Hairy leafcup	Smallanthus uvedalia	
American black nightshade	*Solanum americanum*	
Soda apple	Solanum capsicoides *	
Western horsenettle	*Solanum dimidiatum*	
Tropical soda apple	*Solanum viarum* *	
Pinebarren goldenrod	*Solidago fistulosa*	
Chapman's goldenrod	Solidago odora var. chapmanii	
Downy ragged goldenrod	*Solidago petiolaris*	
Field burrweed	Soliva sessilis *	
Spiny sowthistle	*Sonchus asper* *	
Prostrate false buttonweed	*Spermacoce prostrata*	
Roughfruit scaleseed	Spermolepis divaricata	
Florida hedgenettle	*Stachys floridana*	

* Non-native Species

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Common chickweed	*Stellaria media* *	
Queensdelight	Stillingia sylvatica	
Trailing fuzzybean	Strophostyles helvola	
Coastalplain dawnflower	*Stylisma patens*	
Carolina false vervain	*Stylodon carneum*	
Sidebeak pencilflower	*Stylosanthes biflora*	
Climbing aster	Symphyotrichum carolinianum	
Eastern silver aster	Symphyotrichum concolor	
Elliott's aster	Symphyotrichum elliottii	
Wavyleaf aster	Symphyotrichum undulatum	
Common sweetleaf	Symplocos tinctoria	
Scurf hoary pea	Tephrosia chrysophylla	
Spiked hoarypea	Tephrosia spicata	
Pineland nerveray	Tetragonotheca helianthoides	
Wood sage	Teucrium canadense	
Climbing dogbane	Thyrsanthella difformis	
Carolina basswood	Tilia americana var. caroliniana	
Atlantic poison oak	Toxicodendron pubescens	
Eastern poison ivy	Toxicodendron radicans	
Virginia marsh St. John's-wort	*Triadenum virginicum*	
Greater marsh St. John's-wort	*Triadenum walteri*	
Chinese tallowtree	*Triadica sebifera* *	
Forked bluecurls	Trichostema dichotomum	
White clover	Trifolium repens *	
Clasping Venus' looking-glass	*Triodanis perfoliata*	
Winged elm	*Ulmus alata*	
American elm	Ulmus americana	
Caesarweed	*Urena lobata* *	
Heartleaf nettle	Urtica chamaedryoides	
Humped bladderwort	*Utricularia gibba*	
Floating bladderwort	*Utricularia inflata*	
Eastern purple bladderwort	*Utricularia purpurea*	
Zigzag bladderwort	Utricularia subulata	
Sparkleberry	Vaccinium arboreum	
Highbush blueberry	Vaccinium corymbosum	
Shiny blueberry	Vaccinium myrsinites	
Deerberry	Vaccinium stamineum	
Florida valerian	Valeriana scandens	
Common mullein	Verbascum thapsus *	
Wand mullein	Verbascum virgatum *	

San Felasco Hammock Preserve State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Brazilian vervain	Verbena brasiliensis *	
Texas vervain	Verbena officinalis subsp. halei	
Sandpaper vervain	*Verbena scabra*	
Coastalplain crownbeard	*Verbesina aristata*	
Tall ironweed	Vernonia angustifolia	
Giant ironweed	Vernonia gigantea	
Corn speedwell	Veronica arvensis *	
Southern arrowwood	*Viburnum dentatum*	
Possumhaw	Viburnum nudum	
Walter's viburnum	*Viburnum obovatum*	
Rusty blackhaw	Viburnum rufidulum	
Fourleaf vetch	Vicia acutifolia	
Bog white violet	*Viola lanceolata*	
Early blue violet	*Viola palmata*	
Primroseleaf violet	*Viola primulifolia*	
Common blue violet	*Viola sororia*	
Carolina violet	*Viola villosa*	
Prostrate blue violet	*Viola walteri*	
Summer grape	Vitis aestivalis	
Muscadine	Vitus rotundifolia	
Southern rockbell	Wahlenbergia marginata *	
Chinese wisteria	*Wisteria sinensis* *	
Cockleburr	Xanthium strumarium *	
Oriental false hawksbeard	*Youngia japonica* *	
Hercules-club	Zanthoxylum clava-herculis	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes

INVERTEBRATES

Snails

Manatee Tree Snail	*Drymaeus dormani*	MTC

Mollusks

Dusky Ancylid	*Laevapex fuscus*	MTC

Butterflies

Gulf Fritillary	*Agraulis vanillae*	MTC
Lace-winged Roadside Skipper	*Amblyscirtes aesculapius*	MTC
Hackberry Emperor	*Asterocampa celtis*	MTC
Sachem Skipper	Atalopedes campestris	MTC
Great Purple Hairstreak	*Atlides halesus*	MTC
Pipevine Swallowtail	*Battus philenor*	MTC
Red-banded Hairstreak	*Calycopis cecrops*	MTC
Gemmed Satyr	*Cyllopsis gemma*	MTC
Monarch	Danaus plexippus	MTC
Horace's Duskywing	*Erynnis horatius*	MTC
Barred Yellow	*Eurema daira*	MTC
Little Yellow	*Eurema lisa*	MTC
Zebra Swallowtail	*Eurytides marcellus*	MTC
Sleepy Orange	*Eurema nicippe*	UP, MF, SH
Giant Swallowtail	*Heraclides cresphontes*	MTC
Carolina Satyr	Hermeuptychia sosybius	MTC
Fiery Skipper	*Hylephila phyleus*	MTC
Southern Pearly-eye	*Lethe portlandia*	MTC
Cofaqui Giant-Skipper	*Megathymus cofaqui*	MTC
Viola's Satyr	*Megisto viola*	MTC
Ocola Skipper	*Panquina ocola*	MTC
White M Hairstreak	*Parrhasius m-album*	MTC
Cloudless Sulphur	*Phoebis sennae*	MTC
Phaon Crescent	*Phyciodes phaon*	MTC
Pearl Crescent	*Phyciodes tharos*	MTC
Yehl Skipper	*Poanes yehl*	MTC
Whirlabout	*Polites vibex*	MTC
Question Mark	Polygonia interrogationis	BF, FS
Byssus Skipper	*Problema byssus*	MTC
Eastern Tiger Swallowtail	*Pterourus glaucus*	MTC
Palamedes Swallowtail	*Pterourus palamedes*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Spicebush Swallowtail	*Pterourus troilus*	MTC
Tropical Checkered Skipper	*Pyrgus oileus*	MTC
Banded Hairstreak	*Satyrium calanus*	MF, SH
King's Hairstreak	*Satyrium kingi*	MTC
Striped Hairstreak	*Satyrium liparops*	MTC
Gray Hairstreak	*Strymon melinus*	MTC
Long-tailed Skipper	*Urbanus proteus*	MTC
Red Admiral	*Vanessa atalanta*	MTC
American Lady	Vanessa virginiensis	MTC
Northern Broken Dash	*Wallengrenia egeremet*	MTC
Southern Broken Dash	*Wallengrenia otho*	MTC
Moths		
Black-winged Dahana	*Dahana atripennis*	MTC
Curve-toothed Geometer	*Eutrapela clemataria*	MTC
Esther Moth	Hypagyrtis esther	MTC
Common Lytrosis	*Lytrosis unitaria*	MTC
Forest Tent Caterpillar	*Malacosoma disstria*	MTC
White-marked Tussock	*Orgyia leucostigma*	MTC
Grasshoppers		
Long-headed Toothpick	*Achurum carinatum*	MTC
Brown Winter	Amblytropidia mysteca	MTC
Handsome Florida	*Eotettix signatus*	MTC
American Bird	Schistocerca americana	MTC
Dragonflies and Damselflies		
Common Green Darner	*Anax junius*	MTC
Two-striped Forceptail	*Aphylla williamsoni*	MTC
Variable Dancer	*Argia fumipennis*	MTC
Blue-tipped Dancer	*Argia tibialis*	MTC
Gray-green Clubtail	*Arigomphus pallidus*	MTC
Fawn Darner	*Boyeria vinosa*	MTC
Ebony Jewelwing	*Calopteryx maculata*	SST
Amanda's Pennant	*Celithemis amanda*	MTC
Twin-spotted Spiketail	*Cordulegaster maculata*	SH
Banded Spiketail	Cordulegaster obliqua fasciata	SST
Say's Spiketail	*Cordulegaster sayi*	SH,SST
Regal Darner	Coryphaeschna ingens	MTC
Familiar Bluet	*Enallagma civile*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Swamp Darner	*Epiaeschna heros*	BF,FS
Eastern Pondhawk	Erythemis simplicicollis	MTC
Harlequin Darner	Gomphaeschna furcillata	MTC
Cypress Clubtail	*Gomphus minutus*	SH
Twilight Darner	*Gynacantha nervosa*	MTC
Golden-winged Skimmer	*Libellula auripennis*	MTC
Slaty Skimmer	*Libellula incesta*	MTC
Needham's Skimmer	*Libellula needhami*	MTC
Painted Skimmer	Libellula semifasciata	MTC
Great Blue Skimmer	*Libellula vibrans*	MTC
Cyrano Darner	Nasiaeschna pentacantha	MTC
Wandering Glider	*Pantala flavescens*	MTC
Spot-winged Glider	*Pantala hymenaea*	MTC
Common Whitetail	*Plathemis lydia*	MTC
Common Sanddragon	*Progomphus obscurus*	SST
Russet-tipped Clubtail	*Stylurus plagiatus*	MTC
Grey Petaltail	Tachopteryx thoreyi	FS
Duckweed Firetail	*Telebasis byersi*	MTC
Carolina Saddlebags	*Tramea carolina*	MTC
Phantom Darner	Tricanthagyna trifida	MTC

Scorpionflies

Florida Scorpionfly	*Panorpa floridana*	UHF

Beetles

Western-eyed Click Beetle	*Alaus myops*	MTC
Eyed Click Beetle	*Alaus oculatus*	MTC
Aphodiine Dung Beetle	*Alloblackburneus aegrotus*	MTC
Aphodiine Dung Beetle	*Alloblackburneus rubeolus*	MTC
Click Beetle	*Ampedus areolatus*	MTC
Long-horned Beetle	*Anelaphus pumilus*	MTC
Twig Pruner	Anelaphus villosus	MTC
Oak Timberworm	Arrhenodes minutus	MTC
Aphodiine Dung Beetle	*Ataenius cylindrus*	MTC
Sumac Flea Beetle	*Blepharida rhois*	MTC
Dung Beetle; Tumblebug	*Canthon viridis*	MTC
Click Beetle	Cardiophorus convexus	MTC
Sap-feeding Beetle	*Carpophilus tempestivus*	MTC
Pill Scarab Beetle	*Ceratocanthus aeneus*	MTC

Common Name	*Scientific Name*	Primary Habitat Codes
Leaf Beetle	*Chalepus bicolor*	MTC
Checkered Beetle	*Chariessa pilosa*	MTC
Cottonwood Leaf Beetle	*Chrysomela scripta*	MTC
Camphor Shoot Borer	*Cnestus mutilatus*	MTC
Click Beetle	*Conoderus lividus*	MTC
Cambium Curculio	Conotrachelus anaglypticus	MTC
Hidden Snout Weevil	*Cophes fallax*	MTC
Hidden Snout Weevil	*Cophes oblongus*	MTC
Hidden Snout Weevil	*Cophes obtentus*	MTC
Long-horned Beetle	*Curius dentatus*	MTC
Humpback Dung Beetle	*Deltochilum gibbosum*	MTC
Click Beetle	Diplostethus carolinensis	MTC
False Darkling Beetle	*Dircaea liturata*	MTC
Flat-faced Longhorn	*Ecyrus dasycerus*	MTC
Checkered Beetle	Enoclerus ichneumoneus	MTC
Pill Scarab Beetle	*Germarostes globosus*	MTC
Flat-faced Longhorn	*Graphisurus fasciatus*	MTC
False Click Beetle	*Isorhipis nubila*	MTC
Click Beetle	*Lacon discoideus*	MTC
Marbled Click Beetle	*Lacon marmoratus*	MTC
Flat-faced Longhorn	Leptostylopsis planidorsus	MTC
Flat-faced Longhorn	Leptostylopsis terraecolor	MTC
Flat-faced Longhorn	*Leptostylus transversus*	MTC
Click Beetle	Limonius auripilis	MTC
Handsome Fungus Beetle	*Lycoperdina ferruginea*	MTC
Click Beetle	Melanotus clandestinus	MTC
Click Beetle	Melanotus corticinus	MTC
Click Beetle	Melanotus cribriventris	MTC
Click Beetle	Melanotus testaceus	MTC
Long-horned Beetle	*Methia necydalea*	MTC
Long-horned Beetle	*Molorchus bimaculatus*	MTC
Rove Beetle	Myrmecosaurus ferrugineus	MTC
Red-headed Ash Borer	*Neoclytus acuminatus*	MTC
Long-horned Beetle	*Neoclytus mucronatus*	MTC
Roundneck Sexton Beetle	*Nicrophorus orbicollis*	MTC
Horned Passalus	Odontotaenius disjunctus	MTC
Dung Beetle	Onthophagus concinnus	MTC
Click Beetle	Orthostethus infuscatus	MTC
Unmargined Rove Beetle	*Osorius* sp.	MTC
Rainbow Scarab	*Phanaeus igneus*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Rainbow Scarab	*Phanaeus vindex*	MTC
Rhinoceros Beetle	*Phileurus valgus*	MTC
Ground Beetle	*Phloeoxena signata*	MTC
Wedge-shaped Beetle	*Pirhidius n.* sp.	MTC
Bipectinate Click Beetle	*Pityobius anguinis*	MTC
Darkling Beetle	*Platydema* sp.	MTC
Long-horned Beetle	*Plectromerus dentipes*	MTC
Lined June Beetle	Polyphylla occidentalis	MTC
Sap-feeding Beetle	*Prometopia sexmaculata*	MTC
Aphodiine Dung Beetle	*Pseudagolius bicolor*	MTC
Cicada Parasite Beetle	*Sandalus* sp.	MTC
Click Beetle	Selonodon floridensis	MTC
Tortoise Beetle	Sumitrosis inaequalis	MTC
Bark-gnawing Beetle	*Tenebroides bimaculatus*	MTC
Alachua Pleasing Fungus Beetle	*Triplax alachuae*	MTC
Pleasing Fungus Beetle	*Triplax festiva*	MTC
Flat-faced Longhorn	*Urgleptes foveatocollis*	MTC
Rustic Borer	Xylotrechus colonus	MTC
Arrowhead Borer	Xylotrechus sagittatus	MTC

Spiders

Orb Weaver	*Acacesia hamata*	MTC
Orb Weaver	*Araneus* sp.	MTC
Giant Lichen Orb Weaver	*Araneus bicentenarius*	MTC
Orb Weaver	Araneus juniperi	MTC
Orb Weaver	Araneus miniatus	MTC
Orb Weaver	*Araneus pegnia*	MTC
Tube Web Spider	*Ariadna bicolor*	MTC
Jumping Spider	*Colonus* sp.	MTC
Jumping Spider	*Colonus sylvanus*	MTC
Fishing Spider	*Dolomedes* sp.	MTC
Whitebanded Fishing Spider	*Dolomedes albineus*	MTC
Sac Spider	*Elaver excepta*	MTC
Orb Weaver	Eriophora ravilla	MTC
Orb Weaver	*Eustala* sp.	MTC
Orb Weaver	Eustala anastera	MTC
Sword Wolf Spider	*Gladicosa* sp.	MTC
Ghost Spider	*Hibana* sp.	MTC
Ghost Spider	*Hibana velox*	MTC
Wolf Spider	*Hogna* sp.	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Pale Frilled Orb Weaver	*Kaira alba*	MTC
Long-jawed Orb Weaver	*Leucauge* sp.	MTC
Orchard Orb Weaver	*Leucauge venusta*	MTC
Ghost Spider	*Lupettiana mordax*	MTC
Basilica Orb Weaver	*Mecynogea lemniscata*	MTC
Labyrinth Orb Weaver	*Metepeira labyrinthea*	MTC
Pirate Spider	*Mimetus* sp.	MTC
Spotted Orb Weaver	*Neoscona* sp.	MTC
Arabesque Orb Weaver	*Neoscona arabesca*	MTC
Golden Silk Orb Weaver	*Nephila clavipes*	MTC
Orb Weaver	*Ocrepeira* sp.	MTC
Orb Weaver	*Parawixia* sp.	MTC
Jumping Spider	Phidippus pulcherrimus	MTC
Nursery Web Spider	*Pisaurina mira*	MTC
Brush-legged Spider	*Schizocosa crassipes*	MTC
Brush-legged Spider	*Schizocosa floridana*	MTC
Brush-legged Split Wolf Spider	*Schizocosa ocreata*	MTC
Abbot Purseweb Spider	*Sphodros abboti*	UHF
Cobweb Spider	*Theridion* sp.	MTC
Wolf Spider	*Tigrosa* sp.	MTC
True Spider	Trachelas similis	MTC
Wolf Spider	*Varacosa* sp.	MTC
Orb Weaver	Wagneriana tauricornis	MTC

Sawflies

	Acordulecera dorsalis	MTC
	Craterocercus fraternalis	MTC
	Macrophya formosa	MTC
	Periclista albicollis	MTC
	Periclista subtruncata	MTC
	Pristiphora chlorea	MTC

Bees

	Agapostemon splendens	MTC
	Andrena (Archiandrena) dimorpha	MTC
	Andrena (Callandrena) krigiana	MTC
	Andrena (Iomelissa) violae	MTC
	Andrena (Larandrena) miserabilis	MTC
	Andrena (Opandrena) c. cressonii	MTC
	Andrena (Scrapteropsis) imitatrix	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
	Anthidiellum notatum notatum	MTC
	Apis mellifera mellifera	MTC
	Augochlora pura pura	MTC
	Augochloropsis (Paraugo.) metallica met.	MTC
	Augochloropsis (Paraugo.) sumptuosa	MTC
	Coelioxys (Melanocoelioxys) dolichos	MTC
	Colletes latitarsis	MTC
	Epeolus glabratus	MTC
	Halictus ligatus	MTC
	Lasioglossum fuscipenne	MTC
	Megachile (Litomegachile) mendica mendica	MTC
	Megachile (Melanosarus) xylocopoides	MTC
	Melissodes bimaculata bimaculata	MTC
	Xylocopa (Xylocopoides) virginica virginica	MTC

Wasps

	Agathis spiracularis	MTC
	Ageniella (Priophanes) faceta faceta	MTC
	Agonocryptus discoidaloides	MTC
	Alabragrus texanus	MTC
	Ammophila urnaria	MTC
	Ancistrocerus adiabatus adiabatus	MTC
	Aphelopus varicornis	MTC
	Barichneumon carolinensis	MTC
	Barichneumon neosorex	MTC
	Baryceros audax audax	MTC
	Baryceros texanus	MTC
	Bicyrtes quadrifasciata	MTC
	Bocchus weemsi	MTC
	Brachymeria aeca	MTC
	Campothreptus nasutus	MTC
	Campsomeris (Dielis) plumipes fossulana	MTC
	Campsomeris (Pygodasis) quadrimaculata	MTC
	Cerceris fumipennis	MTC
	Chrysis conica	MTC
	Chrysis nitidula	MTC
	Chrysis smaragdula	MTC
	Coccygomimus aequalis	MTC
	Conura maculatai	MTC
	Cratichneumon floridensis	MTC

Common Name	*Scientific Name*	Primary Habitat Codes
	Cratichneumon subfilatus	MTC
	Cratichneumon v. variegatus	MTC
	Cratichneumon vinnulus	MTC
	Cryptanura banchiformis	MTC
	Dasymutilla o. occidentalis	MTC
	Diapetimorpha brunnea	MTC
	Dipogon graenicheri graenicher	MTC
	Dolichovespula maculata	MTC
	Doryctes erythromelas	MTC
	Endasys aurarius	MTC
	Enicospilus cushmani	MTC
	Enicospilus dispilus	MTC
	Enicospilus glabratus	MTC
	Eremnophila aureonotata	MTC
	Euceros digitalis	MTC
	Euceros floridanus	MTC
	Eumenes fraternus	MTC
	Euodynerus megaera	MTC
	Gnamptopelta obsidianator austrina	MTC
	Gnamptopelta o. obsidianator	MTC
	Ichneumon viola	MTC
	Isodontia exornata	MTC
	Isodontia philadelphica	MTC
	Labena grallator	MTC
	Lathrolestes obscurellus	MTC
	Leptochilus acolhuus	MTC
	Limonethe maurator	MTC
	Liris (Leptolarra) beata	MTC
	Listrognathus a. albomaculatus	MTC
	Lymeon cinctiventris	MTC
	Lymeon orbus	MTC
	Megastylus annulatus	MTC
	Megastylus orbitator	MTC
	Megischus bicolor bicolor	MTC
	Mesostenus thoracicus	MTC
	Messatoporus discoidalis	MTC
	Mischocyttarus (Monocytt.) mex. cubicola	MTC
	Monobia quadridens	MTC
	Myzinum maculatum	MTC
	Odontocolon albotibiale	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
	Odontocolon ochropus	MTC
	Orgichneumon c. calcatorius	MTC
	Pachodynerus erynnis	MTC
	Paracyphononyx funereus	MTC
	Philanthus gibbosus	MTC
	Podoschistus vittifrons	MTC
	Poecilopompilus i. interruptus	MTC
	Polistes annularis	MTC
	Polistes carolina	MTC
	Polistes fuscatus fuscatus	MTC
	Polistes metricus	MTC
	Polycyrtus neglectus	MTC
	Priocnessus nebulosus	MTC
	Prionyx parkeri	MTC
	Proctotrupes terminalis	MTC
	Pseudodynerus quadrisectus	MTC
	Pseudomethoca oculata	MTC
	Pseudoplisus smithii floridanus	MTC
	Rhopalum atlanticum	MTC
	Scolia (Discolia) bicincta	MTC
	Scolia (Discolia) nobilitata nobilitata	MTC
	Sphaeropthalma p. pensylvanica	MTC
	Spheldon phoxopteridis	MTC
	Sphex ichneumoneus	MTC
	Spilopteron occiputale	MTC
	Tachytes guatemalensis	MTC
	Tanyoprymnus moneduloides	MTC
	Theronia (Neotheronia) bicincta floridana	MTC
	Theronia (Neotheronia) septentrionalis	MTC
	Thyreodon atricolor atricolor	MTC
	Timulla dubitata dubitata	MTC
	Tiphia unica	MTC
	Trogomorpha trogiformis	MTC
	Trypoxylon (Trypargilum) clav. johannis	MTC
	Trypoxylon (Trypargilum) coll. collinum	MTC
	Trypoxylon (Trypargilum) lactitarse	MTC
	Trypoxylon (Trypargilum) politum	MTC
	Vespula maculifrons	MTC
	Vespula squamosa	MTC
	Xylophrurus fasciatus fasciatus	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
	Zethus spinipes variegatus	MTC
	Ants	
	Amblyopone pallipes	MTC
	Aphaenogaster lamellidens	MTC
	Brachymyrmex depilis	MTC
	Brachymyrmex n.r. brevicornis	MTC
	Camponotus castaneus	MTC
	Camponotus floridanus	MTC
	Cyphomyrmex rimosus	MTC
	Eurhopalothrix floridanus	MTC
	Hypoponera inexorata	MTC
	Hypoponera opaciceps	MTC
	Hypoponera opacior	MTC
	Myrina americana	MTC
	Odontomachus brunneus	MTC
	Paratrechina faisonensis	MTC
	Pheidole dentata	MTC
	Pheidole dentigula	MTC
	Pheidole moerens	MTC
	Pogonomyrmex babius	MTC
	Ponera exotica	MTC
	Proceratium pergandei	MTC
	Pseudomyrmex ejectus	MTC
	Pyramica clypeata	MTC
	Pyramica eggersi	MTC
	Solenopsis n.r. abdita	MTC
	Solenopsis n.r. carolinensis	MTC
	Solenopsis nickersoni	MTC
	Solenopsis picta	MTC
	Solenopsis tennesseensis	MTC
	Strumigenys louisianae	MTC
	Trachymyrmex septentrionalis	MTC
	Ticks	
Lone Star Tick	Amblyomma americanum	MTC
Dog Tick	Dermacentor variabilis	MTC
	Sandflies	
	Lutzomyia shannoni	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
	Lutzomyia vexator	MTC

Mosquitoes

	Aedes albopictus	MTC
	Aedes canadensis	MTC
	Aedes fulvus	MTC
	Aedes infirmatus	MTC
	Aedes triseriatus	MTC
	Aedes vexans	MTC
	Anopheles barberi	MTC
	Anopheles crucians	MTC
	Anopheles punctipennis	MTC
	Anopheles quadrimaculatus	MTC
	Coquillettidia perturbans	MTC
	Culex erraticus	MTC
	Culex nigripalpus	MTC
	Culex quinquefasciatus	MTC
	Culex restuans	MTC
	Mansonia titillans	MTC
	Ochlerotatus infirmatus	MTC
	Orthopodomyia signifera	MTC
	Psorophora ciliata	MTC
	Psorophora columbiae	MTC
	Psorophora ferox	MTC
	Psorophora howardii	MTC
	Toxorhynchites sp.	MTC
	Uranotaenia sapphirina	MTC

FISH

Yellow Bullhead	*Ameiurus natalis*	SWLK
Brown Bullhead	*Ameiurus nebulosus*	SWLK
Bowfin	*Amia calva*	SWLK
Redfin Pickerel	Esox americanus americanus	CULK
Golden Topminnow	*Fundulus chrysotus*	BST
Eastern Mosquitofish	*Gambusia holbrooki*	BST
Least Killifish	*Heterandria formosa*	BST
Florida Gar	Lepisosteus platyrhincus	SWLK
Redbreast Sunfish	*Lepomis auritus*	SWLK
Warmouth	Lepomis gulosus	SWLK

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Bluegill	Lepomis macrochirus	SWLK
Redear Sunfish	*Lepomis microlophus*	SWLK
Stumpknocker	*Lepomis punctatus*	SWLK
Largemouth Bass	*Micropterus salmoides*	SWLK
Tadpole Madtom	*Noturus gyrinus*	CULK
Sailfin Molly	*Poecilia latipinna*	BST
Black Crappie	Pomoxis nigromaculatus	SWLK

AMPHIBIANS

Frogs and Toads

Florida Cricket Frog	*Acris gryllus dorsalis*	DM
Oak Toad	Anaxyrus quercicus	MF
Southern Toad	Anaxyrus terrestris	UHF
Greenhouse Frog	Eleutherodactylus planirostris *	UHF
Eastern Narrowmouth Toad	*Gastrophryne carolinensis*	UMW
Cope's Gray Treefrog	*Hyla chrysocelis*	UHF
Green Treefrog	*Hyla cinerea*	UHF
Pine Woods Treefrog	*Hyla femoralis*	MF
Barking Treefrog	*Hyla gratiosa*	MF,UMW
Squirrel Treefrog	*Hyla squirella*	UMW
Gopher Frog	Lithobates capito	SH
Bullfrog	Lithobates catesbeianus	SWLK
Bronze Frog	Lithobates clamitans clamitans	BS
Pig Frog	Lithobates grylio	SWLK
River Frog	Lithobates heckscheri	FS
Southern Leopard Frog	*Lithobates sphenocephala*	FS
Southern Spring Peeper	Pseudacris crucifer bartramiana	BM
Southern Chorus Frog	*Pseudacris nigrita*	BS
Little Grass Frog	*Pseudacris ocularis*	MF
Ornate Chorus Frog	*Pseudacris ornata*	AF
Eastern Spadefoot	Scaphiopus holbrookii	UMW

Salamanders

Mole Salamander	Ambystoma talpoideum	MF
Eastern Tiger Salamander	*Ambystoma tigrinum tigrinum*	UMW,CULK
Two-toed Amphiuma	*Amphiuma means*	SWLK
Southern Dusky Salamander	*Desmognathus auriculatus*	SST
Dwarf Salamander	Eurycea quadridigitata	SST
Striped Newt	Notophthalmus perstriatus	DM
Central Newt	Notophthalmus viridescens louisianensis	SKLK

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
SE Slimy Salamander	*Plethodon grobmani*	UHF

REPTILES

Crocodilians

American Alligator	Alligator mississippiensis	SKLK

Turtles

Snapping Turtle	*Chelydra serpentina*	SWLK
Chicken Turtle	Deirochelys reticularia	SKLK
Gopher Tortoise	*Gopherus polyphemus*	SH
Florida Mud Turtle	Kinosternon subrubrum steindachneri	SWLK
Peninsula Cooter	*Pseudemys peninsularis*	CULK
Eastern Musk Turtle	*Sternotherus odoratus*	CULK
Yellow-bellied Slider	*Trachemys scripta scripta*	SKLK

Snakes

Florida Cottonmouth	Agkistrodon piscivorus conanti	BST
Southern Black Racer	Coluber constrictor priapus	SH
Eastern Coachwhip	Coluber flagellum flagellum	SH
E. Diamondback Rattlesnake	*Crotalus adamanteus*	SH
Ringneck Snake	Diadophis punctatus	MF
Eastern Indigo Snake	*Drymarchon couperi*	SH
Eastern Mud Snake	Farancia abacura abacura	FS
Eastern Hognose Snake	*Heterodon platyrhinos*	SH
Southern Hognose Snake	*Heterodon simus*	SH
Scarlet Kingsnake	Lampropeltis elapsoides	UMW
Short-tailed Kingsnake	*Lampropeltis extenuata*	SH
Eastern Coral Snake	*Micrurus fulvius*	UHF
Florida Water Snake	Nerodia fasciata pictiventris	FS
Florida Green Water Snake	*Nerodia floridana*	FS
Rough Greensnake	*Opheodrys aestivus*	AF
Eastern Ratsnake	Pantherophis alleghaniensis	UHF
Eastern Corn Snake	*Pantherophis guttatus*	SH
Florida Pine Snake	Pituophis melanoleucus mugitus	SH
Pine Woods Snake	*Rhadinaea flavilata*	MF
North Florida Swamp Snake	*Seminatrix pygaea pygaea*	BS
Dusky Pygmy Rattlesnake	Sistrurus miliarius barbouri	MF
Florida Red-bellied Snake	Storeria occipitomaculata obscura	UHF
Florida Brown Snake	*Storeria victa*	UHF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Central Fla. Crowned Snake	*Tantilla relicta neilli*	SH
Peninsula Ribbonsnake	Thamnophis sauritus sackenii	BF
Eastern Gartersnake	Thamnophis sirtalis sirtalis	UHF
Rough Earth Snake	*Virginia striatula*	UHF

Lizards

Green Anole	Anolis carolinensis	UMW
Six-lined Racerunner	*Aspidoscelis sexlineata*	SH
Eastern Slender Glass Lizard	Ophisaurus attenuatus longicaudus	SH
Northern Mole Skink	Plestiodon egregius similis	SH
Southeastern Five-lined Skink	*Plestiodon inexpectatus*	MF
Broadhead Skink	*Plestiodon laticeps*	UHF
Florida Worm Lizard	*Rhineura floridana*	UHF
Eastern Fence Lizard	*Sceloporus undulatus*	SH
Ground Skink	Scincella lateralis	UHF

BIRDS

Waterfowl

Black-bellied Whistling-Duck	*Dendrocygna autumnalis*	SWLK
Snow Goose	Chen caerulescens	SWLK
Wood Duck	*Aix sponsa*	SWLK
Gadwall	Anas strepera	FS
American Wigeon	*Anas americana*	SWLK
American Black Duck	*Anas rubripes*	SWLK
Mallard	Anas platyrhynchos	SWLK
Blue-winged Teal	*Anas discors*	SWLK
Green-winged Teal	*Anas crecca*	SWLK
Redhead	Aythya americana	SWLK
Ring-necked Duck	*Aythya collaris*	SWLK
Lesser Scaup	*Aythya affinis*	SWLK
Bufflehead	Bucephala albeola	SWLK
Hooded Merganser	*Lophodytes cucullatus*	SKLK
Ruddy Duck	Oxyura jamaicensis	SWLK

Turkeys

Wild Turkey	*Meleagris gallopavo*	UP,UMW

New World Quails

Northern Bobwhite	*Colinus virginianus*	UP,UMW

* Non-native Species

San Felasco Hammock Preserve State Park Animals

Common Name	*Scientific Name*	Primary Habitat Codes
Grebes		
Pied-billed Grebe	*Podilymbus podiceps*	SWLK
Cormorants		
Double-crested Cormorant	*Phalocrocorax auritus*	SWLK
Anhingas		
Anhinga	Anhinga anhinga	SWLK
Herons, Egrets, and Bitterns		
Great Blue Heron	*Ardea herodias*	SWLK
Great Egret	*Ardea alba*	SWLK
Snowy Egret	*Egretta thula*	SWLK
Little Blue Heron	*Egretta caerulea*	SWLK
Tricolored Heron	*Egretta tricolor*	CULK
Cattle Egret	*Bubulcus ibis*	PI
Green Heron	Butorides virescens	SKLK
Black-crowned Night-Heron	*Nycticorax nycticorax*	SWLK
Yellow-crowned Night-Heron	*Nyctanassa violacea*	FS
Ibis and Spoonbills		
White Ibis	*Eudocimus albus*	SWLK
Glossy Ibis	Plegadis falcinellus	SWLK
Roseate Spoonbill	*Platalea ajaja*	SWLK
Storks		
Wood Stork	Mycteria americana	SWLK
New World Vultures		
Black Vulture	*Coragyps atratus*	MTC
Turkey Vulture	*Cathartes aura*	MTC
Hawks, Eagles, and Kites		
Osprey	Pandion haliaetus	SWLK
Swallow-tailed Kite	*Elanoides forficatus*	FS
Mississippi Kite	Ictinia mississippiensis	UHF
Bald Eagle	Haliaeetus leucocephalus	FS
Northern Harrier	*Circus cyaneus*	BM
Sharp-shinned Hawk	*Accipiter striatus*	UHF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Cooper's Hawk	*Accipiter cooperii*	UHF
Red-shouldered Hawk	*Buteo lineatus*	UHF
Broad-winged Hawk	*Buteo platypterus*	UHF
Red-tailed Hawk	*Buteo jamaicensis*	SH
Rails and Coots		
Common Moorhen	Gallinula chloropus	FS
American Coot	*Fulica americana*	SWLK
Cranes		
Sandhill Crane	*Grus canadensis*	PI
Florida Sandhill Crane	*Grus canadensis pratensis*	PI
Plovers		
Killdeer	Charadrius vociferus	PI
Sandpipers		
Solitary Sandpiper	*Tringa solitaria*	SKLK
Greater Yellowlegs	*Tringa melanoleuca*	DM
Lesser Yellowlegs	*Tringa flavipes*	DM
Stilt Sandpiper	*Calidris himantopus*	SWLK
Least Sandpiper	*Calidris minutilla*	CULK
Common Snipe	Gallinago gallinago	DM
American Woodcock	*Scolopax minor*	UHF
Gulls, Terns, and Skimmers		
Ring-billed Gull	*Larus delawarensis*	SWLK
Pigeons and Doves		
Rock Pigeon	*Columba livia*	PI
Common Ground-Dove	*Columbina passerina*	SH
Mourning Dove	*Zenaida macroura*	MTC
Cuckoos and Anis		
Yellow-billed Cuckoo	*Coccyzus americanus*	UHF
Black-billed Cuckoo	*Coccyzus erythropthalmus*	UHF
Owls		
Barn Owl	*Tyto alba*	PI
Eastern Screech-Owl	*Megascops asio*	UHF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Great Horned Owl	*Bubo virginianus*	UHF
Barred Owl	*Strix varia*	BF
Nightjars		
Common Nighthawk	*Chordeiles minor*	SH
Chuck-will's-widow	*Antrostomus carolinensis*	UP,UMW
Eastern Whip-poor-will	*Antrostomus vociferus*	UHF
Swifts		
Chimney Swift	Chaetura pelagica	MTC
Hummingbirds		
Ruby-throated Hummingbird	*Archilochus colubris*	UHF
Kingfishers		
Belted Kingfisher	*Megaceryle alcyon*	FS
Woodpeckers		
Red-headed Woodpecker	Melanerpes erythrocephalus	SH
Red-bellied Woodpecker	*Melanerpes carolinus*	UHF
Yellow-bellied Sapsucker	*Sphyrapicus varius*	UHF
Downy Woodpecker	*Picoides pubescens*	UP,UMW
Hairy Woodpecker	*Picoides villosus*	MF
Northern Flicker	*Colaptes auratus*	SH
Pileated Woodpecker	*Dryocopus pileatus*	UHF
Falcons and Caracaras		
American Kestrel	*Falco sparverius*	ABP
Southeaster American Kestrel	*Falco sparverius paulus*	SH
Tyrant Flycatchers		
Eastern Wood-Pewee	*Contopus virens*	UHF
Yellow-bellied Flycatcher	*Empidonax flaviventris*	UHF
Acadian Flycatcher	*Empidonax virescens*	UHF
Eastern Phoebe	*Sayornis phoebe*	SH
Great Crested Flycatcher	*Myiarchus crinitus*	UHF
Eastern Kingbird	*Tyrannus tyrannus*	SH
Shrikes		
Loggerhead Shrike	*Lanius ludovicianus*	SH

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Vireos and Allies		
White-eyed Vireo	*Vireo griseus*	UHF
Yellow-throated Vireo	*Vireo flavifrons*	UHF
Blue-headed Vireo	*Vireo solitarius*	UHF
Red-eyed Vireo	*Vireo olivaceus*	UHF
Black-whiskered Vireo	*Vireo altiloquus*	UHF
Crows and Jays		
Blue Jay	Cyanocitta cristata	UHF
American Crow	Corvus brachyrhynchos	MTC
Fish Crow	Corvus ossifragus	MTC
Swallows		
Purple Martin	*Progne subis*	MTC
Tree Swallow	Tachycineta bicolor	MTC
Barn Swallow	Hirundo rustica	PI
Tits and Allies		
Carolina Chickadee	*Poecile carolinensis*	UHF
Tufted Titmouse	*Baeolophus bicolor*	UHF
Nuthatches		
Brown-headed Nuthatch	*Sitta pusilla*	MF
Creepers		
Brown Creeper	*Certhia americana*	UHF
Wrens		
House Wren	Troglodytes aedon	UHF
Sedge Wren	Cistothorus platensis	BM
Marsh Wren	Cistothorus palustris	BM
Carolina Wren	Thryothorus ludovicianus	UHF
Kinglets		
Golden-crowned Kinglet	*Regulus satrapa*	UHF
Ruby-crowned Kinglet	*Regulus calendula*	UHF
Old World Warblers		
Blue-gray Gnatcatcher	*Polioptila caerulea*	UHF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Thrushes		
Eastern Bluebird	*Sialia sialis*	SH
Veery	Catharus fuscescens	UHF
Swainson's Thrush	*Catharus ustulatus*	UHF
Hermit Thrush	*Catharus guttatus*	UHF
Wood Thrush	Hylocichla mustelina	UHF
American Robin	*Turdus migratorius*	UHF
Mockingbirds and Thrashers		
Gray Catbird	Dumetella carolinensis	UHF
Brown Thrasher	*Toxostoma rufum*	UHF
Northern Mockingbird	*Mimus polyglottos*	MTC
Starlings		
European Starling	*Sturnus vulgaris* *	PI
Waxwings		
Cedar Waxwing	Bombycilla cedrorum	MTC
New World Warblers		
Ovenbird	Seiurus aurocapilla	UHF
Worm-eating Warbler	*Helmitheros vermivorum*	UHF
Louisiana Waterthrush	*Parkesia motecilla*	FS
Northern Waterthrush	*Parkesia noveboracensis*	FS
Golden-winged Warbler	*Vermivora chrysoptera*	UHF
Blue-winged Warbler	*Vermivora cyanoptera*	UP,UMW
Black-and-white Warbler	*Mniotilta varia*	UHF
Prothonotary Warbler	*Prothonaria citrea*	AF
Swainson's Warbler	*Limnothlypis swainsonii*	UHF
Tennessee Warbler	*Oreothlypis peregrina*	UHF
Orange-crowned Warbler	*Oreothlypis celata*	UHF
Connecticut Warbler	*Oporornis agilis*	UHF
Kentucky Warbler	*Geothlypis formosa*	UHF
Common Yellowthroat	*Geothlypis trichas*	FS
Hooded Warbler	*Setophaga citrina*	UHF
American Redstart	*Setophaga ruticilla*	UHF
Kirtland's Warbler	*Setophaga kirtlandii*	UHF
Cape May Warbler	*Setophaga tigrina*	UHF
Cerulean Warbler	*Setophaga cerulea*	UHF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes
Northern Parula	*Setophaga americana*	UHF
Magnolia Warbler	*Setophaga magnolia*	UHF
Bay-breasted Warbler	*Setophaga castanea*	UHF
Blackburnian Warbler	*Setophaga fusca*	UHF
Yellow Warbler	*Setophaga petechia*	UHF
Chestnut-sided Warbler	*Setophaga pensylvanica*	UHF
Blackpoll Warbler	*Setophaga striata*	UHF
Black-throated Blue Warbler	*Setophaga caerulescens*	UHF
Palm Warbler	Setophaga palmarum	SH
Pine Warbler	*Setophaga pinus*	UP,UMW
Yellow-rumped Warbler	*Setophaga coronata*	MTC
Yellow-throated Warbler	*Setophaga dominica*	UHF
Prairie Warbler	*Setophaga discolor*	SH
Black-throated Green Warbler	*Setophaga virens*	UHF
Canada Warbler	Cardellina canadensis	UHF

Sparrows and Allies

Eastern Towhee	Pipilo erythrophthalmus	UP,UMW
Bachman's Sparrow	*Peucaea aestivalis*	SH
Chipping Sparrow	*Spizella passerina*	SH
Field Sparrow	*Spizella pusilla*	SH
Vesper Sparrow	*Pooecetes gramineus*	ABP
Savannah Sparrow	Passerculus sandwichensis	ABP
Grasshopper Sparrow	*Ammodramus savannarum*	ABP
Le Conte's Sparrow	*Ammodramus leconteii*	ABP
Fox Sparrow	Passerella iliaca	ABP
Song Sparrow	Melospiza melodia	SH
Swamp Sparrow	Melospiza georgiana	DM
White-throated Sparrow	*Zonotrichia albicollis*	UHF
White-crowned Sparrow	*Zonotrichia leucophrys*	UP,UMW
Dark-eyed Junco	*Junco hyemalis*	UHF

Cardinals, Grosbeaks, and Allies

Summer Tanager	*Piranga rubra*	UP,UMW
Scarlet Tanager	*Piranga olivacea*	UHF
Northern Cardinal	*Cardinalis cardinalis*	UHF
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	UP,UMW
Blue Grosbeak	*Passerina caerulea*	ABP
Indigo Bunting	*Passerina cyanea*	SH

* Non-native Species

San Felasco Hammock Preserve State Park Animals

Common Name	*Scientific Name*	Primary Habitat Codes
Blackbirds and Allies		
Bobolink	Dolichonyx oryzivorus	ABP
Red-winged Blackbird	*Agelaius phoeniceus*	MTC
Eastern Meadowlark	*Sturnella magna*	ABP
Rusty Blackbird	*Euphagus carolinus*	ABP
Brewer's Blackbird	*Euphagus cyanocephalus*	ABP
Common Grackle	*Quiscalus quiscula*	MTC
Boat-tailed Grackle	*Quiscalus major*	FS
Brown-headed Cowbird	*Molothrus ater*	MTC
Orchard Oriole	*Icterus spurius*	UP,UMW
Baltimore Oriole	*Icterus galbula*	UP,UMW
Finches and Allies		
Purple Finch	*Haemorhous purpureus*	UP,UMW
Pine Siskin	*Spinus pinus*	UP,UMW
American Goldfinch	*Spinus tristis*	UHF
MAMMALS		
Didelphids		
Virginia Opossum	*Didelphis virginiana*	MTC
Edentates		
Nine-banded Armadillo	*Dasypus novemcinctus* *	MTC
Shrews and Moles		
Southern Short-tailed Shrew	*Blarina carolinensis*	UHF
Least Shrew	*Cryptotis parva*	SH
Eastern Mole	Scalopus aquaticus	UHF
Southeastern Shrew	*Sorex longirostris*	UHF
Bats		
Eastern Red Bat	*Lasiurus borealis*	UHF
Northern Yellow Bat	*Lasiurus intermedius*	UHF
Seminole Bat	Lasiurus seminolus	UHF
Evening Bat	Nycticeius humeralis	UHF
Tricolored Bat	Perimyotis subflavus	TCV
Carnivores		
Domestic Dog	*Canis familiaris* *	MTC
Coyote	*Canis latrans* *	MTC

* Non-native Species

San Felasco Hammock Preserve State Park Animals

Common Name	*Scientific Name*	Primary Habitat Codes
Domestic Cat	*Felis domesticus* *	MTC
North American River Otter	*Lontra canadensis*	BST
Bobcat	*Lynx rufus*	MTC
Striped Skunk	*Mephitis mephitis*	MTC
Long-tailed Weasel	*Mustela frenata*	UP,UMW
Raccoon	Procyon lotor	MTC
Gray Fox	Urocyon cinereoargenteus	UP,UMW
Florida Black Bear	*Ursus americanus*	MTC
Red Fox	*Vulpes vulpes* *	UHF
Artiodactyls		
White-tailed Deer	*Odocoileus virginianus*	MTC
Feral Pig	*Sus scrofa* *	UHF
Rodents		
Southeastern Pocket Gopher	*Geomys pinetis*	SH
Southern Flying Squirrel	*Glaucomys volans*	UHF,UP,UMW
Pine Vole	Microtus pinetorum	UP,UMW
House Mouse	*Mus musculus* *	DV
Eastern Woodrat	*Neotoma floridana*	MF
Golden Mouse	Ochrotomys nuttalli	UHF
Cotton Mouse	Peromyscus gossypinus	UHF
Florida Mouse	Podomys floridanus	SH
Eastern Harvest Mouse	*Reithrodontomys humulis*	UHF
Eastern Gray Squirrel	*Sciurus carolinensis*	MTC
Sherman's Fox Squirrel	*Sciurus niger shermani*	UP,UMW
Hispid Cotton Rat	*Sigmodon hispidus*	MF
Lagomorphs		
Eastern Cottontail	*Sylvilagus floridanus*	SH
Marsh Rabbit	Sylvilagus palustris	BM

* Non-native Species

Primary Habitat Codes

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

Primary Habitat Codes

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

Primary Habitat Codes

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

e) a reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

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

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

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

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

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

Addendum 8—Timber Management Analysis

Addendum 8
Timber Management Analysis

1. *Management Context and Best Management Practices*

Timber management at San Felasco Hammock State Park (San Felasco) is based on the desired future condition (DFC) of a management zone or natural community (NatCom) as determined by the DRP Unit Management Plans, along with guidelines developed by the Florida Natural Areas Inventory (FNAI). In most cases, the DFC will be closely related to the historic NatCom. However, it is important to note, that in areas where the historic community has been severely altered by past land use practices, the DFC may not always be the same as the historic NatCom. All timber management activities undertaken will adhere to or exceed the current Florida Silvicultural Best Management Practices (BMPs) and Florida Forestry Wildlife BMPs for State Imperiled Species. DRP shall take all measures necessary to protect water quality and wildlife species of concern while conducting timber management activities. DRP has contracted with a private sector, professional forest management firm to complete this timber assessment: F4 Tech.

2. *Purpose of Timber Management Activities*

Timber management activities may be conducted to help improve or maintain current conditions to achieve the associated DFC. Timber management will primarily be conducted in upland NatComs. Candidate upland NatCom types may include mesic flatwoods, wet flatwoods, sandhill, upland pine and upland mixed woodland. There will likely be no scheduled timber management activities in other historically hardwood-dominated or wetland NatCom types, e.g., upland hardwood forest, hydric hammock, and slope forest. In some circumstances, timber management may include the harvesting and removal of overstory invasive/exotic trees. Descriptions of community types are detailed in the Resource Management Component.

3. *Potential Silvicultural Treatments*

Several silvicultural treatments may be considered and utilized over the next ten years. The various types of timber harvests may include pine thinning, targeted hardwood overstory removal, and clearcutting. Silvicultural treatments will be selectively implemented to minimize potential impacts to water and soil resources, non-target vegetation, and wildlife (see BMPs). Depending upon the condition and marketability of the timber being manipulated, it is possible to generate revenue from the harvest. It is also possible the timber removal could be a cost to DRP. In all decisions, the mission of preserving and restoring natural communities will be the guiding factor.

Thinning is conducted to reduce the basal area (BA) or density of trees/stems in a stand to improve forest health and growth conditions for residual trees. Allowing trees more room to grow has the potential to increase tree and forest vigor, which helps mitigate the potential for damaging insect and disease outbreaks. Most tree harvesting/removals also increase sunlight reaching the forest floor and fine fuels that facilitate consistent fire return intervals and responses, which can benefit groundcover vegetation abundance, species richness, and overall ecological diversity. The disruption of natural fire regimes and fire return intervals can often result in the

need to remove undesirable or overstocked hardwood stems that currently occupy growing space in the canopy and sub-canopy. Clearcutting may be used to support restoration goals by removing off-site pine or hardwood species and is a precursor to establishing site-appropriate species. It can also be used to control insect infestations that are damaging or threatening forest resources and ecosystem conditions.

On occasion, salvage cuts may need to be conducted to remove small volumes of wood damaged by fire, wind storm, insect or other natural causes. The decision whether or not to harvest the affected timber will depend on the threat to the surrounding stands, risk of collateral ecological damage, and the volume/value of the trees involved. For example, small, isolated lightning-strike, beetle kills are a natural part of a healthy ecosystem and normally would not be cut. However, if a drought caused the insect infestation to spread, the affected trees and buffer zone might have to be removed to prevent significant damage.

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

San Felasco comprises a total of 6,928 acres in Alachua County. A total of 3,065 acres associated with four (4) upland NatCom types are potential candidates for timber management. In April and May 2016, an inventory based on field plots was conducted across and within these areas to quantify overstory, midstory and understory conditions. In addition, approximately 80 acres associated with a southern pine beetle salvage operation were re-inventoried in September 2018 and the associated data was used in quantifying current conditions. No field plots were placed in the powerline right-of-ways as this is an alternate landcover type and the DFC cannot be achieved. Various park-level and NatCom-level summary statistics can be found in the following tables.

This timber assessment was based on management zone and NatCom boundary GIS data provided by DRP in September 2018. It is not intended to be prescriptive. Stakeholders and DRP staff are encouraged to view this timber assessment and inventory data as supplemental information for future consideration. Given the dynamic nature of property ownership and land management activities at San Felasco, together with the timeframe required to create or update a UMP, it is possible that some tabular data may be dated. Therefore, NatCom acreages and recent treatments that occurred after the September 2018 period may not be reflected in the following tables.

San Felasco Hammock Preserve State Park
Timber Management Analysis

Table 1. General summary statistics for San Felasco State Park

Number of Management Zones within the Park	44
Upland NatCom acres	6,060

Mesic Flatwoods (70.7 acres)

Longleaf pine (*Pinus palustris*) is the preferred overstory pine species in the region. The FNAI reference site in this region for mesic flatwoods contains longleaf pine at a basal area (BA) of 10 to 50 square feet per acre with non-pine at a density of 0 trees per acre (TPA). The following table shows the overstory condition for this natural community at San Felasco and target overstory condition for mesic flatwoods in this region.

MZ ID	Mesic Flatwoods (Acres)	Current Average Overstory Conditions							Target Overstory Conditions	
		Pine BA (ft2/ac)	Pine TPA	Pine Volume (tons/ac)	Non-Pine BA (ft2/ac)	Non-Pine TPA	Non-Pine Volume (tons/ac)	Total Pine and Non-Pine Volume (tons/ac)	FNAI Reference Condition Pine BA Range (ft2/ac)	FNAI Reference Condition Non-Pine TPA Range
SFH-2A	32.5	36.7	62.1	28.7	43.3	207.2	10.5	39.2	10 - 50	0 - 0
SFH-2F*	1.0	--	--	--	--	--	--	--	--	--
SFH-2L*	0.3	--	--	--	--	--	--	--	--	--
SFH-2M	15.3	40.0	188.1	23.7	20.0	98.6	0.0	23.7	10 - 50	0 - 0
SFH-2R	21.7	33.3	42.2	27.3	50.0	165.4	24.9	52.2	10 - 50	0 - 0
Total	**70.8**									

Sandhill (200.8 acres)

Longleaf pine (*Pinus palustris*) is the preferred overstory pine species in the region. The FNAI reference site in this region for sandhill contains longleaf pine at a basal area (BA) of 20 to 60 square feet per acre with non-pine species between 0 and 79 trees per acre (TPA). The following table shows the overstory condition for this natural community at San Felasco and target overstory condition for sandhill in this region.

MZ ID	Sandhill (Acres)	Current Average Overstory Conditions							Target Overstory Conditions	
		Pine BA (ft2/ac)	Pine TPA	Pine Volume (tons/ac)	Non-Pine BA (ft2/ac)	Non-Pine TPA	Non-Pine Volume (tons/ac)	Total Pine and Non-Pine Volume (tons/ac)	FNAI Reference Condition Pine BA Range (ft2/ac)	FNAI Reference Condition Non-Pine TPA Range
SFH-2C*	6.4	--	--	--	--	--	--	--	--	--
SFH-2D	102.0	70.9	59.4	80.3	30.9	55.3	29.8	110.1	20 - 60	0 - 79
SFH-2E	19.8	95.0	156.7	96.7	35.0	121.2	20.9	117.6	20 - 60	0 - 79

San Felasco Hammock Preserve State Park
Timber Management Analysis

MZ ID	Sandhill (Acres)	Current Average Overstory Conditions							Target Overstory Conditions	
		Pine BA (ft2/ac)	Pine TPA	Pine Volume (tons/ac)	Non-Pine BA (ft2/ac)	Non-Pine TPA	Non-Pine Volume (tons/ac)	Total Pine and Non-Pine Volume (tons/ac)	FNAI Reference Condition Pine BA Range (ft2/ac)	FNAI Reference Condition Non-Pine TPA Range
SFH-2F	23.8	38.0	147.4	24.7	26.0	178.1	6.7	31.4	20 - 60	0 - 79
SFH-2G	12.7	33.3	68.4	27.9	93.3	105.9	65.4	93.3	20 - 60	0 - 79
SFH-2K	8.1	100.0	121.1	84.6	40.0	179.4	20.5	105.1	20 - 60	0 - 79
SFH-2L	3.6	20.0	17.4	24.9	140.0	258.0	110.5	135.4	20 - 60	0 - 79
SFH-2M	23.0	46.7	62.6	43.6	20.0	46.1	17.6	61.2	20 - 60	0 - 79
SFH-2Q*	1.5	--	--	--	--	--	--	--	--	--
Total	**200.9**									

Upland Mixed Woodland (1,793.4 acres)

Longleaf pine (*Pinus palustris*), southern red oak (*Quercus falcata*), mockernut hickory (*Carya tomentosa*), and sand post oak (*Q. margaretta*) are the preferred overstory pine species in the region. The FNAI reference site in this region for upland mixed woodland contains longleaf pine at a basal area (BA) of 10 to 30 square feet per acre with non-pine species between 0 and 263 trees per acre (TPA). The following table shows the overstory condition for this natural community at San Felasco and target overstory condition for upland mixed woodland in this region.

MZ ID	Upland Mixed Woodland (Acres)	Current Average Overstory Conditions							Target Overstory Conditions	
		Pine BA (ft2/ac)	Pine TPA	Pine Volume (tons/ac)	Non-Pine BA (ft2/ac)	Non-Pine TPA	Non-Pine Volume (tons/ac)	Total Pine and Non-Pine Volume (tons/ac)	FNAI Reference Condition Pine BA Range (ft2/ac)	FNAI Reference Condition Non-Pine TPA Range
SFH-1An	80.2	86.7	81.7	94.1	21.1	43.2	17.3	111.4	10 - 30	0 - 263
SFH-1Aw	73.2	66.3	51.0	56.2	82.5	172.0	53.4	109.6	10 - 30	0 - 263
SFH-1C	145.7	83.3	70.6	64.2	55.0	100.2	37.1	101.3	10 - 30	0 - 263
SFH-2C	51.3	82.5	64.5	99.5	45.0	64.5	40.3	139.8	10 - 30	0 - 263
SFH-2D	123.5	65.7	56.5	71.0	58.6	103.4	48.5	119.5	10 - 30	0 - 263
SFH-2E	129.9	49.1	36.0	51.1	77.3	196.7	58.5	109.6	10 - 30	0 - 263
SFH-2F	13.5	8.0	5.2	7.8	124.0	250.6	98.1	105.9	10 - 30	0 - 263
SFH-2G	39.1	48.6	50.3	47.3	57.1	115.3	45.3	92.7	10 - 30	0 - 263
SFH-2H	30.1	46.7	116.9	38.3	100.0	249.8	73.4	111.6	10 - 30	0 - 263
SFH-2K	8.8	20.0	6.9	24.0	80.0	56.3	67.7	91.6	10 - 30	0 - 263
SFH-2L*	1.0	--	--	--	--	--	--	--	--	--
SFH-2M	17.3	48.0	166.8	35.6	40.0	98.0	18.6	54.1	10 - 30	0 - 263

San Felasco Hammock Preserve State Park
Timber Management Analysis

MZ ID	Upland Mixed Woodland (Acres)	Current Average Overstory Conditions							Target Overstory Conditions	
		Pine BA (ft2/ac)	Pine TPA	Pine Volume (tons/ac)	Non-Pine BA (ft2/ac)	Non-Pine TPA	Non-Pine Volume (tons/ac)	Total Pine and Non-Pine Volume (tons/ac)	FNAI Reference Condition Pine BA Range (ft2/ac)	FNAI Reference Condition Non-Pine TPA Range
SFH-2N	104.4	40.0	86.4	33.5	24.0	52.8	14.0	47.6	10 - 30	0 - 263
SFH-2P	12.8	13.3	6.8	19.1	93.3	189.1	71.5	90.6	10 - 30	0 - 263
SFH-2Q	76.7	47.7	43.2	60.5	69.2	143.5	50.6	111.1	10 - 30	0 - 263
SFH-3A	32.0	77.1	100.3	78.1	77.1	209.5	34.7	112.8	10 - 30	0 - 263
SFH-3B	56.3	32.5	57.8	21.2	90.0	146.1	72.0	93.2	10 - 30	0 - 263
SFH-3C	81.3	40.0	68.3	34.8	80.0	137.3	63.2	98.0	10 - 30	0 - 263
SFH-3D	27.5	35.0	24.1	26.0	80.0	189.3	63.9	89.8	10 - 30	0 - 263
SFH-3E	112.8	37.8	27.4	37.9	83.3	148.5	52.4	90.4	10 - 30	0 - 263
SFH-3F	20.8	6.7	2.0	0.0	140.0	181.1	84.6	84.6	10 - 30	0 - 263
SFH-3G	14.9	140.0	103.2	162.4	0.0	0.0	0.0	162.4	10 - 30	0 - 263
SFH-3H	3.8	20.0	9.2	24.9	120.0	232.3	121.7	146.6	10 - 30	0 - 263
SFH-3J	6.5	40.0	52.9	13.9	80.0	73.4	64.2	78.1	10 - 30	0 - 263
SFH-3K	26.3	20.0	41.3	18.1	72.0	174.5	34.7	52.8	10 - 30	0 - 263
SFH-4A	74.7	6.3	10.6	4.0	31.3	49.4	15.3	19.3	10 - 30	0 - 263
SFH-4Be	65.5	48.3	102.9	35.3	3.3	11.5	0.0	35.3	10 - 30	0 - 263
SFH-4Bw	3.9	50.0	39.3	47.2	80.0	31.9	82.6	129.7	10 - 30	0 - 263
SFH-4C	64.2	70.0	92.6	62.7	80.0	42.2	43.6	106.4	10 - 30	0 - 263
SFH-4De*	1.8	--	--	--	--	--	--	--	--	--
SFH-4Dw	14.2	30.0	36.1	30.3	95.0	173.2	77.6	107.9	10 - 30	0 - 263
SFH-4E*	28.8	--	--	--	--	--	--	--	--	--
SFH-4Fe	50.3	49.0	97.9	38.4	0.0	0.0	0.0	38.4	10 - 30	0 - 263
SFH-4Fw	49.1	17.1	6.4	16.2	65.7	87.9	45.0	61.2	10 - 30	0 - 263
SFH-4G	67.6	0.0	0.0	0.0	93.3	195.9	40.1	40.1	10 - 30	0 - 263
SFH-4H	42.2	0.0	0.0	0.0	110.0	181.9	75.7	75.7	10 - 30	0 - 263
SFH-4J	41.5	10.0	12.0	3.0	95.0	56.3	50.7	53.6	10 - 30	0 - 263
Total	**1,793.5**									

Upland Pine (1,000.4 acres)

Longleaf pine (*Pinus palustris*) is the preferred overstory pine species in the region. The FNAI reference site in this region for upland pine contains longleaf pine at a basal area (BA) of 30 to 80 square feet per acre with non-pine species between 0 and 26 trees per acre (TPA). The following table shows the overstory condition for this natural

community at San Felasco and target overstory condition for upland pine in this region.

MZ ID	Upland Pine (Acres)	Current Average Overstory Conditions							Target Overstory Conditions	
		Pine BA (ft2/ac)	Pine TPA	Pine Volume (tons/ac)	Non-Pine BA (ft2/ac)	Non-Pine TPA	Non-Pine Volume (tons/ac)	Total Pine and Non-Pine Volume (tons/ac)	FNAI Reference Condition Pine BA Range (ft2/ac)	FNAI Reference Condition Non-Pine TPA Range
SFH-1An*	1.4	--	--	--	--	--	--	--	--	--
SFH-1Aw	15.5	70.0	123.7	49.2	40.0	346.5	8.4	57.6	30 - 80	0 - 26
SFH-1B	24.4	83.3	122.8	61.2	50.0	65.4	32.1	93.3	30 - 80	0 - 26
SFH-2A	3.1	0.0	0.0	0.0	80.0	243.0	57.2	57.2	30 - 80	0 - 26
SFH-2B*	1.2	--	--	--	--	--	--	--	--	--
SFH-2C	14.6	130.0	116.5	136.1	0.0	0.0	0.0	136.1	30 - 80	0 - 26
SFH-2D	120.9	65.0	63.0	73.2	35.0	94.1	25.6	98.8	30 - 80	0 - 26
SFH-2E	95.5	37.3	53.8	37.0	76.0	226.9	41.6	78.6	30 - 80	0 - 26
SFH-2F*	1.9	--	--	--	--	--	--	--	--	--
SFH-2G	19.6	60.0	240.4	38.2	0.0	0.0	0.0	38.2	30 - 80	0 - 26
SFH-2H	22.8	75.0	57.6	68.5	80.0	193.6	56.4	124.8	30 - 80	0 - 26
SFH-2K	24.3	13.3	7.1	13.3	60.0	146.6	43.2	56.6	30 - 80	0 - 26
SFH-2L	5.2	20.0	17.9	20.4	0.0	0.0	0.0	20.4	30 - 80	0 - 26
SFH-2M	35.8	35.0	46.7	35.1	20.0	34.2	9.8	44.9	30 - 80	0 - 26
SFH-2N	8.0	0.0	0.0	0.0	10.0	48.6	4.9	4.9	30 - 80	0 - 26
SFH-2P*	2.0	--	--	--	--	--	--	--	--	--
SFH-2Q	10.1	100.0	61.3	108.4	40.0	139.6	29.1	137.5	30 - 80	0 - 26
SFH-2R	6.9	20.0	8.5	22.3	60.0	89.6	49.8	72.1	30 - 80	0 - 26
SFH-3A	109.8	78.9	109.6	82.9	68.9	178.6	41.5	124.4	30 - 80	0 - 26
SFH-3B	70.2	56.9	112.4	48.0	86.2	175.7	57.9	105.9	30 - 80	0 - 26
SFH-3C	22.3	44.0	159.8	33.5	64.0	116.9	19.2	52.7	30 - 80	0 - 26
SFH-3E*	1.8	--	--	--	--	--	--	--	--	--
SFH-3H	7.6	20.0	6.2	14.7	100.0	211.7	87.5	102.2	30 - 80	0 - 26
SFH-4A	48.3	34.0	55.9	26.6	62.0	78.7	28.6	55.2	30 - 80	0 - 26
SFH-4Be	58.6	54.4	103.3	43.5	7.8	17.6	4.3	47.7	30 - 80	0 - 26
SFH-4Bw*	33.1	--	--	--	--	--	--	--	--	--
SFH-4C	101.1	35.0	14.4	27.1	120.0	135.9	62.7	89.8	30 - 80	0 - 26
SFH-4De	42.0	11.3	9.4	6.6	27.5	25.4	18.1	24.7	30 - 80	0 - 26

San Felasco Hammock Preserve State Park
Timber Management Analysis

MZ ID	Upland Pine (Acres)	Current Average Overstory Conditions							Target Overstory Conditions	
		Pine BA (ft2/ac)	Pine TPA	Pine Volume (tons/ac)	Non-Pine BA (ft2/ac)	Non-Pine TPA	Non-Pine Volume (tons/ac)	Total Pine and Non-Pine Volume (tons/ac)	FNAI Reference Condition Pine BA Range (ft2/ac)	FNAI Reference Condition Non-Pine TPA Range
SFH-4Dw	38.9	60.0	145.9	49.8	30.0	31.9	19.6	69.4	30 - 80	0 - 26
SFH-4Fw	28.8	62.0	233.7	43.9	2.0	5.6	0.0	43.9	30 - 80	0 - 26
SFH-5B	24.8	50.0	75.2	45.5	113.3	320.3	83.0	128.4	30 - 80	0 - 26
Total	**1,000.5**									

Addendum 9 —Land Management Review

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMORANDUM

TO: Keith Singleton, Program Consultant
Division of State Lands

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

Wes Howell Digitally signed by Wes Howell
Date: 2017.12.11 17:29:54 -05'00'

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

Steven Cutshaw Digitally signed by Steven Cutshaw
Date: 2017.12.12 08:33:41 -05'00'

SUBJECT: Response to Draft Land Management Review (LMR)
San Felasco Hammock Preserve State Park

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

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

Thank you for your attention.

/ca

2017 Land Management Review Team Report for San Felasco Hammock Preserve State Park

Table of Contents

1. Introduction

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

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

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

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

1.1. Property Reviewed in this Report

Name of Site: San Felasco Hammock Preserve State Park
Managed by: Florida Department of Environmental Protection – Division of Recreation and Parks
Acres: 7,358 **County:** Alachua
Purpose(s) for Acquisition: to protect and restore the natural and cultural values of the property and provide the greatest benefit to the citizens of the state.
Acquisition Program(s): P2000/CARL **Original Acquisition Date:** 8/31/~~94~~74
Area Reviewed: Entire Property **Last Management Plan Approval Date:** 2/11/05
Review Date: 10/17/17

Agency Manager and Key Staff Present:

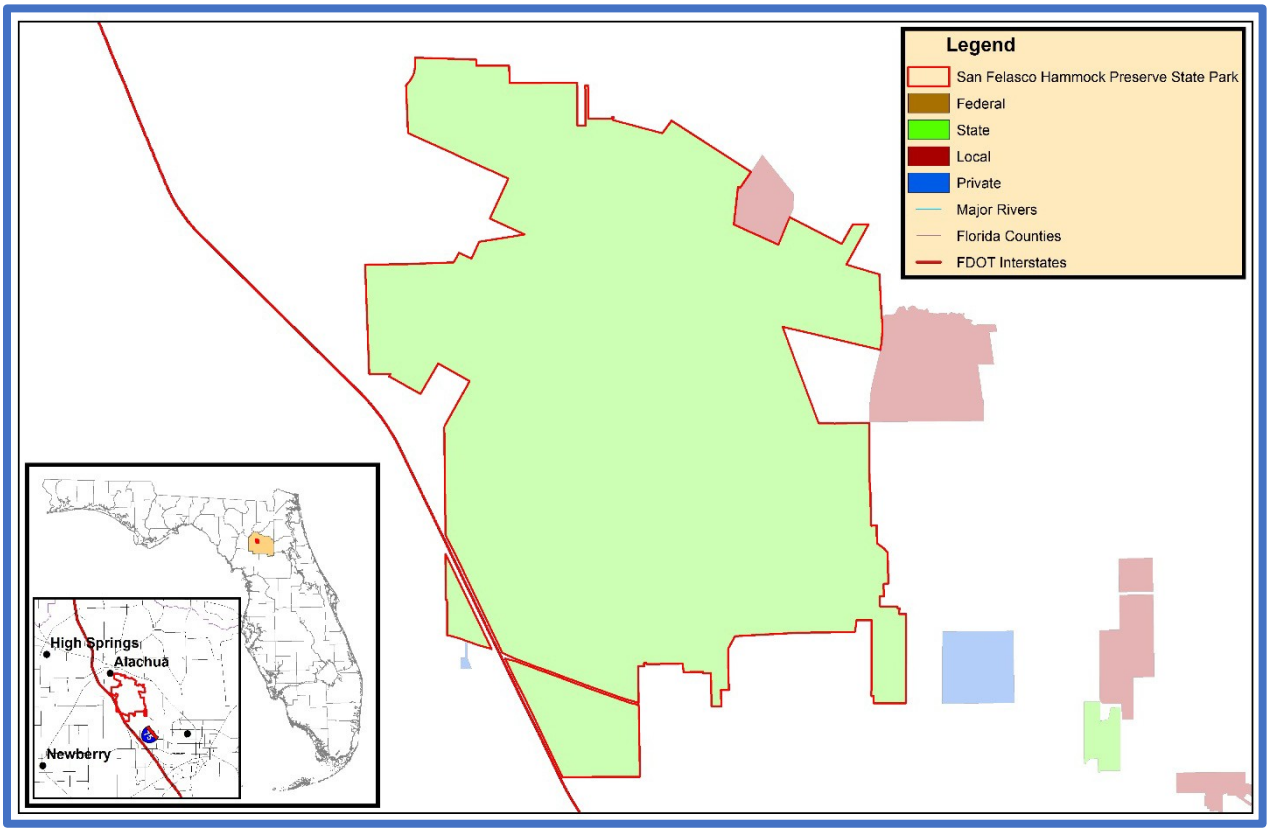
- Robert Steele, Park Manager

Review Team Members Present (voting)

- Dan Pearson, DRP District
- Local Gov't., None
- Ginger Morgan, FWC
- Carmine Oliverio DEP District
- Ernie Ash, FFS
- Grace Howell, FNPS
- Conservation Org., None
- Private Land Manager, None

Other Non-Team Members Present (attending)

- James Parker, DEP/DSL
- Matt Greene, FWC
- John Kunzer, FWC



1.2 Property Map

1.3. Overview of Land Management Review Results

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

Yes = 5, No = 0

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

Yes = 5, No = 0

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

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	4.33	4.23
Prescribed Fire / Habitat Restoration	3.62	4.22
Hydrology	4.47	4.00
Imperiled Species	4.13	4.33
Exotic / Invasive Species	4.50	4.43
Cultural Resources	4.50	4.60
Public Access / Education / Law Enforcement	4.37	4.29
Infrastructure / Equipment / Staffing	3.08	N/A
Color Code (See Appendix A for detail)		
Excellent	Above Average	Below Average	Poor

1.3.1 Consensus Commendations for the Managing Agency

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

1. The team commends the Florida Park Service (FPS) for the aggressive strategy to identify, assess and treat non-native invasive plants over a long-term to control spread and reduce presence on the landscape. (5+, 0-)
2. The team commends the FPS for managing a diverse set of users (hikers, bikers, equestrian) at the park while successfully preserving and protecting sensitive/unique systems. (5+, 0-)
3. The team commends the FPS for aggressive mechanical removal/mowing to enable fire to be reintroduced into areas dependent on it. (5+, 0-)
4. The team commends the FPS for the development of a trail management plan to coordinate and educate park staff and volunteers on the purpose of the resources, and to incorporate objectives of the unit management plan. (5+, 0-)
5. The team commends the FPS for partnering with the homeowners association as a neighbor to identify natural resource concerns of interest to both parties. (5+, 0-)
6. The team commends the FPS on increasing off-site public outreach with the Florida History/Cracker Horse program. (5+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

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

1. The team recommends that the FPS continue to increase prescribed fire in order to promote ecosystem health and protect habitat for listed species. (5+, 0-)

   Managing Agency Response: ***Agree.***

2. The team recommends that the FPS use citizen science to fill data gaps using INaturalist, IveGotOne apps and similar capabilities of smartphones. (5+, 0-)

   Managing Agency Response: ***Agree. District and Park staff will investigate implementation of these programs in coordination with the Division of Recreation and Parks.***

2. Field Review Details

2.1 Field Review Checklist Findings

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

1. Natural communities, specifically mesic flatwoods, sandhill, upland hardwood forest, upland pine mixed woodland, basin marsh/marsh lake, basin swamp, baygill, bottomland forest, depression marsh, dome, alluvial forest (floodplain forest), floodplain marsh, hydric hammock/ mesic hammock, clastic upland lake, sandhill upland lake, sinkhole and sinkhole lake, swamp lake, blackwater stream, seepage stream, aquatic and terrestrial cave.
2. **Listed species: Protection & Preservation, specifically animals, gopher tortoise, plants**
3. **Natural resources survey/monitoring specifically invasive species survey/monitoring, other non-game species or their habitat, invasive species survey/monitoring**

4. **Cultural resources, specifically cultural resource survey, and protection and preservation**
5. **Resource management (prescribed fire), specifically None**
6. **Restoration, specifically southern pine beetle sites.**
7. **Forest Management, specifically timber inventory/ assessment, timber harvesting, reforestation/afforestation**
8. **Non-native, invasive, and problem species, specifically prevention and control of plants, animals and pest/pathogens.**
9. **Hydrologic/Geologic Function Hydro-Alteration, specifically roads/culverts**
10. **Ground Water Monitoring, specifically ground water quality, ground water quantity**
11. **Surface Water Monitoring, specifically surface water quality, surface water quantity**
12. **Resource protection, specifically boundary survey gates and fencing, signage and law enforcement presence.**
13. **Adjacent property concerns, specifically expanding development, I-75 smoke management, inholdings/additions**
14. **Public access, specifically road, parking**
15. **Environmental education and outreach, specifically wildlife, invasive species, habitat management activities, interpretive facilities and signs, recreational opportunities, management of visitor impacts**
16. **Management resources, specifically waste disposal, sanitary facilities.**

2.2. Items Requiring Improvement Actions in the Field

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

1. ***Resource Management, Prescribed Fire, specifically frequency, received below average score. The review team is asked to evaluate, based on information provided by the managing agency, to what degree prescribed fire is accomplished according to the objectives for prescribed fire management. The scores range from 1 to 5, with 1 being 0-20% accomplished, 2 being 21-40%, 3 being 41-60%, 4 being 16-80% and 5 being 81-100%.***

   Managing Agency Response: ***Agree. Increasing the frequency of prescribed fires is a high priority for the park.***

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

   Managing Agency Response: ***Agree. However, Division funding for infrastructure is determined annually by the Florida Legislature and funds are allocated to the 175 state parks and trails according to priority needs. In addition, no new staff can be assigned to this or any other park unit unless they are appropriated by the Legislature or reassigned from other units.***

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	3	3	3	4	4				3.40
Sandhill	I.A.2	5	4	4	3	5				4.20
Upland Hardwood Forest	I.A.3	5	4	4	4	5				4.40
Upland Pine Mixed Woodland	I.A.4	3	3	3	3	4				3.20
Basin Marsh/Marsh Lake	I.A.5	5	4	4	4	5				4.40
Basin Swamp	I.A.6	5	4	5	5					4.75
Baygall	I.A.7	5	4	5	5					4.75
Bottomland Forest	I.A.8	5	4	5	5	5				4.80
Depression Marsh	I.A.9	5	4	4	4	4				4.20
Dome	I.A.10	5	4	4	4	4				4.20
Alluvial Forest (Floodplain Forest)	I.A.11	5	4	5	5	5				4.80
Floodplain Marsh	I.A.12	5	4	5	5	5				4.80
Floodplain Swamp	I.A.13	5	4	5	5	5				4.80
Hydric Hammock/ Mesic Hammock	I.A.14	5	4	5	5	5				4.80
Clastic Upland Lake	I.A.15	5	4	5	5	5				4.80
Sandhill Upland Lake	I.A.16	4	4	5	5	4				4.40
Sinkhole and Sinkhole Lake	I.A.17	5	4	5	5	5				4.80
Swamp Lake	I.A.18	5	4	5	5	5				4.80
Blackwater Stream	I.A.19	5	4	5	5	5				4.80
Seepage Stream	I.A.20	5	4	5	5	5				4.80
Aquatic and Terrestrial Cave	I.A.21	5	4	5	5	5				4.80
									Natural Communities Average Score	4.51
Listed species:Protection & Preservation (I.B)										
Animals	I.B.1	5	4	3	5	4				4.20
Gopher Tortoise	I.B.1.a	5	3	3	5	4				4.00
Plants	I.B.2	5	4	3	5	4				4.20
									Listed Species Average Score	4.13
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	4	3	4	4				4.00
Other non-game species or their habitat monitoring	I.C.3	5	4	3	4	4				4.00
Fire effects monitoring	I.C.4	1	4	3	4	3				3.00
Other habitat management effects monitoring	I.C.5	4	4	3	4	4				3.80
Invasive species survey / monitoring	I.C.6	5	4	5	5	4				4.60
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	5	4	3	5	5				4.40
Protection and preservation	II.B	5	4	4	5	5				4.60
									Cultural Resources Average Score	4.50
Resource Management, Prescribed Fire (III.A)										

Area Being Burned (no. acres)	III.A1	5	3	2	3	4				3.40
Frequency	III.A.2	3	3	2	3	3				2.80
Quality	III.A.3	5	3	3	4	4				3.80
									Resource Management, Prescribed Fire Average Score	3.33
Restoration (III.B)										
Upland Pine Restoration	III.B.2	5	4	3	4	3				3.80
Southern Pine Beetle sites	III.B.3	5	4	4	4	3				4.00
									Restoration Average Score	3.90
Forest Management (III.C)										
Timber Inventory / Assessment	III.C.1	2	4	5	5	5				4.20
Timber Harvesting	III.C.2	5	4	4	5	4				4.40
Reforestation/Afforestation	III.C.3	5	4	3	5	4				4.20
Site Preparation	III.C.4	4	4	3	4	4				3.80
									Forest Management Average Score	4.15
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	5	4	5	5	5				4.80
prevention - animals	III.D.1.b	5	4	4	4	5				4.40
prevention - pests/pathogens	III.D.1.c	5	4	4	4	4				4.20
Control										
control - plants	III.D.2.a	5	4	5	5	5				4.80
control - animals	III.D.2.b	5	4	4	4	5				4.40
control - pest/pathogens	III.D.2.c	5	4	4	5	4				4.40
									Non-Native, Invasive & Problem Species Average Score	4.50
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	5	4	4	4	4				4.20
Ditches	III.E.1.b									
Hydro-period Alteration	III.E.1.c									
Water Level Alteration	III.E.1.d									
Dams, Reservoirs, other impoundments	III.E.1.e									
									Hydrologic/Geologic function, Hydro-Alteration Average Score	4.20
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	5	4	4	5	5				4.60
Ground water quantity	III.E.2.b	5	4	4	5	5				4.60
									Ground Water Monitoring Average Score	4.60
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	5	4	4	5	5				4.60
Surface water quantity	III.F.3.b	5	4	4	5	5				4.60
									Surface Water Monitoring Average Score	4.60
Resource Protection (III.F)										
Boundary survey	III.F.1	5	4	4	5	5				4.60
Gates & fencing	III.F.2	5	4	4	4	4				4.20
Signage	III.F.3	5	4	4	5	5				4.60
Law enforcement presence	III.F.4	5	4	4	5	4				4.40
									Resource Protection Average Score	4.45

Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	5	4	4	4	4				4.20
I-75 Smoke Management	III.G.1.b	5		3	4	4				4.00
Inholdings/additions	III.G.2	5	4	4	5	5				4.60
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	4	4	5	5				4.60
Parking	IV.1.b	4	3	3	5					3.75
Environmental Education & Outreach										
Wildlife	IV.2.a	5	4	3	4	4				4.00
Invasive Species	IV.2.b	5	4	4	4	4				4.20
Habitat Management Activities	IV.2.c	5	4	3	5	5				4.40
Interpretive facilities and signs	IV.3	5	4	3	5	4				4.20
Recreational Opportunities	IV.4	5	5	4	5	5				4.80
Management of Visitor Impacts	IV.5	5	5	3	5	4				4.40
									Public Access & Education Average Score	4.29
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										
Waste disposal	V.1.a	5	4	4	x	4				4.25
Sanitary facilities	V.1.b	5	4	4	x	4				4.25
Infrastructure										
Buildings	V.2.a	1	2	2	x	3				2.00
Equipment	V.2.b	3	3	3	x	3				3.00
Staff	V.3	1	1	2	3	2				1.80
Funding	V.4	4	3	3	3	3				3.20
									Management Resources Average Score	3.08

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

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

**** The review team scores did not identify items requiring improvement actions in the management plan. ****

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	5	3	4	4	4				4.00
Sandhill	I.A.2	5	4	4	4	4				4.20
Upland Hardwood Forest	I.A.3	5	4	4	4	4				4.20
Upland Pine Mixed Woodland	I.A.4	5	3	4	4	4				4.00
Basin Marsh/Marsh Lake	I.A.5	5	4	4	4	3				4.00
Basin Swamp	I.A.6	5	4	4	4	4				4.20
Baygall	I.A.7	5	4	4	4	4				4.20
Bottomland Forest	I.A.8	5	4	4	4	4				4.20
Depression Marsh	I.A.9	5	4	4	4					4.25
Dome	I.A.10	5	4	4	4	3				4.00
Alluvial Forest (Floodplain Forest)	I.A.11	5	4	4	4	4				4.20
Floodplain Marsh	I.A.12	5	4	4	4	4				4.20
Floodplain Swamp	I.A.13	5	4	4	4	4				4.20
Hydric Hammock/ Mesic Hammock	I.A.14	5	4	4	4	4				4.20
Clastic Upland Lake	I.A.15	5	4	4	4	4				4.20
Sandhill Upland Lake	I.A.16	5	4	4	4	4				4.20
Sinkhole and Sinkhole Lake	I.A.17	5	4	4	4	4				4.20
Swamp Lake	I.A.18	5	4	4	4	4				4.20
Blackwater Stream	I.A.19	5	4	4	4	4				4.20
Seepage Stream	I.A.20	5	4	4	4	4				4.20
Aquatic and Terrestrial Cave	I.A.21	5	4	4	4	3				4.00
									Natural Communities Average Score	4.15
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	5	4	4	5	4				4.40
Gopher Tortoise	I.B.1.a	5	3	4	5	4				4.20
Plants	I.B.2	5	4	4	5	4				4.40
									Listed Species Average Score	4.33
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	4	3	4	3				3.80
Other non-game species or their habitat monitoring	I.C.3	5	4	3	4	4				4.00
Fire effects monitoring	I.C.4	5	4	3	4	3				3.80
Other habitat management effects monitoring	I.C.5	5	4	3	4	3				3.80
Invasive species survey / monitoring	I.C.6	5	4	3	4	4				4.00
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A	5	4	4	5	5				4.60
Protection and preservation	II.B	5	4	4	5	5				4.60
									Cultural Resources Average Score	4.60
Resource Management, Prescribed Fire (III.A)										

Area Being Burned (no. acres)	III.A.1	5	4	3	5	5				4.40
Frequency	III.A.2	5	3	3	5	5				4.20
Quality	III.A.3	5	4	3	5	5				4.40
									Resource Management, Prescribed Fire Average Score	4.33
Restoration (III.B)										
Upland Pine Restoration	III.B.2	5	4	3	5	4				4.20
Southern Pine Beetle sites	III.B.3	5	4	3	4	4				4.00
									Restoration Average Score	4.10
Forest Management (III.C)										
Timber Inventory / Assessment	III.C.1	5	4	4	4	5				4.40
Timber Harvesting	III.C.2	5	4	4	4	5				4.40
Reforestation/Afforestation	III.C.3	5	4	4	5	4				4.40
Site Preparation	III.C.4	5	4	3	4	4				4.00
									Forest Management Average Score	4.30
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	5	4	4	4	5				4.40
prevention - animals	III.D.1.b	5	4	4	4	5				4.40
prevention - pests/pathogens	III.D.1.c	5	4	4	4	4				4.20
Control										
control - plants	III.D.2.a	5	4	4	5	5				4.60
control - animals	III.D.2.b	5	4	4	5	5				4.60
control - pest/pathogens	III.D.2.c	5	4	4	5	4				4.40
									Non-Native, Invasive & Problem Species Average Score	4.43
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	5	4	3	4	4				4.00
Ditches	III.E.1.b									
Hydro-period Alteration	III.E.1.c									
Water Level Alteration	III.E.1.d									
Dams, Reservoirs, other impoundments	III.E.1.e									
									Hydrologic/Geologic function, Hydro-Alteration Average Score	4.00
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	5	3	3	4	4				3.80
Ground water quantity	III.E.2.b	5	3	3	4	4				3.80
									Ground Water Monitoring Average Score	3.80
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	5	3	4	4	5				4.20
Surface water quantity	III.E.3.b	5	3	4	4	5				4.20
									Surface Water Monitoring Average Score	4.20
Resource Protection (III.F)										
Boundary survey	III.F.1	5	4	4	4	5				4.40
Gates & fencing	III.F.2	5	4	4	4	5				4.40
Signage	III.F.3	5	4	4	4	4				4.20
Law enforcement presence	III.F.4	5	4	4	4	4				4.20
									Resource Protection Average Score	4.30

Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	5	4	3	4	5				4.20
I-75 Smoke Management	III.G.1.b	5	4	3	4	4				4.00
Inholdings/additions	III.G.2	5	4		5	5				4.75
Discussion of Potential Surplus Land Determination	III.G.3	5	4	4	5	5				4.60
Surplus Lands Identified?	III.G.4	5	4	4	5	5				4.60
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	4	4	5	5				4.60
Parking	IV.1.b	5	4	4	5					4.50
Environmental Education & Outreach										
Wildlife	IV.2.a	5	4	3	4	4				4.00
Invasive Species	IV.2.b	5	4	3	4	4				4.00
Habitat Management Activities	IV.2.c	5	4	3	4	5				4.20
Interpretive facilities and signs	IV.3	5	4	3	4	4				4.00
Recreational Opportunities	IV.4	5	4	4	4	5				4.40
Management of Visitor Impacts	IV.5	5	5	4	5	4				4.60
									Public Access & Education Average Score	4.29
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Hiking	VI.A.1	5	4	4	5	5				4.60
Bicycling	VI.A.2	5	4	4	4	4				4.20
Equestrian Trails	VI.A.3	5	4	4	4	4				4.20
Picnicking	VI.A.4	5	4	3	5	5				4.40

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

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

Explanation of Consensus Recommendations:

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

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

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

Average scores are interpreted as

follows: Scores 4.0 to 5.0 are

Excellent Scores 3.0 to 3.99

are *Above Average* Scores 2.0

to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

Addendum 10—County Comprehensive Plan Compliance

From:	Allbritton, Joel
To:	Baxley, Demi; Cutshaw, Steven; Martin, Diane
Subject:	FW: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park
Date:	Thursday, August 23, 2018 1:10:11 PM

FYI Alachua County's response that there is no requirement to amend the zoning for the parcels

Joel Allbritton
Park Planner
Office of Park Planning
Division of Recreation and Parks
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 500
Tallahassee, FL 32399
Joel.Allbritton@dep.state.fl.us
Office: 850.245.3063

From: Mehdi Benkhatar [mailto:mbenkhatar@alachuacounty.us]
Sent: Thursday, August 23, 2018 9:41 AM
To: Allbritton, Joel <Joel.Allbritton@dep.state.fl.us>
Subject: RE: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Also, regarding the parcel that is in unincorporated Alachua County, parcel 06001-003-001 (the triangular parcel), our staff has discussed your question further as to the implications of it remaining with its current land use of Estate Residential and Agriculture zoning and there is no requirement to amend the land use for the purposes of preservation or effect for leaving it as it is. We suggest that a land use amendment and rezoning would be beneficial and clearer for the public to see a more accurate representation of what the parcel's use is. Please let me know if you need a more formal response and we can provide you a letter stating such.

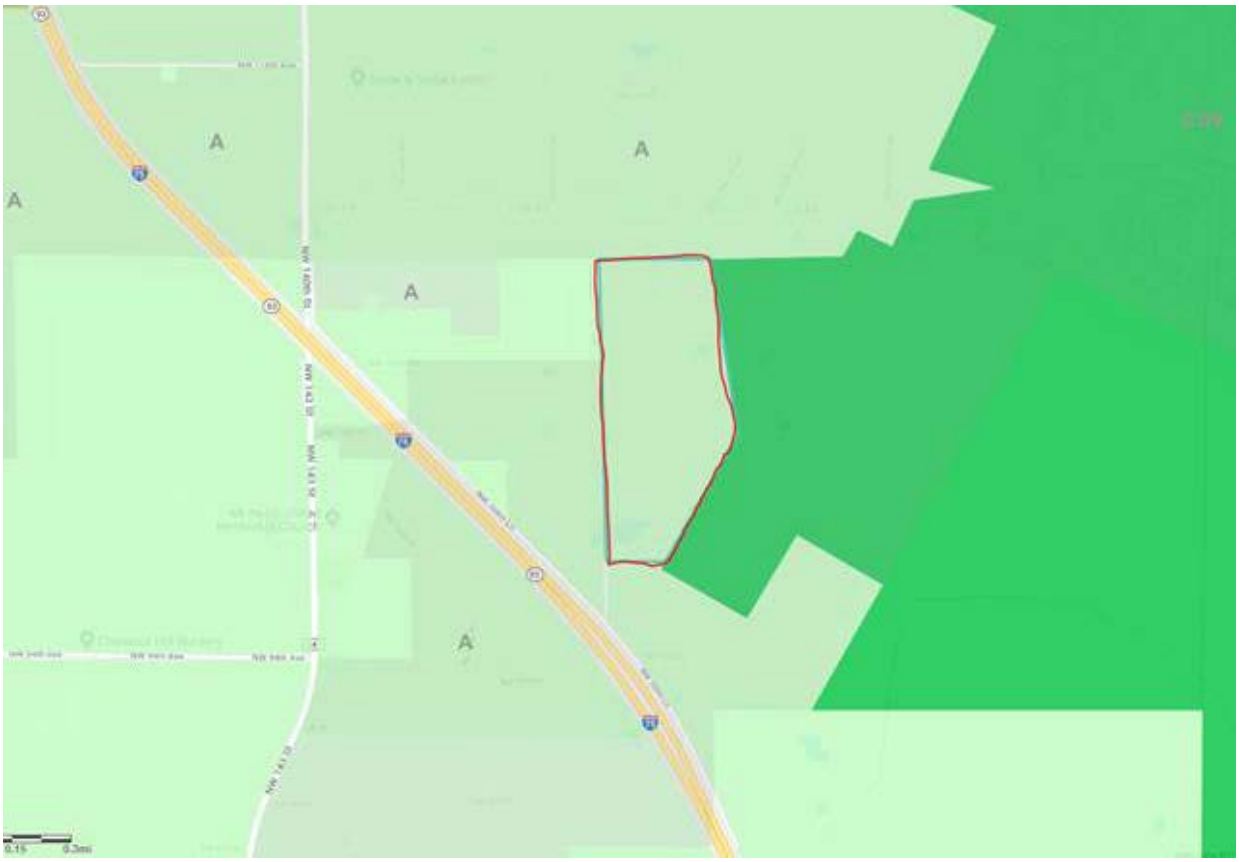
Best regards,

Mehdi J. Benkhatar, AICP
Alachua County Growth Management
10 SW 2nd Avenue, 3rd Floor
Gainesville, Florida 32601
352-374-5249

From: Mehdi Benkhatar
Sent: Thursday, August 23, 2018 9:23 AM
To: 'Allbritton, Joel' <Joel.Allbritton@dep.state.fl.us>
Subject: RE: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Hi Joel,

I just noticed that I didn't respond to this e-mail last week. I believe the City of Alachua parcel you're talking about is 04023-001-000.



Best,

Mehdi J. Benkhatar, AICP
Alachua County Growth Management
10 SW 2nd Avenue, 3rd Floor
Gainesville, Florida 32601
352-374-5249

From: Allbritton, Joel <Joel.Allbritton@dep.state.fl.us>
Sent: Thursday, August 16, 2018 4:14 PM
To: Mehdi Benkhatar <mbenkhatar@alachuacounty.us>
Subject: RE: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Good afternoon Mehdi,

Thank you for talking and clearing up this zoning issue with Daniel and I this afternoon. Do you know what the city of Alachua parcel # is by any chance?

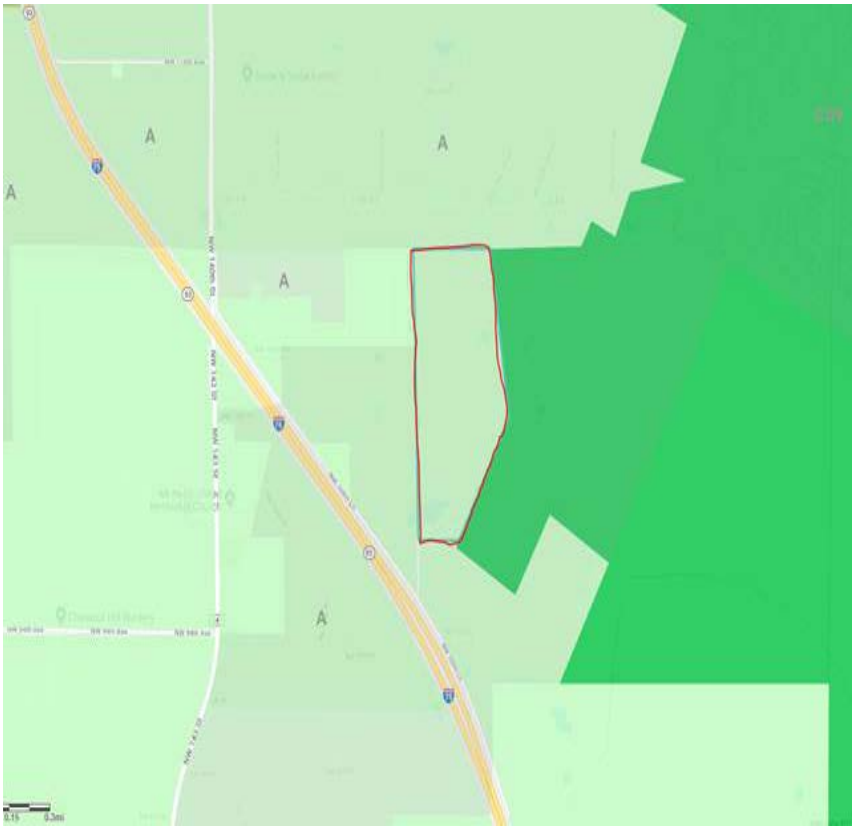
Joel Allbritton
Park Planner
Office of Park Planning
Division of Recreation and Parks
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 500
Tallahassee, FL 32399
Joel.Allbritton@dep.state.fl.us
Office: 850.245.3063

From: Mehdi Benkhatar [mailto:mbenkhatar@alachuacounty.us]
Sent: Wednesday, August 15, 2018 4:14 PM
To: Allbritton, Joel <Joel.Allbritton@dep.state.fl.us>
Cc: Baxley, Demi <Demi.Baxley@dep.state.fl.us>
Subject: RE: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Hi Joel,

I can only speak for the County's parcel. For the City of Alachua, you should contact Mr. Adam Hall who is their planner (ad_hall@cityofalachua.org, phone (386) 418-6125).

For the county's process, the land use amendment and rezoning can be done concurrently. It requires that you hold a pre-application conference with our staff, followed by a neighborhood workshop to gather any input on the proposed change. Once that meeting is held you can submit the application. Our staff will review to ensure that the land use amendment and rezoning are consistent with the Comprehensive Plan policies and Unified Land Development Code. The first public meeting is the Planning Commission which is an advisory board that recommends to the Board of County Commissioners whether or not to approve (and transmit) the land use amendment/rezoning. Since this parcel (parcel 06036-001-000, shown below circled in red) is over 10 acres, it will be considered a large-scale map amendment, which requires that it be transmitted to the Florida Dept. of Economic Opportunity for review. The State and other reviewing agencies have 30 days to provide comments. It'll then come back before our Board of County Commissioners for final approval at a second hearing. Once approved by our Board, it would become effective 31 days later, barring any legal challenge.



The first step will be to schedule a time to hold a pre-application meeting with our staff. Please let me know when you are ready to proceed and we can schedule that.

Best,

Mehdi J. Benkhatar, AICP
Alachua County Growth Management
10 SW 2nd Avenue, 3rd Floor
Gainesville, Florida 32601
352-374-5249

From: Allbritton, Joel <Joel.Allbritton@dep.state.fl.us>
Sent: Wednesday, August 15, 2018 1:15 PM
To: Mehdi Benkhatar <mbenkhatar@alachuacounty.us>
Cc: Baxley, Demi <Demi.Baxley@dep.state.fl.us>
Subject: RE: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Good afternoon Mehdi,

In response to your comments about the Tax Parcel Numbers for the park, I have been informed that we do not track our properties by the tax parcel number but instead we track based on the owner of the property. I would also like to ask for some additional clarification about the rezoning of the Estate Residential (Alachua County) and the Moderate Density Residential (City of Alachua) parcels and what needs to be done to them. I am new in this position and am still trying to figure out how and what to do.

Thanks,

Joel Allbritton
Park Planner
Office of Park Planning
Division of Recreation and Parks
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 500
Tallahassee, FL 32399
Joel.Allbritton@dep.state.fl.us
Office: 850.245.3063

From: Mehdi Benkhatar [mailto:mbenkhatar@alachuacounty.us]
Sent: Monday, August 13, 2018 1:30 PM
To: Allbritton, Joel <Joel.Allbritton@dep.state.fl.us>
Cc: Baxley, Demi <Demi.Baxley@dep.state.fl.us>
Subject: RE: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Good afternoon,

I am looking to get an idea of what activities occur at the shop. Is it for constructing signs and other such maintenance? Is the residence just for one park employee? Do you have an idea of where it would be located on the site? Will it be on parcel 06036-001-000? Sec. 403.20 provides the standards for residences in the C-1 zoning district:

Sec.403.20
https://library.municode.com/fl/alachua_county/codes/code_of_ordinances?nodeId=PTIIIUNLADECO_TIT40LADERE_CH403ZODI_ARTVISPPUDI_S403.20CODI

Best,

Mehdi J. Benkhatar, AICP
Alachua County Growth Management
10 SW 2nd Avenue, 3rd Floor
Gainesville, Florida 32601
352-374-5249

From: Allbritton, Joel <Joel.Allbritton@dep.state.fl.us>
Sent: Monday, August 13, 2018 11:44 AM
To: Mehdi Benkhatar <mbenkhatar@alachuacounty.us>
Cc: Baxley, Demi <Demi.Baxley@dep.state.fl.us>
Subject: RE: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Good morning Mehdi,

Thank you for your comments regarding the plan. I am trying to gather up the information that you have requested. What additional information would you like to know about the shop and residence areas?

Joel Allbritton
Park Planner
Office of Park Planning
Division of Recreation and Parks
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 500
Tallahassee, FL 32399
Joel.Allbritton@dep.state.fl.us
Office: 850.245.3063

From: Mehdi Benkhatar [mailto:mbenkhatar@alachuacounty.us]
Sent: Monday, August 13, 2018 9:50 AM
To: Allbritton, Joel <Joel.Allbritton@dep.state.fl.us>; Mike Drummond <miked@alachuacounty.us>
Cc: Baxley, Demi <Demi.Baxley@dep.state.fl.us>
Subject: RE: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Good morning Joel,

I've heard back from Mike and he's informed me that he has no comments regarding the plan. I am attaching my comments.

Thanks,

Mehdi J. Benkhatar, AICP
Alachua County Growth Management
10 SW 2nd Avenue, 3rd Floor
Gainesville, Florida 32601
352-374-5249

From: Allbritton, Joel <Joel.Allbritton@dep.state.fl.us>
Sent: Monday, August 13, 2018 8:52 AM
To: Mehdi Benkhatar <mbenkhatar@alachuacounty.us>; Mike Drummond <miked@alachuacounty.us>
Cc: Baxley, Demi <Demi.Baxley@dep.state.fl.us>
Subject: County Comprehensive Plan Review for San Felasco Hammock Preserve State Park

Good morning Mehdi and Mike,

I hope that this email finds you both well after a good weekend! I just wanted to reach out to you and see how the review process for the Unit Management Plan for San Felasco Hammock Preserve State Park was going and if you had an estimated time that it may take to complete the review process. Please let me know if you have any questions.

Thank you for your time and effort in reviewing this plan,

Joel Allbritton
Park Planner
Office of Park Planning
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Florida Department of Environmental Protection
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