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

RICK SCOTT
GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

December 18, 2013

Ms. Sine Murray
Planning Manager
Office of Park Planning, Division of Recreation and Parks
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 525
Tallahassee, FL 32399-3000

Re: Wes Skiles Peacock Springs State Park – Lease # 3504

Dear Ms. Murray:

The Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the Wes Skiles Peacock Springs State Park management plan. The next management plan update is due December 18, 2023.

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,

Marianne S. Gengenbach
Office of Environmental Services
Division of State Lands

Wes Skiles Peacock Springs State Park

APPROVED

Unit Management Plan

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks

December 2013

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INTRODUCTION

Wes Skiles Peacock Springs State Park is located just north of the Suwannee River in Suwannee County (see Vicinity Map, page 3), about 2 miles east of Luraville on Luraville Road. Luraville is located on State Road 51; approximately 20 miles southwest of the town of Live Oak and 5 miles north of the town of Mayo and U.S. Highway 27 (see Reference Map, page 7). The vicinity map also reflects significant land and water resources existing near the park.

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) acquired Wes Skiles Peacock Springs State Park to protect, develop, operate, and maintain the property for public outdoor recreation, park, conservation, historic, and related purposes. On June 16, 1986, the Trustees obtained title to Wes Skiles Peacock Springs State Park. The property was purchased from the Nature Conservancy under the Conservation and Recreation Lands (CARL) program. On July 6, 1988, the Trustees purchased an additional parcel under the same program and added it to the park. In 2007, an additional 491 acres was added into the park. Presently the park contains 759.87 acres.

On June 16, 1987, the Trustees conveyed management authority of Wes Skiles Peacock Springs State Park to the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) under Lease No. 3504. The park is designated single use for public outdoor recreation and conservation (see Addendum 1). There are no legislative or executive directives that constrain the use of this property.

PURPOSE AND SIGNIFICANCE OF THE PARK

The purpose of Wes Skiles Peacock Springs State Park is to provide opportunities for resource-based outdoor recreation and nature appreciation for the enjoyment of Florida residents and visitors. Additionally, park lands were acquired to protect and preserve a representative example of natural karst topography, aquatic cave environments, second growth and old growth forests, and water resources with direct hydrological linkages to the Suwannee River and artesian limestone aquifer.

Park Significance

- Wes Skiles Peacock Springs State Park protects two distinct aquatic cave systems, including the 8.5-mile Peacock Springs system and the 1.5-mile Bonnet Spring system, which provide habitat for four imperiled species of cave-dwelling invertebrates.
- The park protects mature second and old growth forest stands of native maples, pines, and other species, representing four major natural community types.
- The park protects nationally significant examples of karst topography, including five second-magnitude springs.

- The park protects thirteen recorded archaeological sites and one recorded resource group, dating as early as the Archaic period (ca. 6500 BC – 1000 BC) and including a 17th-century Spanish mission.
- The park protects Peacock Slough, a wetland corridor that links Peacock Springs to the Suwannee River, which includes an intermittent spring-run stream, adjacent floodplain swamp, and alluvial forest communities.
- The park is an internationally known cave diving destination in which cave systems provide recreational opportunities and spectacular underwater scenery.

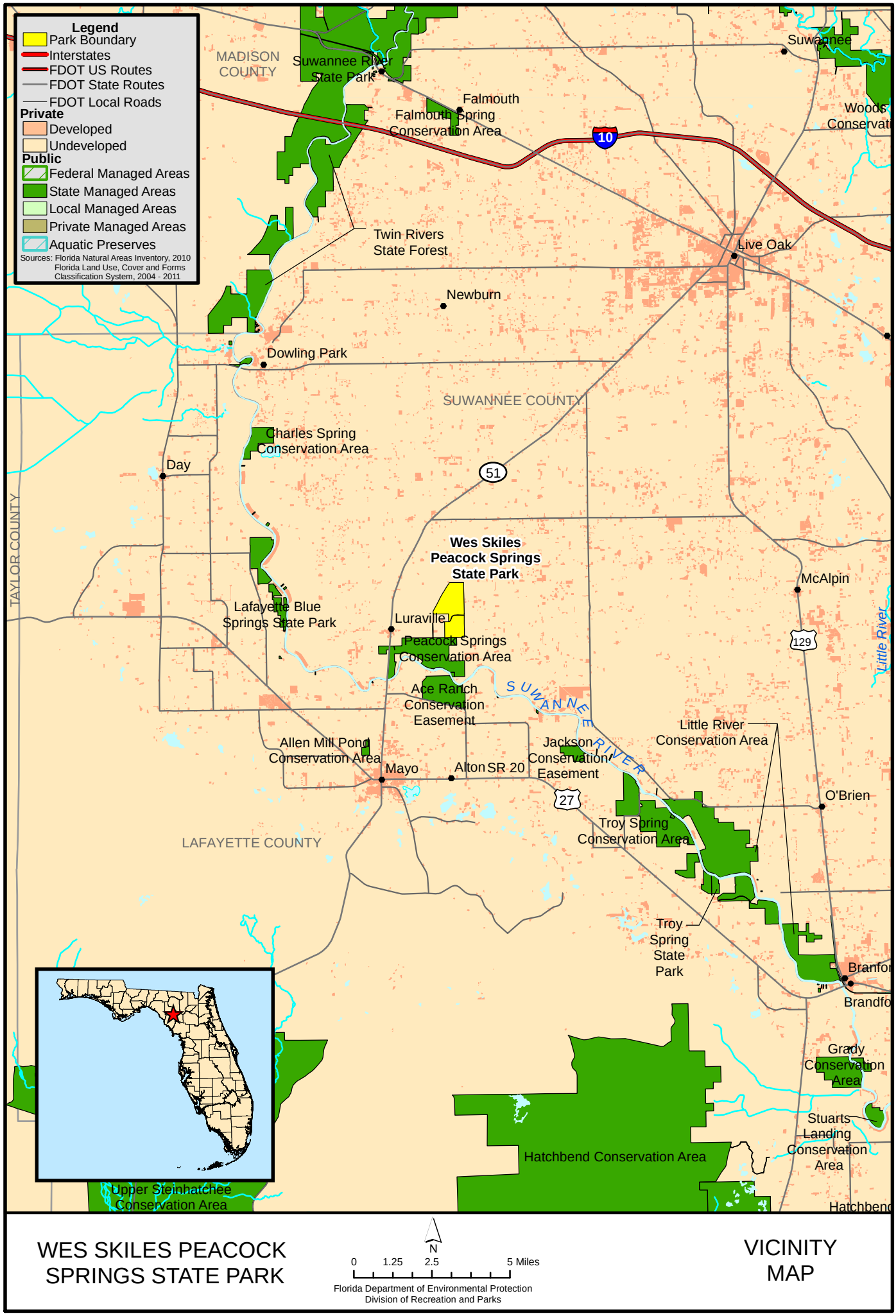
Wes Skiles Peacock Springs State Park is classified as a state park in DRP's unit classification system. In the management of the park, balance is sought between the goals of maintaining and enhancing natural conditions and providing various recreational opportunities. Natural resource management activities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

PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Wes Skiles Peacock Springs 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 park management plan will replace the 2002 approved plan.

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

The Land Use Component is the recreational resource allocation plan for the park. Based on considerations such as access, population, adjacent land uses, the natural and cultural resources of the park, current public uses, and existing development, measurable objectives are set to achieve the desired allocation of the physical space of


Legend
Park Boundary
Interstates
FDOT US Routes
FDOT State Routes
FDOT Local Roads
Private
Developed
Undeveloped
Public
Federal Managed Areas
State Managed Areas
Local Managed Areas
Private Managed Areas
Aquatic Preserves
Sources: Florida Natural Areas Inventory, 2010
Florida Land Use, Cover and Forms
Classification System, 2004 - 2011
MADISON COUNTY
Suwannee River State Park
Falmouth
Falmouth Spring Conservation Area
Suwannee
Woods Conservati
10
Twin Rivers State Forest
Live Oak
Newburn
Dowling Park
SUWANNEE COUNTY
Charles Spring Conservation Area
Day
51
TAYLOR COUNTY
Wes Skiles Peacock Springs State Park
McAlpin
Lafayette Blue Springs State Park
Luraville
Peacock Springs Conservation Area
129
Little River
Ace Ranch Conservation Easement
SUWANNEE RIVER
Little River Conservation Area
Allen Mill Pond Conservation Area
Mayo
Alton
SR 20
Jackson Conservation Easement
27
O'Brien
Troy Spring Conservation Area
LAFAYETTE COUNTY
Troy Spring State Park
Brandfo
Grady Conservation Area
Stuarts Landing Conservation Area
Hatchbend Conservation Area
Upper Steinhatchee Conservation Area
WES SKILES PEACOCK SPRINGS STATE PARK
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0 1.25 2.5 5 Miles
Florida Department of Environmental Protection
Division of Recreation and Parks
VICINITY MAP

the park. These objectives locate use areas and propose the types of facilities and programs and the volume of public use to be provided.

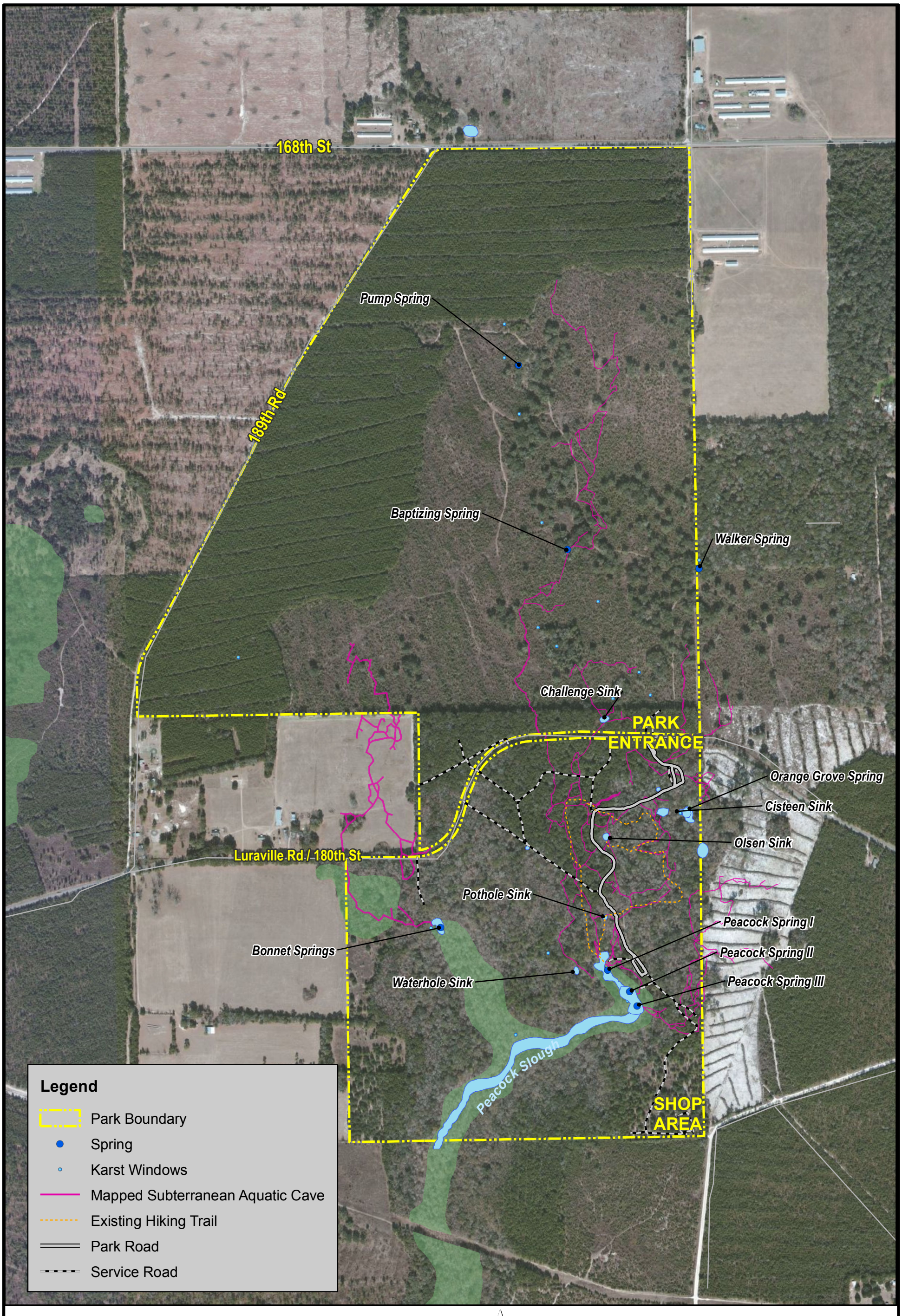
The Implementation Component consolidates the measurable objectives and actions for each of the park's management goals. An implementation schedule and cost estimates are included for each objective and action. Included in this table are (1) measures that will be used to evaluate DRP's implementation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

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

In the development of this plan, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park natural and cultural resources, management needs, aesthetic values, visitation, and visitor experiences. For this park, it was determined that timber management activities could be accommodated in a manner that would be compatible and not interfere with the primary purpose of resource-based outdoor recreation and conservation. This compatible secondary management purpose is addressed in the Resource Management Component of the plan. Uses such as, water resource development projects, water supply projects, stormwater management projects, linear facilities, and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan or the management purposes of the park.

The potential for generating revenue to enhance management was also analyzed. Visitor fees and charges are the principal source of revenue generated by the park. It was determined that timber management activities would be appropriate at this park as an additional source of revenue for land management since it is compatible with the park's primary purpose of resource-based outdoor recreation and conservation.

The use of private land managers to facilitate restoration and management of this park was also analyzed. Decisions regarding this type of management (such as outsourcing, contracting with the private sector, use of volunteers, etc.) will be made on a case-by-case basis as necessity dictates.



WES SKILES PEACOCK SPRINGS STATE PARK

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0 250 500 1,000 Feet

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

REFERENCE MAP

MANAGEMENT PROGRAM OVERVIEW

Management Authority and Responsibility

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

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

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

Many operating procedures are standardized system-wide and are set by internal direction. These procedures are outlined in DRP's 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.

1. Provide administrative support for all park functions.
2. Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.
3. Restore and maintain the natural communities/habitats of the park.
4. Maintain, improve, or restore imperiled species populations and habitats in the park.
5. Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.
6. Protect, preserve and maintain the cultural resources of the park.
7. Provide public access and recreational opportunities in the park.
8. 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 Department of Agriculture and Consumer Services (FDACS), Florida Forest Service (FFS), assists DRP staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FWC), assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish, and other aquatic life existing within the park. In addition, the FWC aids DRP with wildlife management programs, including imperiled species management and Watchable Wildlife programs. The Florida Department of State (FDOS), Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites.

The park is used and supported by a very active cave diving community that is available to provide resources and expertise to supplement park staff. DRP will coordinate with cave diving organizations to assist with research, monitoring, education and development of facilities designed for improved access and resource protection.

Public Participation

The 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, August 27, 2013 and Wednesday, August 28, 2013, respectively. Meeting notices were published in the Florida Administrative Weekly on Tuesday, August 27, 2013, Volume 39, Issue 161, 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

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

All waters within the park are designated as Outstanding Florida Waters, pursuant to Chapter 62-302 Florida Administrative Code. Administered by DEP, this program was created by Section 403.061, Florida Statutes, to protect lakes, rivers, and streams against degradation of ambient water quality. Surface waters in the park are also classified as Class II waters by DEP. The 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 (FDEP), 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. The management measures expressed in this plan are consistent with FDEP's overall mission in ecosystem management. Cited references are contained in Addendum 3.

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

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 or 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 Wes Skiles Peacock Springs State Park Management Zones			
Management Zone	**Acreage**	**Managed with Prescribed Fire**	**Contains Cultural Resources**
PS -1A	24.07	Y	Y
PS -1B	35.25	Y	Y
PS -1C	52.81	Y	Y
PS-1D	67.06	Y	Y
PS -1E	60.56	Y	Y
PS -1F	38.87	Y	Y
PS-2A	95.89	Y	N
PS -2B	126.77	Y	N
PS -2C	79.17	Y	Y
PS -2D	180.56	Y	Y

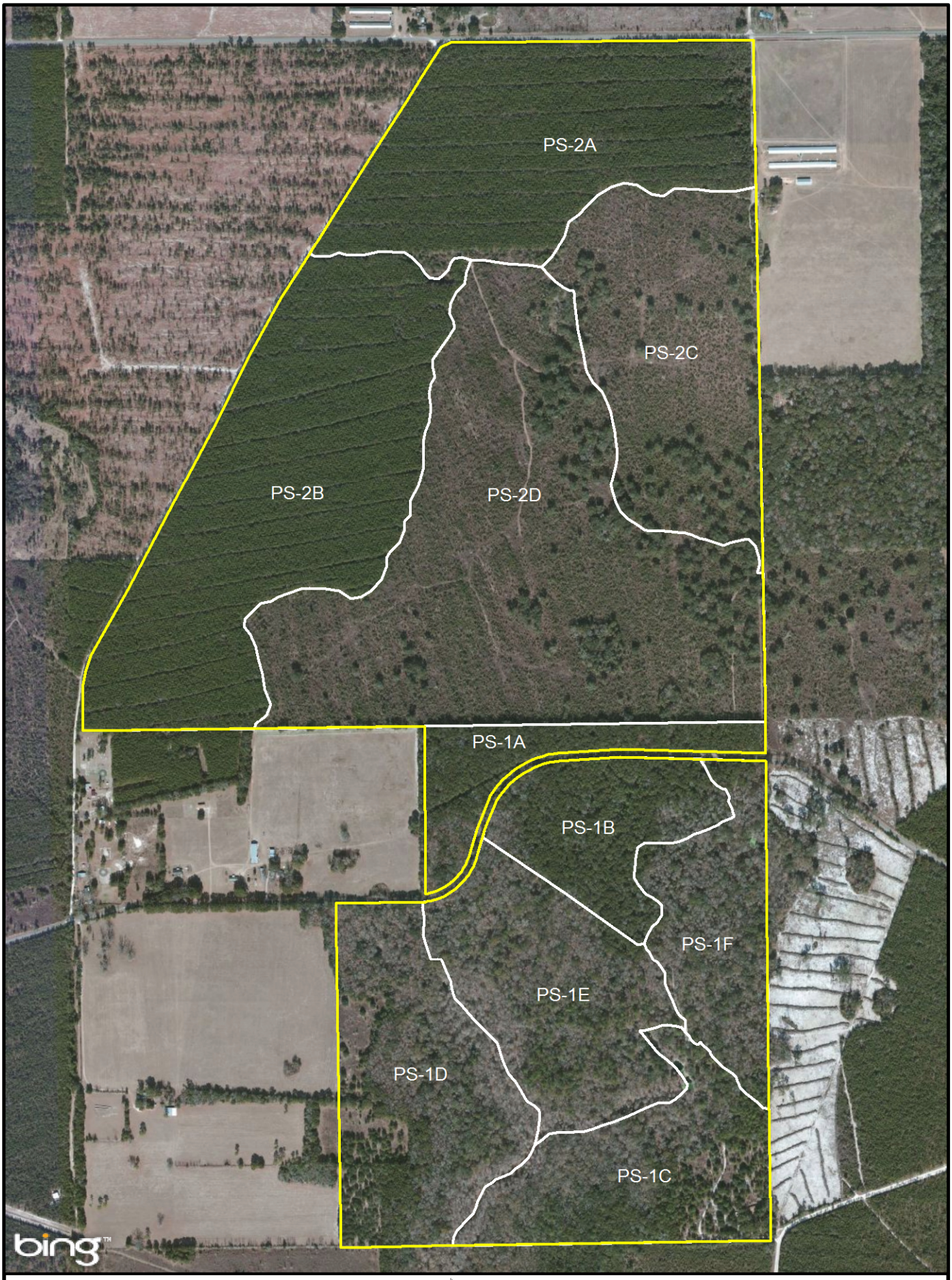
RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resources

Topography

Wes Skiles Peacock Springs State Park is situated in the Gulf Coastal Lowlands, specifically the Suwannee River Lowlands, located in the Northern or Proximal Physiographic Zone and on the Wicomico marine terrace. The Gulf Coastal Lowlands are described as gently sloping terraces originating in the highlands and extending toward the coast. Limestone typically occurs at or near the surface throughout most of this region; sand or sandy clay usually overlies the limestone. Several limestone outcrops occur within the park. The underlying limestone has undergone extensive solution activity resulting in surface features characteristic of karst topography. These features include sinkholes, springs, and depressions caused by the collapse of the upper layers of material into underlying solution voids and caverns.

Elevations within the park, according to U.S. Geological Survey (USGS) quadrangle maps, range from 25 feet above mean sea level (msl) at the edge of Peacock Slough during normal water levels to 60 feet above msl at the north boundary (see Topographic Map, page 5). Eighty-eight percent of the park lies within the 100-year floodplain as calculated by the Suwannee River Water Management District for this reach of the Suwannee River, while 36 percent of the park is at or below the ten-year floodplain elevation. Only a few alterations of natural topography are evident in the southern half of the park. Among these is an old tram road that cuts diagonally through the unit in a northwest to southeast direction. The road has been breached in several places, particularly in sloughs, presumably to provide drainage. Otherwise, the tramway remains at design elevations. Secondary growth vegetation now covers the tramway.



WES SKILES
PEACOCK SPRINGS
STATE PARK

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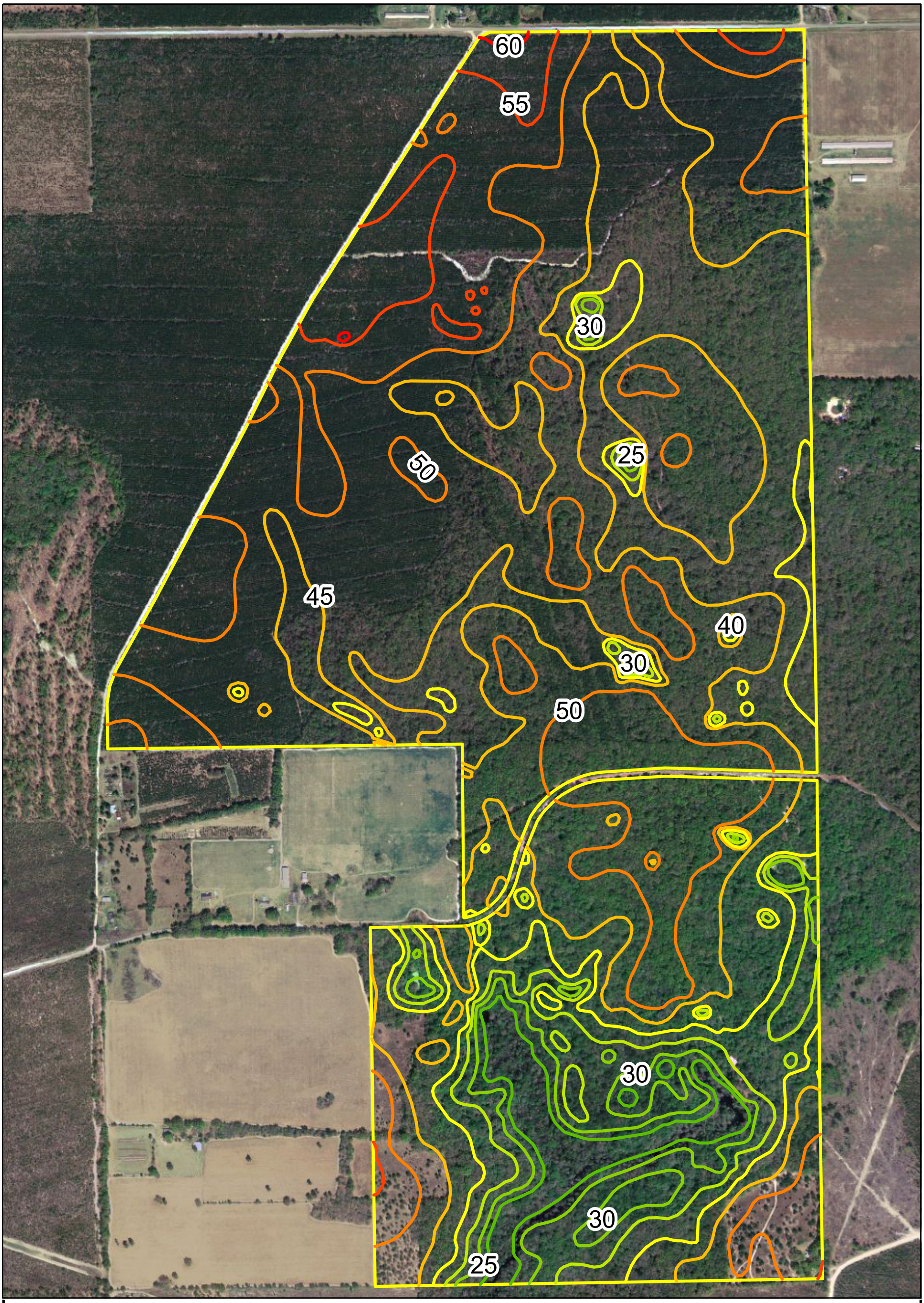
Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

MANAGEMENT ZONES
MAP



WES SKILES PEACOCK SPRINGS STATE PARK

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Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial: 2009

TOPOGRAPHIC MAP

The northern half of the park, added in 2007, has had extensive topographic alterations due to intensive silviculture on the property over the past several decades.

Much of the area was windrowed in the past, creating multiple, parallel ridges across the property.

Another significant alteration exists near the west boundary of the park where a previous landowner had attempted to enlarge a sinkhole by excavating the sides and bottom. Though now vegetated, this excavation and its associated spoil pile remain as somewhat obtrusive features in the natural landscape. Other topographic alterations in the park include unimproved roads that were constructed to provide vehicular access to the springs.

Geology

Geologic strata underlying Peacock Springs include, from youngest to oldest: surficial marine deposits, Alachua Formation, Hawthorn Group, St. Marks Formation, Suwannee Limestone, Ocala Limestone, Avon Park Limestone, Lake City Limestone, Oldsmar Limestone, and Cedar Key Limestone. Where the upper deposits have eroded away, limestone (probably Suwannee Limestone) is exposed at the surface.

The upper surficial material contains Recent Age deposits mixed with Pleistocene Age sediments that were laid down as terraces by fluctuating sea levels during 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 layer. The Recent and Pleistocene deposits may reach 30 feet in thickness.

The Alachua Formation, of Miocene or Pliocene Age, consists of sandy clay and sand beds that are not as calcareous and phosphatic as similar beds in the underlying Hawthorn Group. Silicified pieces of the underlying limestone are generally incorporated in beds near the base of the formation. The Alachua Formation ranges to 150 feet in thickness.

The Hawthorn Group, also of Miocene Age, contains sandy clay that is interbedded with hard phosphatic or dolomitic limestone layers and fine to coarse phosphatic sands. The color of the clay varies from dark green or black, to light green or gray. Hawthorn Group deposits may reach a thickness of 150 feet.

Suwannee Limestone consists of white to yellow-gray and pale orange limestone interbedded with dolomitic limestone and dolomite. The deposits are composed of varying amounts of echinoid and molluscan fragments, and foraminifera. This layer can be up to 190 feet thick.

The Ocala Limestone, an Eocene deposit, actually consists of three limestone formations of similar character. In order of increasing age, these are the Crystal River, Williston and Inglis Formations. The Ocala Limestone varies from a loose, porous, cream to white-colored coquina, composed of large foraminifera and shells, to a solution-riddled, echinoid-rich brown limestone. The deposit ranges in thickness from 150 to 250 feet.

Avon Park Limestone consists of alternate layers of dark brown dolomite and chalky limestone, both of which may contain chert and gypsum. This formation ranges from 170 to 270 feet in thickness.

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 Lake City Limestone reaches 500 feet in thickness.

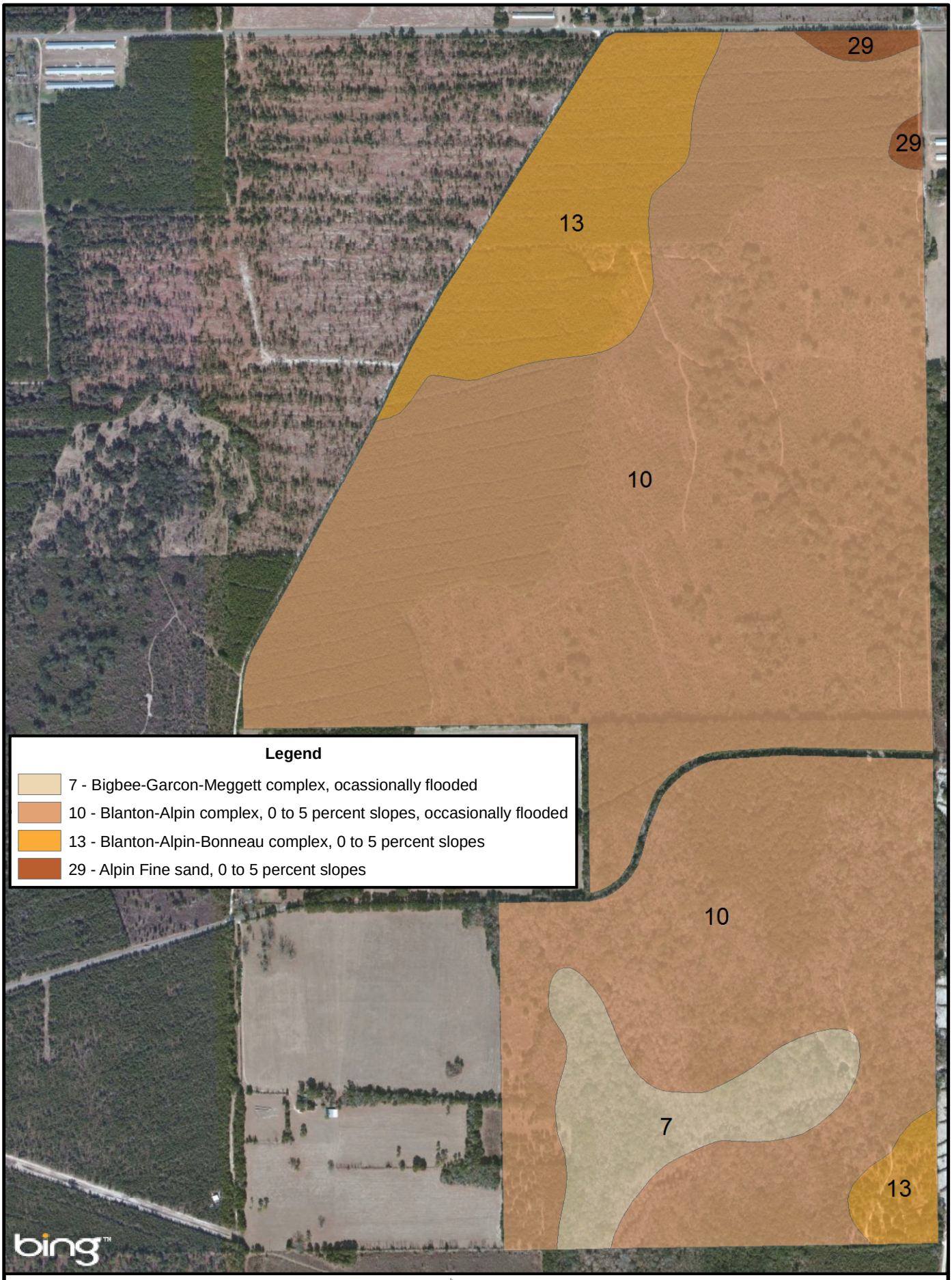
The last formation of Eocene Age is Oldsmar Limestone. The top half of the formation is a very porous, brown limestone with some gypsum and anhydrite, while the bottom half is a thick zone of dolomite with chert or anhydrite. Oldsmar Limestone ranges between 250 and 350 feet in thickness.

The Cedar Keys Limestone is a Paleocene deposit. Its lower section has a dolomitic composition, while a distinct marker bed of clay occurs near the middle of the deposit. The greater part of the formation consists of gray, white, or brown, dense to porous fragmental limestone impregnated with gypsum and anhydrite. Red calcareous clay and purite may be present in some localities. This formation ranges from 400 to 450 feet in thickness.

Other than the partial excavation of one of the sinkholes along the west boundary by a previous landowner, no geological alterations are known to have occurred within Peacock Springs State Park.

Soils

Only four soil types are found within the park: Bigbee-Garcon-Meggett complex, occasionally flooded; Blanton-Alpin complex, 0 to 5 percent slopes, occasionally flooded; Blanton-Alpin-Bonneau complex, 0 to 5 percent slopes; and Alpin fine sand, 0 to 5 percent slopes (Weatherspoon 2006) (see Soils Map). The Bigbee-Garcon-Meggett complex is found in association within the floodplain and bottomland areas of Peacock Slough. While Bigbee soils are excessively drained, the Garcon and Meggett soils are much more poorly drained. The other two soil complexes in the park and the Alpin fine sand soils are moderately to excessively drained soils typical of uplands. Complete descriptions of these soils are included in Addendum 4.



WES SKILES
PEACOCK SPRINGS
STATE PARK

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

SOILS MAP

Soil disturbance and erosion from surface water runoff continue to be two very important resource management problems monitored by park staff. Specifically, these two factors are highly detrimental to the already fragile and unstable, steep-sided sinkhole lakes in the park. Sinkhole lakes that are continually exposed to this type of environmental stress will eventually become degraded.

Surface water runoff is naturally laden with eroded materials that may flow directly into nearby sinkholes and depressions. Large openings into the Floridan aquifer, such as those at Peacock Springs I, II, and III, are particularly vulnerable to possible contamination from runoff. Especially during strong storm events, runoff that does not have an opportunity to filter through underlying soils may flow directly into these openings, causing increased turbidity and sedimentation and decreased water quality in the aquifer. Since abrupt changes in water quality have been directly linked to declines in troglobitic fauna at Peacock Springs (Streever 1991, 1992a, 1992b), DRP should continue to retrofit park facilities in such a way as to facilitate the greatest amount of natural infiltration of runoff as possible.

Areas within the park that are most prone to significant soil erosion include service roads, footpaths, and high visitor use areas around ecologically sensitive karst features such as Olsen Sink. Early efforts to correct soil erosion and compaction at Peacock Springs have included the realignment of parking areas, closure of strategic roads and construction of water bars to intercept, slow, and re-direct surface water sheetflow across the natural landscape away from sensitive karst features. The construction of boardwalk and step structures at Peacock I and Orange Grove Sink has considerably improved visitor access and significantly reduced the erosion at these sites. However, other significant erosion issues occur at the park, and surface water runoff continues to be one of the park's primary ecological threats.

In 2007, a majority of the main park drive from the entrance to the Peacock Springs I-III parking area was stabilized using recommendations from a DRP-led engineering proposal concerning best management practices for unpaved roads (Document in files at District 2 office, DRP). Additionally, a geotechnical study was completed to determine potential weight restrictions for the road to account for the likely presence of a network of cavities just below the road surface. Some sections of this stabilization and restoration work remain unfinished due to limited funding. These include much of the lowest elevation area near the Peacock Springs I-III visitor parking lot, as well as service roads leading from this lot to the park office. Even though some early restoration work was done near Peacock III, additional terracing and surface water runoff diversions will be necessary at this location.

The main parking lot adjacent to Peacock Springs I-III continues to suffer erosion during heavy rainfall events. During significant Suwannee River flood events, this parking lot can be completely submerged, which complicates the erosion issue even

further. In addition, the visitor and diver approach leading to Peacock III still channels runoff and therefore its slopes suffer from soil erosion as water runs off into Peacock III.

Historically, both Olsen Sink and Bonnet Spring have experienced significant amounts of soil disturbance due to divers and other visitors traversing the steep slopes above these karst features. In response to this threat, DRP closed these sensitive sites to public access until visitor use guidelines could be developed. Recreational diving has since not been allowed at Bonnet Spring, and Olsen Sink has only been used as an escape route for divers during an emergency. Olsen has greatly benefited from its closure as a public or diver access point. However, limited park staff makes enforcement of closure difficult at these sites, which are two of the most pristine and fragile areas within the park. Since Bonnet Spring has a population of resident alligators, safety is also a critical concern that must be managed at this site.

Visitor access improvements were completed in 2010 at Olsen Sink in an effort to reduce soil disturbance and erosion at this nearly pristine karst window. The improvements provide visitor interpretation about this sensitive karst feature. This sinkhole lake is one stop on a new interpretive hiking trail that was developed with the assistance of the North Florida Springs Alliance (NFSA), the park's Citizen Support Organization.

Management activities will continue to follow DRP's accepted best management practices to prevent further soil disturbances and to protect the parks soil and water resources.

Minerals

There are several limestone outcrops in the park, primarily associated with the springs. Whether mineral deposits of commercial value exist in the area is unknown.

Hydrology

Wes Skiles Peacock Springs State Park is located just north of Reach 3 of the Middle Suwannee River Basin in southwestern Suwannee County (Hornsby et al. 2002). The park contains an extraordinary number of unique karst features including two spring systems that only infrequently discharge enough groundwater to create spring runs. The Peacock Spring Run, with an occasional contribution of flow from Bonnet Spring, forms the backbone of Peacock Slough, a riparian corridor that extends south about 1.7 miles to the Suwannee River.

Regionally within the Middle Suwannee River Basin, which includes Peacock Springs, the upper Floridan aquifer extends close to the surface and is unconfined (Florida Geological Survey 1991). Additional named springs and other karst features similar to those at Peacock Springs are located upstream and downstream of the park along this stretch of the Suwannee River. Groundwater discharge from these hydrologic features significantly augments the base flow of the Suwannee River, and is in fact the primary

source of inflow to this section of the river. Spring flows constitute about half of the discharge, with the remaining amount attributed to other groundwater sources that reemerge directly from the river bottom (Pittman et al. 1997). During flood stage of the Suwannee, however, this cycle may reverse as springs and karst windows begin to act as "siphons" or inflow points into the upper Floridan aquifer. When the river stage is greater than 26.5 feet, overland flow from the Suwannee River can back flood Peacock Slough and ultimately siphon underground through karst features at Peacock Springs. Research has indicated that substantial nitrate loading and other water quality issues are associated with river and groundwater mixing along this reach of the Suwannee River, including at Peacock Springs (Katz et al. 1999; Katz and Hornsby 1998; Berndt et al. 1998; unpublished data in files at District 2 office, DRP).). In addition, previously documented flow reversals at Peacock have provided us with an early understanding of cyclic troglobite die-off and recovery episodes (Streever 1991, 1992a, and 1992b).

Peacock Springs and other Karst Features: Included among the numerous sinks and depressions found in the park are named features such as the Peacock Springs Group (I-III), Bonnet Spring, Pump Spring, Baptizing Spring, Challenge Sink, Cisteen Sink, Olsen Sink, Orange Grove Sink, Pot Hole Sink, and Waterhole 3 Sink. While all of these features are significant, the aquatic cave system where it surfaces at Peacock Springs I, II, and III, and at Orange Grove Sink gives the park its unique identity.

The Peacock Springs Group (I-III) consists of a series of three interconnected karst windows. Overland discharge from these three windows, when they occasionally act as "spring vents," is directly dependent on the potentiometric surface of the upper Floridan aquifer. However, this type of discharge seems to be very infrequent. Of the Peacock Springs Group, Peacock I (the northernmost spring) is the primary entrance into a very large and complex aquatic cave system. Cave divers also frequently access the cave system via Orange Grove Sink.

Peacock's labyrinth of underground conduits is world-renowned for its complexity and length. Certified cave divers have been exploring its depths since the late 1950s. By 2012, divers had mapped nearly 10 miles of caves in the system. Many of those divers are now associated with the North Florida Springs Alliance (NFSA), and they continue to map, maintain, and promote the park's aquatic cave system as a recreational, training, and research destination.

Spring runs from the Peacock Springs Group and Bonnet Spring occasionally carry water. The runs converge within the park about 1,250 feet downstream from Peacock III to form an intermittent spring-run stream. That stream, along with adjacent floodplain swamp and alluvial forest, forms Peacock Slough, a broad wetland corridor that links Peacock Springs to the Suwannee River at a point between river miles 95 and 96 (Gulley et al. 2011). The bottom of much of the upper spring run consists of elaborate, stair-step limestone bedding. The hydroperiod of wetlands bordering Peacock Slough is largely

dependent on water levels in the Suwannee River, which can fluctuate by tens of feet, and to a lesser extent on flows from the two upstream spring systems. The Suwannee River Water Management District (SRWMD) has calculated the following flood elevations for 2, 10, and 100-year events along the River Mile 95-96 stretch of the Suwannee River. All data are expressed as feet above mean sea level (msl).

Table 2: Suwannee River Flood Elevation Calculations				
Event	**2-year**	**10-year**	**100-year**	**Flood of Record**
River Mile 96	32'	43'	50'	52'
River Mile 95	32'	42'	49'	51'

Following approval of the previous Peacock Springs unit management plan in 2002, the state acquired an important property north of Luraville Road that more than doubled the park's acreage. This new parcel likely contains a significant portion of the up-gradient Peacock Springshed, although there has been no formal delineation of the springshed yet, and the proximal source of flow from the upper Floridan aquifer into the park's cave systems is still unknown. Based on current cave maps, however, it is obvious that the recent acquisition will play an important role in protecting the Peacock Springshed.

Water Quality: Within the park, the two primary water quality issues are pollution of the groundwater by nutrients, and erosion and sedimentation within sensitive karst features. Sporadic water quality monitoring data are available for Peacock Springs (Hornsby and Ceryak 1998; Maddox et al. 1998; FDEP 2011a). A groundwater monitoring well (Id#: -041227001), located southeast of the park, provides data about the Floridan aquifer. Much of the important hydrological information collected, stored, and managed by state water management agencies can now be accessed through a variety of web-based databases (USGS 2011; FDEP 2011a, FDEP 2011b).

During the late 1980s, FDEP and SRWMD collaborated on establishing a long-term Very Intense Study Area (VISA) Monitoring Network to quantify the effects of various land use activities on regional groundwater quality (Maddox et al. 1998). The Lafayette County VISA site, one of 22 selected throughout the state, is situated within a 28 square mile area adjacent to the Suwannee River and just south of the park. Both Telford Spring (Id #: TEL010C1) and Running Springs (Id #: RUN010C1), located upstream and downstream respectively of Peacock Slough, are sampled as part of that VISA.

Within the Middle Suwannee River Basin, nutrients, particularly nitrates, have steadily increased over the past 50 years (Ham and Hatzell 1996). Since this region of the basin lacks any major tributary inputs other than upstream drainage, increased nutrients in the water are directly attributable to historic and current groundwater contamination (Katz and Hornsby 1998). Much of the region surrounding Peacock Springs is

historically rural and has no heavy industry. Agriculture is the primary economic driving force in the area. Scientific evidence now clearly indicates that agricultural activities surrounding Peacock Springs have played a significant role in long-term contamination of the groundwater (Cohen et al. 2007). This contamination has direct links to inorganic sources and specifically to agricultural fertilizers (Maddox et al. 1998).

Quarterly water quality monitoring in 18 important springs in Florida, including two sites at Peacock Springs, took place from 2000-2007 (FDEP 2008). Reports from this work, referred to as Ecosummary, contain quarterly ecosystem health assessments of Peacock Spring I and Orange Grove Sink. Findings in the assessments revealed that the surface water quality at each of the two sampled sites was very similar, indicating that the two karst systems are closely interconnected.

During the seven-year Ecosummary monitoring period, nitrate-nitrite levels were consistently high at both the Peacock Springs study site (ranging from 1.0 to 2.5 mg/L) and the Orange Grove Sink site (ranging from 1.9 to 2.4 mg/L). Of the 18 springs monitored, those two sites ranked among the top five poorest in water quality, based on the nitrate-nitrite parameter. The occurrence of elevated nitrogen levels at these two sites is not particularly surprising given the long period of record, 1973 to present, during which nitrate-nitrite levels averaged just over 2 milligrams per liter (Documents on file at District 2 office, DRP).). Unfortunately, an increase in nutrients in groundwater contributes to an overall decline in spring ecosystem health (Wetland Solutions Inc. 2010). Naturally occurring background levels for nitrates in groundwater should be less than 0.01 mg/L (Cohen et al. 2007).

Another revelation of the Ecosummary was that the surface waters at Peacock Springs had fluctuating, low levels of dissolved oxygen. Any decrease in dissolved oxygen in these karst systems can cause a decline in abundance of invertebrate grazers and a consequent increase in periphyton accumulation within the system (FDEP 2006; Mathew Cohen unpublished research). At this time, only baseline periphyton data have been collected at Peacock. Nonetheless, the U.S. Environmental Protection Agency (EPA) has suggested that water bodies with periphyton levels exceeding 150 mg/m^2 may be biologically impaired and may experience a decline in ecosystem health. When the visible presence of nuisance algal biomass in a spring begins to interfere with the aesthetics and recreational use of the site, it is considered an indication of an imbalance of aquatic flora (Rule 62-302.500 (48) (b) F.A.C.). There is now widespread recognition that periphyton is increasing in abundance in nearly all of Florida's springs, and that this is a symptom of declining spring health (Mirti et al. 2006; Stevenson et al. 2007).

FDEP began a long-term water monitoring program in the late 1990s that was based on the state's natural hydrologic units. This program uses a watershed approach to provide a framework for implementing the Total Maximum Daily Load (TMDL) requirements necessary for restoring and protecting water quality in specific water

bodies (Hallas and Magley 2008). Implementation of a Basin Management Action Plan (BMAP) is FDEP's primary resource for addressing specific water quality issues (FDEP 2007). The FDEP Basin Status Report for this region indicates that Peacock Slough, and therefore water bodies associated with Peacock Springs, became potentially impaired in 2001 because of high nutrient loading and the proliferation of algal mats (FDEP 2001). Currently, Peacock Slough is listed as a verified impaired water body based on these two parameters, which means that its surface waters do not meet applicable, state water quality standards (Hallas and Magley 2008). FDEP is currently developing a BMAP for the Suwannee River, including Peacock Slough.

One measure of spring ecosystem health is troglobite abundance (see Imperiled Species section for additional information). Troglobite populations have been monitored at Peacock Springs since at least the early 1990s. At this time, it is still unknown how water quality impairments may have affected the Peacock Springs troglobite populations over the long term. However, when the Suwannee River floods, which usually occurs annually in the early spring, river waters are elevated above the upper surface of the Floridan aquifer. During these flood events, there may be an insurgence of the Suwannee River's tannin-stained waters into the Peacock cave system. Rather rapid, large-scale changes in the usually stable environment of the aquatic caves may occur. One frequent consequence of these insurgence events may be a noticeable die-off of troglobite fauna (Streever 1991). Park records contain documentation of past die-offs and the subsequent recovery periods.

As described in the Soils section above, due to the unconfined nature of the park's numerous karst features, the sinks and aquatic caves at Peacock are very vulnerable to potential contamination from surface waters that may contain pollutants (Cichon et al. 2004). Because of that potential threat, district and park staffs are ever watchful for signs of increased stormwater erosion, sedimentation, and turbidity in the wetland systems at Peacock Springs. Visitor use at significant karst features such as Peacock Springs I-III and Orange Grove Sink is heavier than at some of the other areas in the park. The primary disturbance factors at these sites are erosion and sedimentation caused by regular foot traffic or by divers as they enter and exit the karst features. Other threats derive from the sheetflow of surface waters across exposed limestone and soils, especially in disturbed areas such as unpaved parking lots and service roads, or where foot traffic is concentrated and groundcover is sparse.

During 2001-02, boardwalks, platforms, and steps were installed at two of the most-visited natural features in the park, Peacock I and Orange Grove Sink. Also during this time, staff installed strategically located water bars in areas around the Peacock Springs I-III parking lot in order to divert stormwater sheetflow away from the spring vents. In 2007, staff stabilized the majority of the unpaved main park drive with additional soil and gravel, constructing a series of water bars and adjusting gradient slopes along the roadway in the process. In 2010, park staff and the park's Citizen Support Organization

(North Florida Springs Alliance) planned and constructed a simple overlook structure at Olsen Sink to enable interpretation of the sink and to mitigate erosion and water quality issues. These structures and improvements, plus a realignment of the park entrance road, have significantly improved hydrological conditions in the park and now allow sheetflow to move more naturally across the landscape.

Water Quantity: Water managers have recently begun to address concerns about the quantity of the water that discharges from major springs in Florida (Upchurch and Champion 2004). The development of "Springshed Protection Areas" has evolved into a strategy to protect specific areas within a springshed from "significant harm" (Chapter 373.042 F.S.). Many of Florida's largest springsheds have undergone a detailed delineation process; however, the Peacock Springshed has not yet been completed (FGS 2007). To achieve a better understanding of trends in groundwater levels within springshed protection areas, the SRWMD has developed a high-resolution monitoring program whereby water levels are measured in a large number of wells scattered throughout the basin (Upchurch et al. 2001).

Based on available groundwater data, water managers now know springshed boundaries are not static. They can change dramatically over time, depending on the amount of consumptive use of groundwater taking place in various parts of the springshed. Recent research has revealed that a significant region of groundwater supply in the eastern part of the SRWMD, considered a groundwater divide of sorts between the SRWMD and the SJRWMD, has declined to the extent that a westward shift in groundwater potentiometric contours has occurred. The shift appears to be in response to the artificial depletion of groundwater reserves caused by large-scale pumping in Duval and Nassau Counties (Grubbs and Crandall 2007). This regional drawdown may be partially responsible for shrinking springsheds and declining spring flows within parts of the SRWMD (Mirti 2001; Grubbs and Crandall 2007). Both water management districts are now attempting to coordinate more closely when issuing consumptive use permits and monitoring groundwater withdrawals.

Current drought levels and increasing consumptive use of groundwater resources have generated strong concerns about lowered water tables and decreased spring flows throughout the Suwannee River Basin. The SRWMD is responsible for prioritizing and establishing Minimum Flows and Levels (MFLs) for water bodies within its boundaries. It is currently developing an MFL for the Middle Suwannee River, including Peacock Springs, with a scheduled date of 2014. Once an MFL is established, implementation of a spring protection area for Peacock Springs will be based on projected relative impacts of groundwater withdrawals and on vulnerability of the aquifer (SRWMD 2005).

Peacock Springs essentially has three documented spring systems, Peacock Springs I-III, Orange Grove Sink, and Bonnet Spring, all of which are classifiable as second magnitude springs when they produce overland flow. Discharge from the three springs

is intermittent and highly variable, and therefore it has been difficult to obtain accurate and timely flow measurements. Peacock Spring III acts as a siphon during normal to low water levels, and often captures the discharge of Peacock Springs I and II. When the Suwannee River floods, all three springs may reverse flow and function as siphons. During periods of high discharge from the aquifer, all three act as springs. Below is a summary of all discharge data for the springs within the park (Rosenau et al. 1977; Hornsby and Ceryak 1998; FDEP 2011a).

Table 3: Spring Discharge Measurements from Wes Skiles Peacock Springs State Park

Spring Name	Date	Discharge (cfs)	Data Source
Peacock Springs I-III	10/20/73	14.8	USGS
Peacock Springs I-III	7/30/97	8.87	SRWMD
Peacock Springs I-III	6/16/98	91	FDEP STORET
Peacock Springs I-III	7/29/98	31.3	SRWMD
Peacock Springs I-III	8/19/98	24.8	SRWMD
Bonnet Spring	6/2/98	40 estimated	SRWMD
Orange Grove Sink	5/8/98	28.7	SRWMD

On November 20, 1973, the USGS observed a reverse flow from Peacock Slough into Bonnet Spring. At the same time, they measured a 14.8 cubic feet per second discharge emerging from Peacock Springs I-III. The only known measurement of flow from Bonnet Spring was during June 1998 when SRWMD estimated a flow of 40 cubic feet per second. Park staff began to document and track all significant discharge events in the Peacock Spring system in 2010. Orange Grove Sink is located to the northeast of Peacock Slough and rarely has a surface water connection with the slough. When Orange Grove discharges overland, it flows for only about 250 feet before entering an unnamed swallet.

Some cave experts have suggested that it may be more appropriate to consider the unique geomorphic features of Peacock Springs not as a spring system, but as a swallet plateau (i.e. a karst region with a broad transitional scarp) that experiences occasional groundwater overflows (Wes Skiles, personal communication 2008). That interpretation of Peacock hydrology recognizes that it is much more complex than a simple siphon or spring system. Measuring spring run discharges at Peacock may actually be misleading since overland flows do not reflect the large volumes of groundwater that move internally through deeper parts of the cave system. A large proportion of Peacock's groundwater may not even discharge through surface features within the park, but instead pass through the system to unknown discharge points, presumably down gradient within the Middle Suwannee River Basin (Wes Skiles, personal communication 2008). Indeed, the strongest flow rates at Peacock have been measured within the cave system at depths below 180 feet.

If MFLs are to succeed in providing water bodies with adequate protection against significant harm, it will be important to have a diverse group of stakeholders assist in guiding the MFL review process. One responsibility of FDEP is to review annual MFL priority lists submitted by water management districts for water bodies within their regions. Participation by FDEP in the review process is important, especially since significant problems (e.g. declines in spring flows) have occurred at some other springs in DRP District 2 (Madison Blue, Fanning, and Manatee Springs) despite their already having MFLs recently assigned to them (SRWMD 2004; SRWMD 2005). For example, scientists and cave divers have documented the first flow reversal ever recorded at Manatee Spring (i.e., since regular measurements were begun in the early 1900s), which lasted over a week (Document in files at District 2 office, DRP).

Strong evidence now exists to support the premise that declining spring flow rates correlate with increased nutrient levels in springs and spring runs (Cohen et al. 2007). Given the recent documentation of flow reductions within other nearby springs (e.g. Ichetucknee River) and trends toward shrinking springsheds in the SRWMD, it will be important that DRP staff continue to engage other agencies and the public in cooperative efforts to maintain high standards of water resource protection in the Peacock Springs region.

Natural Communities

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

The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI). The premise of this system is that physical factors such as climate, geology, soil, hydrology, and fire frequency generally determine the species composition of an area, and that areas that are similar with respect to those factors will tend to have natural communities with similar species compositions. Obvious differences in species composition can occur, however, despite similar physical conditions. In other instances, physical factors are substantially different, yet the species compositions are quite similar. For example, coastal strand and scrub, two communities with similar species compositions, generally have quite different climatic environments and 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 dependent communities, ongoing control of non-native plant and animal species, maintaining natural hydrological functions (including historic water flows and water quality), preserving a community's biodiversity and vegetative structure, protecting viable populations of plant and animal species (including those that are imperiled or endemic), and preserving intact ecotones linking natural communities across the landscape.

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

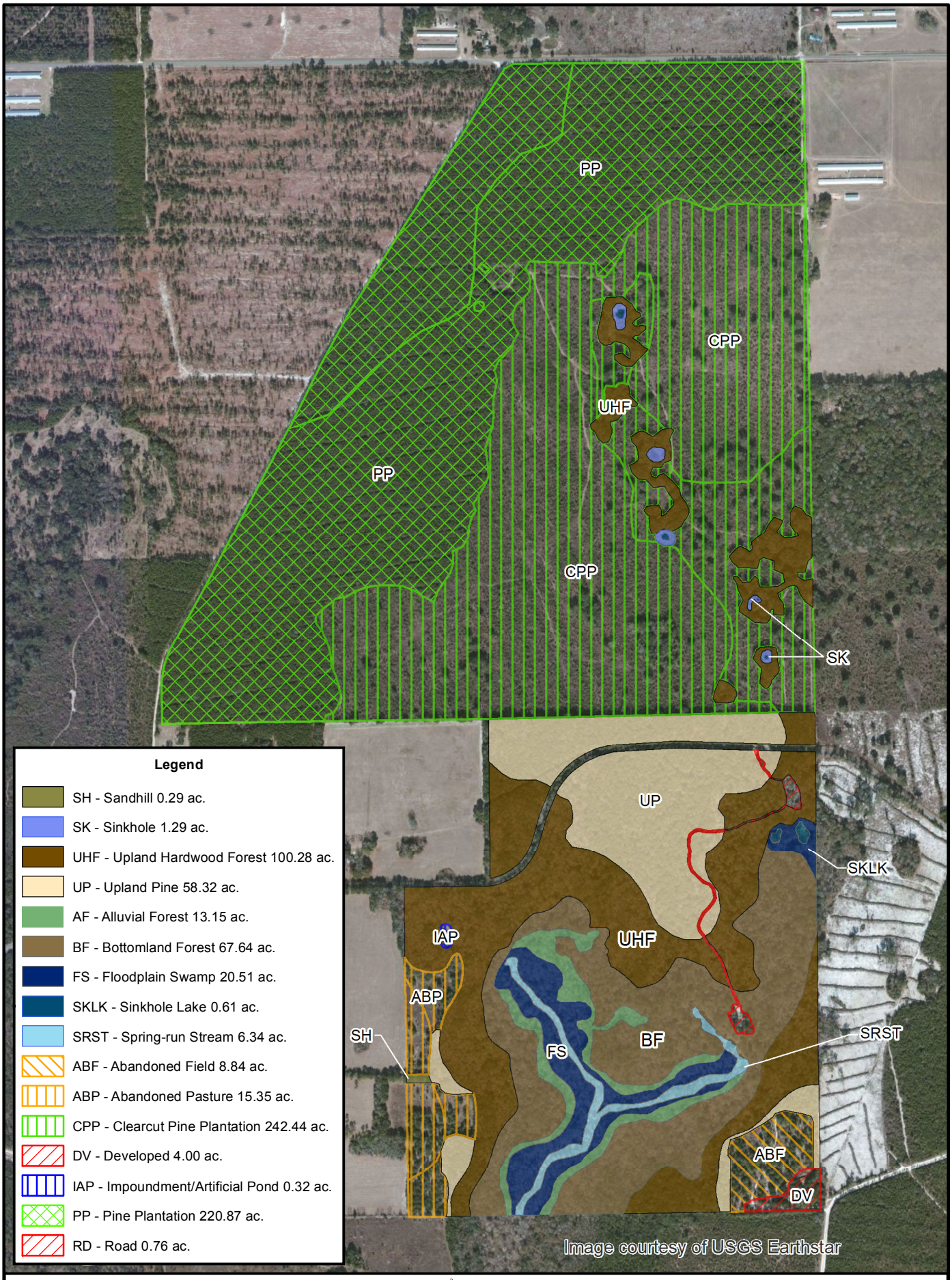
UPLAND HARDWOOD FOREST

Desired future condition: This community is a mature, closed canopy hardwood forest typically occurring on slopes and rolling hills with generally mesic conditions. Canopy tree species may consist of southern magnolia (*Magnolia grandiflora*), sweetgum (*Liquidambar styraciflua*), live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), Florida maple (*Acer saccharinum*), and swamp chestnut oak (*Quercus michauxii*). Understory species will include trees and shrubs such as American holly(*Ilex opaca*), flowering dogwood (*Cornus florida*), redbud (*Cercis Canadensis*), red bay (*Persea borbonia*), horse sugar (*Symplocos tinctoria*), and American beautyberry (*Callicarpa americana*). Groundcover will consist of shade tolerant herbaceous species, sedges and vines.

Description and assessment: This natural community occurs primarily on slopes above the bottomland forest that borders Peacock Slough and grades into the upland pine higher up the slopes. Upland hardwood forest is also found associated with Pump Spring and Baptizing Spring in the northern end of the park. Sinkholes, karst windows, and shallow depressions of various sizes are scattered throughout the upland hardwood forest. Smaller areas of this community type may also be found on low ridges within the bottomland forest.

The boundary between the upland hardwood forest and the upland pine is indistinct and difficult to define, particularly after years of fire exclusion. In some cases, an area labeled as upland hardwood forest may, in fact, be advanced successional upland pine that is considered, for practical purposes, non-restorable.

Although some selective logging occurred historically in the upland hardwood forest in the southern end of the park, it is currently in good condition and is a prime example of the secondary climax forest of the region. Impressive specimens of laurel oak and Florida maple (*Acer saccharum* subsp. *floridanum*) are scattered throughout the area. The upland hardwood forest in the northern end of the park, in contrast, was impacted by



WES SKILES PEACOCK SPRINGS STATE PARK

N

0 250 500 1,000 Feet

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

NATURAL COMMUNITIES EXISTING CONDITIONS MAP

silviculture in the past and nearly completely cleared prior to state acquisition in 2007. These areas are considered to be in poor condition.

General management measures: Management of the upland hardwood forests at Peacock Springs will require periodic monitoring and removal of invasive plant and animal species. Planting of hardwood species may be required in the areas impacted by silviculture in the past.

UPLAND PINE

Desired future condition: Dominant tree species will usually be longleaf pine (*Pinus palustris*). An intermittent subcanopy of smaller hardwood trees will be scattered throughout (usually southern red oak (*Quercus falcata*), sand post oak (*Quercus margaretta*), mockernut hickory (*Carya alba*), flowering dogwood (*Cornus florida*), bluejack oak (*Quercus incana*), and sassafras (*Sassafras albidum*)). In old growth conditions, oak trees and hickories are commonly 150 to 200 years old. Herbaceous cover will be less than 3 feet in height and is comparable to sandhill, but may have a higher density of understory shrubs and saplings. Groundcover may be dominated by wiregrass (*Aristida stricta* var. *beyrichiana*), with little bluestem (*Schizachyrium scoparium*), broomsedge bluestem (*Andropogon virginicus*), and indiangrass (*Sorghastrum* spp.). Other typical forbs 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 1 to 3 years.

Description and assessment: Upland pine occurs primarily in the northern end of the park. Unfortunately, the majority of this habitat north of Luraville Road was dramatically altered during site-prep and conversion to pine plantation in the 1970s. The upland pine borders upland hardwood forest, generally occurring at elevations slightly greater than 45 feet mean sea level (msl). At Peacock Springs, this natural community probably constitutes a transition zone between the park's upland hardwood forest and sandhill that historically stretched for miles to the north, east and west.

The upland pine on either side of Luraville Road suffers from long-term fire suppression. That only a few adult longleaf pines survive is probably attributable to past logging activities. Southern red oaks are scattered throughout the area along with mockernut hickories and other remnants of upland pine. This area has been heavily invaded by less fire-tolerant species, primarily laurel oak, live oak and sand live oak (*Quercus geminata*). Livestock grazing may have also occurred there in the past, since the herbaceous layer is not as diverse as might be expected. A small remnant of upland pine, lying between an abandoned pasture and upland hardwood forest, remains intact in the southwest corner of the property. It is in fair condition with many large sand post oaks and southern red oaks present. This site also retains small populations of

wiregrass and pinewoods dropseed (*Sporobolus junceus*). These areas are considered to be in fair condition.

There are small areas of highly disturbed upland pine located in the southeast corner of the park and along the southwest boundary. These areas were cleared many years ago, presumably for agriculture. The large area of upland pine to the north in the new addition has been subjected to silviculture over the past few decades. The northern and western portions were harvested and replanted in slash pines in the early 1990s. The rest of this area was almost completely cleared of standing pines and hardwoods just prior to state acquisition in 2007. Most of the remaining trees are located on the perimeter of sinks or other karst features. Much of this area contains windrows from the most recent or previous timber cutting operation. Few remnants remain besides scattered saplings of southern red oaks and mockernut hickories. These areas are considered to be in poor condition.

General management measures: Restoration of a natural fire regime to the upland pine is essential for recovering this rare and unique community type. Reintroducing fire will require additional hardwood removal efforts to allow prescribed fires to penetrate further into areas currently dominated by off-site species of hardwoods in the southern half of the park. The upland pine areas currently designated as cleared pine plantation in the northern half of the park will need restoration of groundcover as well as overstory species. Restoration of the upland pine is discussed further in the Resource Management Program section of this component. As restoration proceeds, staff will continue to monitor these areas for rare species that are endemic to these communities.

SANDHILL

Desired future condition: Dominant pines will usually be longleaf pine (*Pinus palustris*). Herbaceous cover is 80 percent or greater, typically of wiregrass (*Aristida beyrichiana*), and is less than 3 feet in height. In addition to groundcover and pines characteristics, there will be scattered individual trees, clumps, or ridges of onsite oak species (usually turkey oaks (*Quercus laevis*), sand post oak (*Quercus margaretta*), and blue-jack oak (*Quercus incana*)). In old growth conditions, Sand post oaks are commonly 150-200 years old, and some turkey oaks are over 100 years old. The Optimal Fire Return Interval for this community is 1 to 3 years.

Description and assessment: The only sandhill in the park lies above the 50-foot contour along the west boundary of the park in both the north and the south sections. In the southern end of the park, the sandhill in management zone 1D along the western boundary is situated slightly up slope of a band of upland pine that separates it from bottomlands surrounding Bonnet and Peacock springs. Although few remnants remain, the shift in soils on the slopes delineates the apparent upland pine /sandhill boundary. The sandhill fringe mapped along the western boundary in the north end of the park has been subjected to intense silviculture in the past few decades and very few remnant

species remain. This area was planted with slash pines in the early 1990s. The boundary between upland pine and sandhill is based primarily on topography since the existing planted pine plantation obscures the ecotone. The small sandhill fragments in the park represent the fringe of what was once an extensive expanse of natural sandhill covering hundreds of square miles of countryside north, west, and east of the Peacock Springs system. Most of this land was historically cleared for agriculture and later converted to silviculture. The sandhill community in the park is presently in very poor condition, but it may be restorable.

General management measures: Removal of off-site pine species and pasture grasses, coupled with planting of longleaf pines and groundcover species, would be needed to initiate restoration. Restoration of a natural fire regime will also be required as restoration proceeds.

SINKHOLE AND SINKHOLE LAKE

Desired future condition: Sinkholes are characterized by cylindrical or conical depressions with limestone or sand walls. Sinkholes do not contain standing water for long periods as do sinkhole lakes. Depending upon the age of the sinkhole, the vegetation of sandy sinkholes may represent a well-developed forest including southern magnolia (*Magnolia grandiflora*), sweetgum (*Liquidambar styraciflua*), wax myrtle (*Myrica cerifera*), grape vines (*Vitis* spp.), Virginia creeper (*Parthenocissus quinquefolia*), water oak (*Quercus nigra*), and pignut hickory (*Carya glabra*). Sinkholes with vertical limestone walls may be covered by a variety of mosses, liverworts, ferns, and small herbs. Sinkholes will generally have a very moist microclimate due to seepage and being buffered by the lower elevation and a tree canopy. Desired future conditions include limiting unnatural erosion and protecting the microclimate from disturbance.

Desired future condition: Sinkhole lakes geologically referred to as "karst windows" are relatively permanent and typically deep waterbodies characterized as an opening into the Floridan aquifer with a high mineral content formed in depressions within a limestone base. Vegetative cover may range from being completely absent, consist of a fringe of emergent species or be completely covered with floating plants. Typical plant species may include smartweed (*Polygonum* sp.), duckweed (*Lemna* spp.), bladderwort (*Utricularia* spp.), and rushes (*Juncus* spp.). Desired conditions include minimizing disturbances that cause unnatural erosion and sedimentation that can increase several water quality contaminants directly into the local aquifer system.

Description and assessment: Because of underlying limestone, the entire unit is riddled with sinks and depressions characteristic of karst topography. Sinkholes and sinkhole lakes are scattered throughout the other natural communities. Due to the extreme variation in water levels of both the Suwannee River and the Floridan aquifer, many sinkholes hold water for varying lengths of time. Thus they may be classified as

either sinkholes or sinkhole lakes, depending on recent hydrologic events. Most of the sinkholes and sinkhole lakes in the unit are in good condition. The main concerns are erosion and sedimentation problems caused by visitor use or by improperly located roadways.

Many of the permanent sinkhole lakes in the park provide direct access to the extensive Peacock Springs cave system. These include Orange Grove Sink, Cisteen Sink, Olsen Sink, Pot Hole Sink, Challenge Sink and Waterhole 3 Sink. Some of these, such as Orange Grove Sink, are connected to the Suwannee River by surface flow during and after flood events. Pump and Baptizing Springs are connected to an aquatic cave system, but the subterranean conduits are limited in size and exploration has been restricted. Sinkhole lakes on the new addition to the park also have connections to subterranean conduits. It is presumed that the apparent flow in the sinks and springs to the north is connected to the conduits that supply water to the sinks and springs in the southern end of the park. In general, the sinkholes and sinkhole lakes in the park are in good condition. The sinkholes and sinkhole lakes in the new addition were not directly damaged by the clear-cutting of the surrounding lands due to vegetative buffers being left in place around all karst features.

General management measures: Management of sinkholes and sinkhole lakes must emphasize protection. The edges of sinkholes need to be protected from impacts that could accelerate erosion and sedimentation problems. This is even more critical with sinkhole lakes since increased levels of erosion can cause a decline in water quality. Access to these areas, particularly the sinkhole lakes, is often restricted except for legitimate research purposes or other management activities. Monitoring of these communities for impacts from invasive plant and animal species will also be necessary.

FLOODPLAIN SWAMP

Desired future condition: Frequently or permanently flooded community found in low lying areas along streams and rivers. Soils will consist of a mixture of sand, organics and alluvial materials. In north Florida, the closed canopy will typically be dominated by bald cypress (*Taxodium distichum*), but commonly includes tupelo species (*Nyssa* spp.) as well as water hickory (*Carya aquatica*), red maple (*Acer rubrum*), and overcup oak (*Quercus lyrata*). Trees bases are typically buttressed. Understory and groundcover will be typically sparse.

Description and assessment: The floodplain swamp borders Peacock Slough, which includes the spring runs of Peacock Springs I-III, Bonnet Spring, and Orange Grove Sink. The floodplain swamp varies in width depending on topography. It is usually inundated during periods of normal high water, either when the Suwannee River floods or when the springs are flowing abundantly. Although this area was logged at one time, due to its age and lack of recent disturbance it represents the best example of a floodplain swamp associated with a spring run in the Suwannee River basin (Lynch

1984). It is considered to be in very good to excellent condition. The area is dominated by bald cypress with an understory of buttonbush (*Cephalanthus occidentalis*), pop ash (*Fraxinus caroliniana*), and swamp privet (*Forestiera acuminata*). The upper portion of the floodplain swamp borders a well-defined spring run channel, while the lower portion is less well defined as the spring run broadens and the channels diverge and anastomose.

General management measures: Maintenance of a natural hydrological regime is critical to the long-term health of floodplain swamp communities. Many of the efforts detailed in the Hydrology section above designed to protect the spring-run stream, also apply to the floodplain swamp. Monitoring for impacts from invasive plant species and feral hogs will also continue.

BOTTOMLAND FOREST

Desired future condition: A fairly low lying, mesic to hydric community prone to periodic flooding. Vegetation will consist of a mature closed canopy of deciduous and evergreen trees. Overstory species may consist of 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. Understory may be open or dense. Understory species will typically include wax myrtle (*Myrica cerifera*), dwarf palmetto (*Sabal minor*), and swamp dogwood (*Cornus foemina*). Presence of groundcover is variable and may consist of witchgrass (*Dicanthelium* sp.) and various sedges (*Carex* spp.).

Description and assessment: Bottomland forest occurs below the 35-foot contour around Peacock Springs (I-III), Bonnet Spring and Orange Grove Sink. It also extends along the flats on both sides of Peacock Slough above the alluvial forest and floodplain swamp that border the spring run. The transition between bottomland forest and upland hardwood forest may be gradual or abrupt depending on the angle of the slope. The same holds true for the transition between bottomland forest and alluvial forest or floodplain swamp. Shallow sinks and wet depressions are scattered throughout much of the bottomland forest.

The bottomland forest at Peacock Springs is in very good condition despite selective logging in the past. It represents an excellent example of mature second growth and old-growth bottomland forest (Lynch 1984). The canopy is dominated by laurel oak, live oak, and water hickory while the understory is relatively open.

General management measures: Maintenance of a natural hydrological regime is critical to the long-term health of bottomland forest communities. Many of the efforts detailed in the Hydrology section above designed to protect the spring-run stream, also

apply to the bottomland forest. Monitoring for impacts from invasive plant species and feral hogs will also continue.

ALLUVIAL FOREST

Desired future condition: This community is a seasonally flooded, closed canopy, hardwood forest that occurs on ridges or slight elevations within the floodplain of alluvial rivers. Typical overstory trees may include overcup oak (*Quercus lyrata*), water hickory (*Carya aquatica*), American elm (*Ulmus americana*), laurel oak (*Quercus laurifolia*), and red maple (*Acer rubrum*). Understory species may include swamp dogwood (*Cornus foemina*), willow species (*Salix* sp.), and American hornbeam (*Carpinus caroliniana*). Presence of groundcover will be variable. Species such as netted chain fern (*Woodwardia areolata*) and other shade tolerant herbaceous species may be present.

Description and assessment: Small areas of alluvial forest are scattered throughout the bottomland forest and occur sporadically in a transition zone between the floodplain swamp and bottomland forest. Topographic relief determines the community's frequency of inundation, which forms the primary basis for distinguishing between alluvial forest and bottomland forest. The alluvial forest in the park is generally in excellent condition.

General management measures: Maintenance of a natural hydrological regime is critical to the long-term health of alluvial forest communities. Many of the efforts detailed in the Hydrology section above, designed to protect the spring-run stream, also apply to the alluvial forest. Monitoring for impacts from invasive plant species and feral hogs will also continue.

SPRING-RUN STREAM

Desired future condition: This natural community is a water course that derives most, if not all, of its water from limestone artesian openings to the underground aquifer. The waters will be typically cool, clear, and circumneutral to slightly alkaline. These factors allow for optimal sunlight penetration and minimal environmental fluctuations, which promote healthy plant, algae, and microorganism growth. However, the characteristics of the water can change significantly downstream as surface water runoff becomes a greater factor. Areas of high flow will typically have sandy bottoms while organic materials concentrate around fallen trees and limbs and slow moving pools. Typical vegetation will include tapegrass (*Vallisneria americana*), arrowheads (*Sagittaria* spp.), southern naiad (*Najas guadalupensis*), and pondweeds (*Potamogeton* sp.).

Description and assessment: The intermittent spring-run stream that connects Peacock and Bonnet springs to the Suwannee River varies enormously in size both seasonally and annually. When Suwannee River floodwaters inundate Peacock Slough, several upstream karst windows serve as siphons, and reverse flow into the Floridan aquifer occurs. For a period after the waters recede, these windows discharge as springs, and

create a spring-run stream. As the potentiometric level of the aquifer decreases, the discharge from the karst windows declines and eventually ceases altogether. When the spring run dries up completely, the exposed streambed supports an abundant diversity of herbaceous grasses and flowers.

Bonnet Spring and Peacock Springs I, II, and III discharge into the spring-run stream, although Peacock III may also serve as a siphon for I and II during periods of low water. The total length of the spring-run channel from Peacock I to the Suwannee River is about 1.7 miles, of which approximately 3,000 feet is inside the park boundary. The length of the spring-run from Bonnet Spring to the Peacock Springs run is about 1,250 feet. Additionally, Baptizing Spring in the north section of the park has a short spring run, extending approximately 10 feet.

Submerged aquatic vegetation in the spring run is relatively sparse due to the ephemeral nature of the run. During periods of spring discharge, the green alga *Hydrodictyon reticulatum* is abundant, while during stagnant periods, duckweed (*Lemna* sp.) may completely cover the water surface. The spring run is in good condition, although some karst windows are infested with the exotic plant hydrilla (*Hydrilla verticillata*) and feral hogs have become increasingly problematic along the majority of Peacock Slough.

General management measures: Management of complex aquatic systems is a difficult task. Since many factors affecting the spring-run stream originate outside the park within the Peacock Springshed, management considerations must necessarily extend beyond the park boundary. Protection of groundwater sources within the Peacock Springshed will be a priority when the boundary delineation of this watershed is complete. Park and district staffs will continue to work with the cave diving community and to coordinate the numerous research projects associated with the river and its springshed. Additionally, staff should document and track water clarity at select karst features of the park as a rapid response effort to identify significant changes that might occur in this natural community. Monitoring of this community for impacts from invasive plant and animal species will also be necessary.

AQUATIC CAVE

Desired future condition: This community is characterized as cavities below the ground surface in karst areas. A cave system may contain portions classified as terrestrial caves and portions classified as aquatic caves. The latter vary from shallow pools highly susceptible to disturbance to more stable, totally submerged systems. Cave systems are extremely fragile (refer to the Hydrology section above for details). Desired future conditions include protecting against alterations that may increase pollution in aquatic systems.

Description and assessment: The Peacock Springs cave system has been extensively mapped and is one of the longest in Florida. Nearly 10 miles of passages have been mapped to date. Peacock Springs I, II, and III, Bonnet Spring, Orange Grove Sink, Cisteen Sink, Olsen Sink, Pot Hole Sink, Challenge Sink, and Waterhole 3 Sink all provide human access to the aquatic cave system. Peacock Spring II is hydrologically connected to Peacock Springs I through underground conduits and the spring-run channel. Bonnet Spring has the only entrance to a separate cave system that may be hydrologically linked to the Peacock system by means of smaller conduits (Wes Skiles, personal communication). Peacock Spring III probably represents an independent link to the Floridan aquifer, since its hydrodynamic pressure is less than that of the main cave system.

The Peacock Springs cave system seems to be in fair to good condition, depending on the level of use it receives by cave and cavern SCUBA divers. Much of the information available to DRP biologists about the recreational use of these caves and associated impacts is derived from communications with volunteer cave divers. The North Florida Springs Alliance has been an active volunteer group and consistent source of data for the park. In general, narrower passages experience higher levels of damage, whether from equipment scraping walls, from divers disturbing the clay or silt substrate, or from exhaled air bubbles dislodging fauna clinging to cave surfaces. Damage to the clay or silt layers may persist for long periods of time. This detracts from the natural beauty of the caves and may have unknown consequences for troglobites. Those caves in which certification or instructive dives are conducted may be subject to greater levels of use and consequent abuse.

Popular entrances into the cave system, such as Peacock Spring I and Orange Grove Sink, show the most significant degradation. The NFSA documented two separate cave vandalism events in 2007 and 2008 at Peacock Spring I. Peacock Spring III receives an intermediate level of use since it has relatively more silt and often acts as a siphon. Other entrances, such as Challenge and Pot Hole sinks, receive far less use from divers and are not as degraded (Vincent DeMarco, personal communication).

Motorized diving scooters have also caused damage to the cave systems, particularly when used by less experienced divers. Most of the passages at Peacock Springs are too narrow to accommodate scooters without causing incidental damage to walls and substrate. Divers who are very familiar with the Peacock cave system believe that virtually all passages now open to recreational diving, even the longer ones, can be navigated successfully without the assistance of scooters. Recreational use of diving scooters at Peacock is prohibited. Divers wishing to conduct research in the cave system, however, may have a bona fide reason to use scooters. In these cases, permission may be granted via a standard research permit from DRP if the research is judged to be beneficial to DRP.

The Peacock Springs cave system harbors a number of rare species that exist only within aquatic caves, including the pallid cave crayfish (*Procambarus pallidus*), the Florida cave amphipod (*Crangonyx grandimanus*), and Hobbs' cave amphipod (*Crangonyx hobbsi*) (Lynch 1984). Dick Franz (Franz et al. 1994) also describes the swimming little Florida cave isopod (*Remasellus parvus*) from Peacock Springs. Very little is known about the population dynamics or ecology of these organisms, although their populations can vary greatly over time and space. The highest densities of the pallid cave crayfish are found within Peacock III, possibly due to the high organic input that occurs when Peacock III acts as a siphon (Streever 1991).

General management measures: Periodic monitoring of the aquatic caves by cave divers will allow staff to monitor impacts on the aquatic caves, particularly Peacock Springs I-III and Orange Grove Sink. Research dives throughout this cave system provide details on the condition of the caves. Erosion of the slopes above the sinkhole lakes must also be monitored and corrected to prevent siltation of the aquatic caves.

Altered Landcover Types

ABANDONED FIELD

An abandoned field is located in the southeastern corner of the park. Historical aerials show that it was apparently used for agricultural crops in the past. It more recently may have been used for livestock, but it retains a mix of weedy vegetation. This part of the park was probably upland pine in the distant past. Given the complexity of restoring upland pine groundcover and the limited nature of this area, it is not the highest priority for restoration, but it will be included in the prescribed fire plan.

ABANDONED PASTURE

Historically, pastures were created in a variety of natural community types, including sandhill and upland pine. In some cases, they may have been used for agricultural crops prior to being converted to pastures. The abandoned pastures at Peacock Springs are restricted to the southwestern edge of the park, and are adjacent to improved pastures on private lands. Given the difficulty of restoring sandhill and upland pine from bahiagrass pastures, restoration will not be a high priority. The abandoned pastures will be managed with prescribed fire to discourage off-site hardwoods such as laurel oaks and sweetgums from becoming established in former fire-type communities.

CLEARCUT PINE PLANTATION

Much of the northern addition to the park has been subjected to multiple episodes of pine planting and harvest. Most recently, the mixed hardwoods and planted pines in the southeastern portion of the addition north of Luraville Road were clear-cut prior to state acquisition. In her archaeological field work at the site, Jill Loucks indicated that the area had been cleared, plowed and planted in pines in 1975 (Loucks 1978b). She noted that prior to that date the vegetation had been longleaf pine and xeriphytic oaks.

Long-term impacts from silviculture have blurred the original natural community boundaries. However, it is thought that the clear-cut area was primarily upland pine with a core of upland hardwood forest that was associated with the various karst features. Remnant southern red oaks and mockernut hickories occur on site, but most are small specimens. Restoration will focus on replanting of longleaf pines and restoration of a natural fire regime. Groundcover restoration may be necessary depending on the results of prescribed fires and any necessary off-site hardwood removal. Due to the presence of cultural sites in the area, potential ground disturbing activities such as windrow removal will be evaluated during the planning process.

DEVELOPED

The developed areas within the park include access roads, parking lots, restroom facilities, picnic areas and a residence and shop site in the southeast corner of the unit. A complete list of all the developed areas may be found in the Land Use Component.

Priority invasive plant species (FLEPPC Category I and II species) will be removed from all developed areas. Other management measures include proper stormwater management and development guidelines that are compatible with prescribed fire management in adjacent natural areas.

IMPOUNDMENT/ARTIFICIAL POND

A small depression area near the west boundary shows evidence of extensive disturbance, possibly due to dredging or a small-scale mining operation for limestone or phosphate. The area includes pre-existing sinks that have been enlarged to form an elongated pond with multiple spoil piles along the banks.

PINE PLANTATION

The new acquisition north of Luraville Road contains over 200 acres of slash pine plantation. It is thought that this area was originally upland pine with sandhill along the northwest edge. These areas will be further discussed in the Timber Management section of this plan.

ROAD

The area designated as road includes the main park drive, which is unpaved, but does not include unimproved service roads.

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.

The Peacock Springs cave system contains two listed species of amphipod, the Florida cave amphipod (*Crangonyx grandimanus*) and Hobbs' cave amphipod (*Crangonyx hobbsi*). In addition, this ecosystem provides the essential habitat for two other endemic cave-dwelling species, the pallid cave crayfish (*Procambarus pallidus*) and the swimming little Florida cave isopod (*Remasellus parvus*) (Franz et al 1994). A significant amount of the habitat of these four species within the park may experience impacts from cave divers. However, these species may actually be widespread within passages too small for divers to enter, and therefore may receive some degree of insulation from human disturbance. The swimming little Florida cave isopod may not be affected by cave diving (Deyrup and Franz 1994).

Degradation of groundwater quality may pose the greatest threat to these species (Deyrup and Franz 1994). Independent researchers have documented distinct fluctuations in the crayfish populations that have resulted from rapid changes to groundwater in the Peacock cave system (Streever 1991; Document on file at District 2 office, DRP).. In the spring of 1991, back flooding from the Suwannee River into the Peacock cave system was the first time experts documented a large die-off in troglobite populations (Streever 1992b). Subsequent cave faunal surveys at Peacock have indicated that troglobite populations typically will experience a die-off during major brownout events, but will recover after groundwater clarity returns (Documents on file at District 2 office, DRP).. The long-term impacts of these stochastic water quality events on the populations of these troglobite species are unknown. Surveys are limited to the accessible portions of the cave system, and it is likely that the habitat of these species extends much further into the Floridan aquifer.

Since 2001, the four imperiled troglobite species have been part of an ongoing monitoring project conducted by cave divers from the North Florida Springs Alliance. This group is currently conducting these censuses as part of a series of cave faunal abundance surveys.

Historically, gopher tortoises (*Gopherus polyphemus*), Sherman's fox squirrels (*Sciurus niger shermani*), and indigo snakes (*Drymarchon couperi*) occurred within the park in upland pine habitat. All three have been documented within the park boundary. These species are gradually being excluded from their natural habitat due to lack of natural or prescribed fires over the past several decades. Proper restoration and maintenance of the fire-adapted communities within Peacock Springs will likely assist the recovery of these imperiled species. Efforts should be made to locate and map gopher tortoise burrows within the park to monitor changes over time in the tortoise population.

The Suwannee cooter (*Pseudemys concinna suwanniensis*) inhabits the springs and spring runs within the park. Both the Suwannee cooter and the gopher tortoise are still illegally harvested as a food source in Florida (FFWCC 2012). Protection of these species from human exploitation is critical to their survival. The Central Florida Freshwater Turtle

Research Group, which is actively monitoring aquatic turtle populations in other spring run systems in north and central Florida, expanded its studies to include Peacock Springs in 2011. The study has focused on monitoring population trends using mark and recapture techniques.

Only two listed plant species are known to occur within the park. These include Chapman's sedge (*Carex chapmanii*) and rainlily (*Zephyranthes atamasca*). Management of these species focuses on protection from disturbance.

Table 4 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 below the table. Explanations for federal and state status as well as FNAI global and state rank are provided in Addendum 6.

Table 4: Imperiled Species Inventory

Common and *Scientific Name*	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
PLANTS						
Chapman's sedge *Carex chapmanii*			LE	G3, S3	4,10	1
Rainlily *Zephyranthes atamasca*			LT		10	1
INVERTEBRATES						
Florida cave amphipod *Crangonyx grandimanus*				G2G3, S2S3	10	2
Hobbs' cave amphipod *Crangonyx hobbsi*				G2G3,S 2S3	10	2
Pallid cave crayfish *Procambarus pallidus*				G2G3, S2S3	10	2
Swimming little Florida cave isopod *Remasellus parvus*				G1G2, S1S2	10	2
REPTILES						
American alligator *Alligator mississippiensis*	FT(S/A)	FT(S/A)		G5, S4		1
Eastern indigo snake *Drymarchon couperi*	FT	FT		G3, S3	1,6,13	1

Gopher tortoise *Gopherus polyphemus*	ST			G3, S3	1,6, 13	1
Florida pine snake *Pituophis melanoleucus mugitus*	SSC			G4T3, S3	1,6	1
Suwannee cooter *Pseudemys concinna suwanniensis*	SSC			G5T3, S3	1,6	1
BIRDS						
Limpkin *Aramus guarauna*	SSC			G5, S3		2
Little Blue Heron *Egretta caerulea*	SSC			G5, S4		2
Snowy Egret *Egretta thula*	SSC			G5, S3		2
Tricolored Heron *Egretta tricolor*	SSC			G5, S4		2
Swallow-tailed kite *Elanoides forficatus*				G5, S2		2
White Ibis *Eudocimus albus*	SSC			G5, S4		2
Wood Stork *Mycteria americana*	FE	FE		G4, S2		2
MAMMALS						
Sherman's fox squirrel *Sciurus niger shermani*	SSC			G5T3, S3	1,6	2

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 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.

Few species of invasive exotic plants are found in the park and none occur in large infestations. The portion of the park north of Luraville Road has had soil disturbance due to logging operations just prior to park acquisition. This area is potentially more vulnerable to invasion by exotic plants. The only FLEPPC listed species detected so far in the clear-cut are mimosa (*Albizia julibrissin*) and chinaberry (*Melia azerdarach*). Terrestrial exotic species which occur south of Luraville Road are Japanese honeysuckle (*Lonicera japonica*), Japanese climbing fern (*Lygodium japonicum*), and nandina (*Nandina domestica*). These are mostly scattered and low-density populations.

The park has surveyed for invasive exotic plants and entered the locations into the state wide invasive exotic plant database. The park's plan is to first focus on those species that spread most rapidly, nandina and Japanese climbing fern. These species are currently only found in the area of the park south of Luraville Road. Staff will treat these species with the goal of preventing their movement north of Luraville Road. Periodic surveys around known locations of these species will be conducted to find and remove outlier plants and to prevent the population from growing. Treatment of

Japanese honeysuckle and chinaberry will occur after the nandina and Japanese climbing fern are under control.

The area north of Luraville Road has some scattered mimosa and chinaberry. Parts of this zone are also very difficult to access, and visibility is low because of the previous logging operations and the resulting hardwood sprouts. Other areas that have planted pine have slightly better access and visibility. Initial exotic treatment will be in the planted pine or in the larger hardwood timber at the southern edge of the zone. Because it is possible that timber management activities will take place in this part of the park during the next 10 years, invasive exotic plant treatment will be incorporated into the timber management activity.

The spring run has been completely dominated by the noxious exotic hydrilla at times in the past. Previous treatments using a slow release form of fluridone (Sonar SRP, Elanco Products, Co.) during periods of low water were successful in reducing, but not eradicating, hydrilla. The periodic flooding of the spring run by the tannin-stained waters of the Suwannee River has probably also played a role in suppressing the hydrilla. The method of control currently preferred is hand removal of hydrilla tubers by volunteer divers. Very little hydrilla is evident in the southern half of the park, but an infestation is currently active at Baptizing Spring.

Table 5 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive, exotic plant species found within the park (FLEPPC, 2011). The table also identifies relative distribution for each species and the management zones in which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

Table 5: Inventory of FLEPPC Category I and II Exotic Plant Species

Common and *Scientific Name*	**FLEPPC Category**	**Distribution**	**Management Zone (s)**
PLANTS			
Mimosa *Albizia julibrissin*	I	2	PS-2A, PS-2D
Hydrilla *Hydrilla verticillata*	I	4	PS-2D
Japanese honeysuckle *Lonicera japonica*	I	1	PS-1C
Japanese climbing fern *Lygodium japonicum*	I	1	PS-1F
Nandina *Nandina domestica*	I	3	PS-1F
Chinaberry *Melia azedarach*	II	1, 2, 3	PS-1E, PS-2C, PS-1A, PS-2D, PS-2A

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 or excludes other plants.

6 Linearly scattered: Plants or clumps of a single species generally scattered along a linear feature, such as a road, trail, property line, ditch, ridge, slough, etc. within the gross area infested.

Exotic animal species include non-native wildlife species, free ranging domesticated pets or livestock, and feral animals. Because of the negative impacts to natural systems attributed to exotic animals, 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 raccoons, venomous snakes, and alligators that are in public areas. Nuisance animals are dealt with on a case-by-case basis, in accordance with DRP's Nuisance and Exotic Animal Removal Standard.

Peacock Springs is fortunate because it has very few problems with invasive exotic or nuisance animals. The exotic species present are feral hogs (*Sus scrofa*), nine-banded armadillo (*Dasypus novemcinctus*), and the occasional feral cat or dog. Feral hog sign has been seen from time to time in the park south of Luraville Road. The staff does not have a current program of feral hog control due to the low and transitory population. However, staff does monitor their presence and if the conditions warrant they will pursue feral hog control.

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

Special Natural Features

Wes Skiles Peacock Springs State Park was purchased primarily for its special natural feature, the Peacock Springs cave system. This cave system is one of the longest in the continental United States and one of the most extensively explored. The cave diving section of the National Speleological Society, as well as other expert cave divers, have already mapped nearly 10 miles of passages. The land above the cave system is riddled with sinks and depressions, some of which provide divers with direct access to the caves below. Another system, distinct yet probably linked hydrologically with Peacock, is accessible through Bonnet Spring and totals over 8,000 feet in length. The aquatic cave system of the park is described in greater detail in the Natural Communities section above. The new addition to the park that lies north of Luraville Road contains numerous karst features, including two sinkhole lakes referred to as Pump Spring and Baptizing Spring. Recent cave exploration has greatly expanded our knowledge of these two underground systems that are now known to be directly linked to the Peacock Springs cave system.

Cultural Resources

This section addresses the cultural resources present in the park that may include archaeological sites, historic buildings and structures, cultural landscapes, and collections. The Florida Department of State (FDOS) maintains the master inventory of such resources through the Florida Master Site File (FMSF). State law requires that all state agencies locate, inventory and evaluate cultural resources that appear to be eligible for listing in the National Register of Historic Places. Addendum 7 contains the FDOS, Division of Historical Resources (DHR) management procedures for archaeological and historical sites and properties on state-owned or controlled properties; the criteria used for evaluating eligibility for listing in the National Register of Historic Places, and the Secretary of Interior's definitions for the various preservation treatments (restoration, rehabilitation, stabilization, and preservation). For the purposes of this plan, significant archaeological site, significant structure, and significant landscape means those cultural resources listed or eligible for listing in the National Register of Historic Places. The terms archaeological site, historic structure, or historic landscape refer to all resources that will become 50 years old during the term of this plan.

Condition Assessment

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

resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.

Level of Significance

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

There are no criteria for use in determining the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered highly significant. Likewise, 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: Wes Skiles Peacock Springs State Park contains 13 known archaeological sites and one resource group that are recorded with the FMSF. The thirteen archaeological sites are known aboriginal sites, many of them prehistoric. There is also a significant historic Spanish mission site in the park. Eight archaeological investigations of varying intensity have taken place within the park (Horvath, E.A. 2003 and 2004; Loucks, J. 1978; Memory, M. 1996; Weisman, B. R. 1991; Weisman, B. R. and C. L. Newman 1992; West, R. L. 2004 and 2006). None of the archaeological sites has been evaluated as NRHP-eligible, but additional work has been recommended for a number of them.

Peacock Springs and Peacock Springs Slough, which connects the springs to the Suwannee River, have attracted human habitation and use from Paleoindian times through the modern era. Archaeological evidence indicates the area has been used by peoples of the Archaic, Weeden Island, post-Weeden Island, and Spanish contact periods, as well as by other early European settlers. Late 19th century development included land use activities such as agriculture and timbering (Exley 2004).

The broad diversity of Native American cultural periods represented by the Peacock sites is attributable to the presence of multiple springs in a compact area and the proximity of the Suwannee River. Within the boundaries of the park are an array of village sites (SU00084, SU00085, SU00086, SU00088, SU00089, and SU00121), smaller habitations and campsites such as SU00274 and SU00275, and a lithic scatter (SU00122). Archaeologist Jill Loucks has hypothesized that some of the smaller habitation areas may have been suburbs of the larger village sites (Loucks 1978a, 1978b, 1979, and 1991). She recommended further study to determine the relationships among these sites.

SU00087 is a possible quarry and habitation site dating from the pre-Columbian Weeden Island period through the Seminole period (Loucks 1978b). The park contains many chert sources that could have served as Native American quarry sites from Paleolithic to recent times. The climate prior to 5,000 years ago was drier than it is today. From 12,000 to 9,000 years CE (Current Era), caves as deep as 60 feet containing chert sources could have been accessible as quarries (Mike Wisenbaker, pers. comm.).

Many sites in the park show evidence of occupation by several cultures. SU00085 and SU00086 are either individual villages or parts of a village complex. SU00086 dates from the pre-Columbian Weeden Island period to the 18th Century, while SU00085 ranges from the Archaic possibly through the Seminole period. SU00084 is a village site of the Deptford through Alachua period. Some sites, SU00020 for example, do not contain diagnostic features. SU00399 contains a weir that has not been evaluated by an archaeologist; its period is undetermined.

The descriptions of many of these sites in the FMSF by the archaeologists investigating them say that they may be suburbs or part of a village complex. Unfortunately, the archaeological research completed to date does not clarify how these various sites are related to each other and to the mission site. Many of the site boundaries are not well defined. Delineating boundaries more accurately would likely require invasive procedures such as shovel testing that the Division of Historic Resources currently discourages at archaeological sites that are protected on public lands. Any future bounding of sites at Peacock Springs State Park should focus on potential NRL sites and should use nondestructive methods.

"Weeden Island" refers to several distinct regional cultures that flourished in Florida from 100 to 1400 CE. These cultures had different subsistence adaptations, but shared a

religious ceremonial complex and traded extensively with neighboring cultures throughout Florida and the southeastern United States. The whole Weeden Island period is archaeologically significant for its elaboration of cultural traits, particularly in burial rituals and ceramics. Weeden Island pottery is considered the best-made and most ornate aboriginal pottery in Florida (Milanich and Fairbanks 1987).

The Spanish Mission period in Florida extended from 1585 to 1706. The 17th Century Utina Spanish mission, San Augustine de Urica, is located at SU00065 within the current boundaries of Wes Skiles Peacock Springs State Park (Loucks 1978a, 1978b, 1979, and 1991; Weisman 1991). The site contains both Indian and Spanish structural remains. The mission was probably abandoned as a result of the Timucuan uprising in 1656 (Geiger 1937). The mission site needs further archaeological investigation, as do many other sites within the park. The original field description indicates the area of the site is larger than shown by the FMSF. While the boundaries of the site are not currently definitive, any future efforts to demarcate the site should use nondestructive methods only. Future archaeological investigations should address relationships of the various sites to each other, as well as interactions between Spaniards and Indians at mission sites (Loucks 1991).

Suwannee County was established in 1858. Prior to that, the first permanent European settlers after the Spanish Mission period were the Reuben Charles family. Mr. Charles established a trading post in 1824 at Charles Spring on the Spanish Trail about six miles from the present-day park. In 1857, Dr. John Peacock and his family moved to the area and established the town of Luraville. Dr. Peacock purchased lands that included the slough connecting the springs to the Suwannee River (Exley 2004). Today this area is known as Peacock Slough and the park is named for the Peacock family. In addition to the known archaeological sites, there are probable archaeological sites within the park that are representative of this era. Abandoned and overgrown fields within the park indicate areas that had been used for agricultural purposes before acquisition by the state. The remains of a 19th or possibly early 20th century logging tram road (SU00400) of indeterminate age runs in a northwest - southeast direction through the section of the park south of Luraville Road. The origin of this tram road has not been determined. A sawmill apparently operated in Luraville during the late 1800s (Exley 2004), so the tram road may have been constructed during the same era to transport lumber to the mill.

A predictive model for the park was completed in 2012 (Collins et al. 2012). During that process, no new sites were recorded and no site locations were corrected. No site within the park has been evaluated as NRHP-eligible, but additional work has been recommended at several sites. Given the number and diversity of sites in the park, perhaps any future evaluation of NRHP status should consider all of them together.

The predictive model has indicated areas of high, medium, and low probability for the occurrence of archaeological sites. The park should utilize this information to protect

the highest probability areas from disturbance. It is possible that the entire park should be recorded as an Archaeological Zone given the diversity and widespread nature of the cultural resources. All known cultural sites have been submitted to the FMSF.

Condition Assessment: All of the archeological sites in the park are either in good condition (i.e. SU00020, SU00122, SU00274, SU00399, and SU00400) or in fair condition (i.e. SU00065, SU00084, SU00085, SU00086, SU00088, SU00089, SU00275, SU00121, and SU00087). SU00275 has experienced some soil disturbance due to past looting. SU00121 has numerous holes present where looters have dug for artifacts in the past. Previous agricultural uses have also damaged the site. The net area damaged or altered by those activities combined is conservatively estimated at 50 percent of the total site. At other sites such as SU00087, SU00065, SU0084, SU00085, SU00086, SU00087, SU00088, and SU00089, modern logging and tree planting operations have impacted the first 20-25 centimeters of soil.

Threats to these sites include wind and water erosion and inadvertent collection of exposed artifacts. The sites are in good to fair condition but may be potentially degraded by illicit artifact collection, restoration, and timber management activities.

Level of Significance: The Unit Management Plan for Wes Skiles Peacock Springs State Park addresses the current status and expected condition of cultural resources located in the park. The FMSF has records of 13 archaeological sites and one known resource group in the park. The significance of each cultural resource site is addressed separately in this overview. The sites must be monitored, any stabilization issues addressed, and additional information or data relative to any of the sites submitted to the DHR/FMSF.

The State Historic Preservation Officer (SHPO) has not yet evaluated any of the cultural resources in the park. Individuals who have actually recorded sites in the park have cited Insufficient Information to determine eligibility for listing Loucks I (8SU00121), Loucks II (8SU00122), and Olsen Spring (8SU00274). More work was recommended for Pump Spring (8SU00084) and NN sites (8SU00085-89), with Bonnet Springs (8SU00020), Baptizing Spring (8SU00065), West Peacock Field (8SU00275), and Peacock Slough Weir (8SU00399) listed as Not Evaluated by Recorder. Site forms are in process for Peacock Tram Road (SU400). The recorder did not evaluate the site, however.

Peacock Springs State Park contains many sites within a small area; therefore, these should be afforded all the considerations and protections of an NR Listed site until the appropriate evaluations are done. The entire park should be considered for Archaeological Zone designation. All recorded sites will be located, visited, and monitored regularly with necessary steps taken to conserve their integrity. Evidence of previously unrecorded sites will be documented and newly discovered sites will be recorded to DHR/FMSF standards. Boundaries of sites will be redefined as appropriate. The park has no significant collection of artifacts.

General management measures: All archaeological sites will be protected. Sites of known significance will be monitored through photo-documentation and frequent site visits. The DRP will continue to work directly with state and local law enforcement agencies to provide protection of the park's sensitive cultural resources. Signage should be placed at the park entrance and public use areas interpreting the rules and regulations related to the collection of artifacts at the park.

Sites that have open pits present due to past looting (e.g. SU00121) need to be evaluated to determine if they should be filled with "sterile" soil (e.g. builders sand), brought to the natural contour, and allowed to revegetate. Sterile in this instance refers to soil that is not from the area and is clearly out of context to the surrounding soils.

The park has an established cyclical monitoring program which should continue such that all sites are visited regularly. Staff should document the monitoring activities at each site and store the information in a file at the park. It is critical that staff frequently visit the most important archaeological sites and those with a history of looting, especially if they are in an area not regularly patrolled. Sites north of Luraville Road are particularly vulnerable and should be visited weekly.

Peacock Springs contains important archaeological sites in need of further investigation. SU00065 in particular would benefit from additional historic, archival, and archaeological work to further our understanding of the Mission San Augustine de Urica and its relationship with the native peoples present at that time. The archival research should be the first priority, supplemented by archaeological work as needed. Another need is further research into the interrelationships of the different habitation or village sites.

The important archaeological sites at the park provide a rich opportunity for interpretation. To protect the sites from potential looting, however, interpretation should not occur at the exact site locations. Alternative locations for interpretation could be in the general area south of Luraville Road and perhaps at the Ichetucknee Springs State Park visitor center as well.

Historic Structures

Desired future condition: All significant historic structures and landscapes that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats, and interpreted to the public. The park has no historic structures.

Collections

Desired future condition: All historic structures, 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. The park does not have any collections.

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 6 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 6: Cultural Sites Listed in the Florida Master Site File

Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
Bonnet Springs SU00020	Pre-Columbian, Aboriginal prehistoric	Archaeological Site	NE	G	P
Baptizing Spring SU00065	Aboriginal, 17th Century exploration and settlement, Leon Jefferson	Archaeological Site	NE	F	P
Pump Spring SU00084	Pre-Columbian Aboriginal, Deptford through Alachua	Archaeological Site	NE	F	P
NN SU00085	Archaic through late pre-historic, possibly Seminole; Pre-Columbian, 15th, 16th, 17th, 18th, 19th Century	Archaeological Site	NE	F	P
NN SU00086	Pre-Columbian aboriginal, 15th, 16th, 17th, 18th Century; Weeden Island through historic	Archaeological Site	NE	F	P
NN SU00087	Late prehistoric, historic; Pre-Columbian, 15th 16th, 17th, 18th & 19th Century; Weeden Island, Alachua possibly through Seminole	Archaeological Site	NE	F	P

Table 6: Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
NN SU00088	Proto-historic & historic; Leon-Jefferson, Aboriginal; 15th, 16th, 17th & 18th Century	Archaeological Site	NE	F	P
NN SU00089	Prehistoric and historic, 15th,16th,17th, & 18th Century; Leon-Jefferson	Archaeological Site	NE	F	P
Loucks I SU00121	Aboriginal, Weeden Island	Archaeological Site	NE	F	P
Orange Grove Sink, Loucks II SU00122	Prehistoric, Aboriginal	Archaeological Site	NE	G	P
Olsen Spring SU00274	Prehistoric, Aboriginal, Weeden Island	Archaeological Site	NE	G	P
West Peacock Field SU00275	Aboriginal, possibly Weeden Island	Archaeological Site	NE	F	P
Peacock Slough Weir SU399	Aboriginal, not yet determined	Archaeological Site	NE	G	P
Peacock Tram Road SU400	Historic, not yet determined	Resource Group	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 DRP's management goals for Wes Skiles Peacock Springs State Park. Please refer to the Implementation Schedule and Cost Estimates in the Implementation Component of this plan for a consolidated spreadsheet of the recommended actions, measures of progress, target year for completion, and estimated costs to fulfill the management goals and objectives of this park.

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

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

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

Natural Resource Management

Hydrological Management

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

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

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

The main hydrological feature of Peacock Springs is its world famous aquatic cave system that has been extensively mapped by the cave diving community. Numerous research and monitoring efforts by SRWMD, FDEP, USGS, and experts in the cave diving community have produced an abundance of information documenting the hydrology of the Peacock system (see details in the Hydrology section above). The following are hydrological assessment actions recommended for the park.

DRP will continue its tradition of closely cooperating with agencies and independent researchers engaged in hydrological research and monitoring programs at Peacock Springs, and it will encourage and facilitate additional research in those areas. 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 that research will be essential to the decision making process during management planning.

DRP should encourage appropriate hydrological experts to initiate a complete delineation of the springshed for Peacock Springs. To protect the water quality and quantity of the park's sensitive karst resources, as well as its unique biota, it is of critical importance to understand the extent of the Peacock Springs springshed.

DRP should seek funding for dye trace studies to determine the groundwater sources of the Peacock Springs system and to identify lands that may require extra protection. The proximal source of the flow from the Floridan aquifer into the cave systems has not yet been determined. To ensure the continued purity of the Peacock Springs system, the up-gradient sources of the springs must be identified. Dye trace studies in other managed

springsheds have provided park management with invaluable information about the various sources of the springs and the timing of surface to groundwater interactions that potentially affect important surface water bodies.

Other hydrological assessments needed include continued surface and ground water quality monitoring at Peacock Spring III and the tracking of water quality changes within this system. Based on indications of deteriorating groundwater quality and increased nutrient loading within middle Suwannee River VISA, this third reach of the river is currently listed as a verified impaired water body for nutrients and dissolved oxygen (see details in the Hydrology section above). Peacock Slough (as part of the Suwannee River Watershed) is currently undergoing Basin Management Action Plan (BMAP) planning. District and park staffs will continue to participate in the BMAP process and work with FDEP regulatory personnel in seeking the best available options to reach the Total Maximum Daily Load (TMDL) assigned to the Peacock Springs system.

Staff will also monitor land use or zoning changes within the surrounding landscape bordering the parks resources. Any major ground disturbances in that area, or any runoff into the sinks and springs north of the unit, could seriously degrade the quality of the resource. Given the opporunity, staff will provide comments to other agencies regarding proposed changes in land use or zoning.

The above-grade, abandoned tram bed which crosses the unit diagonally may need to be breached in several additional places or have culverts installed to restore a more natural hydroperiod to areas of the unit that are regularly inundated. At least one section of the tram bed has already been breached and stormwater flow appears to be channelized here. Identification of specific locations along the tramway for breaching or for culvert installation will be important to the restoration of the natural hydrology of the unit.

Continue to work closely with the SRWMD to ensure that MFLs developed for the Middle Suwannee River are conscientiously implemented and that spring flows do not decrease to the point that the Peacock Springs system suffers significant harm.

Objective: Restore natural hydrological conditions and functions to approximately 200 acres of aquatic cave natural community.

Several important karst features within the park continue to experience significant erosion and sedimentation despite numerous corrective measures enacted by staff since the park opened. Some of the most important features still affected by excessive soil disturbance are Peacock Spring III, Bonnet Spring, Olsen Sink, Baptizing Spring, and Pump Spring. However, every karst features in the park is critical in that each one may directly affect the hydrological condition and function of over 200 acres of known subterranean aquatic cave community. In that respect, DRP will investigate best

management options to continue to improve public access to the park's two most popular visitor access points, Peacock Springs I-III and Orange Grove Sink, while limiting access to other more sensitive karst areas. Following are hydrological restoration actions recommended for the park.

It is recommended that the DRP implement effective erosion control measures to protect water quality in all the surface waters of the park. In that regard, park and district staffs should continue the unfinished erosion and stabilization work initiated in 2008 between Orange Grove Sink and Peacock Springs I-III as funds become available. Management 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.

Human-related disturbances such as unauthorized foot traffic in and out of sensitive features greatly exacerbate soil disturbance. Park staff will identify and eliminate visitor access to unauthorized trails that breach the floodplain wetlands or sensitive karst features.

Even though the park has made significant progress in rectifying key erosion issues at Peacock Springs I-III, additional boardwalks, stairs and parking area improvements may still needed in troubled locations. Additional water bars may be strategically designed and constructed to slow moving water and to minimize erosion during strong storm events. Floodplain areas receiving heavy visitor use will also be stabilized when soil disturbance is observed. One such area that will be monitored is along the new interpretive hiking trail. Parking lot and service road runoff will be diverted away from sensitive karst features and as much as possible into surrounding woodlands to encourage natural infiltration. Unfortunately, in some areas, such as near Peacock III, very little soil overlays the often-exposed limestone bed and engineered stormwater retention may be infeasible.

Olsen Sink, one of the most scenic and fragile sites within the Peacock system, is especially vulnerable to ever increasing recreational pressures. Historically, Olsen Sink and Bonnet Spring both experienced significant amounts of soil disturbance due to divers and other visitors traversing the steep slopes above these sinkhole lakes.
In response to this threat, DRP closed these sensitive sites to public access until visitor use guidelines could be developed. Recreational diving has since not been allowed at Bonnet Spring and Olsen has only been used as an escape route for divers during an emergency ascent. Olsen Sink has greatly benefited from its closure as a public or diver access point. However, limited park staff makes enforcement of closure difficult at these sites, which are two of the most pristine and fragile areas within the park.
Both Pump and Baptizing Springs located in the park's new addition have significant amounts of soil disturbance along their steep slope banks. Trash dumping has occurred

prior to acquisition in limited areas on the new addition, and these sites will require a thorough cleanup.

Park and district staff will monitor and manage access into sensitive karst areas including the two main visitor points of entry: Peacock Springs I-III and Orange Grove Sink. All visitors will be directed to use specific walkways or trail systems, especially around karst features. Additional wooden decking, stairways and waterfront access platforms should be constructed where necessary to mitigate the erosion and safety problems.

DRP staff will continue to coordinate and assist FDEP, SRWMD, and independent researchers in monitoring water quality and quantity of the important open-water karst features within the park. DRP staff will seek to increase the frequency of monitoring if changes in water quality or abnormal fluctuations in discharge are noted.

Objective: Monitor impacts of visitor use on the cave system.

District and park staff will continue to coordinate with cave experts as to cave assessments and disturbance issues. Cave assessments should include monitoring within Orange Grove and Peacock I caves given that these two entrances endure higher levels of recreational use than the rest of the system. DRP will aggressively investigate all reports of vandalism in the cave environs.

DRP will continue to support monitoring and assessment of the condition of all cave entrances and their environs. Accordingly, DRP will coordinate with an existing Spring Management Team that has provided numerous recommendations regarding use and management of the Peacock cave system. This team includes certified cave divers from the North Florida Springs Alliance, particularly those who have already volunteered significant time and resources in studying the cave systems of the park or who belong to a national cave diving organization such as the National Speleological Society Cave Diving Section. Also included are professionals with relevant expertise in aquatic cave biology and representatives from FDEP. The ability of DRP to make sound and informed management decisions will be based on team recommendations, adaptive management and a detailed knowledge of the resources.

With assistance from the team, DRP will continue to develop and implement baseline surveys and monitoring programs for the Peacock cave system that assess biological and physical conditions. District and park staffs will work closely with the team to develop and establish standardized photo points at select areas within the cave system. These photo point locations will be monitored on a regular basis to track the condition of certain passages and rooms that are popular with cave divers. If necessary, DRP will modify public access, and establish science-based carrying capacities at the primary and secondary dive access points in the park. Appropriate limits should be set and enforced

for all recreational diving. Cave diving carrying capacities will be used if resources show signs of unacceptable levels of disturbance from visitor-use impacts.

Certain cave entrances that are more susceptible to erosion, such as Bonnet Spring, should be regularly monitored and conditionally assessed prior to future consideration for any dive activity. In 2010, district and park staff collaborated with the NFSA and the local dive community to construct an overlook and interpretive panel at Olsen Sink. Olsen Sink will continue to be closed as an entrance for recreational diving. Additional cave entrances that are highly susceptible to soil disturbance will also be closed to diving except for research dives sanctioned by special permit. These include Pump Spring, Baptizing Spring, Challenge Sink, Pot Hole Sink, Waterhole 3 Sink, and Cisteen Sink. These sinkhole lakes will continue to be closed to open-water SCUBA divers and to swimmers to protect them from erosion and degradation.

Cave diver training and certification dives should be restricted to Peacock Spring I or Orange Grove Sink. Park staff will continue a diver check-in system to track daily cave use. Unauthorized access to the cave system by non-cave certified divers must be prevented for resource as well as safety concerns. The advice of cave diving organizations will be considered in making these decisions.

Management of the cave systems to protect sensitive fauna must include an assessment of both natural and human impacts. Cave diving activities will be monitored to determine if there are any negative impacts on the cave fauna. The possible effects of divers on cave fauna within the Peacock system are unknown. Hydrologic events will also be monitored to determine their effects on troglobite populations. DRP will continue to support ongoing cave faunal surveys to monitor trends of these imperiled species. Survey data will be used to generate recommendations for the protection of troglobites, which could include the setting aside of restricted areas and the determination of appropriate numbers of divers for the caves.

Park and district staff will work with North Florida Springs Alliance, National Association of Cave Divers, and the National Speleological Society Cave Diving Section to support interpretive programs that educate cave divers about cave preservation and proper behavior within caves. A series of guidelines should be promulgated and posted to identify detrimental activities that are forbidden, including, but not limited to, purposeful disturbance of the silt layers and the use of motorized diving scooters within the cave system.

Natural Communities Management

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

As discussed above, DRP practices natural systems management. In most cases, this entails returning fire to its natural role in fire-dependent natural communities. Other

methods to implement this goal include large-scale restoration projects as well as smaller scale natural communities improvements. Following are the natural community management objectives and actions recommended for the state park.

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

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

Objective: Within 10 years, have 350 acres of the park maintained within the optimum fire return interval.

Table 7 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 7: Prescribed Fire Management

Community	Acres	Optimal Fire Return Interval (Years)
Natural Communities		
Upland Pine	58.32	1-3
Sandhill	0.29	1-3
Altered Landcover Types		
Pine Plantation	220.87	3-20
Abandoned Pasture	15.35	3-20
Clear-cut Pine Plantation	242.81	3-20
Abandoned field	8.84	3-20
Annual Target Acreage*	45 - 220	

*Annual Target Acreage Range is based on the fire return interval assigned to each burn zone. Each burn zone may include multiple natural communities.

The park is partitioned into management zones including those designated as burn zones (see Management Zones Table and Map). Prescribed fire is planned for each burn zone 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.

Two fire-dependent natural communities exist at Peacock Springs: upland pine and sandhill. During prescribed fires, existing firebreaks such as roads or boundaries are used in conjunction with natural firebreaks such as mesic woods or watercourses. Additional firebreaks may have to be constructed along the park boundary, particularly on the new addition to the park.

All burn habitats at Peacock Springs have endured fire exclusion and hardwood invasion. Prescribed burns will emphasize fuel reduction and ecological restoration. Fires will be used in conjunction with off-site hardwood reduction and timber management activities. Selective girdling of offsite hardwoods may be necessary to open up the canopy and promote the growth of herbaceous fuels in certain areas. Fire control lines should not be disked if possible due to the rich archaeological sites known to exist throughout the park.

The annual targeted burn acreage is between 45 and 220 acres per year based on the range of fire return intervals for the natural communities and altered land cover types within the park. The wide range of the fire return intervals for the altered landcover types heavily weights these figures (3 to 20 years), since the area north of Luraville Road includes over 80 percent of the fire-type acreage in the park.

Nearly the entire fire-type habitat north of Luraville Road has been altered in recent history with intensive silviculture. Pine plantations are still present along the western and northern boundaries. Further natural community restoration planning will be discussed below for the new addition.

The upland pine to the south of Luraville Road currently has adequate firebreaks in the form of service roads and non-fire type natural communities. The only prescribed burn conducted at the park took place in PS-1B in the spring of 2000. Although still in poor condition, this zone can be restored with additional burning and hardwood control to release the remaining longleaf pines and stimulate herbaceous fuels.

The abandoned field located in the southeast corner will be included in the prescribed fire plan, acknowledging constraints imposed by the presence of cultural resources. The upland hardwood forest serves as a firebreak to the north and west. The current park boundary serves as a firebreak to the east and south. Absolutely no disking should be permitted in this area due to its proximity to an archaeological site. Staff in the Public Lands Archaeology section of the Bureau of Archaeological Research should be notified when this zone is scheduled for burning in case they wish to conduct a post-burn survey for archaeological information.

The fire-dependent areas located along the west boundary south of Luraville Road are dominated by abandoned pasture, with only a few acres of relatively intact upland pine remaining. This area should also be burned. This zone does not have adequate firebreaks and will require a secure boundary line. The upland hardwood forest serves as a firebreak to the east. Like the abandoned field, this site may contain significant archaeological material and should be disturbed as little as possible.

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

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

Examples that would qualify as natural communities' 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, small-scale vegetation management, and so forth.

Following are the natural community restoration and maintenance actions recommended to create the desired future conditions in the pine plantation of the newly acquired portions of the park, north of Luraville Road. These actions are proposed to restore the natural communities as indicated on the Desired Future Conditions Map.

> ***Objective: Conduct natural community and habitat restoration activities on 221 acres of pine plantation and 242 acres of clear-cut pine plantation.***

North of Luraville Road there are about 221 acres of 20-year old slash pine plantation. The plantation needs to be thinned or clear-cut within the next 10 years. A fuelwood

harvest of off-site hardwood species may be necessary also. After the harvest, the plantation will need to be managed with prescribed fire. It also may be necessary to chemically manage offsite hardwood resprouting. Longleaf pines may be planted in this area depending on the type of timber management activity that occurs. The area will need regular scouting for and treatment of invasive exotic plants.

To the east of the pine plantation is a 242–acre cleared pine plantation. Options for this area include a fuelwood harvest, chemical treatment of offsite hardwoods, prescribed fire, and replanting with longleaf pines. This site is complicated by the presence of windrows from a previous timber operation. Harvesting of the pine plantation is a high priority restoration project. Specific restoration actions for this area will be developed during the project planning. Issues of concern are the protection of existing cultural sites from excessive ground disturbance and protection of the springs and groundwater from herbicide impacts.

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

Objective: Conduct natural community/habitat improvement activities on three acres of upland pine or sandhill.

Both the upland pine and sandhill natural communities in this park have suffered from fire suppression and harvesting of longleaf pines. Supplemental planting of longleaf pines on three acres of upland pine or sandhill habitat will be the park's main habitat improvement activity over the next 10 years.

Imperiled Species Management

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

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

In the preparation of this management plan, DRP staff consulted with staff of the FWC's Imperiled Species Management or that agency's Regional Biologist and other appropriate federal, state and local agencies for assistance in developing imperiled animal species management objectives and actions. Likewise, for imperiled plant

species, DRP staff consulted with FDACS. Data collected by the USFWS, FWC, FDACS, and FNAI as part of their ongoing research and monitoring programs will be reviewed by park staff periodically to inform management of decisions that may have an impact on imperiled species at the park.

Ongoing inventory and monitoring of imperiled species in the state park system is necessary to meet 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 provide information that can be used to improve or confirm the effectiveness of management actions on conservation priorities. Monitoring intensity must at least be at a level that provides the minimum data needed to make informed decisions to meet conservation goals. Not all imperiled species require intensive monitoring efforts on a regular interval. Priority must be given to those species that can provide valuable data to guide adaptive management practices. Those species selected for specific management action and those that will provide management guidance through regular monitoring are addressed in the objectives below.

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

Wes Skiles Peacock Springs State Park, by virtue of its high exposure as a world-renowned cave system, has received a great deal of scientific attention since it was acquired by the State. As a result, the park has several imperiled troglobite species that have been identified and studied within the park. Additional surveys for imperiled plant and animal species are needed in the new acquisition that was recently added to the park north of Luraville Road.

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

The underground ecosystem at Peacock Springs provides essential habitat for at least four cave-dwelling invertebrates including pallid cave crayfish (*Procambarus pallidus*) Florida cave amphipod (*Crangonyx grandimanus*), Hobbs' cave amphipod (*Crangonyx hobbsi*), and swimming little Florida cave isopod (*Remasellus parvus*). These four species are part of an on-going monitoring project. District and park staffs will continue to work with North Florida Springs Alliance, who conducts routine monitoring of these cave-dwelling species. This group is currently conducting these censuses as part of a series of cave faunal abundance surveys. District and park staffs will also continue to cooperate with other researchers monitoring or sampling aquatic cave-dwelling invertebrates.

The cave fauna associated with the Peacock Springs cave system is dependent upon a stable environment that experiences few fluctuations in water temperature or quality. Many of the troglobites that have evolved under these special conditions are considered

threatened species. Drastic decreases in troglobite populations that have been recorded periodically have been interpreted by some observers to be the result of flooding of the cave system by the Suwannee River. However, very little research has been conducted to investigate this hypothesis. Analysis of on-going cave faunal monitoring may help to delineate trends associated with arthropod fluctuations.

The cave diving community should continue to be educated about the vulnerability of cave fauna to human disturbance, whether deliberate or incidental. In addition, divers should be warned not to collect flora or fauna found in the springs or sinkholes for exhibition in aquaria.

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

None of the listed plant species within the unit appears to be adversely affected by human activities at present. However, populations of listed plants, particularly those that may be endemic to karst features, should be surveyed and mapped so that any future development will avoid those sites. Particular care should be taken to avoid populations of Chapman's sedge and rainlilly during development of any additional facilities.

Periodic monitoring of rare plant populations may be necessary at some sites. Proper natural systems management using prescribed fire and the maintenance of natural hydroperiods in floodplain areas should suffice to preserve listed species along with other components of the natural communities. The park is in need of an expanded floristic study to locate other listed plant species that may be present and to develop a comprehensive species list.

Exotic Species Management

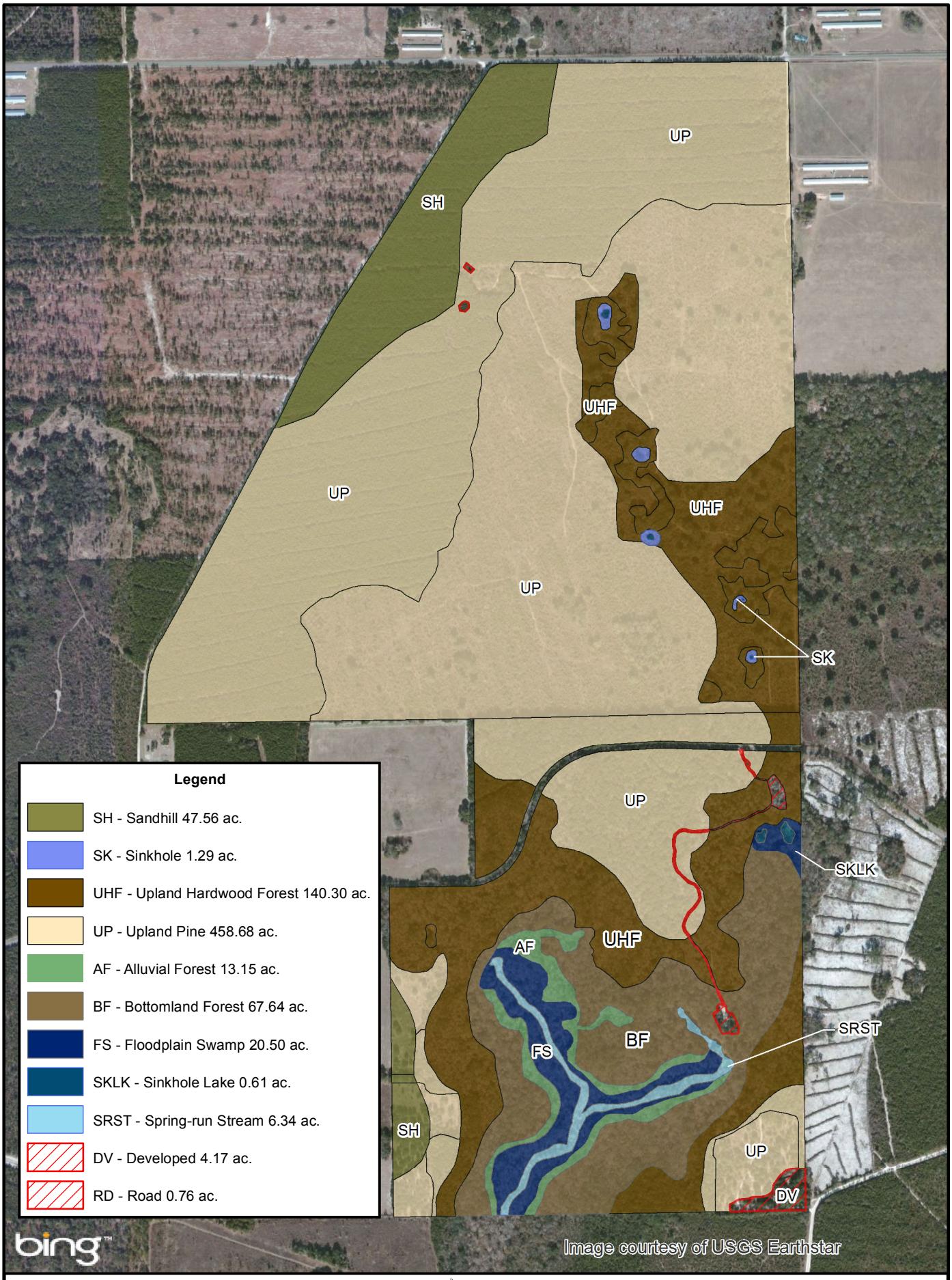
Goal: Remove exotic and invasive plants and animals from the park and conduct needed maintenance control.

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

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

The invasive exotic plant species of greatest concern in the park, Japanese climbing fern, occurs south of Luraville Road. These populations will need to be treated on an annual basis. Areas in the floodplain of the slough will be scouted for climbing fern on an annual basis so that new infestations are found and treated in a timely fashion.

Most of the acreage in the park impacted by invasive exotic plants is located north of Luraville Road. Regular follow up treatment and monitoring of that area will be particularly important during and after any restoration actions.



WES SKILES PEACOCK SPRINGS STATE PARK

N

0 250 500 1,000 Feet

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

NATURAL COMMUNITIES DESIRED FUTURE CONDITIONS MAP

The hydrilla infestation in the spring run and in Peacock Springs I, II, and III was severe in the past. Hand pulling of hydrilla by volunteers is the preferred control method at present. Removal of the infestation at Baptizing Spring is a priority and adjacent sinkhole lakes will be checked for hydrilla. If it becomes necessary, a severe hydrilla infestation may also be treated using Sonar SRP, or another appropriate herbicide labeled for aquatic use, when water levels are sufficiently low. Interpretive signs educating divers about the dangers of spreading hydrilla are advisable, since hydrilla entangled in equipment could easily be transported to uninfected sinks.

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

Feral cats and dogs will be removed from the park as they are encountered. At this time, the park has few feral hogs. Hog damage will continue to be monitored. A control program should be initiated if damage begins to increase.

Special Management Considerations

Timber Management Analysis

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

A Timber Assessment for the portion of Wes Skiles Peacock Springs State Park that is located north of Luraville Road was prepared in April 2011 (see Addendum 8). While the total acreage of Wes Skiles Peacock Springs State Park is less than 1,000 acres there are portions of the park which are in pine plantation, clear-cuts or overgrown with hardwoods. These areas will require timber management. The previous owners planted a slash pine plantation, clear-cut adjacent acres, and probably removed pines but not hardwoods on a few additional acres. Currently the property contains about 212 acres of 20-year old slash pine plantation, 142 acres of cut over land with almost impenetrable hardwood re-growth and 12 acres of mature hardwoods with very few longleaf pines.

Historically, this area was probably a mix of sandhill and upland pine with upland hardwood forest surrounding the springs and karst windows. While silvicultural activities have strongly impacted the tract, there are a few areas with some remnant native groundcover species. There is no evidence of recent fire.

The long-term goal for this site will be to reestablish the original natural communities. DRP will achieve this in part by replanting the area with the longleaf pine that would have historically occupied the site. In the short term, the park will manage the two stands with appropriate silvicultural techniques that may include thinning, windrow removal, and prescribed fire. It may also be necessary to control offsite hardwood species to implement prescribed fire successfully and improve conditions for the planting of longleaf pines.

Natural community restoration efforts at the park may include a timber harvest of offsite slash pines planted by the previous owner, a fuelwood harvest of hardwoods and chemical treatment of the clear-cut area to prepare for longleaf pine planting, and a thinning of mature offsite hardwoods.

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, DRP works with the local mosquito control district to achieve consensus. As of 2013, Wes Skiles Peacock Springs State Park did not have an arthropod control plan. 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. 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.

Additional Considerations

The park has management authority over sovereign submerged lands within the park that lie within 400 feet of mean high water. These areas, such as the intermittent spring runs of Peacock and Bonnet Springs, have been included within the unit management plan.

Cultural Resource Management

Cultural Resource Management

Cultural resources are individually unique, and collectively, very challenging for the public land manager whose goal is to preserve and protect them in perpetuity. DRP is implementing the following goals, objectives, and actions, as funding becomes available, to preserve the cultural resources found in Wes Skiles Peacock Springs 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 and collections care must be submitted to the 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, and modifications to the proposed project to avoid or mitigate potential adverse effect. In addition, any demolition or substantial alteration to any historic structure or resource must be submitted to DHR for consultation and 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 DHR.

Objective: Assess and evaluate 14 of 14 recorded cultural resources in the park.

The park will continue to assess its cultural resources regularly. Assessments should be conducted in a manner that can document changes over time. Those sites where looting has occurred will need more frequent assessments. Vulnerable sites may need to be visited on a monthly or even weekly basis.

If stabilization or preservation needs become apparent during the course of the assessment of all sites, the park should identify and prioritize those needs. The park should maintain a file on each site that documents issues such as looting and any other changes in condition.

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

University of South Florida researchers completed a predictive model for Wes Skiles Peacock Springs State Park in 2012 (Collins et al. 2012). All known cultural sites in the park were updated as part of this plan revision. If new sites are discovered in the future, staff will submit them to the Florida Master Site File.

The park contains many archaeological resources which have not been evaluated for significance. These include prehistoric sites as well as colonial Spanish contact sites. Because of the density of these sites, the park should be evaluated to determine if the entire park should be registered as an archaeological zone. Known sites should be evaluated for significance.
SU00065 would benefit from additional historic archival and archaeological work to further understanding of the Mission San Augustine de Urica and its relationship with native peoples of that time. The archival research should be the first priority,

supplemented by archaeological work if needed. Park, District and Division staff should seek opportunities for this research to occur.

Not much is known about late 19th century and early 20th century homesteads and logging activity in the area of the park. Oral history and courthouse records would enhance our understanding of previous land uses in and around the park. Any remains of old roads and tramways need to be recorded using GPS technology.

Although the park currently does not have any collections, staff will develop a Scope of Collections statement. This statement should be based on the focus of the park. A Scope of Collections does not mean that the park needs to acquire or accept items for a collection. The scope will describe under which, if any, conditions the park would accept items for a collection. It should guide the development of any additional collections or acceptance of donations.

Objective: Bring 7 of 14 recorded cultural resources into good condition.

SU121 was badly vandalized in the past and probably can never be returned to good condition. The site will be visited regularly to prohibit further looting. The site will also be evaluated to determine the feasibility of filling looter holes with sterile sand. SU87 was impacted by previous, intensive forestry site preparation techniques. It is possible that this site also will never return to a good condition.

Sites SU00020, SU00065, SU00084, SU00085, SU00086, SU00088, and SU00089 have been impacted by ground disturbance including forestry operations. These sites are in fair condition. Park staff will regularly visit these sites to prevent vandalism and looting. The section of the park north of Luraville Road should be visited at least weekly to enhance site protection. Future forest-restoration actions there will limit ground-disturbing activities.

The park will continue a cyclical maintenance program to maintain the integrity of the cultural sites through a program of regular site visitation. The park will develop and implement a monitoring program for 14 of the recorded cultural sites that is capable of tracking changes in site conditions. Monitoring will include the use of photographic documentation.

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 managing agency shall consider the findings and recommendations of the land management review team in finalizing the required update of its management plan.

At less than 1,000 total acres, Wes Skiles Peacock Springs State Park does not meet the size threshold for the land management review requirement.

LAND USE COMPONENT

INTRODUCTION

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

The general planning and design process begins with an analysis of the natural and cultural resources of the unit, and then proceeds through the creation of a conceptual land use plan that culminates in the actual design and construction of park facilities. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation, and management, through public workshops and environmental groups. With this approach, DRP's 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, use conditions, and specific areas within the park that will be given special protection are identified. The land use component then summarizes the current conceptual land use plan for the park, identifying the existing or proposed activities suited to the resource base of the park. Any new facilities needed to support the proposed activities are described and located 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.

Wes Skiles Peacock Springs State Park is located within Suwannee County, about 20 miles southwest of Live Oak in the north-central region of the state.

The population of Suwannee County resides primarily in rural or agricultural low-density areas. More than three-quarters of county residents identify as non-Hispanic white, while approximately one-tenth identify as either black or Hispanic (U.S. Census Bureau 2010). Adults between the ages of 40 and 59 represent nearly one-third of the population (U.S. Census Bureau 2010).

According to the 2009 Florida Visitor Survey, the park is located in the North Central Vacation Region, which includes Florida's "Big Bend" (Visit Florida! 2010). In 2009, the region experienced the highest visitation during colder months, with 35 percent

traveling in winter and 30 traveling in the fall (Visit Florida! 2010). Nearly three-fourths of all visitors to the region were adults traveling alone on short trips, lasting fewer than three days (Visit Florida! 2010). Approximately half paid for overnight accommodations, and 30 percent traveled on business (Visit Florida! 2010).

Several resource-based recreational opportunities exist in the area around the park. Peacock Slough Conservation Area (CA) is located immediately southwest of the park. Owned by the Suwannee River Water Management District (SRWMD), the 1,170-acre property provides a continuous wildlife corridor from the park boundary to the Suwannee River. It offers recreational opportunities for wildlife viewing, bicycling, hiking, and horseback riding. It also provides a connection to the Suwannee River Wilderness Trail, a 204-mile recreational trail located approximately one mile south of the park boundary. The trail spans from White Springs to the Gulf of Mexico, connecting to five state parks and other recreational areas along the way. The trail includes opportunities for hiking, biking, horseback riding, and paddling. Six river camps along the river provide screened sleeping areas and hot showers for overnight trail users. Peacock Slough River Camp is located just south of the park in the Peacock Slough CA.

There are three state parks within 15 miles of the park. Lafayette Blue Springs State Park, located five miles west of the park, offers freshwater boating, canoeing, kayaking, fishing, scuba diving, hiking, wildlife viewing, picnicking, primitive and group camping, and cabins. Troy Spring and Suwannee River State Parks are located less than 15 miles east of the park along the Suwannee River Wilderness Trail. Troy Spring State Park is a day use park that offers freshwater activities, including boating, canoeing and kayaking, fishing, swimming, snorkeling, and scuba diving, as well as hiking, horseback riding, and picnicking. Suwannee River State Park offers freshwater and trail activities as well as overnight accommodations including cabins and full-facility camping.

SRWMD offers recreational opportunities on many of its properties near the park. About 10 miles from the park, Allen Mill Pond CA features a second magnitude spring and offers bicycling, fishing, hiking, and horseback riding. Falmouth Spring CA and Mallory Swamp Restoration Area (RA) are located within 15 miles. Falmouth Spring CA features a first magnitude spring of spectacular quality and offers swimming, picnicking, wildlife viewing, hiking, bicycling, and horseback riding. Mallory Swamp RA offers over 30,000 acres of restored natural areas for wildlife viewing, fishing, hunting, bicycling, hiking, horseback riding, and features designated ATV trails.

Also located within a 15 mile radius, are Twin Rivers State Forest and the Suwannee River Greenway at Branford. Twin Rivers State Forest offers nature study, picnicking, hiking, bicycling, horseback riding, canoeing, and fishing, along with primitive camping and hunting opportunities. The Suwannee River Greenway is a 12-mile paved rail-trail that stretches from the Ichetucknee River to Little River Spring.

Existing Use of Adjacent Lands

Several roadways are adjacent to the park. Luraville Road or 180th Street, a two-lane minor rural collector, divides the park into northern and southern portions. Two low-traffic rural roads, 189th Road and 168th Street, form the north and west boundaries of the park's northern portion.

Lands adjacent to the park primarily support rural residential and low-intensity agricultural land uses, including timberland and pasture. Peacock Slough Conservation Area is located south of the park and managed by SRWMD.

Planned Use of Adjacent Lands

Suwannee County is ranked forty-sixth and forty-fourth out of Florida's 67 counties in terms of total population and population density, respectively (BEBR 2010). Between 2000 and 2009, population growth in Suwannee County was 15 percent, slightly below the statewide average of 17 percent (U.S. Census Bureau 2010). Population growth is projected to remain consistent with this rate through the year 2020 (BEBR 2010). The largest population centers within approximately 100 miles of Peacock Springs are the cities of Gainesville and Ocala.

Analysis of amendments adopted into the Suwannee County Comprehensive Plan showed limited development over the past ten years. No major development projects took place. Several policy amendments adopted into the plan in the late 2000s revealed increased awareness of natural resource protection and the need for recreational opportunities (Suwannee County LPA 1991). In 2009, several amendments were adopted that encouraged environmental protection, habitat preservation and restoration, and recreation development (Suwannee County LPA 1991). In addition, the county adopted a minimum level of service (LOS) standard for parks and recreation and a greenways and trails master plan.

Much of the land adjacent to the park, particularly to the south, is located within the Suwannee River floodplain where development is restricted. The park occurs within a critical water resource protection area, particularly for aquifer recharge and quality. Due to its particular vulnerability, much of the surrounding area may be considered unsuitable for widespread development above low to moderate intensity. Agriculture is likely to remain the predominant land use in this region and significant development of the areas around the park is not expected. However, moderate growth is likely to occur around the nearby incorporated towns of Mayo and Live Oak. Limerock mining is also prevalent in the region. Currently the closest mining project near the park is just over five miles to the west. Any significant expansion of the current levels of development, agricultural activity, or mining projects has the potential to significantly impact the water resources of the park.

PROPERTY ANALYSIS

Effective planning requires a thorough understanding of the unit's natural and cultural resources. This section describes the resource characteristics and existing uses of the property. The unit's recreation resource elements are examined to identify the opportunities and constraints they present for recreational development. Past and present uses are assessed for their effects on the property, compatibility with the site, and relation to the unit's classification.

Recreation Resource Elements

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

Land Area

Elevations in the park can range from 25 to 60 feet above mean sea level, which provides interesting terrain for park visitors. Geologic outcroppings and other features provide unique scenery throughout much of the park. The park contains the northern portion of Peacock Slough, which is prone to extreme wet conditions, including complete inundation of certain areas. Parkland can support a wide range of activities including hiking, picnicking, wildlife viewing, and nature study. Recreational development, such as trails, benches, shelters, primitive campsites, and other amenities, would be suitable throughout most of the park. Areas of the park that are seasonally flooded are not suitable for construction of developed overnight facilities.

Water Area

Among the park's water features is nearly 10 miles of mapped aquatic caves. The caves provide a resource-based natural area where certified cavern and cave divers find ancient geologic formations and other subterranean scenery. Views of the sinkholes and the world-class quality of the diving opportunities at the park attract visitors from far outside of the local region, including international travelers.

Natural Scenery

The park contains a significant number of geologic features, including sinks, springs, and swallets. Karst windows and limestone outcroppings found in the park form a geologically unique landscape. Hiking trails along natural surfaces could give access to these features with minimal impact to adjacent communities. Interpretation of select features would educate visitors about Florida's natural processes and ecosystems.

Significant Habitat

Swimming and diving activities are currently not permitted at several surface waters in the park, such as Pump Spring, Baptizing Spring, and Olsen Sink. Due to their undisturbed condition, these features provide exemplary opportunities for wildlife viewing and nature study. Visitors can observe alligators, turtles, and other native species in their natural habitat. Limited passive activities may be suitable in and around these areas. Strategic placement of recreational facilities, such as trails, interpretive elements, benches, and scenic viewing spots, would allow visitors to enjoy the calming and restorative properties of these unique natural areas. Visitor access to these facilities should be carefully planned to minimize disturbance to wildlife.

The underwater cave environments provide significant wildlife habitat for endemic cave biota. Due to the extreme sensitivity of these communities and the perilous nature of cave diving, visitor access to these areas must be controlled and limited to certified cavern and cave divers.

Natural Features

The park's many karst features and mature maple trees are exceptional natural features that illustrate Florida's dynamic native environment. Carefully planned access to these features supplemented with onsite interpretation would provide a suitable addition to recreational and educational opportunities for visitors to the park.

Archaeological and Historic Features

Several archaeological and historic features have been found on the park property that date from prehistory. Due to access and resource protection issues, onsite interpretation is not feasible at all sites within the park; however, information about these sites can serve as subject matter for interpretation elsewhere in the park. Select sites, such as those closest to existing use areas that are easily accessible and less prone to degradation by visitor activities, should be identified for onsite interpretation.

Assessment of Use

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

Past Uses

The park provides evidence of human activity that dates to prehistory. Early inhabitants would have benefitted from the park's abundant freshwater resources. Archaeological evidence indicates thousands of years of sustained occupation of the parkland in the form of small campsites, villages, and a Spanish mission, as discussed in the Cultural Resources section of the Resource Management Component.

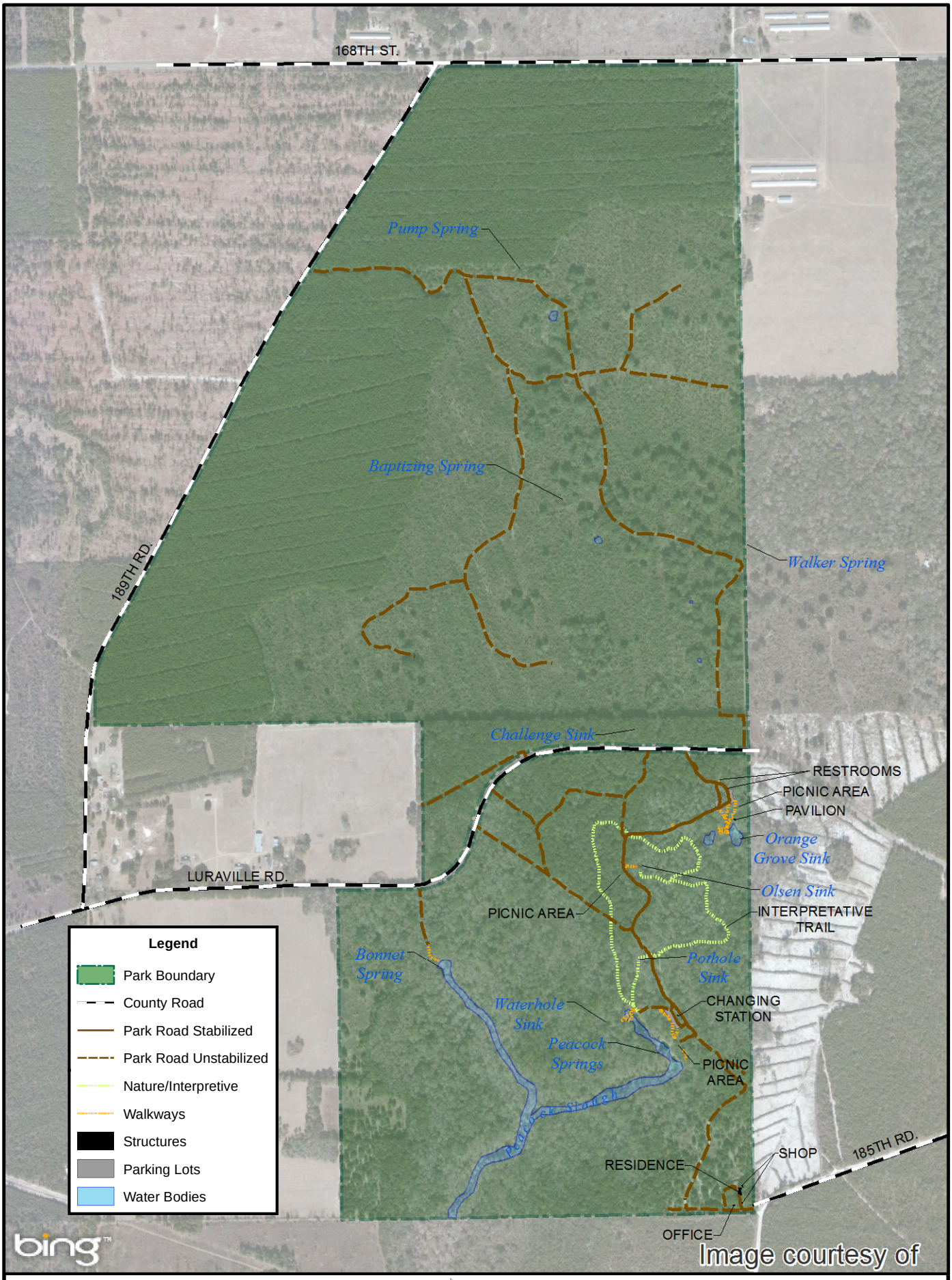
Before state acquisition, areas of the park were also used for logging and other agricultural purposes.

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 opportunities.

All parcels within the park boundary are zoned Environmentally Sensitive Area-2 (ESA-2). According to the Suwannee County Comprehensive Plan, lands designated environmentally sensitive occur within the 100-year floodplain as identified by the FEMA Flood Insurance Rate Map (FIRM) in 1988 or are within a significant aquifer recharge zone. The park is within the Suwannee River flood zone and the high groundwater aquifer recharge area. ESAs are considered in need of special planning considerations for protection of natural resources and systems. Permitted uses within ESA-2 include non-intense agriculture, residential development up to one dwelling unit per 10 acres, resource-based activities, and silviculture. Campgrounds of less than 100 sites can be permitted as a special exception provided they are not within five miles of another campground (Suwannee County Planning Department 2002).

Two future land use (FLU) designations exist within the park boundary: Environmentally Sensitive Area-2 (ESA-2) and Recreation (REC). Both FLU designations allow for resource-based activities. REC allows specifically for resource-based recreation uses including ancillary uses and facilities necessary for management. However, according to the Suwannee County Comprehensive Plan, some recreational uses may require special exception within areas designated as ESA-2. Facilities development within the ESA-2 future land use will require coordination with the applicable planning organizations to avoid potential conflict (Suwannee County Planning Department 2002).



WES SKILES
PEACOCK SPRINGS
STATE PARK

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0 250 500 1,000 Feet

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

BASE MAP

Current Recreational Use and Visitor Programs

The park offers day-use recreational activities that include picnicking, swimming, open-water and cave diving, hiking, wildlife viewing, and nature study. Interpretive elements and programs are also featured at the park. The park actively participates in DEP's Learning in Florida's Environment (LIFE) program and in "Fit Suwannee," a county sponsored healthy-living initiative, by offering relevant interpretive programs and guided walking tours. The park also features self-guided interpretive programming, including a cave experience nature trail with panels about the ecosystems of sinks and springs. The nature trail traces the route of the underwater cave system aboveground. It features photographic panels that depict scenery from inside the caves that correspond to different points along the trail.

Two of the park's water features, Orange Grove Sink and Peacock Springs, provide opportunities for swimming, snorkeling, and scuba diving. Swimming, snorkeling, and cavern or cave diving are suitable and permitted at both locations, while open water diving is only permitted at Orange Grove Sink. Many dive training classes engage in open water diving at the Orange Grove Sink.

Wes Skiles Peacock Springs State Park recorded 19,832 visitors in Fiscal Year (FY) 2012-2013 (DEP DRP 2013). Several factors have contributed to a general trend in increased attendance, including land acquisition, restoration of natural features, expanded interpretative programming, and trail construction. Park attendance is likely to grow as efforts to expand recreational opportunities at the unit continue. By DRP estimates, the FY 2012-2013 visitors contributed $927,863 in direct economic impact and the equivalent of 15 jobs to the local economy (DEP DRP 2013).

Only four karst feature sites within the park are designated for access by any type of recreational user group – Orange Grove Sink and Peacock Springs I, II, and III. At these sites, the park has constructed boardwalks and steps between parking areas and the waterline of the sinks or springs. Consistent with the resource management goals and objectives, all other named and unnamed sinkholes and springs in the park are intentionally excluded from the list of recreational use areas or dive sites in an effort to preserve the near pristine natural state of the geologic formations and the surrounding vegetation. A few of the sinkholes and springs of the park are viewable from hiking trails or boardwalks, but the slopes, interiors, or water are not made accessible to recreational visitors. Vantage points from trails or boardwalks allow visitors to view the unique karst features and the ambient flora and fauna from a moderate distance. Access to these sites by divers or swimmers is prohibited in order to limit erosion or other disturbances of the soil and vegetation. Minimizing impacts to the terrestrial or upland portions of the kart features additionally reduces runoff or sedimentation of the waters in the sinkholes or springs, maximizing water clarity and habitat suitability for native aquatic vegetation and crustaceans. Open water diving is allowed only in Orange Grove Sink. Cave diving is limited to Orange Grove Sink and Peacock Springs I, II, and

III. Peacock III is not navigable to Peacock I or II. Cave divers may access the waters of Challenge, Olsen, and Pothole sinks by way of the cave system from the designated entry points at Orange Grove Sink and Peacock Springs I and II. However, for the same resource management reasons, exiting from these sites by divers is prohibited. Extenuating circumstances may occur in the event that cave divers surface at these sites for emergency exit. Under ordinary recreational conditions, cave divers plan dives for both entry and exit at the same designated access points. Cave divers may only experience these karst features from diving depth as windows to the surface, rather than entry or access points. Carrying capacities of Challenge, Olsen, and Pothole sinks are accordingly captured in the assessment of the carrying capacities for Orange Grove Sink and Peacock Springs I and II.

Other Uses

No uses, other than outdoor based recreational opportunity and interpretation, are designated at this park.

Protected Zones

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

At Wes Skiles Peacock Springs State Park, all wetland communities, karst windows, cultural sites, and underground conduits have been designated as protected zones as delineated on the Conceptual Land Use Plan.

Existing Facilities

Recreation Facilities

The park's recreation facilities are primarily located in two areas: the Orange Grove Sink use area and the Peacock Springs use area. The Orange Grove Sink use area contains a changing pavilion, picnic pavilion, water access boardwalk, interpretive signage, and numerous picnic tables and benches. The Peacock Springs use area features interpretive signage, changing stall, numerous picnic tables and benches, boardwalk with a spring access platform, and interpretive nature trail. The park also features an overlook platform at Olsen Sink.

Support Facilities

Support facilities at the park are located in three primary areas: the Orange Grove Sink use area, Peacock Springs use area, and the residence and support area. Orange Grove

Sink features an iron ranger and entrance sign, unpaved parking area, and composting restroom. Peacock Springs features unpaved parking and a portable restroom. The residence area features a residence, ranger station, and storage shed, which is currently used as a shop. An inventory of recreation and support facilities is included below.

Orange Grove Sink Use Area

Iron ranger

Picnic pavilion

Changing pavilion

Boardwalk

Benches

Picnic tables

Interpretive signage

Unpaved parking (47 spaces)

Composting restroom

Residence/Support Area

Mobile-home residence

Ranger station

Storage shed

Peacock Springs Use Area

Changing stall

Boardwalk

Nature trail (1 mile)

Benches

Picnic tables

Interpretive signage

Unpaved parking (60 spaces)

Portable restroom

Parkwide

Boardwalk at Olsen Sink

Unpaved park drive (0.65 miles)

Unpaved service roads (4.6 miles)

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 will be reassessed during the next update of the park management plan. As new information is provided regarding the environment of the park, cultural resources, recreational use, and as new land is acquired, the conceptual land use plan may be amended to address the new conditions as needed. A detailed development plan for the park and a site plan for specific facilities will be developed 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 impacts of proposed uses or development on the park resources and applied that analysis to decisions for the future physical plan of the park as well as the scale and character of proposed development. Potential impacts are more thoroughly identified and assessed as part of the site planning process once funding is available for facility development. At that stage, design elements (such as existing topography, vegetation, sewage disposal, and stormwater management) and design constraints (such as imperiled species or cultural site locations) are more thoroughly investigated. Municipal sewer connections, advanced wastewater treatment, or best available technology systems are applied for on-site sewage disposal. Stormwater management systems are designed to minimize impervious surfaces to the greatest extent feasible, 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.

168th St

189th Rd

Expanded
Hiking Trails

Trail Crossing

Orange Grove Spring Use Area
New restroom, potable water, walkway improvements, add and update interpretive signage

Luraville Rd / 180th St

Expanded
Hiking Trails

Olsen Sink Overlook
Parking and Access Improvements

Peacock Springs Use Area
Improved restroom, changing facilities, potable water, improved swimming access, replace dive stairs, add and update interpretive signs

Support Facilities
New shop, storage shed, flammable storage, and volunteer RV sites

Trail Connection to
Peacock Slough CA

Legend

- Karst Windows
- Existing Hiking Trail
- Potential Improvements
- Roadway Improvements
- Improvement Area
- Water
- Park Boundary
- Protected Zones

bing™

WES SKILES PEACOCK SPRINGS STATE PARK

CONCEPTUAL LAND USE PLAN

N

0 500 1,000 Feet

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

The pattern of development at the park is focused around day-use activities offered at Orange Grove and Peacock Springs. All visitor facilities, including the restrooms, trails, picnic, and parking facilities, are located within these use areas, which are accessible from the park entrance off Luraville Road. Several facilities improvements are proposed in the use areas that will enhance the current program of recreational activities offered at the park.

Approximately 461 acres have been added to the park since the previous management plan was approved in 2002. This area consists of uplands that will be suitable to the eventual development of recreational facilities. This northern portion of the park is in need of large-scale natural community restoration, as described in the Resource Management Component. Restoration activities, such as timbering and burning, will improve the quality of this area, thus improving the value of the area as a recreational resource. Therefore, any new recreational facilities should be constructed in phases as restoration of the area is completed so as not to hinder initial restoration efforts in this area.

Expanded hiking trails are proposed in the northern portion of the park as timbering, exotic-invasive species removal, and native vegetation planting are gradually completed. Additional recreational opportunities may also be considered as the natural communities restoration progresses.

Potential Uses

Public Access and Recreational Opportunities

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

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

Objective: Maintain the park's current recreational carrying capacity of 260 users per day.

The park will continue to offer the current program of resource-based recreational activities, including scuba diving, hiking, picnicking, wildlife observation, and nature study.

Objective: Expand the park's recreational carrying capacity by 80 users per day.

Additional recreational opportunities are proposed that will increase the carrying capacity of the park. Expanded hiking and interpretive trails throughout the park will expand recreational opportunities and provide connectivity to adjacent recreational areas.

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

Currently, the park offers two interpretive walking tours. A ranger-led tour is provided by request to organized groups, such as those associated with DEP's LIFE Program or local schools. A self-guided walking tour that traces the path of the underwater cave system is also available for park visitors.

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

The park offers significant opportunities for interpretation and outreach. In order to coordinate and focus interpretive programming at the state park, development of an interpretive master plan is recommended. Three additional visitor programs should also be developed. Program topics could include a spring ecosystems program that informs local residents about the health, quality, and biota of springs and sinks. An interpretive trail or program is proposed that will educate visitors about the many species of butterflies that can be seen at the park. The program will expand passive recreational activities and contribute to the opportunities for wildlife viewing and nature study that are offered at the park. A program on diver safety and liability is also recommended.

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 or new facilities needed to implement the conceptual land use plan for Wes Skiles Peacock Springs 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 contracted help.

Objective: Improve/repair four existing facilities and 0.6 miles of road.

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 the DRP). The following

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

Orange Grove Sink Use Area: Several facility improvements are proposed for the Orange Grove Sink use area. The composting restroom should be removed and a new permanent restroom should be installed. A potable water well should be added in this use area and could be constructed along with the improved restroom facility. The restroom and well should be sited carefully with respect to seasonal flood patterns, location of underground conduits, and vulnerability of adjacent water resources. Due to these factors, advanced wastewater treatment facilities should be considered for use at this site.

Improvements to the walking paths leading to Orange Grove Sink are also recommended. Paths should be maintained or improved to ensure continuity of universal access between the bathroom, parking area, and boardwalk. Paths should be constructed to favor natural drainage patterns and minimize runoff into the spring.

The existing spring access boardwalk can be seasonally inundated up to several months of the year. Currently, the boardwalk facilities are in good condition and adequate to meet visitor needs. However, at the time when the boardwalk needs to be replaced, alternative materials that are resilient to seasonal inundation and minimize chemical leaching should be considered.

Peacock Springs Group Use Area: Several improvements are proposed in the Peacock Springs use area, including an improved restroom and changing facilities, potable water, and access improvements.

Although primarily used by divers and swimmers, the Peacock Springs use area also provides access to the park's interpretive hiking trail. An improved restroom facility with changing stalls and a picnic shelter would benefit each of these user groups. The Peacock Springs use area consists of low-lying terrain within the 10-year flood zone. Any permanent facility considered at this site may require elevation above the natural grade. Advanced wastewater treatment facilities, such as sealed vault or raised pump-out systems, may also be required. In conjunction with an improved restroom, potable water should be added for the convenience of park visitors. These facilities will be designed with respect to seasonal flood patterns, location of underground conduits, and vulnerability of adjacent water resources.

Because Peacock Springs is the preferred swimming area for park visitors, improved swimming access is proposed. Any access facility should be designed to respect natural shoreline features and grades, preserve significant vegetation, and maintain the visual quality of the springs. Efforts should be made to construct a facility that is integrated into the site's natural features and condition. A sloped area located roughly southeast of Peacock II may be a suitable location for this facility. The area has gently sloped terrain and has an existing footpath that leads to the surface of the water.

Generally, the boardwalk that connects the parking area to Peacock I is in good condition and does not require replacement or improvement at this time. However, due to several factors, such as seasonal immersion and age, the access stairs leading into the spring opening may require replacement. An assessment of the stairs should be conducted to determine the scope and timeframe of needed repairs. As facilities are replaced, use of alternative materials that are resilient to seasonal inundation and minimize chemical leaching should be considered.

Roadway Improvements: The park drive is in need of stabilization. Seasonal flooding and soil conditions have caused the roadway to undulate and hold water in several places. Improvements to the park drive are recommended for the safety and convenience of park visitors and to benefit park operations and management activities.

Due to ground conditions and sensitivity of adjacent resources, a paved roadway is not recommended. Instead, a semi-pervious surface is proposed. Potential surface materials could include porous aggregate or a manufactured pervious roadway product, both of which have been used in other state park projects. Diversion of runoff away from springs and karst windows is vital to prevent pollution and siltation. In order to manage runoff and protect water quality, the addition or improvement of stormwater management facilities may be required. The feasibility of implementing sustainable stormwater solutions will be investigated. DRP staff will coordinate with relevant municipal and regulatory agencies to ensure that proposed improvements and construction materials are appropriate for protection of the park's resources.

Support Facilities: Several improvements are recommended in the park's support area. A new two-bay shop building, storage shed, and flammable storage building are needed to assist with park operations and maintenance. Two RV sites should be installed in the shop area to accommodate volunteers or researchers. Fencing is needed in several sections along the park's boundary to prevent trespassing and discourage looting of the park's cultural sites. Areas that protect and surround cultural sites that are vulnerable to looting are priority areas for fencing installation.

Olsen Sink: While diving and swimming are no longer permitted at Olsen Sink, this feature still provides opportunities for observing wildlife and natural scenery. An overlook structure provides visitors with a view of the bright blue sink opening, and the area occurs along a branch of the cave-themed interpretive hiking trail. Cave divers can access Olsen Sink from the underwater caves but do not surface except in the case of an emergency ascent.

Occasionally, unauthorized trails appear that lead down to the mouth of the sink. Since aboveground access to Olsen Sink was disallowed, erosion around the sink's opening, which was once a major issue, has mostly subsided. Vegetation has returned to the steep banks surrounding the opening, and the health of the sink has improved. An interpretive panel that includes photographs of the former eroded condition of Olsen Sink would educate visitors on the vulnerability of this natural feature and underscore

the importance of keeping to marked trails. Natural barriers that blend in with the native environment, such as vegetation or limestone boulders, can also be used to discourage unauthorized access.

Primary access to the overlook at Olsen Sink is from the existing interpretive trail; however, use patterns indicate demand for more convenient access. Currently, visitors often stop along the park drive and walk through the vegetation to the Olsen Sink overlook. This impedes traffic on the park drive and damages the vegetative buffer. This plan recommends constructing a small roadside parking area with a designated access path leading to the overlook. The parking area should accommodate one to two cars and feature an unimproved or minimally stabilized surface. The path will direct foot traffic away from adjacent sensitive vegetation. A sign reading, "No dive access, no swimming," should be posted at the parking area near the path entrance, but should be visible from the park drive.

Objective: Construct 5 miles of trail.

Expanded Trails: Although extensive restoration is needed in the northern portion of the park, the area is suitable for expanding the park's hiking and interpretive trails. Visitors to the hiking trails will park at the Orange Grove Sink parking area, just south of the main park entrance. Access to the expanded trails network will be via a pedestrian crosswalk on Luraville Road. Installation of pedestrian crossing facilities, such as pavement markings and signage, on Luraville Road will require coordination with FDOT. Trails should be arranged to provide visitors with views of karst windows and limestone outcroppings. Up to five miles of hiking trails are proposed in this area.

Additional trails are also proposed in the area southwest of Peacock Springs and Peacock Slough. Protected zones occur throughout this area, therefore, trails should be planned carefully so as not to put heavy strain on natural and cultural resources. Signage, such as signs that read "Sensitive Area – Stay on Marked Trails," could be used to encourage proper hiking etiquette. DRP personnel should coordinate with SRWMD regarding a potential connection to the trail network in the Peacock Slough CA. An additional 1.5 miles are proposed in this area.

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 the DRP in budgeting future park improvements and may be revised as more information is collected through the planning and design processes. New facilities and improvements to existing facilities recommended by the plan include:

Orange Grove Sink Use Area
New permanent restroom
Interpretive signage
Path improvements for continuity of ADA access between parking, bathroom, and boardwalk

Peacock Springs Use Area
ADA compliant swimming access to Peacock II
Replace access stairs to Peacock I with a composite material
Build improved restroom facilities and changing stalls
Create an observation and resting area

North of Luraville Road
Up to 5 miles of hiking trails
Trail crossing on Luraville Road

Residence/Support Area
New 2-bay shop
Storage shed
Flammable materials storage
Provide two volunteer RV sites

Parkwide
Olsen Sink Trailhead
Expanded hiking trails (up to 1.5 miles)
Potential trail connection to Peacock Slough CA
Boundary fencing to prevent looting and encroachment by other land uses

Existing Use and Recreational Carrying Capacity

Carrying capacity is an estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site. The carrying capacity of a unit is determined by identifying the land and water requirements for each recreation activity at the unit, and

then applying these requirements to the unit's land and water base. Next, guidelines are applied which estimate the physical capacity of the unit's natural communities to withstand recreational uses without significant degradation. This analysis identifies a range within which the carrying capacity is most appropriate to the specific activity, the activity site, and the unit's selected classification (see Table 8).

Table 8: Existing Use and Recreational Carrying Capacity

	Existing Capacity*		**Proposed Additional Capacity**		**Estimated Recreational Capacity**	
Activity/Facility	**One Time**	**Daily**	**One Time**	**Daily**	**One Time**	**Daily**
Scuba Diving**						
Open Water						
Orange Grove Sink	10	50			10	50
Cave						
Peacock I & II	15	45			15	45
Peacock III	10	30			10	30
Orange Grove Sink	15	45			15	45
Picnicking and Swimming	30	90			30	90
Nature Trails			20	80	20	80
TOTAL	**80**	**260**	**20**	**80**	**100**	**340**

*Existing capacity figure has been revised from approved plan to better reflect DRP guidelines and to illustrate typical diver use patterns.

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 increase the unit's carrying capacity approximately as shown in Table 8.

One time carrying capacities are based on a determination of the maximum number of divers that can be present in the water at any single given time, without interfering with a standard desirable visitor experience. Daily carrying capacities are based on the same

considerations and additionally account for turn-over rates, from one set of recreational users to the next, i.e., how many separate groups of divers can visit each sinkhole or spring over the course of a typical day without causing a negative impact to the experiences of other divers. The carrying capacities account for occasions when the sinkholes or springs are visited by dive training classes. There are no proposals for increasing the carrying capacities of the sinks or springs in the park.

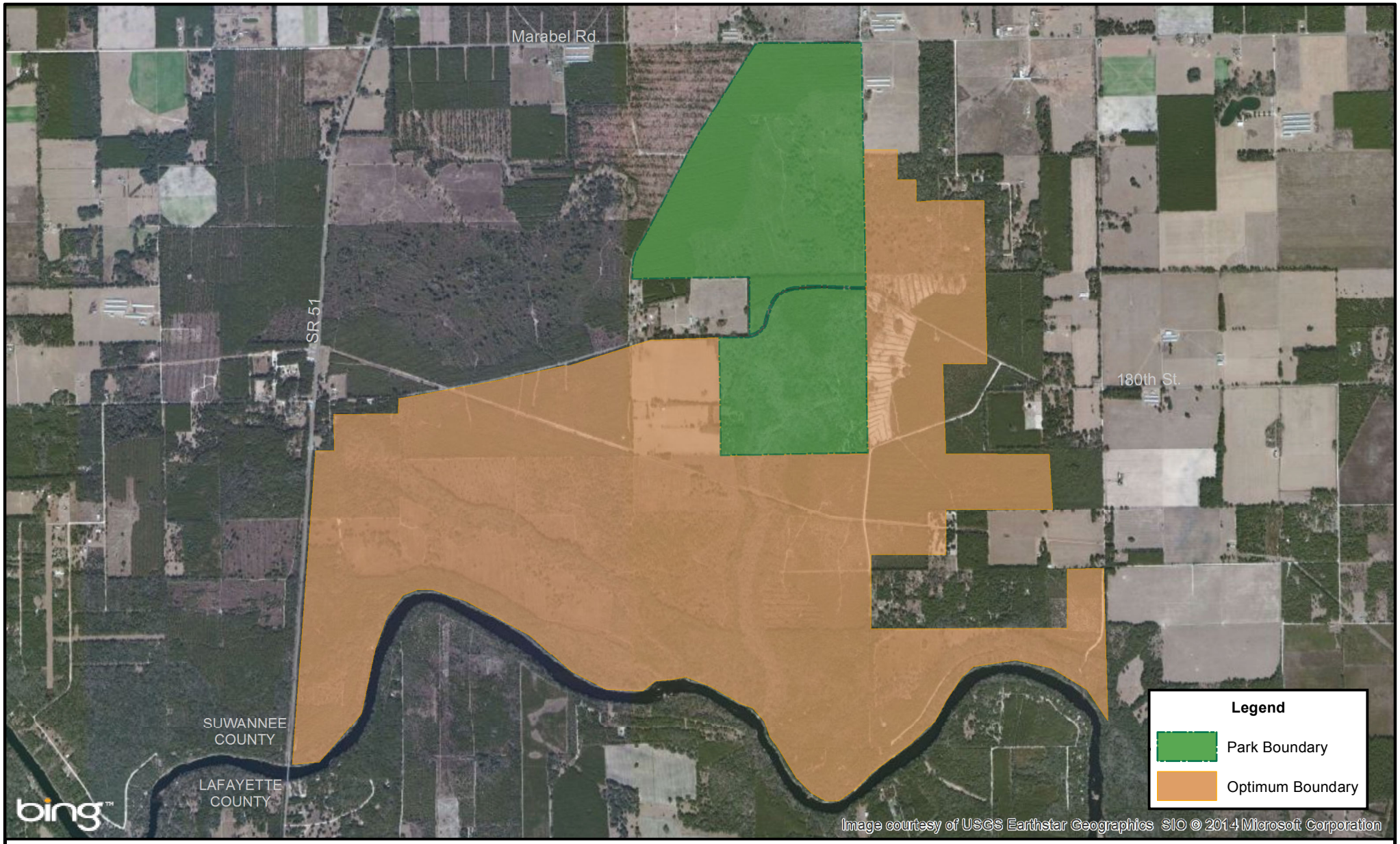
Optimum Boundary

The optimum boundary map reflects lands that have been identified as desirable for direct management by the DRP as part of the state park. These parcels may include public as well as privately owned lands that improve the continuity of existing park lands, 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. The map also identifies lands that are potentially surplus to the management needs of the DRP. As additional needs are identified through park use, development or research, and changes to land use on adjacent private property occurs, 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.

Nearly 2,600 acres of land are identified in the park's optimum boundary, which extend south to the Suwannee River. The optimum boundary includes much of the river floodplain and significant portions of Peacock Slough and Irving Slough. Several parcels within the optimum boundary are currently owned and managed by SRWMD. This plan recommends that DRP pursue an agreement with SRWMD to manage these lands as part of the park. At this time, no lands are identified as potentially surplus to DRP management needs.



WES SKILES PEACOCK SPRINGS STATE PARK

N

0 0.25 0.5 1 Mile

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

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 Wes Skiles Peacock Springs State Park in 2002, significant work has been accomplished and progress made towards meeting DRP management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and DRP.

Acquisition

- One acquisition took place, adding a total of 481.73 acres to the park that protects several significant cultural sites and important karst features including two karst windows (Baptizing Spring and Pump Spring).

Park Administration and Operations

- Since 2002, approximately 18,034 volunteer hours have been contributed to the park to assist with park maintenance, visitor services, administration, interpretation, protection, and resource management activities.

- Additionally, since 2002, approximately 350 volunteer hours have been contributed by North Florida Springs Alliance (NFSA) a professional cave divers' group, monitoring cave adapted fauna within the Peacock Springs Cave System. This monitoring specifically includes faunal abundance surveys, cave damage assessments, and annual underground cave photo points.

- The park was renamed for the late Wes Skiles as a tribute to his research and exploration contributions to the Peacock Springs Cave System. Wes was world-renowned for his research on karst aquifers as a cave diver and videographer.

Resource Management

Natural Resources

- Continued exotic removal program, treating ca. 0.5 acre Japanese climbing fern (*Scientific*) and heavenly bamboo (*Scientific*), and in 2011 began aggressive feral hog (*Scientific*) removal efforts because of new infestations of this species.

- $23,000 Phase 2 of the main park drive to Peacock I-III parking area stabilization and stormwater control project. Funds acquired through the FDEP Florida Springs Initiative. Stabilized the road constructing 26 broad based water diversion points and eight water bars to divert surface stormwater away from springs and into adjacent natural communities according to Best Management Practices and slope analysis completed by Bureau of Design and Construction for Peacock Springs. Rock, timbers, and fill were used to create terraced visitor use walkways adjacent to the Orange Grove Sink and Peacock II-III parking areas.

- $5,000 Geotechnical analysis of the underground karst features along the main park drive. Funds acquired through the FDEP Florida Springs Initiative. Analysis of the site was added during the Phase I project in order to understand hauling truck weight limits on the potentially fragile road system due to underground caves.

- Coordinated with NFSA and other professional cave divers to map an additional 1.3 miles of new underground cave, mostly from a new connection made to the recently acquired parcel north of Luraville Road.

- Coordinated with NFSA to monitor endangered cave invertebrates at the park, conducting approximately 50 underground cave faunal surveys since 2002.

- Coordinated with NFSA to photo document the underground cave system at the park, conducting the first biannual survey in 2011.

Cultural Resources

- The park underwent a cultural resource Predictive Model Assessment in 2011. Several new cultural features were discovered, and recorded on the new property acquisition. The outcome of the predictive model assessment will be used to further understand the placement of protected zones in the park.

Recreation and Visitor Services

- Cooperated with NFSA to create a one-mile hiking and interpretive nature trail that traces the path of the subterranean cave system.

Park Facilities

- Cooperated with NFSA to install sixteen benches for scuba diving gear. Eight are located in the day use area near Orange Grove Sink and eight are in the day-use area near the Peacock I-III boardwalk.
- Cooperated with NFSA to install eight large interpretive panels for visitor interpretation explaining the importance of sinkholes, karst windows, and aquatic caves.
- Cooperated with NFSA to install ten small interpretive panels for visitor interpretation explaining typical natural resources of the park.
- Cooperated with NFSA to install an overlook platform for visitor interpretation at Olsen Sink, one of the most pristine sinkholes in the park.
- Replacement of an old park residence with a new residence, completed in 2006.
- Reconstructed park entrance panel and state park logo with the new park name.
- Installed perimeter fencing and gates on the newly purchased acquisition north of Luraville Road to secure access points.

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 current staff and available funding. However, a number of continuing activities and new activities with measurable quantity targets and projected completion dates are identified that cannot be completed during the life of this plan unless additional resources for these purposes are provided. The plan's recommended actions, time frames, and cost estimates will guide 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 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 DRP's annual legislative budget requests. When preparing these annual requests, 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, DRP pursues supplemental sources of funds and staff resources wherever possible, including grants, volunteers, and partnerships with other entities. 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.

Table 9
Wes Skiles Peacock Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 1 **of 4**

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

Goal I: Provide administrative support for all park functions.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Continue day-to-day administrative support at current levels.**	Administrative support ongoing	C	**$170,694**
Objective B	**Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.**	Administrative support expanded	UFN	**$52,560**
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Conduct/obtain an assessment of the park's hydrological needs.**	Assessment conducted	ST	**$41,160**
Action 1	Continue to cooperate with other agencies and independent researchers regarding hydrological research and monitoring programs.	Cooperation ongoing	C	$3,500
Action 2	Pursue funding for dye trace studies of the Peacock Springs system.	Funding acquired	ST	$360
Action 3	Conduct dye trace studies of the Peacock Springs region for springshed delineation.	Project completed	ST	$30,000
Action 4	Continue monitoring of surface and ground water quality at Peacock Springs III and the tracking of water quality changes within this system.	Monitoring ongoing	C	$3,700
Action 5	Continue to monitor land use or zoning changes around the park's resources.	Monitoring ongoing	C	$1,000
Action 6	Conduct/obtain an assessment of the abandoned tram bed to identify locations for breaching or culvert installation.	Assessment conducted	ST	$600
Action 7	Continue to cooperate with the SRWMD to ensure conscientious development and implementation of MFLs for the Middle Suwannee River.	Cooperation ongoing	C	$2,000
Objective B	**Restore natural hydrological conditions and function to approximately 200 acres of aquatic cave natural community.**	# Acres restored or with restoration underway	UFN	**$34,050**
Action 1	Develop and implement effective erosion control measures for all the surface waters of the park, including managing visitor access, eliminating unauthorized trails, adding boardwalks or water bars, improving access stairs, and parking areas.	Controls implemented	UFN	$32,000
Action 2	Resolve soil disturbance issues at Pump and Baptizing Springs.	Project completed	ST	$650
Action 3	Develop and implement protocols to monitor and manage visitor access to Peacock Springs I- III and Orange Grove Sink.	Protocols implemented	ST	$400
Action 4	Continue to coodinate with and assist FDEP, SRWMD, and independent researchers regarding monitoring of water quality and quantity in open-water karst features.	Cooperation ongoing	C	$1,000
Objective C	**Monitor impacts of visitor use on the cave system.**	Monitoring ongoing	C	**$9,400**
Action 1	Continue to coodinate with Spring Management Team and other experts regarding cave assessments and disturbance issues, including monitoring and assessment of cave entrances, environmental impacts or degradation, and recreational use and management.	Coordination ongoing	C	$2,000
Action 2	Develop and implement baseline surveys and monitoring programs for the Peacock cave system.	Programs implemented	C	$5,800
Action 3	Continue diver check-in system to track daily cave use and discourage unauthorized access.	Program ongoing	C	$1,600

* 2012 Dollars
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Table 9
Wes Skiles Peacock Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 2 **of 4**

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

Goal III: Restore and maintain the natural communities/habitats of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Within 10 years have 350 acres of the park maintained within optimal fire return interval.**	# Acres within fire return interval target	LT	**$126,000**
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 45 - 220 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	$110,000
Objective B	**Conduct habitat/natural community restoration activities on at least 200 acres of pine plantation community.**	# Acres restored or with restoration underway	LT	**$3,000**
Action 1	Develop/update site specific restoration plan	Plan developed/updated	ST	$600
Action 2	Implement restoration plan	# Acres with restoration underway	LT	$1,400
Action 3	Conduct timber harvest for the purposes of the restoration project on 200 acres of pine plantation.	# Acres harvested	LT	$1,000
Objective C	**Conduct habitat/natural community improvement activities on 3 acres of upland pine or sandhill communities.**	# Acres improved or with improvements underway	ST	**$750**
Goal IV: Maintain, improve or restore imperiled species populations and habitats in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Develop/ update baseline imperiled species occurrence inventory lists for plants and animals, as needed.**	List updated	C	**$2,000**
Objective B	**Monitor and document 4 selected imperiled animal species in the park.**	# Species monitored	C	**$2,500**
Action 1	Continue to cooperate with North Florida Springs Alliance and other researchers on implementation of monitoring protocols for 4 imperiled animal species including pallid cave crayfish, Florida cave amphipod, Hobbs' cave amphipod and swimming little Florida cave isopod.	# Species monitored	C	$2,500
Objective C	**Monitor and document 2 selected imperiled plant species in the park.**	# Species monitored	C	**$1,000**
Action 1	Develop monitoring protocols for 2 selected imperiled plant species including Chapman's sedge and rainlily.	# Protocols developed	ST	$400
Action 2	Implement monitoring protocols for 2 including those listed in Action 1 above.	# Species monitored	C	$200
Action 3	Conduct/obtain an expanded floristic study of the park.	Study complete	C	$400
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 3 acres of exotic plant species in the park.**	# Acres treated	C	**$32,920**
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	$16,000
Action 2	Implement annual work plan by treating 3 acres in park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented		$16,920
Objective B	**Implement control measures on 3 exotic and nuisance animal species in the park.**	# Species for which control measures implemented	C	**$20,000**

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Table 9
Wes Skiles Peacock Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 3 **of 4**

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

Goal VI: Protect, preserve and maintain the cultural resources of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Assess and evaluate 14 of 14 recorded cultural resources in the park.**	Documentation complete	LT	**$4,120**
Action 1	Complete 14 assessments/evaluations of archaeological sites. Prioritize preservation and stabilization projects.	# Assessments complete	LT	$1,120
Action 2	Evaluate and document historic sites and cultural landscape. Prioritize stabilization and restoration projects.	Reports and priority lists completed	LT	$3,000
Objective B	**Compile reliable documentation for all recorded historic and archaeological sites.**	Documentation complete	LT	**$14,928**
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	$2,228
Action 2	Complete a predictive model for high, medium, and low probability of locating archaeological sites within the park.	Probability Map completed	ST	$7,400
Action 3	Develop and adopt a Scope of Collections Statement.	Document completed	ST	$2,300
Action 4	Conduct oral history interviews.	# Interviews complete	LT	$3,000
Objective C	**Bring 7 of 14 recorded cultural resources into good condition.**	# Sites in good condition	LT	**$4,810**
Action 1	Design and implement regular monitoring programs for 7 cultural sites	# Sites monitored	C	$1,810
Action 2	Create and implement a cyclical maintenance program for each cultural resource.	Programs implemented	C	$3,000
Goal VII: Provide public access and recreational opportunities in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain the park's current recreational carrying capacity of 260 users per day.**	# Recreation/visitor	C	**$170,694**
Objective B	**Expand the park's recreational carrying capacity by 80 users per day.**	# Recreation/visitor	UFN	**$52,560**
Objective C	**Continue to provide the current repertoire of 2 interpretive, educational, and recreational programs on a regular basis.**	# Interpretive/education programs	C	**$10,000**
Objective D	**Develop 3 new interpretive, educational, and recreational programs.**	# Interpretive/education programs	UFN	**$30,000**
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	**$191,178**
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	**$40,000**
Objective C	**Improve and/or repair the access stairs into Peacock Springs and up to 5 miles of hiking trail as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	LT	**$30,000**
Objective D	**Construct 2 new permanent restrooms and a new 2-bay shop as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	LT	**$350,000**
Objective E	**Expand maintenance activities as existing facilities are improved and new facilities are developed.**	Facilities maintained	C	**$20,000**

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Table 9
Wes Skiles Peacock Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 4 **of 4**

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

Summary of Estimated Costs

Management Categories		Total Estimated Manpower and Expense Cost* (10-years)
Resource Management		$295,888
Administration and Support		**$223,254**
Capital Improvements		**$420,000**
Recreation Visitor Services		**$474,432**
Law Enforcement Activities[1]		

1 Law enforcement activities in Florida State Parks are conducted by FWC Division of Law Enforcement and by local law enforcement agencies.

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ST = actions within 2 years
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Addendum 1 — Acquisition History

Purpose and Sequence of Acquisition

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) acquired Wes Skiles Peacock Springs State Park to protect, develop, operate and maintain the property for public outdoor recreation, park, conservation, historic, and related purposes.

On June 16, 1986, the Trustees obtained title to the property constituting the initial area of Wes Skiles Peacock Springs State Park. The property was purchased from the Nature Conservancy under the Conservation and Recreation Lands (CARL) program. On July 6, 1988, the Trustees purchased an additional parcel under the same program and added it to the park. Presently the park contains 760 acres.

On June 16, 1987, the Trustees conveyed management authority of Wes Skiles Peacock Springs State Park to the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) under Lease No. 3504. The lease is for a period of fifty (50) years and will expire on June 15, 2037.

According to the lease, agreement with the Trustees the DRP will manage Wes Skiles Peacock Springs State Park only for the conservation and protection of natural and historical resources and for resource-based public outdoor recreation compatible with the conservation and protection of the property.

Title of Interest

The Trustees hold fee simple title to Wes Skiles Peacock Springs State Park.

Special Conditions on Use

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

Outstanding Reservation

Following is a listing of outstanding rights, reservations and encumbrances, which apply to Wes Skiles Peacock Springs State Park. Additionally, there are no legislative or executive directives that constrain the use of this property.

Instrument: .....Warranty Deed

Instrument Holder: .....The Nature Conservatory

Beginning Date:.....June 16, 1986

Ending Date:.....There is no specific ending date given.

Outstanding Rights, Uses, Etc.: .....The conveyance is subject to a certain right-of-way dated April 10, 1964, and to a certain royalty dated August 3, 1954.

Addendum 2—Advisory Group Members and Report

Department of Environmental Protection
Division of Recreation and Parks

Wes Skiles Peacock Springs State Park
Unit Management Plan
Advisory Group
August 28th, 2013

Local Government Representative
Wesley Wainright, Chairman
Suwannee County Board of Commissioners
13150 80th Terrace
Live Oak, FL 32060

Greg Scott, Director
Suwannee County Parks & Recreation Department
13150 80th Terrace
Live Oak, FL 32060

Agency Representatives
Craig Liney, Manager
Florida Park Service
Wes SkilesPeacock Springs State Park and Suwannee River State Park
3631 201 Path
Live Oak, FL 32060

Edwin McCook
Suwannee River Water Management District
Land Management Specialist
9225 CR 49
Live Oak, FL 32060

Doug Longshore
Suwannee District Office
Florida Forest Service
Route 7, Box 440
Lake City, FL 32055

Laura DiGruttolo
Office of Conservation Planning Services
Florida Fish & Wildlife Conservation Commission
3377 E. US 90
Lake City, FL 32055

Andy Jackson, Chair
Suwannee County Soil & Water Conservation District
10096 US Highway 129
Live Oak, FL 32060

Tourism Development Council Representative
Charles Thomas, Chair
Suwannee County Tourism Development Council
212 N Ohio Ave
Live Oak, Florida 32064

Environmental and Conservation Representatives
Richard Hilsenbeck, Associate Director
Nature Conservancy
625 North Adams Street
Tallahassee, FL 32301

Valerie Thomas, President
Four Rivers Audubon Society
P.O. Box 442
Fort White, FL 32038

Recreational User Representatives
Jim Wyatt, Owner
Cave Dive Florida
2702 NW 203rd Pl.
High Springs, FL., 32643

Mike Poucher
Florida Speleological Society
Cave Diving Section
4625 NE 28th Terrace
Ocala, FL 34479

Adjacent Landowner
Celeste Shitama
425 NE 9th St.
Gainesville, FL 32601

Citizen Support Organization Representative
Kelly Jessop, President
North Florida Springs Alliance (CSO)
1019 Harrold Ave, Americus, GA, 31709

Wes Skiles Peacock Springs State Park

August 28th, 2013 Advisory Group Meeting Staff Report

The Advisory Group meeting to review the proposed land management plan for Wes Skiles Peacock Springs State Park was held at Nelly Bly's Kitchen at Stephen Foster Folk Culture Center State Park in White Springs, Florida on Wednesday, August 28th, 2013, at 9:00 AM.

Anni Mitchell represented Laura DiGruttolo (Florida Fish & Wildlife Conservation Commission). Commissioner Wesley Wainright (Suwannee County Board of Commissioners), Greg Scott (Suwannee County Parks & Recreation), Edwin McCook (Suwannee River Water Management District), Andy Jackson (Suwannee County Soil & Water Conservation District), Charles Thomas (Suwannee County Tourism Development Council), and Richard Hilsenbeck (Nature Conservancy) were not in attendance. All other appointed Advisory Group members were present.

Attending Division of Recreation and Parks staff members were Clifton Maxwell, Brian Fugate, Craig Parenteau, Richard Owen, Craig Liney, Richard West, and Daniel Alsentzer.

Mr. Alsentzer began the meeting by explaining the purpose of the Advisory Group and reviewing the meeting agenda. He provided a brief overview of the Division of Recreation and Parks (DRP) planning process. Mr. Alsentzer summarized the land use plan for the park. Mr. Owen summarized the management objectives for the park's natural and cultural resources. Mr. Alsentzer provided an overview of the public comments received during the previous evening's public workshop. Mr. Alsentzer then asked each member of the Advisory Group to express his or her comments on the draft plan.

Summary of Advisory Group Comments

Kelly Jessop (North Florida Springs Alliance, Citizen Support Organization) requests language in the plan that does not permanently preclude opening Bonnet Spring for recreational cave diving. Bonnet Spring would provide access to a cave system that is not otherwise accessible from Orange Grove Sink or Peacock Springs I, II, or III. He acknowledged that limited access and low visitation might be necessary to monitor and moderate impacts. He noted that the primary impact of concern would be erosion where divers would walk to enter and exit the spring. Mr. Jessop and the North Florida Springs Alliance appreciate the Division's effort to mitigate erosion around the springs, citing examples of successful erosion control at Emerald Sink in Wakulla Springs State Park. He proposes that diving access be allowed once an erosion mitigation plan is completed and recognizes the need to determine an appropriate carrying capacity relative to site conditions.

Mr. Jessop additionally recommends removing the term "sacrificial cave" from the management plan. This is language is in reference to Peacock I and has been carried over from previous management plans and inaccurately implies that adverse impacts to the cave are acceptable. Strong effort is made by the Division and the cave diving community to promote conservation and educate visitors about springs protection.

Clifton Maxell asked Mr. Jessop whether Peacock Spring or Orange Grove Sink have become degraded over time due to frequent diver use. Mr. Jessop stated that there are some visible impacts at both of these sites. Impacts due to diving are typically mild and caused only be light abrasion. This type of abrasion is generally confined to narrow trails through the cave system

where diver activity clears silt and tannin staining on the karst features. The silt and tannins return to the trafficked paths during periods of reverse flow. High water and recent hydrologic conditions have restored the natural state of even the most frequently visited dive routes.

Jim Wyatt further emphasized that seasonal shifts in the hydrology of the aquatic systems consistently restore the undisturbed appearance of the caves. After periods of reverse flow or high water, the caves typically appear as though they had never been visited before.

Mr. Jessop explained that photo-point monitoring confirms the low impacts of diving.

Mr. Jessop raised a concern that there has been a permit application for limestone mining on a parcel located on Highway 252. Richard Owen responded that springshed delineation will help the Division work with property owners, businesses, or industry in the vicinity on mitigating external impacts.

Mr. Jessop commented that the park's attendance figures do not track visitors who use an annual state park pass. As a result, the estimated economic impact of the park on the region is low. A University of Florida study on the economics of regional tourism finds that cave divers spend an average of $141 per trip. The county and statewide economic impacts are certainly much greater than estimated in the plan. Clifton Maxwell explained the need for basing economic impact estimates on industry standards.

Mr. Jessop recommends ways to more accurately count visitation. Annual state park pass holders should be encouraged to pull the payment tabs at the iron ranger station.

Mr. Jessop and Mr. Wyatt discussed the significant geographic range of visitors to the park. Cave divers have visited from all 50 states and 6 continents. Cave systems in other regions of the world do not offer the same ease of access to aquatic caves. The surficial, open air access to the springs, sinks, and karst windows is a unique feature in Florida. Peacock Springs State Park has a particularly high concentration of these geologic features.

Valerie Thomas (Four Rivers Audubon Society) inquired what user groups are frequenting the park, aside from cave divers. Richard West responded that although cave divers make up a significant user group, many visitors to the park are not divers or swimmers. The park is frequently visited by birdwatchers and other individuals or groups who walk the nature trails. Mr. Jessop affirmed that many visitors come to the park specifically for the nature walks. Many of these nature walkers are families with children.

Ms. Thomas noted the significant educational value of the park and supports effort to increase interpretive programs. She finds that there is need for education in the region's public schools and in the general community for education about karst geology and hydrology. She emphasized the long-term importance of youth education in these areas. Craig Liney responded that the park has been working DEP's LIFE Program to produce and distribute educational brochures and lead programs for students. Craig Liney and Richard West actively participate in these types of education programs. The unit management plan includes concepts for additional interpretive and educational programming in the park.

Mr. Jessop noted the educational value of the interpretive hiking trail that traces the subterranean cave system. He explained the radio tracking process that was used to trace the cave in order to route the interpretive trail. School groups could utilize this trail and interpretive signage in studying karst geology.

Ms. Thomas inquired when the springshed boundary mapping/delineation project is expected to be completed. Richard Owen and Craig Parenteau responded that the research is ongoing, but no completion date has been determined.

Jim Wyatt (Cave Dive Florida) noted that as a cave diving instructor, cave ecosystem conservation is an immediate priority. Trainees are educated in the environmental conservation before ever entering the water. The diving community is ecologically aware and conscious of using proper technique to avoid impacts.

Jim Wyatt commented on language in the draft plan regarding emergency exits for divers and erosion control at dive sites. He recommends adding steps where divers may need to exit in the event of an emergency or where research diving may be specially permitted.

Doug Longshore (Florida Forest Service) noted that the management zones map features a zone that is not represented in the corresponding table. He commented that the proposed management strategies for restoration of the north parcel are appropriate and projected along a reasonable timeline.

Celeste Shitama (Adjacent Landowner) asked how the Division will use the information that is gained from mapping the aquatic caves and delineating the springshed.

Clifton Maxwell responded that information from these studies is used for education and public outreach in order to implement best management practices within the springshed.

Celeste Shitama commends the Division in its effective management of non-resource based "party" activity in the park. Noise disturbances and littering are no longer a problem at the park, since the Division assumed management. However, she does note that the clarity of the spring water has significantly reduced over the past ten years. She recognizes that water clarity or quality issues are the result of factors outside of the park boundaries. She inquired whether there is legal recourse to reduce or mitigate excess TMDL and water quality degradation from residential, commercial, or agricultural activity that is non-compliant with environmental regulations within the springshed. Clifton Maxwell noted that the cause of much of the springshed's water quality degradation is non-point source pollution and is difficult to act upon legally. While policy and legislation are used to protect Florida's springs, the Division typically works to improve the availability of public information with regard to water quality, sustainability, and best management practices. Rick Owen provided a detailed explanation of how springshed mapping can lead to education in the near-term and protection in the long-term. Delineation of the Peacock area springshed will also have implications for guiding future environmental legislation, i.e., TMDL policy will be specifically applied to where impacts occur and basin management plans can be developed once agencies have a more complete understanding of the springshed boundaries.

Celeste inquired about observations of changes in troglobitic species populations. Mr. Jessop described the research questions regarding impacts of floods and water chemistry changes, i.e., the relationship between oxygen rich water and troglobitic die-offs, followed by population rebounds or fluctuations in population density relative to water temperatures. The overall observation is that the populations of troglobitic species are resilient. Recreational use, even during high use periods, does not appear to have an impact. Populations of the various aquatic species remain constant through high recreational use periods. Water quality appears to have a significant impact.

Mr. Poucher noted that low water flow appears to cause the heaviest strain on aquatic species populations. Low flow is associated with drought and excess water withdrawal from the aquifer.

Craig Parenteau mentioned that various invertebrate species thrive in the many impassable or remote conduits of the cave system.

Mr. Jessop provided significant scientific details regarding the resilience of the aquatic flora and fauna of the Peacock area caves.

Richard West inquired whether any invertebrate species are responsive to dive lights. Mr. Jessop and Mr. Poucher responded that no species in the Peacock area caves are known to be responsive to light.

Celeste Shitama inquired about potential impacts on water quality due to use of herbicides. Richard Owen explained that herbicide is not broadly applied, but is targeted to specific species and individual trees. Isolated and targeted application allows the herbicides to be absorbed by the trees, rather than being absorbed into the soil. The Division maintains strict guidance on herbicide application in wetlands and around karst features.

Anni Mitchell (Florida Fish & Wildlife Conservation Commission) asked when the north parcel of the park was acquired and what restoration activities are planned. Mr. Alsentzer provided a summary of the park's land acquisition history. Mr. Parenteau and Mr. Owen detailed the natural resource management objectives for the north parcel, explaining the challenges of re-introducing fire to the area due to the lack of herbaceous ground cover. Mr. Owen listed mechanical treatment, herbicide application, overstory growth planting, and wiregrass planting as the methods that will be used over the next ten years to restore the pine plantation to sandhill.

She relayed an inquiry from FWC about the potential for allowing small-game hunting in the north parcel of the park. Clifton Maxwell explained that the Division's mission does not encompass hunting within the boundaries of any state parks and that although the park does not currently offer recreation in the north parcel, the land use plan proposes the addition of hiking trails. Hunting would conflict with hiking.

Ms. Mitchell inquired as to how the park would monitoring for the Southeastern American Kestrel in the upland pine, including north of Luraville road by installing nest boxes, where there will be potentially suitable habitat for the southeastern kestrel once the parcel north of Luraville Road has been restored to upland pine and sandhill habitat. FWC has a monitoring

program for southeastern kestrels and has provided nesting boxes to other state parks. This resource is available if the park and district are interested in participating in the future.

Additionally, Ms. Mitchell inquired whether there are dry caves in the park where bats are known to roost. Mr. Owen stated that the park does not contain any dry caves. Bats have been sighted in the park, typically in trees, but also occasionally around the exposed karst features above the springs or sinkholes.

Mike Poucher (Florida Speleological Society) commented that dye-trace studies have demonstrated connections between springs and sinks where divers have been unable to navigate. Dye-trace studies should continue to be supported in the park to identify additional connectivity, such as the possible links between Cow and Running Springs, as well as several other springs in and near the park.

Flooding and brown-out events have historically occurred two times per year; however, drought conditions over the past decade have reduced the frequency of flooding and brown-out events. Recently, the heavy rainfall of 2012 and 2013 has resulted in extended periods of flood and brown-out conditions.

Mr. Jessop added that the net effect of the drought and recent heavy rainfall is still a reduction of hydrostatic pressure in the cave system. Divers have continued to observe dark water in the cave system even when Peacock Slough is low or dry such that there is no surficial connection to the Suwannee River. These types of variations in water conditions within the spring system have significant implications for the aquatic flora and fauna and also how divers are able to navigate the caves.

Mr. Poucher commended the Division for constructing the Olsen Sink overlook, which has lead to a remarkable recovery of the vegetative and soil cover around this karst feature.

All members of the advisory group agreed that the elaborate and fragile karst geology of the park does not support intensive infrastructure for visitor services or maintenance. Road improvements should not entail widening; only stabilizing existing road and mitigating erosion or runoff. Mr. Jessop commends the park staff in working to reduce erosion around the park roads. Sediment runoff is no longer a common occurrence during rain events. The park is effectively mitigating soil or sediment runoff. This helps preserve water quality.

Wes Skiles Peacock Springs State Park

August 28th, 2013 Advisory Group Meeting Staff Report

Staff Recommendations

The staff recommends approval of the proposed management plan for Wes Skiles Peacock Springs State Park as presented, with the following significant changes:

- Language in the Resource Management and Land Use Components of the plan will be amended to facilitate assessment of potential ecological or resource impacts that could result from future recreational cave diving at sensitive sites, such as Bonnet Spring.
- Language in the plan will be amended to reflect the full extent of the progress that has been made in the mapping of the Peacock and Bonnet spring cave systems and facilitate continuation of such springshed delineation projects.

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

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, representatives of the recreational activities that exist in or are planned for the park, or representatives of any agency with an ownership interest in the property. Special issues or conditions that require a broader representation for adequate review of the management plan may require the appointment of additional members. DRP's intent in making these appointments is to create a group that represents a balanced cross-section of the park's stakeholders. Decisions on appointments are made on a case-by-case basis by DRP staff.

Addendum 3 – References Cited

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Addendum 4—Soil Descriptions

(7) Bigbee-Garcon-Meggett complex, occasionally flooded – This complex makes up 90 percent of the soil map unit. Chipley and Blanton soils make up the remaining 10 percent. The typical profile contains fine sand in the surface and subsurface layers. The subsoil layer is typically sandy loam and sandy clay. The parent materials are sandy, loamy, and clayey marine and fluvial sediments. This soil is occasionally flooded. The available water capacity is very low to low in the Bigbee and Garcon soils. Available water capacity is high in the Meggett soil. The depth to the water table ranges from 0 inches in the Garcon soil to 72 inches in the Bigbee soil.

(10) Blanton-Alpin complex, 0 to 5 percent slopes, occasionally flooded – This complex makes up 83 percent of the soil map unit. Chipley, Albany, and Foxworth soils make up the remaining 17 percent. The typical profile contains fine sand in the surface and subsurface layers. The subsoil layer is typically sandy clay loam and loamy fine sand. The parent materials are sandy marine deposits and sandy and loamy marine sediments. This soil is occasionally flooded. The available water capacity is very low. The depth to the water table ranges from 3.5 feet in the Blanton soil to more than 6 feet in the Alpin soil.

(13) Blanton-Alpin-Bonneau complex, 0 to 5 percent slopes – This complex makes up 91 percent of the soil map unit. Albany and Chipley soils make up the remaining 9 percent. The typical profile contains fine sand in the surface and subsurface layers. The subsoil layer is typically sandy clay loam and loamy fine sand. The parent materials are sandy marine deposits and sandy and loamy marine sediments. The Blanton and Alpin soils are occasionally flooded, while the Bonneau soils do not flood. The available water capacity is low to very low. The depth to the water table ranges from 3.5 feet in the Blanton soil, 5 feet in the Bonneau soil, to more than 6 feet in the Alpin soil.

(29) Alpin fine sand, 0 to 5 percent slopes - This map unit consists of 80 percent Alpin fine sand. Blanton and Chipley soils make up the remaining 20 percent of this unit. Typically, the profile contains fine sand to 80 inches. The parent materials are sandy marine deposits. The soil is excessively drained. The available water capacity is very low. The depth to the water table is more than 6 feet.

Addendum 5—Plant and Animal List

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

CHLOROPHYTES

Water net .....*Hydrodictyon reticulatum*

FUNGI

Lichen.....*Cladonia* sp.

PTERIDOPHYTES

Ebony spleenwort .....*Asplenium platyneuron*

Southern grape-fern.....*Botrychium biternatum*

Japanese climbing fern.....*Lygodium japonicum* *

Cinnamon fern.....*Osmunda cinnamomea*

Royal fern .....*Osmunda regalis* L. var. *spectabilis* .....BF, AF

Resurrection fern.....*Pleopeltis polypodioides* var. *michauxiana*

Tailed bracken .....*Pteridium aquilinum* var. *pseudocaudatum*

Marsh fern.....*Thelypteris palustris Schott* var. *pubescens*

Netted chain fern.....*Woodwardia areolata*

GYMNOSPERMS

Red cedar.....*Juniperus virginiana*

Slash pine .....*Pinus elliottii*

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Longleaf pine	*Pinus palustris*	
Loblolly pine	*Pinus taeda*	
Bald-cypress	*Taxodium distichum*	

MONOCOTS

Bluestem	*Andropogon* sp.	
Splitbeard bluestem	*Andropogon ternarius*	
Greendragon	*Arisaema dracontium*	
Jack-in-the-pulpit	*Arisaema triphyllum*	
Wiregrass	*Aristida stricta* var. *beyrichiana*	
Switchcane	*Arundinaria gigantea*	
Sedge	*Carex* sp.	
Wire sedge	*Carex tenax*	SH, UP
Sandbur	*Cenchrus* sp.	
Bermudagrass	*Cynodon dactylon* *	
Florida yam	*Dioscorea floridana*	
Common water-hyacinth	*Eichhornia crassipes* *	
Green-fly orchid	*Epidendrum conopseum*	UHF, BF, AF
Centipedegrass	*Eremochloa ophiuroides* *	
Watertyme; Hydrilla	*Hydrilla verticillata* *	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Duckweed	*Lemna* sp.	
Panicum	*Panicum* sp.	
Bahiagrass	*Paspalum notatum* *	
Water-lettuce	*Pistia stratiotes* *	
Illinois pondweed	*Potamogeton illinoensis*	
Starrush whitetop	*Rhynchospora colorata*	
Dwarf palmetto	*Sabal minor*	
Cabbage palm	*Sabal palmetto*	
Springtape	*Sagittaria kurziana*	
Little bluestem	*Schizachyrium scoparium*	
Saw palmetto	*Serenoa repens*	
Earleaf greenbrier	*Smilax auriculata*	
Saw greenbrier	*Smilax bona-nox*	
Cat greenbrier	*Smilax glauca*	
Laurel greenbrier	*Smilax laurifolia*	
Sarsaparilla vine	*Smilax pumila*	
Common duckweed	*Spirodela polyrhiza*	
Pineywoods dropseed	*Sporobolus junceus*	
Bartram's airplant	*Tillandsia bartramii*	
Ballmoss	*Tillandsia recurvata*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Spanish moss	*Tillandsia usneoides*	
Adam's needle	*Yucca filamentosa*	
Atamasco lily	*Zephyranthes atamasca*	AF

DICOTS

Boxelder	*Acer negundo*	
Red maple	*Acer rubrum*	
Florida maple	*Acer saccharum* subsp. *floridanum*	
Oppositeleaf spotflower	*Acmella oppositifolia* var. *repens*	
Red buckeye	*Aesculus pavia*	
Silktree; Mimosa	*Albizia julibrissin* *	
Common ragweed	*Ambrosia artemisiifolia*	
Bastard false indigo	*Amorpha fruticosa*	
Peppervine	*Ampelopsis arborea*	
Bluestar	*Amsonia* sp.	
Devil's walkingstick	*Aralia spinosa*	
Slimleaf pawpaw	*Asimina angustifolia*	
Smallflower pawpaw	*Asimina parviflora*	
Swamp milkweed	*Asclepias perennis*	
Butterflyweed	*Asclepias tuberosa*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Groundsel tree; Sea-myrtle	*Baccharis halimifolia*	
Alabama supplejack	*Berchemia scandens*	
River birch	*Betula nigra*	
Crossvine	*Bignonia capreolata*	
False nettle; Bog hemp	*Boehmeria cylindrica*	
American beautyberry	*Callicarpa americana*	
Trumpet creeper	*Campsis radicans*	
American hornbeam	*Carpinus caroliniana*	
Water hickory	*Carya aquatica*	
Pignut hickory	*Carya glabra*	
Mockernut hickory	*Carya tomentosa*	
Sugarberry; Hackberry	*Celtis laevigata*	
Spadeleaf	*Centella asiatica*	
Common buttonbush	*Cephalanthus occidentalis*	
Hornwort	*Ceratophyllum* sp.	
Eastern redbud	*Cercis canadensis*	
Sensitive pea	*Chamaecrista nictitans*	
White fringetree	*Chionanthus virginicus*	
Swamp leather-flower	*Clematis crispa*	
Tread-softly	*Cnidoscolus stimulosus*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Blue mistflower	*Conoclinium coelestinum*	
Flowering dogwood	*Cornus florida*	
Swamp dogwood	*Cornus foemina*	
May haw	*Crataegus aestivalis*	
Cockspur hawthorn	*Crataegus crus-galli*	
Parsley hawthorn	*Crataegus marshallii*	
Rabbitbells	*Crotolaria spectabilis* *	
Climbing hydrangea	*Decumaria barbara*	
Dixie ticktrefoil	*Desmodium tortuosum* *	
Balm	*Dicerandra* sp.	
Poor Joe	*Diodia teres*	
Virginia buttonweed	*Diodia virginiana*	
Common persimmon	*Diospyros virginiana*	
Carolina elephantsfoot	*Elephantopus carolinianus*	
Tall elephantsfoot	*Elephantopus elatus*	
American strawberrybush	*Euonymus americanus*	
Dogfennel	*Eupatorium capillifolium*	
Yankeeweed	*Eupatorium compositifolium*	
Eastern swampprivet	*Forestiera acuminata*	
Carolina ash; pop ash	*Fraxinus caroliniana*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Green ash	*Fraxinus pennsylvanica*	
Southern beeblossom	*Gaura angustifolia*	
Yellow jessamine	*Gelsemium sempervirens*	
Water locust	*Gleditsia aquatica*	
Hedgehyssop	*Gratiola* sp.	
Silverbell	*Halesia* sp.	
Pinebarren frostweed	*Helianthemum corymbosum*	
Pennywort	*Hydrocotyle* sp.	
Roundpod St. John's-wort	*Hypericum cistifolium*	
Carolina holly; Sand holly	*Ilex ambigua*	
Possumhaw	*Ilex decidua*	
American holly	*Ilex opaca*	
Yaupon	*Ilex vomitoria*	
Hairy indigo	*Indigofera hirsuta* *	
Virginia willow	*Itea virginica*	
Lion's-ear	*Leonotis nepetifolia*	
Gopher apple	*Licania michauxii*	
Sweetgum	*Liquidambar styraciflua*	
Creeping primrosewillow	*Ludwigia repens*	
Southern magnolia	*Magnolia grandiflora*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Florida milkvine	*Matelea floridana*	
Axilflower	*Mecardonia acuminata*	
Snow squarestem	*Melanthera nivea*	
Partridgeberry	*Mitchella repens*	
Spotted beebalm	*Monarda punctata*	
Indianpipe	*Monotropa uniflora*	
Red mulberry	*Morus rubra*	
Southern bayberry; Wax myrtle	*Myrica cerifera*	
Spatterdock	*Nuphar advena*	
Blackgum	*Nyssa sylvatica*	
Common eveningprimrose	*Oenothera biennis*	
Pricklypear	*Opuntia humifusa*	
Wild olive	*Osmanthus americanus*	
Eastern hophornbeam	*Ostrya virginiana*	
Common yellow woodsorrel	*Oxalis corniculata*	
Virginia creeper	*Parthenocissus quinquefolia*	
Passionflower	*Passiflora* sp.	
Red bay	*Persea borbonia*	
Oak mistletoe	*Phoradendron leucarpum*	
Turkey tangle fogfruit	*Phyla nodiflora*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Groundcherry	*Physalis* sp.	
False dragonhead	*Physostegia* sp.	
Waterelm	*Planera aquatica*	
Camphorweed	*Pluchea* sp.	
Dotted smartweed	*Polygonum punctatum*	
Chickasaw plum	*Prunus angustifolia*	
Carolina laurelcherry	*Prunus caroliniana*	
Black cherry	*Prunus serotina*	
Flatwoods plum; Hog plum	*Prunus umbellata*	
Common hoptree; Wafer ash	*Ptelea trifoliata*	
Bastard white oak	*Quercus austrina*	
Spanish oak; Southern red oak	*Quercus falcata*	
Sand live oak	*Quercus geminata*	
Bluejack oak	*Quercus incana*	
Turkey oak	*Quercus laevis*	
Laurel oak; Diamond oak	*Quercus laurifolia*	
Overcup oak	*Quercus lyrata*	
Sand post oak	*Quercus margaretta*	
Basket oak; Swamp chestnut oak	*Quercus michauxii*	
Water oak	*Quercus nigra*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Live oak	*Quercus virginiana*	
Winged sumac	*Rhus copallinum*	
Tropical Mexican clover	*Richardia brasiliensis* *	
Sand blackberry	*Rubus cuneifolius*	
Coneflower	*Rudbeckia* sp.	
Carolina wild petunia	*Ruellia caroliniensis*	
Carolina willow	*Salix caroliniana*	
American elder	*Sambucus nigra* subsp. *canadensis*	
Sassafras	*Sassafras albidum*	
Lizard's tail	*Saururus cernuus*	
Nutrush	*Scleria* sp.	
Gulf Sebastian-bush	*Sebastiania fruticosa*	
Gum bully	*Sideroxylon lanuginosum*	
Goldenrod	*Solidago* sp.	
American snowbell	*Styrax americanus*	
Chickweed	*Stellaria* sp.	
Climbing aster	*Symphyotrichum carolinianum*	
Common sweetleaf	*Symplocos tinctoria*	
Eastern poison ivy	*Toxicodendron radicans*	
Carolina basswood	*Tilia americana* var. *caroliniana*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Winged elm	*Ulmus alata*	
American elm	*Ulmus americana*	
Cedar elm	*Ulmus crassifolia*	
Sparkleberry	*Vaccinium arboreum*	
Highbush blueberry	*Vaccinium corymbosum*	
Deerberry	*Vaccinium stamineum*	
Walter's viburnum	*Viburnum obovatum*	
Violet	*Viola* sp.	
Muscadine	*Vitus rotundifolia*	
Summer grape	*Vitis aestivalis*	
Hercules-club	*Zanthoxylum clava-herculis*	

* **Non-native Species**

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

INVERTEBRATES

Moths and Butterflies

Luna Moth	*Actias luna*	MTC
Gulf Fritillary	*Agraulis vanillae*	MTC
Hackberry Emperor	*Asterocampa celtis*	AF, BF, FS, UHF
Pipevine Swallowtail	*Battus philenor*	UP, SH, ABP, PP, CPP, ABF
Red Banded Hairstreak	*Callophrys cecrops*	MTC
Queen	*Danaus gilippus*	MTC
Horaces Duskywing	*Erynnis horatius*	MTC
Sleepy Orange	*Eurema nicippe*	UP, SH, ABP, PP, CPP, ABF
Zebra Swallowtail	*Eurytides marcellus*	UP, SH, ABP, PP, CPP, ABF
Carolina Saytr	*Hermeuptychia sosybius*	AF, BF, FS, UHF
Firey Skipper	*Hylephila phyleus*	MTC
Buckeye	*Junonia coenia*	MTC
American Snout	*Libytheana carinenta bachmanii*	MTC
Red Spotted Purple	*Limenitis arthemis*	AF, BF, FS, UHF
Giant Swallowtail	*Papilio cresphontes*	MTC
Eastern Tiger Swallowtail	*Papilio glaucus*	MTC
Palamedes Swallowtail	*Papilio palamedes*	MTC
Spicebush Swallowtail	*Papilio troilus*	MTC
Cloudless Sulfur	*Phoebis sennae*	MTC

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Seminole Texas Cresant	*Phyciodes texana*	AF, BF, FS, UHF
Pearl Cresant	*Phyciodes tharos*	MTC
Whirlabout	*Polites vibex*	MTC
Question Mark	*Polygonia interrogationis*	AF, BF, FS, UHF
Tropical Checkered Skipper	*Pyrgus oileus*	MTC
Southern Oak Hairstreak	*Satyrium favonius* var. *favonius*	MTC
Red Admiral	*Vanessa atalanta*	MTC

Others

Asian Clam	*Corbicula fluminea* *	SRST
Florida Cave Amphipod	*Crangonyx grandimanus*	ACV
Hobbs' Cave Amphipod	*Crangonyx hobbsi*	ACV
Amphipod	*Hyalella* sp.	ACV
Grass Shrimp	*Palaemonetes paludos*	ACV, SRST
Pallid Cave Crayfish	*Procambarus pallidus*	ACV
Swimming Little Fl. Cave Isopod	*Remasellus parvus*	ACV
Fire Ant	*Solenopsis saevissima* *	MTC

* **Non-native Species**

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

FISH

Yellow Bullhead	*Ameirurus natalis*	SKLK, SRST, ACV
American Eel	*Anguilla rostrata*	SKLK, SRST, ACV
Everglade Pygmy Sunfish	*Elassoma evergladei*	SKLK, SRST
Lake Chubsucker	*Erimyzon sucetta*	SKLK, SRST
Chain Pickerel	*Esox niger*	SKLK, SRST
Mosquitofish	*Gambusia holbrooki*	SKLK, SRST
Least Killifish	*Heterandria formosa*	SKLK, SRST
Bluegill	*Lepomis macrochirus*	SKLK, SRST
Redear Sunfish	*Lepomis microlophus*	SKLK, SRST
Spotted Sunfish	*Lepomis punctatus*	SKLK, SRST
Bluefin Killifish	*Lucania goodei*	SKLK, SRST
Suwannee Bass	*Micropterus notius*	SKLK, SRST
Largemouth Bass	*Micropterus salmoides*	SKLK, SRST
Striped Mullet	*Mugil cephalus*	SKLK, SRST
Golden Shiner	*Notemigonus crysoleucas*	SKLK, SRST
Redeye Chub	*Notropis harperi*	SKLK, SRST
Hogchoker	*Trinectes maculatus*	SKLK, SRST

* **Non-native Species**

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

AMPHIBIANS

Frogs and Toads

Florida Cricket Frog	*Acris gryllus dorsalis*	SKLK, SRST, AF, FS, SK
Southern Toad	*Anaxyrus terrestris*	MTC
Green Treefrog	*Hyla cinerea*	MTC
Squirrel Treefrog	*Hyla squirella*	MTC
Spring Peeper	*Pseudacris crucifer*	SKLK, SRST, AF, FS, SK
Southern Chorus Frog	*Pseudacris nigrita*	SKLK, SRST, AF, FS, SK
American Bullfrog	*Rana catesbeiana*	SKLK, SRST, AF, FS, SK
Southern Leopard Frog	*Rana sphenocephala*	SKLK, SRST, AF, FS, SK

REPTILES

Crocodilians

American Alligator	*Alligator mississippiensis*	SRST, SKLK

Turtles

Gopher Tortoise	*Gopherus polyphemus*	UP, SH, ABP, PP, CPP, ABF
Suwannee Cooter	*Pseudemys suwanniensis*	SRST
Loggerhead Musk Turtle	*Sternotherus minor*	SRST
Yellow-bellied Slider	*Trachemys scripta scripta*	SRST, SKLK

Lizards

Green Anole	*Anolis carolinensis*	UP, SH, UHF

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Eastern Glass Lizard	*Ophisaurus ventralis*	UP, UHF
Southern Fence Lizard	*Sceloporus undulatus undulatus*	UP, SH
Ground Skink	*Scincella lateralis*	MTC
Snakes		
Southern Black Racer	*Coluber constrictor priapus*	MTC
Eastern Diamondback Rattlesnake	*Crotalus adamanteus*	UP, SH, UHF
Eastern Indigo Snake	*Drymarchon couperi*	UP, SH, UHF
Eastern Coral Snake	*Micrurus fulvius*	MTC
Plain-bellied Watersnake	*Nerodia erythrogaster*	SRST, SK
Florida Watersnake	*Nerodia fasciata pictiventris*	SRST, SK, AF
Brown Watersnake	*Nerodia taxispilota*	SRST, SK
Eastern Corn Snake	*Pantherophis guttatus*	MTC
Eastern Ratsnake	*Pantherophis alleghaniensis*	MTC
Florida Pine Snake	*Pituophis melanoleucus mugitus*	UP, SH, ABP, CPP, ABF
Dusky Pygmy Rattlesnake	*Sistrurus miliarius barbouri*	UHF, BF

* Non-native Species

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

BIRDS

Waterfowl

Wood Duck ..... *Aix sponsa* ..... SKLK, SRST, OF

Mallard Duck ..... *Anas platyrhychos* ..... SKLK, OF

Turkeys

Wild Turkey ..... *Meleagris gallopavo* ..... MTC

New World Quails

Northern Bobwhite ..... *Colinus virginianus* ..... SH, ABF, ABP, CCP

Grebes

Pied-billed Grebe ..... *Podilymbus podiceps* ..... SKLK

Anhingas

Anhinga ..... *Anhinga anhinga* ..... SKLK

Herons and Egrets

Great Blue Heron ..... *Ardea herodias* ..... SKLK, SRST

Great Egret ..... *Casmerodius albus* ..... SKLK, SRST

Snowy Egret ..... *Egretta thula* ..... SKLK, SRST

Little Blue Heron ..... *Egretta caerulea* ..... SKLK, SRST

Green Heron ..... *Butorides virescens* ..... SKLK, SRST

Ibises

White Ibis ..... *Eudocimus albus* ..... SKLK, SRST, OF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Storks		
Wood Stork	*Mycteria Americana*	SKLK, SRST, OF
New World Vultures		
Black Vulture	*Coragyps atratus*	OF
Turkey Vulture	*Cathartes aura*	OF
Hawks, Eagles and Kites		
Swallow-tailed Kite	*Elanoides forficatus*	UP, OF
Mississippi Kite	*Ictinia mississippiensis*	UP,UHF, OF
Bald Eagle	*Halieanthus occidentalis*	OF
Red-shouldered Hawk	*Buteo lineatus*	BF, AF, FS, OF
Broad-winged Hawk	*Buteo platypterus*	UHF, OF
Red-tailed Hawk	*Buteo jamaicensis*	ABF, ABP, CCP, OF
Falcons		
American Kestrel	*Falco sparverius*	SH, ABF
Cranes		
Sandhill Crane	*Grus canadensis*	OF
Doves		
Mourning Dove	*Zenaida macroura*	MTC
Common Ground-Dove	*Columbina passerine*	SH, ABF
Cuckoos		
Yellow-billed Cuckoo	*Coccyzus americanus*	UP, UHF

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Owls		
Barred Owl	*Strix varia*	BF, AF, FS, UHF
Swifts		
Chimney Swift	*Chaetura pelagica*	MTC, OF
Hummingbirds		
Ruby-throated Hummingbird	*Archilochus colubris*	MTC
Kingfishers		
Belted Kingfisher	*Ceryle alcyon*	SKLK, SRST
Woodpeckers		
Redheaded Woodpecker	*Melanerpes erythrocephalus*	SH, UP
Red-bellied Woodpecker	*Melanerpes carolinus*	MTC
Yellow-bellied Sapsucker	*Sphyrapicus varius*	UHF, BF
Downy Woodpecker	*Picoides pubescens*	MTC
Hairy Woodpecker	*Picoides villosus*	UP, UHF, BF
Northern Flicker	*Colaptes auratus*	SH, UP, ABF
Pileated Woodpecker	*Dryocopus pileatus*	UHF, BF, PP
Tyrant Flycatchers		
Eastern Wood Pewee	*Contopus virens*	SH, UP
Acadian Flycatcher	*Empidonax virescens*	BF, AF, FS
Eastern Phoebe	*Sayornis phoebe*	SH, UP, ABF, ABP, CCP
Great Crested Flycatcher	*Myiarchus crinitus*	UHF, BF, AF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Eastern Kingbird	*Tyrannus tyrannus*	ABF
Vireos and Allies		
White-eyed Vireo	*Vireo griseus*	MTC
Yellow-throated Vireo	*Vireo flavifrons*	SH, UP
Blue-headed Vireo	*Vireo solitarius*	UP, UHF, BF
Red-eyed Vireo	*Vireo olivaceus*	UHF, BF
Crows and Jays		
Blue Jay	*Cyanocitta cristata*	MTC
American Crow	*Corvus brachyrhynchos*	MTC
Fish Crow	*Corvus ossifragus*	MTC
Swallows		
Purple Martin	*Progne subis*	OF
Tree Swallow	*Tachycineta bicolor*	OF
Barn Swallow	*Hirundo rustica*	OF
Titmice and Allies		
Carolina Chickadee	*Poecile carolinensis*	MTC
Tufted Titmouse	*Baeolophus bicolor*	MTC
Creepers		
Brown Creeper	*Certhia familiaris*	UHF
Wrens		
Carolina wren	*Thryothorus ludovicianus*	MTC

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Winter Wren	*Troglodytes troglodytes*	BF, AF
Kinglets		
Golden-crowned Kinglet	*Regulus satrapa*	UP, PP
Ruby-crowned Kinglet	*Regulus calendula*	MTC
Old World Warblers		
Blue-gray Gnatcatcher	*Polioptila caerulea*	MTC
Thrushes		
Eastern Bluebird	*Sialia sialis*	SH, ABF, CCP
Veery	*Catharus fuscescens*	UP, UHF
Hermit Thrush	*Catharus guttatus*	UP, UHF, BF
Swainson's Thrush	*Catharus ustulatus*	UHF
Wood Thrush	*Hylocichla mustelina*	UHF, BF
American Robin	*Turdus migratorius*	MTC
Mockingbirds and Thrashers		
Gray Catbird	*Dumetella carolinensis*	UP, CCP
Brown Thrasher	*Toxostoma rufum*	UP, CCP
Waxwings		
Cedar Waxwing	*Bombycilla cedrorum*	MTC
New World Warblers		
Northern Parula	*Parula americana*	MTC
Magnolia Warbler	*Dendroica magnolia*	UP, UHF

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Black-throated Blue Warbler	*Dendroica caerulescens*	UP
Yellow-rumped Warbler	*Dendroica coronata*	MTC
Yellow-throated Warbler	*Dendroica dominica*	UP
Pine Warbler	*Dendroica pinus*	SH, UP, PP
Palm Warbler	*Dendroica palmarum*	SH, UP
Bay-breasted Warbler	*Dendroica castanea*	UP, UHF
Black-and-white Warbler	*Mniotilta varia*	MTC
American Redstart	*Setophaga ruticilla*	UP, UHF, BF, AF
Prothonotary Warbler	*Protonotaria citrea*	FS
Ovenbird	*Seiurus aurocapillus*	UHF
Northern Waterthrush	*Seiurus noveboracensis*	BF, AF, FS
Louisiana Waterthrush	*Seiurus motacilla*	BF, AF, FS
Common Yellowthroat	*Geothlypis trichas*	AF, ABF, CCP
Hooded Warbler	*Wilsonia citrina*	UHF
Tanagers		
Summer Tanager	*Piranga rubra*	SH, UP
Scarlet Tanager	*Piranga olivacea*	UHF
Sparrows and Allies		
Eastern Towhee	*Pipilo erythrophthalmus*	SH, UP, CCP, ABF
Chipping Sparrow	*Spizella passerine*	SH, ABF, ABP
Field Sparrow	*Spizella pusilla*	SH, ABF

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Swamp Sparrow	*Melospiza georgiana*	AF, FS
Song Sparrow	*Melospiza melodia*	UP, ABF, CCP
White-throated Sparrow	*Zonotrichia albicollis*	UP, ABF, CCP
Cardinals, Grosbeaks and Buntings		
Northern Cardinal	*Cardinalis cardinalis*	MTC
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	UHF
Blue Grosbeak	*Guiraca caerulea*	SH, CCP
Indigo Bunting	*Passerina cyanea*	SH, ABF, CCP
Blackbirds and Allies		
Red-winged Blackbird	*Agelaius phoeniceus*	MTC
Common Grackle	*Quiscalus quiscula*	MTC
Brown-headed Cowbird	*Molothrus ater*	MTC
Orchard Oriole	*Icterus spurious*	SH, UP, ABF
Finches and Allies		
Purple Finch	*Carpodacus purpureus*	UP, UHF
American Goldfinch	*Carduelis tristis*	MTC, OF

* Non-native Species

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

MAMMALS

Marsupials

Opossum	*Didelphis marsupialis*	MTC

Edentates

Nine-banded Armadillo	*Dasypus novemcinctus* *	MTC

Lagomorphs

Eastern Cottontail	*Sylvilagus floridanus*	MTC
Marsh Rabbit	*Sylvilagus palustris*	BF, AF

Rodents

Beaver	*Castor canadensis*	BF, AF, SRST, FS
Southeastern Pocket Gopher	*Geomys pinetis*	UP, SH, ABP, PP, CPP, ABF
Southern Flying Squirrel	*Glaucomys volans*	UHF, UP, SH
Grey Squirrel	*Sciurus carolinensis*	MTC
Fox Squirrel	*Sciurus niger* var. *shermanni*	UP, SH, ABP, CPP, ABF

Carnivores

Feral Dog	*Canis familiaris* *	MTC
Coyote	*Canis latrans* *	MTC
Feral Cat	*Felis domesticus* *	MTC
River Otter	*Lutra canadensis*	SRST
Bobcat	*Lynx rufus*	MTC
Striped Skunk	*Mephitis mephitis*	MTC

* **Non-native Species**

Common Name	***Scientific Name***	**Primary Habitat Codes (for all species)**
Raccoon	*Procyon lotor*	MTC
Gray Fox	*Urocyon cinereoargenteus*	MTC
Red Fox	*Vulpes vulpes*	MTC
Aritiodactyls		
White-tailed Deer	*Odocoileus virginianus*	MTC
Wild Pig	*Sus scrofa* *	MTC

* **Non-native Species**

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 Game and Freshwater Fish 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 - FFWCC)

ST.....Listed as Threatened Species by the FFWCC. 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 FFWCC. 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

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

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

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

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

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

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

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

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

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

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

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

Addendum 8—Timber Management Analysis

At the request of Anne Barkdoll, Biologist, Division of Recreation and Parks, a forest resource assessment was prepared for three stands of the Wes Skiles Peacock Springs State Park. A field visit was made on April 6, 2011.

Stand 1 –Planted Slash Pine, 212 acres

This is a site prepared 20-year-old planted slash pine stand. Current stocking is approximately 540 trees per acre and the average tree diameter is 6 inches. The average basal area is 102 sq. ft. per acre. Windrows run throughout the stand. These windrows are growing up in laurel oak, water oak and cherry. There is a moderate to heavy understory of hardwoods throughout the stand.

This fully stocked stand needs to be thinned in order to maintain the stand in a healthy, growing condition and to allow any type of ground cover restoration work to begin. Third row thin this stand, removing every third row for equipment access, and, in addition, remove any diseased, suppressed, or poor formed trees in the remaining two rows. Only healthy, well-formed pine trees would remain.

At the time of this site inspection, a pine stand west of "stand 1" and outside the park boundary had recently been clear-cut harvested. From aerial photographs, the two stands appeared to be quite similar. With the pine removed from this western stand, you can clearly see just how much hardwood is present in stand 1.

Harvest merchantable hardwood from within the pine stand and from within the windrows in conjunction with this pine thinning operation. If market conditions are favorable, fuelwood harvest/chip remaining non-merchantable standing hardwoods and remaining pine and hardwood tops. Should the land manager wish to leave specific hardwoods by a designated size, number per acre, or species, this can be successfully accomplished by a competent equipment operator, provided he/she is given adequate instruction at the beginning of the job.

The hardwood sprouting will become prolific following the thinning operation. It will be essential to begin burning this stand as soon as there are sufficient fuels to carry a fire. Even with the interjection of prescribed fire, it may become necessary to incorporate mechanical and/or chemical treatments (especially in old windrows) in order to keep the hardwood sprouting in check or until a healthy groundcover becomes established, allowing a "good" burn throughout the stand.

Stand 2 – Cut over, 142 acres

This cut over area was formerly a site prepared pine plantation. It is now in the "rough' stage of early hardwood succession. This approximate 5 to 10 year rough has formed a nearly impenetrable growth of various hardwoods, vines and shrubs.

Fuelwood harvest this stand. This will remove a large portion of unwanted vegetation, and simply put, allows the land manager to see just what they have to work with. During this operation, stand boundaries and buffers can be fine-tuned based on soil conditions and vegetation type. This stand would then have a distinct boundary from adjacent stands for future management operations such as herbicide application. In addition, allowing sufficient time for resprouting, vegetation will be on a contiguous level allowing for a more even coverage of herbicide during aerial application.

Following the fuelwood harvest, allow sufficient time for adequate resprouting. This will be at least one year following the fuelwood harvest. Apply approved and recommended forestry herbicide. Machine/handplant a minimum of 450 longleaf tublings per acre. Begin burning as soon as there are sufficient fuels to carry a fire.

Stand 3 – Mature Upland Hardwood Pine, 12 acres

This stand is located along the paved county road and is directly across from the main entrance to the park. This stand will provide an important visual barrier to planned management activities in stand 2 during the initial "unsightly years."
Any type of restoration work in this stand will require removal of the hardwood trees. Some harvesting could possibly take place from the north side of the stand in conjunction with one of the other planned sales, however now with the proposed work in stand 2, it would be more important to maintain the visual barrier this stand provides.

Wes Skiles Peacock Springs State Park
Forest Resource Assessment
Prepared by: Doug Longshore,
Senior Forester
Division of Forestry
April 2011

PEACOCK SPRINGS STATE PARK