

Silver River State Park

Unit Management Plan

APPROVED PLAN

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**Division of Recreation and Parks
December 10, 2010**



Florida Department of Environmental Protection

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

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Mimi A. Drew
Secretary

December 10, 2010

Ms. BryAnne White
Office of Park Planning
Division of Recreation and Parks
3900 Commonwealth Blvd.
Tallahassee, Florida 32399-3000

RE: Silver River State Park

Dear Ms. *BryAnne* White:

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 Silver River State Park management plan. The next management plan update is due December 10, 2020.

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

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

TABLE OF CONTENTS

INTRODUCTION	1
PURPOSE AND SIGNIFICANCE OF THE PARK	1
PURPOSE AND SCOPE OF THE PLAN	2
MANAGEMENT PROGRAM OVERVIEW	5
Management Authority and Responsibility.....	5
Park Management Goals.....	6
Management Coordination.....	6
Public Participation.....	7
Other Designations	7

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION	9
RESOURCE DESCRIPTION AND ASSESSMENT	10
Natural Resources	10
Topography.....	10
Geology	10
Soils.....	13
Minerals	13
Hydrology	15
Yearly Nitrate Concentrations (Table 1).....	16
Yearly Nitrate Loading Rates (Table 2).....	16
Natural Communities (FNAI)	18–34
Desired Future Condition.....	18–34
Description and Assessment	18–34
General Management Measures	18–34
Imperiled Species	34–38
Inventory (Table 3).....	36–38
Management Actions (Table 3)	36–38
Monitoring Level (Table 3).....	36–38
Exotic Species.....	39–41
Inventory (Table 4).....	40–41
FNAI Distribution Categories (Table 4).....	40–41
Management Zones (Table 4).....	40–41
Special Natural Features.....	42
Cultural Resources.....	43–52
Desired Future Condition.....	43–52
Description and Assessment	43–52
General Management Measures	43–52
Florida Master Site File List of Sites (Table 5)	49–52
Culture/Period (Table 5)	49–52

Description (Table 5)	49 – 52
Significance (Table 5)	49 – 52
Condition (Table 5)	49 – 52
Treatment (Table 5)	49 – 52
RESOURCE MANAGEMENT PROGRAM	52
Management Goals, Objectives and Actions	52
Natural Resource Management	52
Hydrological Management	53 – 56
Goal	53
Objectives	53 – 56
Natural Communities Management	57
Goal	56
Prescribed Fire Management	56 – 61
Objective	57
Acres (Table 6)	60
Optimal Fire Return Interval (Table 6)	60
Natural Community Restoration	61
Objective	62
Natural Communities Improvement	62
Objective	62
Imperiled Species Management	63 – 64
Goal	63
Objectives	64
Exotic Species Management	64 – 65
Goal	64
Objectives	64 – 65
Special Management Considerations	65
Timber Management Analysis	65
Additional Considerations	66
Cultural Resource Management	67 – 70
Cultural Resource Management	66 – 69
Goal	66
Objectives	67 – 69
Resource Management Schedule	69
Land Management Review	70

LAND USE COMPONENT

INTRODUCTION	71
EXTERNAL CONDITIONS	71
Existing Use of Adjacent Lands	71
Planned Use of Adjacent Lands	72

PROPERTY ANALYSIS	73
Recreation Resource Elements	73
Land Area	73
Water Area.....	74
Natural Features	75
Archaeological and Historic Features	75
Assessment of Use.....	75
Past Uses	75
Future Land Use and Zoning	75
Current Recreation Use and Visitor Programs	77
Other Uses	78
Protected Zones	78
Existing Facilities.....	78
CONCEPTUAL LAND USE PLAN	79
Potential Uses.....	80
Public Access and Recreational Opportunities	80
Goal	80
Objectives	80 – 83
Proposed Facilities	83
Capital Facilities and Infrastructure	83
Goal.....	83
Objectives	83 – 85
Facilities Development.....	85
Existing Use and Optimum Carrying Capacity.....	86
Optimum Boundary.....	87

IMPLEMENTATION COMPONENT

MANAGEMENT PROGRESS	89
Management Progress	89
Park Administration and Operations.....	89
Resource Management	89
Natural Resources	89
Park Facilities.....	90
MAGEMENT PLAN IMPLEMENTATION	90

TABLES

TABLE 1 – Yearly Nitrate Concentrations	16
TABLE 2 – Yearly Nitrate Loading Rates	16
TABLE 3 – Imperiled Species Inventory	36 – 38
TABLE 4 – Exotic Plant Species Inventory.....	40 – 41
TABLE 5 – Cultural Sites Listed in the Florida Master Site File	49 – 52

TABLE 6 – Prescribed Fire Management	60
TABLE 7 – Existing Use and Optimum Carrying Capacity	86
TABLE 8 – Implementation Schedule and Cost Estimates.....	93 – 96

LIST OF ADDENDA

ADDENDUM 1	
Acquisition History.....	A 1 - 1
ADDENDUM 2	
Advisory Group List and Report	A 2 - 1
ADDENDUM 3	
References Cited	A 3 - 1
ADDENDUM 4	
Soil Descriptions.....	A 4 - 1
ADDENDUM 5	
Plant and Animal List.....	A 5 - 1
ADDENDUM 6	
Imperiled Species Ranking Definitions	A 6 - 1
ADDENDUM 7	
Cultural Information.....	A 7 - 1
ADDENDUM 8	
2009 Land Management Review	A 8 - 1

MAPS

Vicinity Map	3
Reference Map	4
Management Zones Map	11
Topographic Map.....	12
Soils Map.....	14
Natural Communities Map	20
Base Map	76
Conceptual Land Use Plan	81
Optimum Boundary Map	88

INTRODUCTION

Silver River State Park is located in central Marion County about seven miles northeast of downtown Ocala (see Vicinity Map). Access to the park is from Baseline Road (State Road 35) approximately one mile south of State Road 40 (see Reference Map). In addition, the Vicinity Map reflects significant land and water resources existing near the park.

The initial acquisition of the Silver River State Park occurred in 1985, and funded through the Conservation and Recreation Lands (CARL) program. Currently, the park contains 4,230.06 acres. Funds from the CARL, Preservation 2000 (P2000) and Acquisition and Inholdings programs provided for acquisition of additional property. Marion County acquired a 220-acre parcel using funds from the Florida Community Trust. After acquisition, Marion County leased the property to the Division of Recreation and Parks (Division) for management as part of the park (see Addendum 1).

At Silver River State Park, public outdoor recreation and conservation is the designated single use of the property. There are no legislative or executive directives that constrain the use of this property.

PURPOSE AND SIGNIFICANCE OF THE PARK

The purpose of Silver River State Park is to conserve and protect the natural value of the Silver River and its headwaters, Silver Springs, for the benefit of the people of Florida. Silver River State Park is significant due to Silver Springs, one of Florida's largest first magnitude springs and one of the largest limestone springs in the world. Silver Springs has also served as the center of one of Florida's most popular privately operated tourist attractions for over one hundred years.

The uplands surrounding the Silver River contain a striking diversity of highly significant archaeological sites that represent periods of Florida's history from the Paleo-Indian to the Seminole War era. Park lands support a significant population of Florida pinkroot (*Spigelia loganioides*), an endangered plant species and provide important habitat for a variety of other imperiled plants and animals including Florida gopher tortoise (*Gopherus polyphemus*), Florida black bear (*Ursus americanus floridanus*), Silver buckthorn (*Sideroxylon alachuense*) and Godfrey's swamp privet (*Forestiera godfreyi*).

In the Division's unit classification system, Silver River State Park is classified as a state park. The Division seeks balance in the management of a state park, between the goals of maintaining and enhancing natural conditions, and providing public outdoor recreational opportunities. Natural resource management activities involve the management of natural systems. Park development provides public access and recreational facilities that are convenient, safe and compatible with existing resources.

Program emphasis is on interpretation of the park's natural, aesthetic and educational attributes.

PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Silver River State Park as a unit of Florida's state park system. It identifies the goals, objectives, actions, criteria and standards that guide each aspect of park administration, and identifies specific measures for implementation of management objectives. The plan meets the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and is consistent with the State Lands Management Plan. With approval, this management plan will replace the 2002 approved plan.

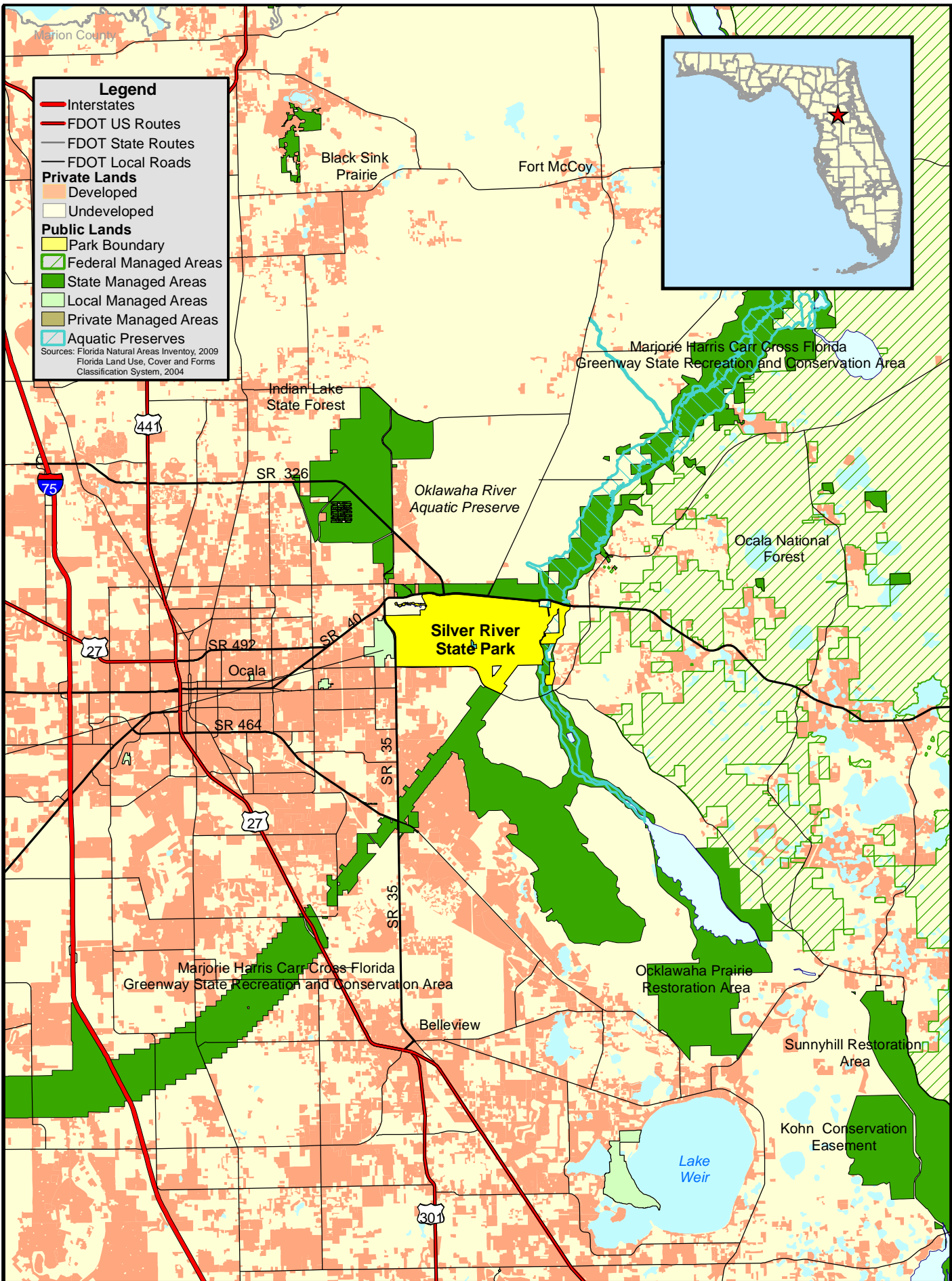
The plan consists of three interrelated components: the Resource Management Component, the Land Use Component and the Implementation Component. The Resource Management Component provides a detailed inventory and assessment of the natural and cultural resources of the park. In addition, this component identifies resource management problems and needs, and establishes measurable management objectives for each of the park's management goals according to resource type. The Resource Management Component also 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 allocates the park's recreational resources, determines the volume of public use, and develops the park's physical plan. During development of the Land Use Component, intrinsic factors such as access, population, adjacent land uses, natural and cultural resources, current public uses, and existing park development are considered. Measurable objectives are established to expand recreational opportunities and to develop or improve use areas, facilities and programs.

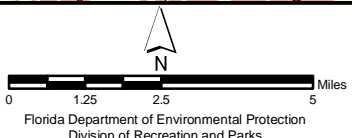
The Implementation Component consolidates the measurable objectives and actions for each of the park's management goals. An implementation schedule and cost estimates are included for each objective and action. Included in the table (1) measures used to evaluate the Division's implementation progress,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

All development and resource alterations 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 appropriate local, state or federal agencies.

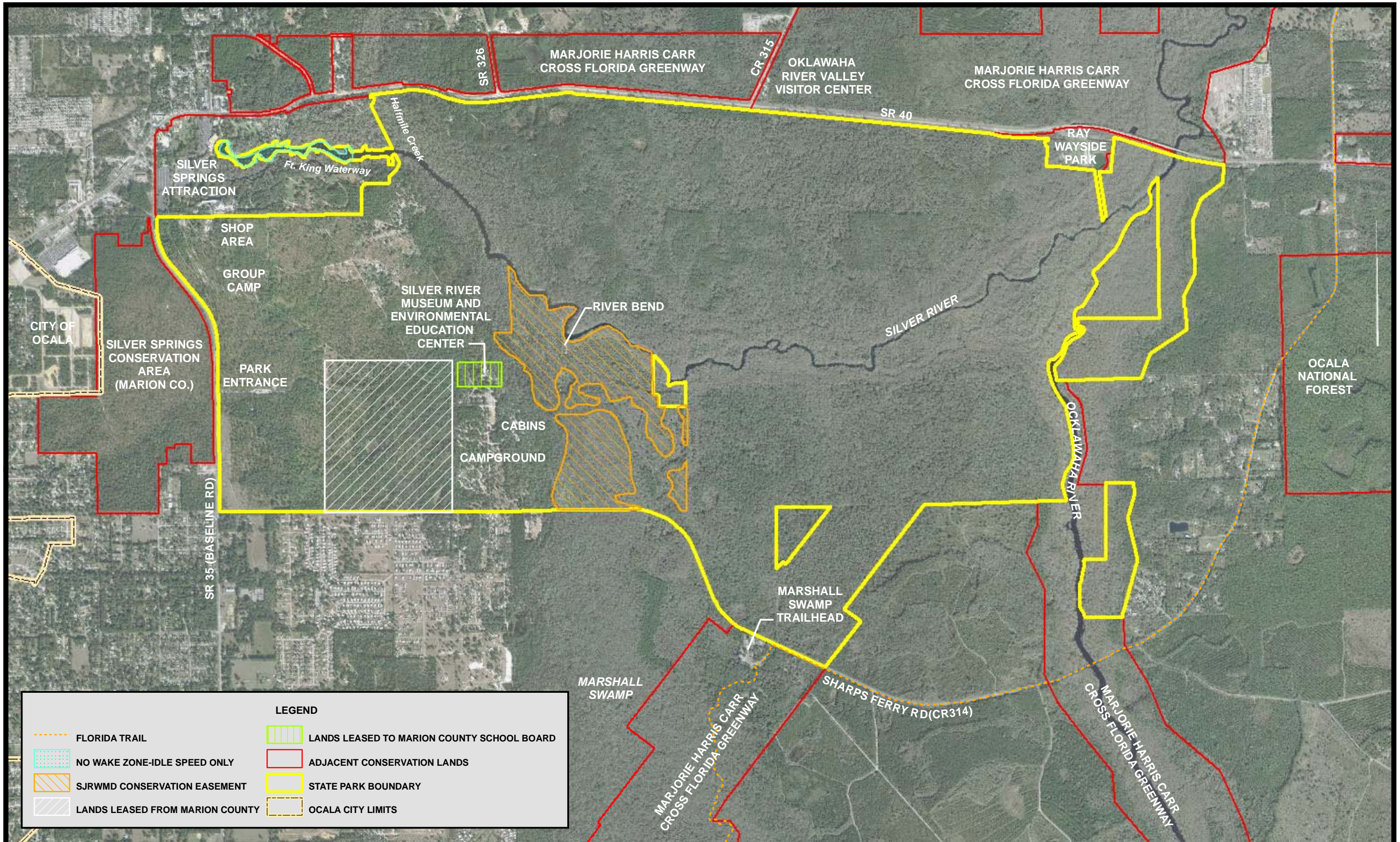
In the development of this plan, the Division analyzed the potential and ability to accommodate secondary management purposes within the park. Considerations given to secondary management purposes are within the context of the Division's statutory



SILVER RIVER STATE PARK

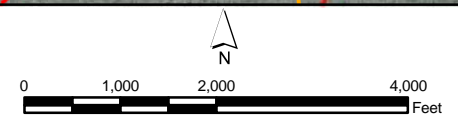


VICINITY MAP



LEGEND	
	FLORIDA TRAIL
	NO WAKE ZONE- IDLE SPEED ONLY
	SJRWMD CONSERVATION EASEMENT
	LANDS LEASED FROM MARION COUNTY
	LANDS LEASED TO MARION COUNTY SCHOOL BOARD
	ADJACENT CONSERVATION LANDS
	STATE PARK BOUNDARY
	OCALA CITY LIMITS

SILVER RIVER STATE PARK



DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF RECREATION AND PARKS
 OFFICE OF PARK PLANNING

REFERENCE MAP

responsibilities and the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitor experiences and visitation. For this park, it was determined that no secondary management purposes could be accommodated in a manner that would not interfere with the park's primary purpose of resource-based outdoor recreation and conservation. Uses such as water resource development projects, water supply projects, storm water 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.

Visitor fees and charges are the principal source of revenue generated by the park. The Division analyzed the feasibility of the park to generate revenue to enhance management; however, it was determined that multiple-use management activities would not be appropriate as a means of generating revenues for land management. On a case-by-case basis, the Division evaluates strategies to supplement park funding and include, but are not limited to, fees, concessions and similar measures.

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

MANAGEMENT PROGRAM OVERVIEW

Management Authority and Responsibility

In accordance with Chapter 258, Florida Statutes and Chapter 62D-2, Florida Administrative Code, the Division has the responsibility of developing and operating Florida's recreation and parks system. Administration is in accordance with the following policy:

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

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) has also granted management authority of certain sovereign submerged lands to the Division 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 impact public recreational uses.

Many operating procedures, used system-wide, are by Division internal policy. Procedures, outlined in the Division's Operations Manual (OM), cover 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 the Division'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

Management of the park is in accordance with all applicable laws and administrative rules. Identification of agencies having a major or direct role in the management of the park follows.

The Florida Department of Agriculture and Consumer Services, Division of Forestry (DOF), assists Division staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FFWCC), assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within the

park. In addition, the FFWCC aids the Division with wildlife management programs, including imperiled species management and Watchable Wildlife programs. The Florida Department of State, Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites. The Florida Department of Environmental Protection, Office of Coastal and Aquatic Managed Areas (CAMA) aids staff in aquatic preserves management programs.

At Silver River State Park, it is essential that management coordination extend beyond the current park boundary. The Silver Springs attraction (Smartparks - Silver Springs, Inc) currently manages the uplands surrounding the headsprings of the river under lease from the Trustees of the Internal Improvement Trust Fund. Division staff collaborates with the managers of the attraction on resource management activities and issues affecting the Silver River and the state park. This includes the monitoring and control of exotic plant and animal species, water quality monitoring and improvement efforts, visitor management and other issues affecting both operations. In addition, Division staff will be proactive in coordination and communication on resource protection initiatives throughout the Silver River watershed. This includes participation in the Silver Springs Forever Working Group, consultation and cooperation with the Florida Department of Transportation (FDOT) on future improvements to State Road 40 and regular contact with other citizen and governmental initiatives operating in the river basin.

Public Participation

The Division solicited public input by conducting a public workshop on Wednesday, July 7, 2010. The purpose was to present the draft management plan to the public. On Thursday, July 8, 2010, an Advisory Group meeting is held. The purpose of this meeting was to provide the Advisory Group members an opportunity to review and discuss the draft management plan (see Addendum 2).

Other Designations

Silver River State Park is not within an Area of Critical State Concern as defined in Section 380.05, Florida Statutes, and it is not presently under study for such designation. The park is a component of the Florida Greenways and Trails System, administered by DEP's Office of Greenways and Trails and is a designated stop on the East Section of the Great Florida Birding Trail.

All waters within the park have an Outstanding Florida Waters designation, pursuant to Chapter 62-302, Florida Administrative Code. In addition, the Florida Department of Environmental Protection (Department) classified surface waters in the park as Class III water. Portions of the park are designated as part of the Ocklawaha Aquatic Preserve under the provision of the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

Marion County has established a no wake-idle speed only zone by resolution (no. 85-R-128) on portions of the Silver River (see Reference Map). In addition, there is a fishing prohibition in the Silver River from the headwaters at Silver Springs to its junction with the Ocklawaha River under Chapter 62D-2 Florida Administrative Code.

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

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

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

The Division'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, conditions and events that occur beyond park boundaries can affect proper management of resources. The implementation of an evaluation program of ecosystem management is necessary to assess resource conditions, evaluate management activities and refine management actions. Included is review of local comprehensive plans and development permit applications for park/ecosystem impacts.

Management zones for the entire park are delineated areas that are used to reference management activities (see Management Zones Map). The basis for shape and size of each zone may be determine, for example, by natural community types, burn zones, 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.

RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resources

Topography

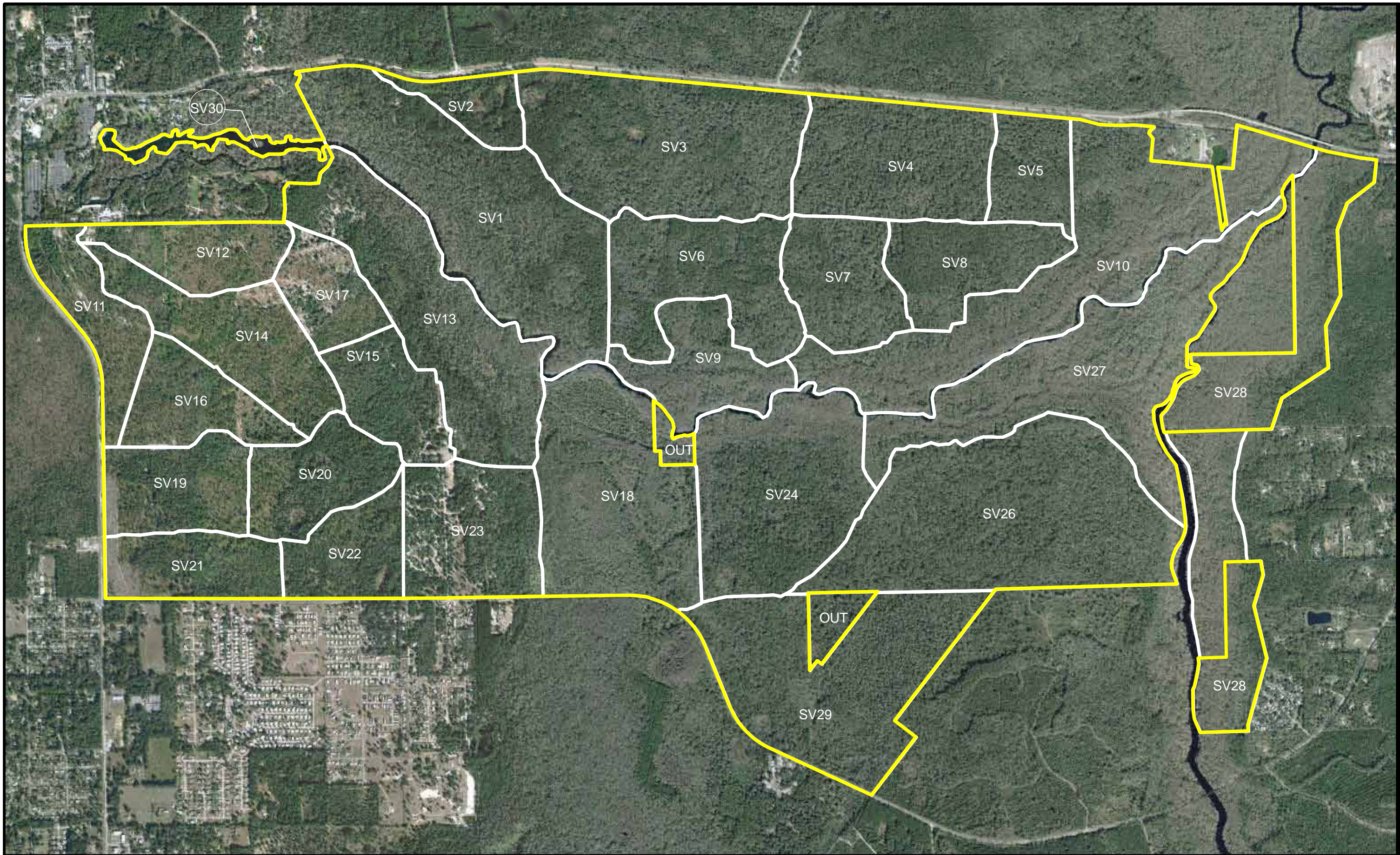
The park is located on the eastern edge of the Ocala Uplift District (Brooks 1981a). Within this district, the western part of the unit lies in the Anthony Hills subdivision of the Marion Hills physiographic division. In this area, low hills developed where Miocene clay was thin or nonexistent and sands and clayey sands of Upper Miocene origin rest directly on limestone. The eastern part of the unit lies in the Ocklawaha Valley physiographic division. This area is an erosional valley partially backfilled with Plio-Pleistocene estuarine sediments and consists of a poorly drained flatwoods terrace bordering the river swamp.

Within the unit (see Topographic Map), relatively flattened uplands gradually slope downward to the floodplain in most areas, although somewhat abruptly in others. A few shallow depressions exist as well. The southwest portion of the park contains the highest elevation of 75 feet. Along the northern boundary of the park, bordered by State Road 40, elevations are 65 feet. The lowest elevations (35 feet) are in the river floodplain found in the northern section along the Ocklawaha River.

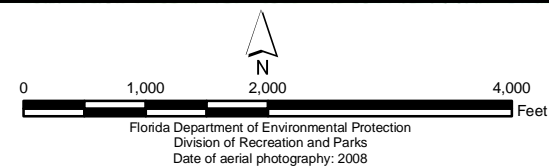
Some alteration of the terrain by past activities has affected the topography of the park. Erosion has occurred along the banks of the Silver and Ocklawaha Rivers; and discussed in soils section. Roads, causeways, drainage ditches, borrow pits, past timber harvests and agricultural operations and other notable topographic disturbances on the property have all affected the park in some way or form. Small, shallow borrow pits are scattered through portions of the south side of the park. There is a large borrow pit in the scrubby flatwoods community north of Sharpe's Ferry Road; to some extent, it was recontoured. Another borrow pit occurs in the center of the sandhills and was partially recontoured by park staff. Upon acquisition it was covered with cogongrass (*Imperata cylindrica*), but since then, the cogongrass has been treated with herbicide and native species have begun to seed into the site.

Geology

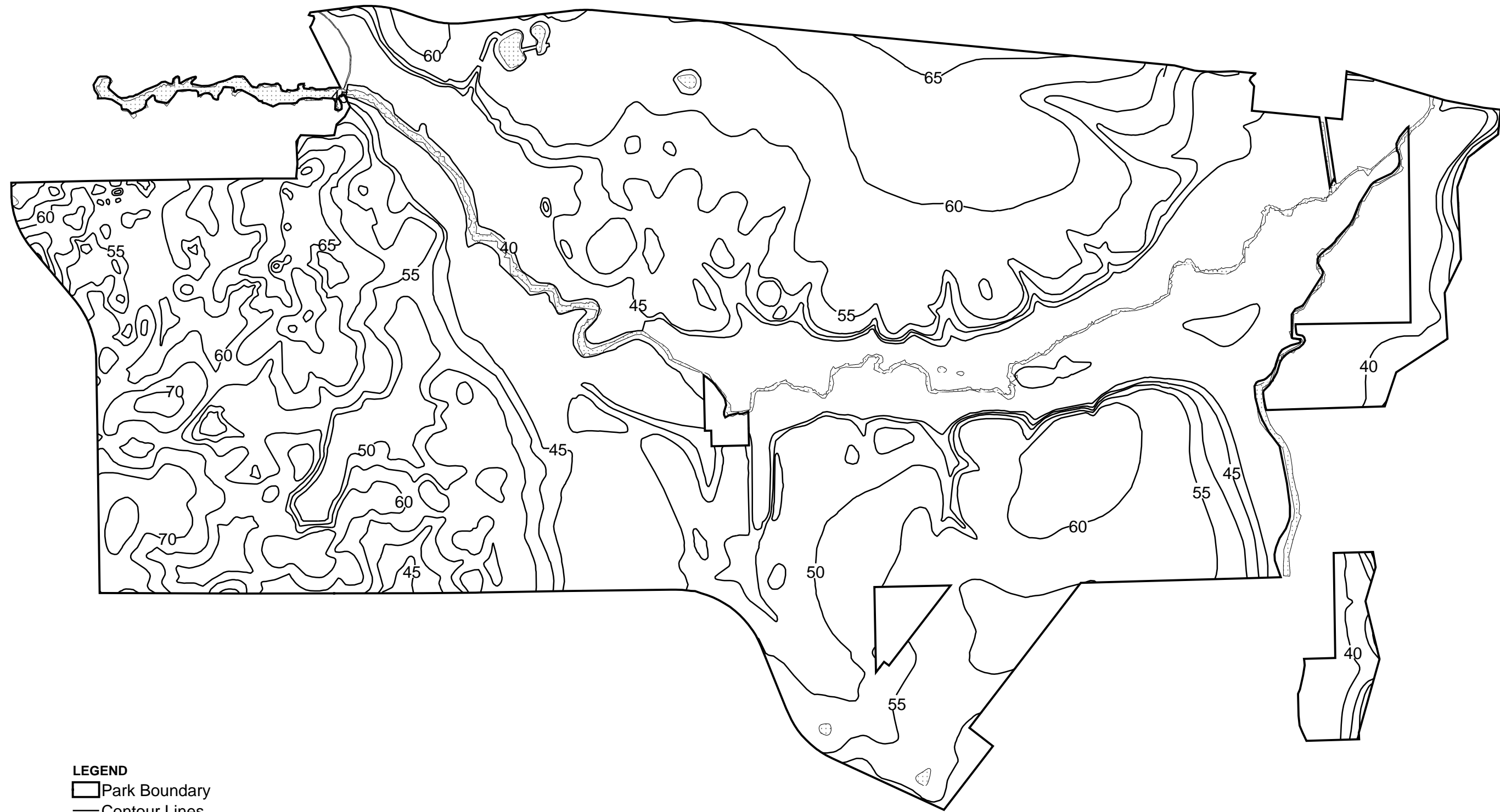
Underlying the park are three different geological formations. In order from youngest to oldest, these deposits are Holocene deposits, Ocala Limestone and the Hawthorn formation (Brooks 1981b). The Holocene deposits, made up of undifferentiated sand, shell, clay, marl and peat, have an origin less than 4,500 years. The Ocala Limestone is an Eocene deposit made up of skeletons of fossils within silt to sand size matrix. The fossil skeletons were originally aragonite but are now molds. This formation is almost pure calcium carbonate (93-96 percent) and is usually soft, porous and brittle. Massive chert nodules occur near the top portion. The lower portion is rubbly with very small spheroidal fossils being dominant. The Hawthorn formation originated during the Miocene and consists of deeply weathered clayey sand and granular sand with beds of



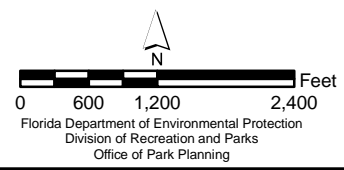
SILVER RIVER STATE PARK



MANAGEMENT ZONE MAP



LEGEND
□ Park Boundary
— Contour Lines



SILVER RIVER
STATE PARK

TOPOGRAPHIC
MAP

kaolinitic clay. The lower portion of this formation is greenish phosphatic sand and sandy clay.

Soils

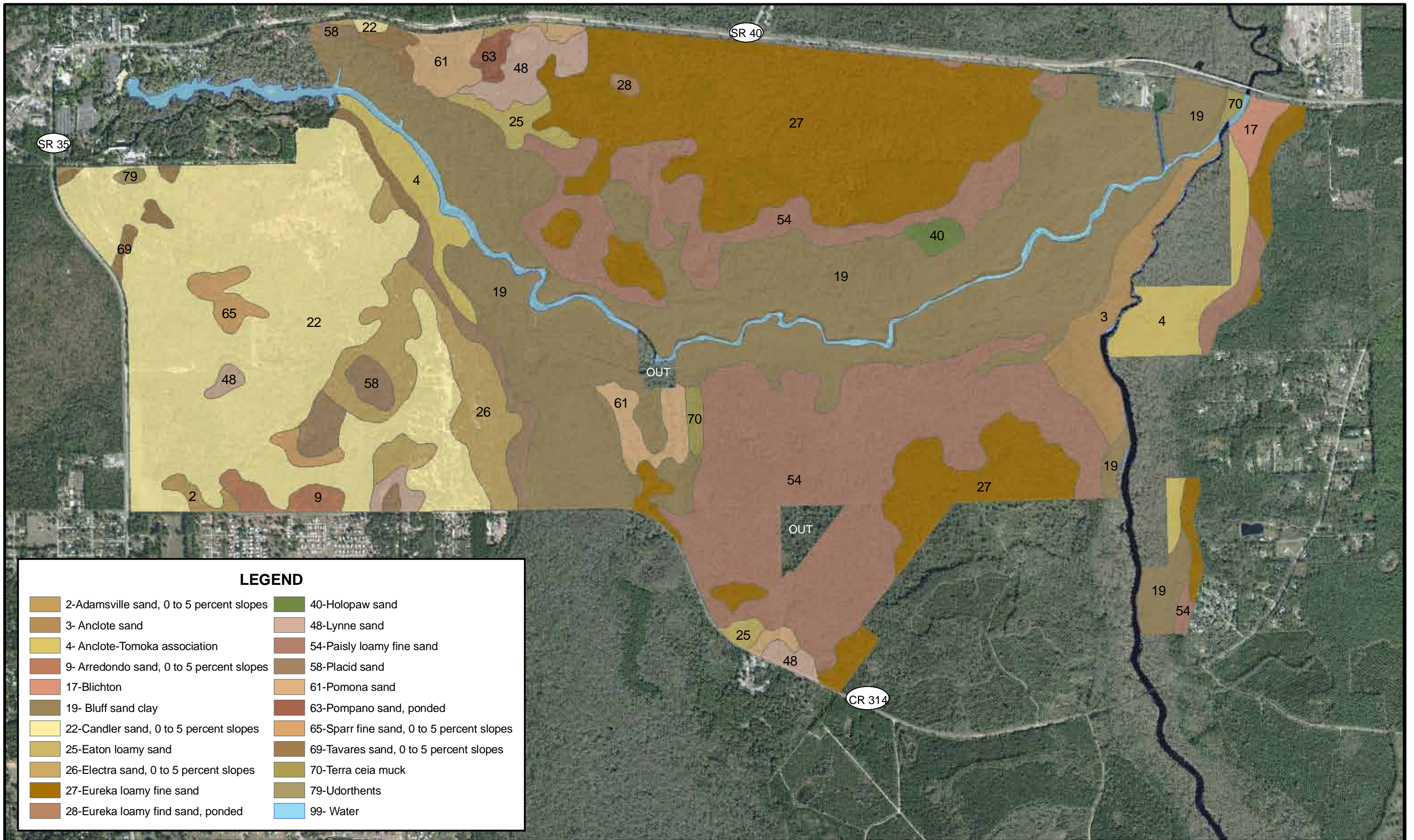
The Natural Resources Conservation Service (NRCS) has identified 23 different soil types (see Soils Map) in the park (Aydelott et al. 1975, Thomas et al. 1979). The NRCS soil survey describes what natural communities typically occur on different soil types. Detailed soil descriptions are contained in Addendum 4. In general, the natural areas of Silver River State Park adhere to the natural community-soil type relationship described by the NRCS. However, differences in elevation and slope, and suppression of fire have caused some deviations from the norm. For example, Bluff Sandy Clay (Bf), a very poorly drained soil typically supports floodplain swamp or floodplain forest communities. However, when the relief is high enough, either upland hardwood forest or upland mixed forest will exist on the site. Placid Sand (Pm) is another very poorly drained soil and characterized by some type of hydric forest. When found on a slope, Placid Sand will support an upland hardwood or upland mixed forest.

At several locations along Silver River, park visitors are pulling their boats up to the shoreline and climbing out onto shore. In these limited high spots along the river, the visitors are causing substantial bank erosion and soil compaction. At one large bend on the south side of the river, the bank eroded several feet in an area extending approximately 30 feet. Staff worked to stabilize the shore and restore the native vegetation. An added boardwalk concentrates visitor traffic with a canoe launch to reduce erosion. These efforts have greatly reduced the shore erosion in this area. There is a similarly eroded area nearby on the north side of the river. This has also eroded several feet but over a much shorter length of river frontage (approximately 15 feet). This eroded shoreline area also needs to be protected.

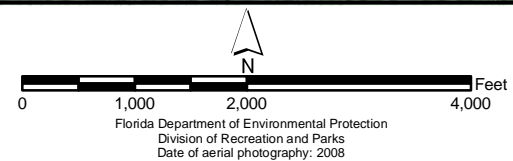
Another visitor-related issue that contributes to erosion along the river is failure to observe the idle speed regulation. The entire length of Silver River is designated an idle speed zone. Over the years, there has been much improvement in this situation. At present, a few floodplain trees toppled into the river due to loss of soil beneath their root systems; however, many boaters do not observe the idle speed regulation. As boat usage along the river continues to increase, erosion will increase if there is not strong enforcement of idle speed regulation. New signage, both regulatory and interpretive, may afford better protection to the river. All management activities will follow best management practices to prevent soil erosion and to conserve soil and water resources at the park.

Minerals

The removal of sand as fill material for road construction has occurred in several places in the past. No other deposits of commercial value are evident.



SILVER RIVER STATE PARK



SOILS MAP

Hydrology

The park lies within the Ocklawaha River drainage basin that contains some 850 square miles. The Silver River originates from Silver Springs, a group of artesian springs in the northwestern corner of the park. The river flows through the unit to the east boundary of the park, where it joins the Ocklawaha River, which flows into the St. Johns River. The Silver River has a designation as an Outstanding Florida Water (OFW). Approximately five miles of the Ocklawaha flows through and forms the eastern boundary of the park in some areas.

There are two aquifers in this region (Hyde 1965). The shallow aquifer is composed of Miocene to Holocene sand and shell beds. This aquifer is often of limited horizontal and vertical extent and generally exists as a water-table aquifer. Occasionally, clay beds that place it under artesian pressure confine the aquifer. Recharge is by rainfall and discharge occurs by way of evapotranspiration and seepage to surface water bodies.

In the immediate area, the Floridan aquifer consists of the permeable parts of the lower Hawthorn formation, the Ocala Limestone, and the underlying Avon Park Limestone and Lake City Limestone. The aquifer has an average thickness of more than 1,000 feet (Fernald and Patton 1984). Its nearness to the surface varies.

East of the springs that give rise to Silver River, the aquifer is confined, particularly in the Ocklawaha River valley, by a mantle of Miocene and perhaps younger deposits. West of the springs, considerable erosion of these confining beds has taken place. Here the aquifer receives direct recharge via permeable, thin surficial deposits. The springs' complex provides a major discharge from the aquifer with a flow that averages 516 million gallons per day (Spechler and Schiffer 1995).

Silver Springs has been the site of an extraordinary amount of ecological research. Dr. Howard T. Odum in the 1950s and Dr. Robert L. Knight in the 1970s conducted biological and ecosystem metabolism studies of Silver Springs. In 2006, Munch et al. completed a Fifty Year Retrospective Study of the Ecology of Silver Springs, which provides an assessment of land use and water quality changes in Silver Springs and a development of cause-and-effect relationships to the spring's ecology (Munch et al. 2006).

The U.S. Geological Survey (USGS), the St. Johns River Water Management District (SJRWMD) and the Florida Department of Environmental Protection's Springs Initiative have conducted considerable hydrologic research along the Silver River. The research by these agencies continues to occur. Of particular note is the record of flow measurement by the U.S.G.S. taken at Silver Springs and the Silver River. It is among the longest in the state, going back to the early 1900s (Baird, written comm.).

The Silver River water quality is very good and meets the criteria for Class III waters (FDEP 1995). West of the unit, there is cause for concern, because the land subjected to commercial, rural and urban development. Since the aquifer is unconfined there, there is potential for contamination by a multitude of existing or future sources. Baseline data shows nitrate concentrations of 0.04 mg/L in 1907 (Munch et al. 2006). There has been a documented increase in nitrate-nitrate levels in the spring-run from approximately 0.463 mg/L in 1953 to an average of 0.81 mg/L in 2000 (Florida Defenders Environment 2000). More than once, the Department (2001) confirmed the high level of nutrient concentrations in water samples from the springs, Ft. King Waterway and the Silver River downstream to Halfmile Creek. The nitrate-nitrite concentration was generally greater than 0.85 mg/L that is higher than the levels found in 90 percent of Florida streams.

A recently completed St. Johns River Water Management District (SJRWMD) special report provides valuable information on the water quality of the spring run and the health of the ecosystem. Findings from this study show an increase of nitrate concentrations as seen in table 1 and table 2 (Munch et al. 2006).

Table 1: Yearly Nitrate Concentrations at Silver Springs (SJRWMD 2006)

Year	Information Source	Nitrate-N Concentrations (Mg/L)
1907	USGS	0.04
1946	USGS	0.29
1953	Odum	0.46 (average)
1957	USGS	0.1
1979	USGS	0.71
1995	USGS	0.90
2005	SJRWMD	1.07
2055 (projected)	SJRWMD	2.02

Table 2: Yearly Silver Springs Nitrate Loading Rates (SJRWMD 2006)

Year	Loading Rate, Pounds/Year
1957	94,400
1979	814,900
1995	956,000
2005	1,058,000
2055 (projected)	1,760,000

This increase is cause for concern due to the unknown impacts that these nutrients are likely having on the natural resources. The trend of elevated nutrient levels occurs throughout the natural springs of the state. The Silver Springs Basin Working Group and FDEP are working to further research this issue.

In addition to the river, hydrological features of the park include semi-permanent ponds and intermittent waterways. In general, the latter drain into the floodplain or other aquatic systems. The ponds vary in size, being marshy or wooded to varying degrees. A small, natural creek enters the river approximately 3/4 mile downstream of the headwater spring (Halfmile Creek). This creek drains several square miles of flatwoods north of State Road 40 and east of the attraction, and in the past has received direct road runoff from State Road 40. During this time, varieties of pollutants were likely to enter the stream before it flowed into the spring run. Since it is the only tributary to Silver River, its potential impact on the water quality of the river is of concern to the park. The tannin colored creek has a minimal discharge except during periods of high rainfall when considerable flow comes through the creek. In testing extending from the head springs to Halfmile Creek, an FDEP (2001) study found the highest bacterial counts in Halfmile Creek, where two (out of four) and four (out of four) of the Class III water quality criterion for fecal and total coliforms, respectively, were observed to have been exceeded. Discharge from Halfmile Creek into the Silver River led to increases in bacterial counts immediately downstream in the Silver River, where one of the total coliform criteria was exceeded. Halfmile Creek also showed higher levels of phosphorus than the other stations sampled. A large drainage pipe exists near the northern boundary of the park and Halfmile Creek. Until 2010, the pipe drained untreated storm water runoff from State Road 40 into a short channel that appears manmade and leads directly into Halfmile Creek. Trash and other pollutants entered Halfmile Creek and subsequently the Silver River at this point. Recently, Marion County explored options for redirecting the untreated storm water runoff entering Half Mile Creek. Marion County, the Office of Greenways and Trails, SJRWMD, Florida Geologic Survey, and Division staff are currently involved in a project, which will divert and capture the untreated storm water runoff of the developed impervious areas along State Road 40 that previously flowed into Halfmile Creek via the large drainage pipe. The project is designed to allow sediment and trash removal from the storm water and then the water will be pumped to a retention pond north of State Road 40 on property leased by the Office of Greenways and Trails where the water will then percolate down into the ground water table. The current storm water infrastructure will remain in place and allow for direct draining of storm water runoff into Halfmile Creek during peak rain events such as a 100-year rain event when more water will be collected than can be pumped to the retention pond. The project to divert the storm water runoff is scheduled to be completed in September of 2010. Marion County is also interested in further restoration of Halfmile Creek. Activities such as impact assessment, exotic plant removal and trash removal may be considered as part of this effort. As opportunities arise to address these issues park staff should continue to work with appropriate partners to seek opportunities to address these issues. The Florida Department of Transportation (FDOT) has widened State Road 35 on the western boundary of the park. The FDOT is currently placing the stormwater retention ponds needed to treat anticipated runoff west of State Road 35. FDOT will also widen State Road 40, along the northern border of the park and this project is still

in the Project Development and Environment (PD and E) phase. Park staff will continue to be involved with the planning process as this project could have a direct impact on the park.

Of the remaining surface water resources, most have been altered in some manner. The waterways were blocked by slash piles and roads from a timbering operation just before state acquisition in 1985. Some of the ponds on the north side were ditched years ago, probably to facilitate the drainage of runoff from State Road 40. These ditches are considerable in depth and drain a substantial amount of storm water through the unit as well as affecting surface water runoff within the unit. During recent construction along State Road 40, the ditches inside the park were disconnected from the roadside swale system. This improvement resulted in less road runoff entering the park. The continued impact of the ditches needs to be determined and wherever feasible, the ditches should either be restored to natural topographic grade or have ditch-blocks installed to stop any flow.

Natural Communities

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

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

At the point in time when the park's natural communities have reached their desired future condition, they are considered to be in a maintenance status and share certain basic characteristics and management requirements. These include the maintenance of the optimal fire return intervals for fire dependant communities, the maintenance control of non-native plant and animal species, the maintenance of natural hydrological

functions (including historic water flows and water quality), the maintenance of proper vegetative structure that represents the natural diversity of the community, the maintenance of healthy populations of plant and wildlife species (including those that are imperiled or endemic), and the maintenance of intact ecotones between natural communities across the landscape.

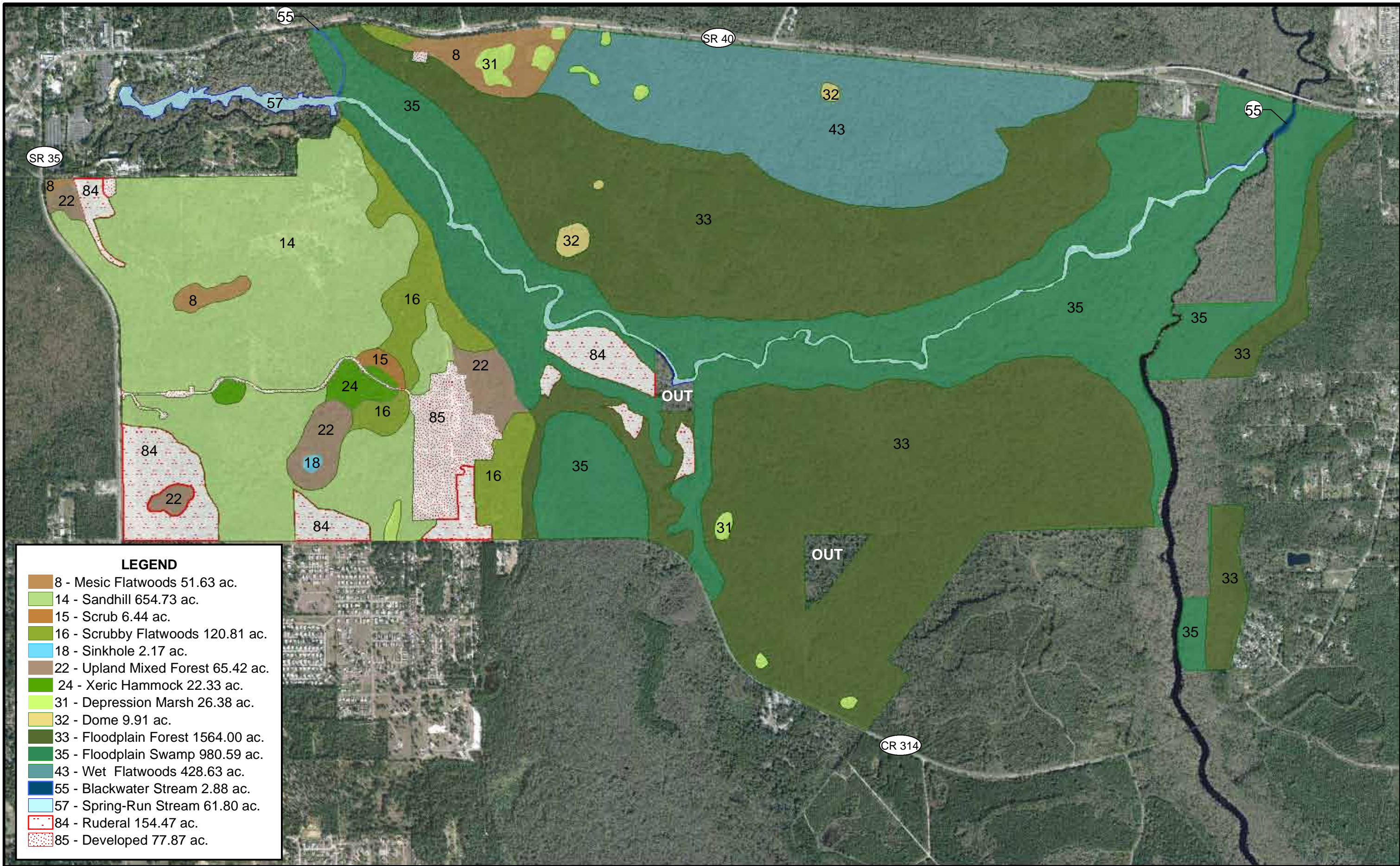
The park contains 14 distinct natural communities as well as ruderal and developed areas (see Natural Communities Map). A list of plants and animals occurring in the park is contained in Addendum 5.

MESIC FLATWOODS

Desired future condition: An overstory of longleaf pine (*Pinus palustris*) should be present with slash pine intermixed in wetter areas of the community type. Native herbaceous groundcover is over at least 50 percent of the area and is less than three feet in height. Saw palmetto (*Serenoa repens*) shrub component comprises no more than 50 percent of total shrub species cover, and are also less than three feet in height. Shrub species include saw palmetto, gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), runner oak (*Quercus elliotii*), dwarf live oak (*Q. minima*), shiny blueberry (*Vaccinium myrsinites*), and dwarf huckleberry (*Gaylussacia dumosa*). Shrubs are generally knee-high or less, and there are few if any large trunks of saw palmetto along the ground. The Optimal Fire Return Interval for this community is 2-5 years.

Description and assessment: This community occurs on the north side of the river near the northwest corner, primarily in management zone 2 and south of the river, primarily in management zones 16 and 14. This community is considered to be in fair condition. On the north side of the river, in the absence of fire this community has been invaded by species not typically found in this community such as sweetgum (*Liquidambar styraciflua*), laurel oak (*Q. laurifolia*), and water oak (*Q. nigra*). Also, past timbering (1984/85 for the northern piece, much earlier for the southern piece) has reduced the amount of pine and possibly other components of this community. It is probable that longleaf pine originally occurred in the mesic flatwoods, although due to the close association with loblolly pine (*Pinus taeda*) in adjoining communities, there may have been a mixture of longleaf and loblolly pine as well as pond pine (*Pinus serotina*). A small portion of the northern flatwoods was hand-planted with loblolly pines in 1986, using a scattered pattern. The seed source of these loblolly pines is unknown. South of the river, the mesic flatwoods are in better shape and have received fire more frequently. Palmetto densities in this flatwoods are higher than desired, but the overall tree density and species composition is desirable.

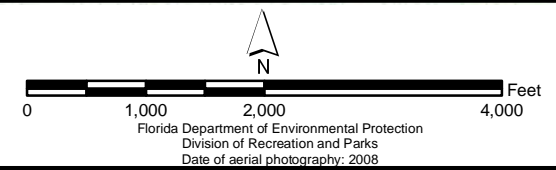
General management measures: The long-term restoration of this community will require the regular application of prescribed fire and may require some planting of longleaf pine. Firebreaks within and adjacent to the mesic flatwoods may need to be widened and fuel heights along firebreaks reduced to manageable levels. If the duff



LEGEND

- 8 - Mesic Flatwoods 51.63 ac.
- 14 - Sandhill 654.73 ac.
- 15 - Scrub 6.44 ac.
- 16 - Scrubby Flatwoods 120.81 ac.
- 18 - Sinkhole 2.17 ac.
- 22 - Upland Mixed Forest 65.42 ac.
- 24 - Xeric Hammock 22.33 ac.
- 31 - Depression Marsh 26.38 ac.
- 32 - Dome 9.91 ac.
- 33 - Floodplain Forest 1564.00 ac.
- 35 - Floodplain Swamp 980.59 ac.
- 43 - Wet Flatwoods 428.63 ac.
- 55 - Blackwater Stream 2.88 ac.
- 57 - Spring-Run Stream 61.80 ac.
- 84 - Ruderal 154.47 ac.
- 85 - Developed 77.87 ac.

SILVER RIVER STATE PARK



NATURAL COMMUNITIES MAP

layer is deep, adequate duff moisture should exist before burning in an effort to remove fuel accumulations gradually and not ignite deep layers of duff that could result in tree mortality. Monitoring and treatment of exotic plants will continue for this area.

SANDHILL

Desired future condition: Dominant pines are usually longleaf pine. Herbaceous cover is 80 percent or greater, and is less than 3 feet in height. In addition to groundcover and pines characteristics, there are scattered individual trees, clumps or ridges of onsite oak species (usually turkey oaks (*Q. laevis*), sand post oak (*Q. margaretta*), and blue-jack oak (*Q. 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 1-3 years.

Description and assessment: This community occurs in the western portion of the park south of the river. It is contained in management zones 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22. Most of this community is considered to be in fair to good condition where the community exists in a relatively undisturbed state. Some portions of the sandhill community are in poor condition due to previous plantings of off-site slash and sand pines (*P. elliotii*, *P. clausa*) and the invasion of cogongrass.

The relatively undisturbed portion of the sandhill community has numerous, well-distributed longleaf pines. These pines average 90 years in age and range from 60 to 100 feet tall. The groundcover is intact in these areas of the sandhill and is dominated by wiregrass (*Aristida stricta* var. *beyrichiana*). Due to infrequent burning, these sandhills have a very dense understory layer of turkey oaks. Although turkey oak is a natural component of the sandhill community, its density needs to be reduced by aggressive application of prescribed fires. Fires should focus on the spring and summer seasons, although fires during the dormant season will also benefit the community. Prescribed fire is the primary method to be used to control densities of sandhill-occurring oak species, including turkey oak, sand post oak and bluejack oak. However, due to the extended drought conditions and the SPB outbreaks that have hampered the prescribed fire program, minimal impact mechanical removal and herbicide applications to sandhill oak species will also be considered.

In the relatively undisturbed sandhills that adjoin more mesic areas, offsite hardwoods including laurel and water oaks, and sweetgum have heavily invaded the sandhill community. In some areas, the heavy shading has greatly reduced the herbaceous groundcover. This invasion of off-site hardwoods is due to infrequent burning. Because these offsite hardwoods produce much heavier shade and have a thicker, less flammable leaf cover than the onsite sandhill oak species, a more aggressive management strategy to remove the off-site species of hardwoods is necessary. In the areas with off-site hardwoods, mechanical treatments, including girdling, mowing and herbicide application will open the canopy so that fire can fully penetrate the

community and restore native groundcover.

The previous landowner logged a portion of the sandhills in the late 1970s to early 1980s and planted these areas with slash pine. Limited site preparation was done so most of the understory species and a few longleaf pines remain. The most concentrated area of slash pine in a natural community was harvested by Marion County before leasing their 200-acre parcel to the State. Most of the area harvested by the county was replanted with tubeling longleaf pine in 1999.

One small area of sandhill was harvested during the SPB outbreak of 1996-1998. This area was replanted with longleaf pine tubelings in the summer of 2000. The slash pine plantation that was planted in the southwest corner of the park on the park boundary near State Road 35 and Sharpe's Ferry Road was harvested in 2007. This area will be converted to longleaf pines and native groundcover will be allowed to seed in from adjacent seed sources. If necessary, park staff will collect seed from native sandhill vegetation and spread it throughout the area to assist in groundcover restoration. There is one small area near the Group Camp where sand pines were planted in rows. Some of the sand pines have been removed. Over time, all of these off-site pines will be replaced with longleaf pine.

North of Sharpe's Ferry Road, three areas of former sandhills were converted to pasture, including the removal of native groundcover and replacement with exotic bahia grass (*Paspalum notatum*). These pastures were established when the property was owned by the Tracy family, beginning in the early 1930s. In the westernmost portion, adjoining Baseline Road, the previous owners planted a slash pine plantation in 1977/78. This area needs to be considered for a restoration harvest and reforested with longleaf pine and replanted with wiregrass groundcover. Adjoining the pine plantation area, there is a portion of pasture that was formerly used as a dirt bike course. This area was smoothed out and replanted with widely scattered longleaf pines in 1988. There is sufficient longleaf pine regeneration in this pasture area that additional plantings may not be necessary. The remaining two pasture areas were randomly planted with longleaf pine in 1987/88. The easternmost pasture area was further planted with longleaf pines in 1994 and 1999. All pasture areas should be considered for groundcover restoration and for inclusion in the prescribed burning program.

In the sandhill areas around Paradise Road, there are still a few dense patches of cogon grass despite treatment efforts. The previous landowner supposedly seeded cogon grass in certain areas for soil stabilization or groundcover forage for cattle. Whatever the reason for its occurrence, cogon grass has now replaced native groundcover species in portions of the sandhill community. Control efforts are ongoing. Once control is accomplished, revegetation with native groundcover species may be needed.

The sandhill community is fragmented into many small sections due to the many jeep

trails throughout the community. Over time, many of these roads will be removed and restored to sandhill community.

General management measures: The sandhills at Silver River need to be burned once every 1-3 years. Most of the sandhill zones are too heavily stocked with turkey oaks. A combination of chemical and/or mechanical removal of oaks and prescribed fire is appropriate for some zones, while others are close to maintenance condition requiring only fire. Off-site slash and sand pine should be removed and longleaf pine planted as needed to achieve natural densities. Cogon grass infestation should continue to be treated and retreated as necessary and monitoring should continue for new infestations. Large areas where cogon grass has been eliminated may need to be seeded with native groundcover species to restore these areas.

Please refer to the Restoration objective in the Resource Management Program section of the plan.

SCRUB

Desired future condition: Dominant species over the vast majority of scrub acres include sand live oak (*Q. geminata*), myrtle oak (*Q. myrtifolia*), Chapman's oak (*Q. chapmanii*), saw palmetto and rusty staggerbush (*Lyonia ferruginea*). Scrub oak canopy varies in height from 3 – 8 feet. There is a variety of oak age classes/heights between different scrub patches. There are scattered openings in the canopy with bare patches of sand that support many imperiled or endemic plant species; these species are regularly flowering and replenishing their seed banks. Sand pine, where present, is usually not dominant in abundance, percent cover or height. The Optimal Fire Return Interval for this community is regionally variable; typically, 4-7 years when aiming to achieve a mosaic of burned and unburned areas.

Description and assessment: Scrub occurs in one area on the south side of the river. It is located in a narrow swath in management zone 17. The community is considered to be in fair to poor condition. The scrub area located in the center of the park is succeeding to a xeric hammock community due to a lack of burning, and it is questionable whether the community should be designated as scrub or xeric hammock. At present, the community has been designated as scrub to encourage restoration efforts through the application of prescribed fire. The midstory is quite tall (20-30 feet) with sand live oak and myrtle oak as the dominant species with rusty staggerbush and saw palmetto also being common. Other scrub plants such as sand pine, Chapman's oak, and scrub palmetto (*Sabal etonia*), a threatened species, are widely scattered. Florida rosemary (*Ceratiola ericoides*) occurs occasionally. Efforts will be made to burn this area in order to determine whether it can be restored to a better condition scrub community. Mechanical treatment may also be warranted in order to reestablish a burn regime suitable for maintaining scrub instead of xeric hammock.

General management measures: Fire should be applied to this area to see if it will burn on its own. If unsuccessful, the area should be considered for mechanical treatment followed by prescribed fire. This scrub portion of the management zone may not burn every time the zone is treated with prescribed fire as it has a longer fire return interval than the more pyric portion of the zone. Ideally, the scrub should be managed as early succession scrub and not allowed to succeed back to a more challenging to manage late succession phase of scrub. Firebreaks around the zone may need widening and fuel heights adjacent to firebreaks reduced. Exotic plant species removal will continue.

SCRUBBY FLATWOODS

Desired future condition: Dominant tree species of the interior should be longleaf pine. Mature sand pines are typically not present. There is a diverse shrubby understory often with patches of bare white sand. Scrub oak “canopy” varies in height from 3 – 8 feet and there is a variety of oak age classes/heights across the landscape. Dominant shrubs include sand live oak, myrtle oak, Chapman’s oak, saw palmetto, rusty staggerbush and tarflower (*Befaria racemosa*). Cover by herbaceous species is often well below 40 percent. The Optimal Fire Return Interval for this community is regionally variable, typically, 3-5 years when aiming to achieve a mosaic of burned and unburned areas.

Description and assessment: This under-represented community exists in two small areas. It remains in relatively good condition; however, it needs periodic burning. Most, if not all, of the typical plant species expected in this region are present.

One area is found in the upper western most corner of management zone 2. Here longleaf pines occur in the community with a few loblolly pines around the periphery. Although the pine species have been manipulated by human influences, the system is structurally functional, as it now exists. Care will be needed to minimize the impacts to this community since it is so limited in its occurrence at the park.

The second area of scrubby flatwoods occurs in a narrow band between sandhill/pasture and upland mixed forest just north of Sharpe’s Ferry Road to the east of the old entrance road in management zone 23. It occurs along the upper margin of the slope that leads into the western edge of Marshall Swamp. Some of this scrubby flatwoods may have been removed when the improved pasture was established, although it is difficult to assess whether scrubby flatwoods or sandhill was removed to create the pasture. Most of the pasture is thought to be former sandhills due to the presence of wiregrass to the east of the pasture. There is also a borrow pit in this area of scrub near Sharpe’s Ferry Road. The borrow pit was discussed in the topography section. Inclusion in an active burn regime will restore this scrubby flatwoods area. This piece of scrubby flatwoods is tending towards xeric hammock due to lack of fire. Fire should be applied from the upland edge and be allowed to burn down slope to the east so that the sandhill and scrubby flatwoods xeric upland community types can

reestablish themselves.

General management measures: This community will require the regular application of prescribed fire and possible fuel reduction such as mowing to reduce fuel heights adjacent to firebreaks and within the zone itself. If the duff layer is deep, adequate duff moisture should exist before burning in an effort to remove fuel accumulations gradually and not ignite deep layers of duff that could result in tree mortality. Exotic plant species removal will continue.

UPLAND MIXED FOREST

Desired future condition: Mature, closed canopy hardwood forest that typically occurs on slopes and rolling hills with generally mesic conditions. Overstory tree species may consist of southern magnolia (*Magnolia grandiflora*), sweetgum, live oak (*Q. virginiana*), laurel oak, Florida maple (*Acer barbatum* var. *floridanum*), white oak (*Q. alba*), and swamp chestnut oak (*Q. michauxii*) and American beech (*Fagus grandifolia*). Understory species include trees and shrubs such as American holly (*Ilex opaca*), flowering dogwood (*Cornus florida*), redbud (*Cercis canadensis*), red bay (*Persea borbonia*), horse sugar (*Simplocos tinctoria*), and beautyberry (*Callicarpa americana*). Ground cover is comprised of shade tolerant herbaceous species, sedges and vines.

Description and assessment: Upland mixed forest occurs south of the river, running north and south as a transitional zone between the floodplain swamp and sandhill. It is located in management zones 13 and 23. A more typical representation of the upland mixed forest occurs in the southern center section of the park around a sinkhole depression area and a few pockets in the sandhills because of fire exclusion/shadowing. These areas are dominated with mesic hardwoods and a few pines. Many of the mesic hardwood species found in this area have encroached into the adjoining sandhill areas due to lack of fire.

General management measures: For the most part this natural community is in maintenance state requiring little management other than protection from visitor impacts. For the portions of upland mixed forest that border a pyric community type, fire will be allowed to burn into the upland mixed forest as needed for fire management. Exotic plant species removal will continue in this community.

XERIC HAMMOCK

Desired future condition: Typically considered a late successional stage of scrub or sandhill that generally occurs in small isolated patches on excessively well drained soils. Vegetation consists of a low closed canopy dominated by live oak that provides shady conditions. Typical plant species may also include Chapman's oak, and laurel oak. Sand pine, slash pine or longleaf pine may also be a minor component. The understory will typically include saw palmetto, fetterbush, myrtle oak, yaupon (*Ilex vomitoria*), Hercules' club (*Aralia spinosa*) and Florida rosemary. Sparse groundcover

layer of wiregrass and other herbaceous species may exist but typically absent. A continuous leaf litter layer may be present. Overgrown scrub in need of fire and/or mechanical treatment should not be confused with true xeric hammock.

Description and assessment: The xeric hammock community occurs in an area of sandhills just north and a bit south of the large curve on the main park drive in management zones 17 and 20. This area was originally scrub or scrubby flatwoods. The community is largely comprised of sand live oaks and is considered in good condition. At least perimeter areas of the xeric hammock may still be restorable to scrub, scrubby flatwoods or sandhill (see discussion under scrub).

General management measures: For the most part this natural community is in maintenance state requiring little management other than protection from visitor impacts. For the portions of xeric hammock that border a pyric community type, fire will be allowed to burn into the xeric hammock as needed for fire management. Exotic plant species removal will continue.

DEPRESSION MARSH

Desired future condition: Emergent herbaceous and low shrub species are dominant over most of the area, and there is an open vista. Trees are few and if present occur primarily in the deeper portions of the community. There is little accumulation of dead grassy fuels due to frequent burning; one can see often the soil surface through the vegetation when the community is not inundated. Dominant vegetation in basin marsh and depression marsh include maidencane (*Panicum hemitomon*), switchgrass (*Panicum* spp.), common reed (*Phragmites australis*), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* spp.), buttonbush (*Cephalanthus occidentalis*), St. John's wort (*Hypericum* spp.), and coastal plain willow (*Salix caroliniana*). Floodplain marsh dominants also typically include sand cordgrass and sawgrass. The Optimal Fire Return Interval for this community is 3-5 years depending on fire frequency of adjacent communities.

Description and assessment: The Park contains a number of shallow depression marshes located in management zones 2, 3, 24, and 29. Until recently, some of the marshes north of the Silver River received runoff from State Road 40. Following roadwork on State Road 40, the roadside drainage swales were disconnected from discharging into the park. This will improve the quality of the water in these northern depression marshes. The northern marshes have also been connected by ditches to facilitate their drainage. This ditching, and its resultant drainage, is probably what have allowed the expansion of woody plant species into the marshes. If this ditching is causing the marshes to dry out more quickly by expediting water drainage to the river, remedial action may be necessary to stop and reverse changes in community structure and composition. The condition of the depression marshes varies from fair to good for marshes impacted by drainage to excellent for marshes not so affected.

General management measures: The ditches connecting the depression marshes should be filled or blocked if feasible to restore the natural hydrology of the depression marshes. The depression marshes should not be excluded from prescribed fire when the zone they are in is burned if possible. Duff and muck levels and moisture content within them should be assessed prior to burning. Non-ground disturbing mechanical removal of encroaching vegetation should be considered if depression marsh rims are overgrown with vegetation due to altered hydrology or lack of fire. Exotic plant species removal will continue.

DOMES SWAMP

Desired future condition: Isolated, forested, depression wetland occurring within a fire maintained matrix such as mesic flatwoods. The characteristic dome appearance is created by smaller trees that grow on the outer edge (shallower water and less peat) and the larger trees that grow in the interior. Pond cypress (*Taxodium ascendens*) typically dominates but swamp tupelo (*Nyssa sylvatica* var. *biflora*) may also form a pure stand or occur as a co-dominant. Other subcanopy species can include red maple (*Acer rubrum*), dahoon holly (*Ilex opaca*), swamp bay (*Persea palustris*), sweetbay (*Magnolia virginiana*) and loblolly bay (*Gordonia lasianthus*). Shrubs can be absent to moderate (a function of fire frequency) and can include Virginia willow (*Itea virginica*), fetterbush (*Lyonia lucida*), buttonbush, wax myrtle (*Myrica cerifera*) and titi (*Cyrilla racemiflora*). Herbaceous component can be absent to dense and include ferns, maidencane, sawgrass (*Cladium jamaicense*), sedges, lizard tail (*Saururus cernuus*), and sphagnum moss (*Sphagnum* spp.). Vines and epiphytes are often common. Maintaining the appropriate hydrology and fire frequency is critical for preserving the structure and species composition of the community.

Description and assessment: The domes are restricted in their distribution to locations near the river in Management Zones 1 and 9. While bald cypress (*Taxodium distichum*) was cut in the late 1800s and early 1900s, many large individual cypress trees remain. The swamp is typical both in community structure and species composition. No detrimental conditions have been observed thus far in this community. The community is considered to be in excellent condition.

General management measures: Dome swamps should be allowed to burn on the same frequency as the adjacent fire type community, allowing fires to naturally burn across ecotones. Fires should be appropriately planned to avoid high severity fuel consumption within the dome swamp. Exotic plant species removal will continue.

FLOODPLAIN FOREST

Desired future condition: This 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 (*Q. lyrata*), water hickory (*Carya aquatica*), American elm (*Ulmus americana*), laurel oak, and red maple. The floodplain forest north

of the Silver River will also contain scattered loblolly pine. Understory species may include swamp dogwood (*Cornus foemina*), willow species, and American hornbeam (*Carpinus caroliniana*). Presence of groundcover is variable. Species such as netted chain fern (*Woodwardia aerolata*) and other shade tolerant herbaceous species may be present.

Description and assessment: The floodplain forest occurs on both sides of the river bordering the floodplain swamp in management zones 1, 9, 10, 18, 24, 29, 26, 27 and 28. The area covered by this community is seasonally inundated. The community supports temperate vegetation consisting of mixed hardwood species and cabbage palm. The plant association identified as floodplain forest is very unusual in some areas, and in this form, it may be unique to the Silver River area. Whether this expression of the floodplain forest community type occurs because of past manipulative disturbances is unknown. In 1915, Roland M. Harper related, "In the extreme eastern part of the Ocala area, within a few miles of Silver Springs, is a peculiar type of vegetation in which short-leaf pine [(actually loblolly pine)] and cabbage palmetto are the dominant trees." Harper goes on to state, "The wetter parts look much like some of the low hammocks and swamps..., and the drier parts pass gradually into open pine woods a few miles northeast of Silver Springs." He further notes that trees outnumber the herbs. Vines are rather abundant, but the only grass that is mentioned is woodsgrass (*Oplismenus hirtellus*). Harper also stated, "Fire must be very rare, as in other damp shady forests."

Most of the forest above the 40-foot contour line along the edges of Silver River has been mapped as floodplain forest. It is characterized by the unusual plant association described by Harper. This community has been dramatically manipulated by past owners, which further complicates community typing. Much of it, especially on the north side of the river, was cleared for farming and cattle by the 1850s (Mickey Summers, pers. comm.). Harper (1915) commented that much of the virgin pine forest was mostly gone by 1915. However, other than the clearing of several fields on the south side near the river in the 1930s as part of the Tracy Farm, there does not appear to have been much logging until 1984/85 when mostly loblolly pines, but a few pond and longleaf pine as well, were cut from the north side of the river. The community was in a good state of recovery with some replanting of loblolly pines in the late 1980s when, beginning in 1996, extending into 1998, and reoccurring in 2001, there was an outbreak of SPB that necessitated a harvest of all infected loblolly pines. This SPB outbreak resulted in timber harvesting both north and south of the river in most of the drier areas of this community type.

The two timber harvests since 1985 have damaged large areas of this community with considerable groundcover disturbance by both harvests. In addition, on the north side of the river, cogon grass forms a monotypic groundcover through portions of the community. Accordingly, the condition of this community, depending on the amount of groundcover disturbance and the coverage of cogongrass, is rated as being in poor to good condition. Since loblolly pine produces many seeds, natural regeneration of pine

will probably be sufficient for these forests. However, if there are areas where the regeneration potential was negatively impacted by the harvest, replanting of loblolly pine may be necessary.

At least four rare plants, silver buckthorn (*Sideroxylon alachuense*), Godfrey's privet (*Forestiera godfreyi*), Florida crabgrass (*Digitaria floridana*), and pinkroot (*Spigelia loganioides*), are known to occur in this community type and will be discussed more thoroughly in the Imperiled Species section.

General management measures: Because loblolly pine is particularly susceptible to southern pine beetle (SPB) attack, resource management will need to focus on keeping the regenerating forest in a low SPB hazard condition. Such management will involve the infrequent application of prescribed fire that will act to thin loblolly pines. A SPB trap for early detection has been placed at Ray Wayside Park and is maintained and checked regularly by the Marion county forester. Should SPB be detected the county forester will notify the park staff to be on the look out for infestations in the park so action can be taken sooner and hopefully keep the infestation small. A longer inter-fire interval will favor the growth of the hardwood component over the pine component, letting the community regenerate into a mixed hardwood stand with scattered loblolly pine. Widely scattered loblolly of varying ages mixed with hardwoods and cabbage palms fit with Harper's original description of this particular community association. Exotic plant species removal will continue.

FLOODPLAIN SWAMP

Desired future condition: Frequently or permanently flooded community in low-lying areas along streams and rivers. Soils consist of a mixture of sand, organics and alluvial materials. Closed canopy typically dominated by bald cypress but commonly includes tupelo species as well as water hickory, red maple, and overcup oak. Tree bases are typically buttressed. Understory and groundcover are typically sparse.

Description and assessment: The floodplain swamp occurs along both sides of the river from the edge of the river to about 40 feet in elevation in management zones 1, 9, 10, 13, 18, 24, 27 and 28. While bald cypress was cut decades ago, it is still common. The species composition is quite diverse, with large individuals of many tree species being present. At the edge of the floodplain swamp community, several distinctive trees have been found. These include the national co-champion cedar elm (*Ulmus crassifolia*) and a state champion shumard oak (*Q. shumardii*). Previously, exotic plants, especially taro (*Colocasia esculentum*), were introduced upstream and spread down river into the edge of the floodplain swamp. Removal of these exotics needs to continue to insure they do not spread throughout the swamp. Taro occurs at the Silver Springs attraction. Until taro is removed from the attraction, there will be a continuous source of infestation. There are scattered areas of bank erosion and soil compaction in the floodplain forest due to boats pulling up and parking in certain areas. These eroded areas need to be

restored. The condition of the floodplain swamp is considered to vary from fair to good to excellent depending on the impact of erosion and the impacts of exotic plants.

General management measures: The floodplain swamp will require little direct management. Monitoring for human caused bank erosion should continue and the shore restored as appropriate. Because this community is primarily maintained by hydrology, hydrologic disturbances affecting the Silver Springs and Silver River such as flow and level changes will affect this community within the park. Input from the division, district and park staff regarding area aquifer withdrawal and other hydrologic disturbances will continue. Monitoring and treatment for new taro and other exotic plant infestations will continue.

WET FLATWOODS

Desired future condition: An over story of loblolly pine will be present. Pond cypress may reach into the canopy in some locations. The canopy is open, with pines being widely and of different age classes. This particular wet flatwoods will have a cabbage palm (*Sabal palmetto*) component unusual for most wet flatwoods. Native herbaceous cover is at least 50 percent. Pitcher plants and other carnivorous plant species may be present and abundant in some areas. Common shrubs include sweet pepperbush (*Clethra alnifolia*), fetterbush, large gallberry (*Ilex coriacea*) and wax myrtle. The Optimal Fire Return Interval for this community is 3-5 years.

Description and assessment: Wet flatwoods are found in management zones 3, 4, 5, 6, 7, 8 and 10. A rather unusual association of loblolly pine and cabbage palm comprise the dominant species in this community. Harper described this association in 1915. It is reportedly restricted to poorly drained clayey soils, chiefly the Eureka series, where the water table is within ten inches of the surface from two to six months during most years. Since loblolly pine is not particularly fire tolerant, there is a possibility that longleaf pine and/or slash pine may have been cut out of the wet flatwoods in the past. Loblolly pine may have occurred in lower numbers and expanded, or possibly, it dispersed into the wet flatwoods in the absence of other pine species.

There is also the possibility that the area designated as wet flatwoods is simply the drier end of the community type as described by Harper (see floodplain forest). Much of this community was clear-cut just prior to state acquisition in 1985. The regenerated loblolly pines and large, older loblollies along STATE ROAD 40 that had not been cut in 1985 were harvested beginning in 1996 due to an outbreak of SPB. Outbreaks and harvesting have occurred since 1996 to 2001. By 2001, most of the loblolly pines were harvested. Long-term restoration will involve maintaining an uneven-aged low-density loblolly stand. Restoration may require some planting of longleaf pine to diversify the forest. In addition, cogongrass is scattered throughout in extensive stands. Finally, that portion of the community left somewhat intact has an increasing number of hardwoods because of the long absence of fire.

General management measures: Prescribed fire should be applied to this community every three to five years. This community has been disturbed in the past due to timber harvests, exotic plant infestations and possibly by altered hydroperiod. Portions of this community are thick with regenerating loblolly pine. Mechanical thinning of the stand may be required if prescribed fire is not effective at naturally thinning the stand (see Natural Community Improvement section). Cogongrass treatment and monitoring will continue for this area.

BLACKWATER STREAM

Desired future condition: Characterized as perennial or intermittent watercourses originating in lowlands where extensive wetlands with organic soils collect rainfall and runoff, discharging it slowly to the stream. The stained waters are laden with tannins, particulates, and dissolved organic matter derived from drainage through adjacent swamps resulting in sandy bottoms overlain by organic matter. Emergent and floating vegetation (including golden club (*Orontium aquaticum*), smartweed (*Polygonum* sp.), grasses and sedges) may occur but is often limited by steep banks and dramatic seasonal fluctuations in water levels. Desired conditions include minimizing disturbance and alterations and preserving adjacent natural communities.

Description and assessment: The Ocklawaha River runs through a portion of the park south of State Road 40. Currently, the future of the river appears to have greatly improved with the deauthorization of the Cross Florida Barge Canal; however, the impacts of the barge canal on the Ocklawaha will remain evident until the Rodman Dam is removed. In addition to the impacts of the dam, there are also major threats to the quality of the blackwater stream associated with the water quality of lakes Apopka, Dora, Eustis and Griffin that drain into the Ocklawaha River. The portion of the Ocklawaha River along Delks Bluff Bridge (State Road 40) has bank erosion and compaction due to people fishing along the banks on the east shoreline of the river. The water quality of the Ocklawaha River is rated as fair by the Central Florida District Water Quality 1996 305(b) Technical Index.

Halfmile Creek appears to be fed partly by seepage but is primarily a blackwater stream. Residential development occurs upstream of the park. Trash and possibly additional pollutants enter the stream in this area. Petroleum and other chemical residues are washed into the stream from State Road 40 where the road crosses the stream. In July 2001 FDEP's Central District conducted a yearlong quarterly sampling of water quality, including Halfmile Creek, in order to quantify pollutant inputs to the Silver River. See the Hydrology section for a complete description. Halfmile Creek was identified as a site of elevated bacteria counts and phosphorus levels.

General management measures: Monitoring for human caused bank erosion should continue and the damage restored as appropriate. Because this community is primarily maintained by hydrology, hydrologic disturbances affecting the Silver Springs and

Silver River such as flow and level will affect this community within the park. Input from the division, district and park staff regarding hydrologic disturbances will continue.

SPRING-RUN STREAM

Desired future condition: Perennial watercourses that derive most, if not all, of their water from limestone artesian openings from the underground aquifer. The waters are typically cool, clear, and circumneutral to slightly alkaline. These factors allow for optimal sunlight penetration and minimal environmental fluctuations that promote plant and algae growth. However, the characteristics of the water can change significantly downstream as surface water runoff becomes a greater factor. Areas of high flow typically have sandy bottoms while organic materials concentrate around fallen trees and limbs and slow moving pools. Typical vegetation includes eel grass (*Vallisneria Americana*), arrowheads, southern naiads (*Najas guadalupensis*), and pondweeds (*Potamogeton* spp.).

Description and assessment: The Silver River runs through the center of the park. According to information published in the Central Florida District Water Quality 1996 305(b) Technical Index, the water quality of the river is good. However, there is concern over the unknown types of, sources of, and quantities of pollutants that may be entering the river by way of Halfmile Run, the spring boil and Silver Springs attraction. Increased inputs of nitrates are a concern. Silver Springs drains a very large basin, and inputs from great distances away have the potential to affect the quality of Silver River. Impacts from the attraction, such as pollutants from landscape maintenance and exotic impacts could negatively affect the Silver River. The Silver Springs attraction is located on state owned property and leased to a company to operate it as an attraction. The attraction is required to monitor all runoff into the headspring as well as implement removal efforts for invasive exotic plants and animals. The lease agreement requires a continual removal of all invasive exotic plants listed as Category I and II by the Florida Exotic Pest Plant Council (FLEPPC) from the attraction property and all waterways. The attraction is also in the process of replacing the filtering system around their animal exhibits due to concerns about contaminated runoff entering the river from that location. Taro and other exotic plants have been reduced to relatively minor infestations, but there are taro plants growing at the attraction that will continue to float down the river and infest new areas along the banks and in the floodplain forest.

The Silver River also receives a great deal of recreational use, particularly on weekends. Bank erosion is being caused by boat wakes and by visitors getting out of their boats and canoes on the few high spots that exist along the stream.

General management measures: Monitoring for human caused bank erosion should continue and the damage restored as appropriate. Because this community is maintained by hydrology, hydrologic disturbances affecting the Silver Springs and

Silver River such as flow and level will affect this community within the park. Input from the division, district and park staff regarding area aquifer withdrawal and other hydrologic disturbances will continue. Monitoring and treatment for new taro and other exotic plant infestations will continue. If problems within the Silver Springs attraction area are noted park staff will work with the attraction to resolve impacts to the headsprings due to attraction operations.

SINKHOLE

Desired future condition: A naturally contoured sink shaped by natural process free of human made debris is desired. Native vegetation will occur within and around the sink. Invasive exotic plants and animals will be removed from the area.

Description and assessment: A rather large sinkhole exists south of Main Park Drive and west of the campgrounds in management zone 20. It is located in the pocket of upland mixed forest that is surrounded by sandhill. The sinkhole is located at the southern end of the mixed forest community. It is not currently holding water. It was historically used as a trash dump and some in-park work has been done to remove visible debris. It is unknown how much trash remains in the sinkhole as dirt covers a lot of the area. Efforts to secure funding for more debris removal are on going. Mixed hardwoods and shrubs are the main vegetative cover. Exotic plants, mainly air potato (*Dioscorea bulbifera*), have been found here and removed.

General management measures: This community should be protection from visitor impacts and monitored for unauthorized foot traffic to minimize erosion. Efforts will continue to have trash removed from the sinkhole. The Division of Historical Resources will be consulted prior to ground disturbing activities. Exotic plant species removal will continue.

RUDERAL AREAS

Description and assessment: The ruderal areas have been included in the community types in which they occur. These ruderal areas are in the process of being restored. Ruderal areas include the former pasture areas on the south side of the park, the old fields along the south side of the Silver River, and an old dump area in the center of the park.

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

General management measures: Control of EPPC Category I and II invasive plant

species in ruderal areas will be on going. Prescribed fire may be applied for vegetative fuel management.

DEVELOPED AREAS

Description and assessment: Developed areas include the ranger station, family campground, Group Camp, picnic area with pavilion, office and shop area, cabins, four resident sites, and parking lots. A portion of the park is leased to Marion County for its Environmental Education facility and the Silver River Museum; this area is largely developed.

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

General management measures: Staff will continue to control invasive exotic plant species in developed areas of the park. Defensible space will be maintained around all structures in areas managed with prescribed fire or at risk of wildfires.

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 (FFWCC) or the Florida Department of Agriculture and Consumer Services (FDACS) as endangered, threatened or of special concern.

A population of pinkroot (*Spigelia loganioides*), an endangered plant species, is known to occur in the park. Within Silver River State Park, pinkroot is widely distributed throughout the floodplain forests. It also occurs in the field areas south of the river. The fields are slowly succeeding to upland mixed forest which will help shade out some of the exotic pasture grasses that pinkroot now must compete with for light and water.

A listed species of Florida crabgrass (*Digitaria floridana*) occurs in an improved pasture area near the river along with pinkroot. FNAI has records of it from only three locations throughout the state. Little is currently known about its status.

A species of silver buckthorn (*Sideroxylon alachuense*) listed as endangered by the FDACS occurs at the park on a knoll in a floodplain forest. FNAI notes that silver buckthorn is known from only two locations in the state, Silver River State Park and Paynes Prairie Preserve State Park. There are only five individual plants, one in poor condition, known to occur in one location at the park. The shrubs have been impacted

in the past by deer that rub their antlers on the trucks, but no recent rubbing was noted during the recent resource management evaluation. Management should include propagating more plants and placing them in similar habitats within the park boundaries, as well as in landscaped areas, and annual monitoring. On the same knoll with the buckthorn, there is also an endangered wood spurge, (*Euphorbia commutata*).

Godfrey's privet (*Forestiera godfreyi*), another endangered plant, occurs within the park. One specimen was found on the south side of the park in 1991. A small number of individuals of this shrub were found in the park in 2001, in the same location as the original plant record.

Gopher tortoises (*Gopherus polyphemus*) occur in some of the pasture areas as well as in the sandhill communities. Management practices include prescribed fire and habitat restoration. Gopher tortoises will benefit from the reduction of on-site and off-site hardwood species in the sandhill community.

There are several old records of gopher frogs (*Rana capito*) occurring in what is most likely Silver River State Park. There is one record with no date but recorded as Silver Springs, a second record recorded as 1955 also as Silver Springs, and a third record from 1954 recorded as Halfmile Creek, 0.5 mile northeast of Silver Springs (Franz and Smith 1993). There are no recent records of gopher frogs; however, the habitat still exists, and the frog may be rediscovered at the park.

Sherman's fox squirrels (*Sciurus niger shermanii*) occur in the pasture areas as well as in the sandhill communities. Fox squirrels are observed often in the park, but the park does not support a large population.

Previous land managers reported southeastern kestrels (*Falco sparverius paulus*) nesting around the Group Camp area of the sandhill community. There are no recent records of kestrels nesting in the area. This may be due to a lack of snags for nesting or may be related to the increasingly closed-canopy nature of the sandhill community due to lack of fire. Currently, a few kestrel nest boxes are located at the park in the sandhill community. These boxes are monitored by park staff. No kestrels have been documented using the boxes. Consideration may be given to expanding the nest box program. However, habitat restoration may be more the key to the kestrel's use of the area.

The Florida Manatee (*Trichechus manatus*) historically utilized the Silver and Ocklawaha Rivers. They are still occasionally documented in the rivers. A state of the art pressure detection and laser grid system has been integrated into the Rodman Dam locks to prevent manatee mortalities and facilitate their movements (Bowman, pers. comm.).

The bluenose shiner (*Pteronotrophis welaka*) and southern tessellated darter (*Etheostoma*

olmstedii maculaticeps) also occur in the Ocklawaha River. The bluenose shiner is listed as a species of special concern, and the southern tessellated darter is listed as a threatened species by the State. The bluenose shiner has not been collected from the Ocklawaha River main channel or its tributaries since 1949. The southern tessellated darter has not been collected from the main channel since 1949 but has been regularly collected from Orange Creek at State Road 315 since 1975. It appears that the bluenose shiner is extremely rare in, or may have been extirpated from, the Ocklawaha River. It also appears that the southern tessellated darter has been eliminated from the main channel of the Ocklawaha River. Removal of Rodman Reservoir and the restoration of the Ocklawaha River could potentially benefit the bluenose shiner and the southern tessellated darter. Removal of the reservoir would increase tributary flow and greatly increase the availability of stream habitat suitable for the darter. Since the bluenose shiner may be extinct within the system, restoration efforts and a re-introduction program may be necessary to restore this species.

If issues concerning imperiled species and their management arise, staff will coordinate with FFWCC to ensure that management and monitoring of imperiled animal species is consistent with statewide recovery goals.

Table 3 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 Division staff or others, and identifies the current level of monitoring effort. The codes used under the column headings for management actions and monitoring level are defined following the table. Explanations for federal and state status as well as FNAI global and state rank are provided in Addendum 6.

Table 3: Imperiled Species Inventory

Common And Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FFWCC	USFWS	FDACS	FNAI		
PLANTS						
Florida crabgrass <i>Digitaria floridana</i>				G1, S1	10	Tier 2
Wood spurge <i>Euphorbia commutata</i>			LE	G5, S2	10	Tier 1
Godfrey's swamp privet <i>Forestiera godfreyi</i>			LE	G2, S2	10	Tier 2
Silver buckthorn <i>Sideroxylon alachuense</i>			LE	G1, S1	10	Tier 2
Pinkroot <i>Spigelia loganioides</i>			LE	G2Q, S2	10	Tier 2

Common And Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FFWCC	USFWS	FDACS	FNAI		
FISHES						
Blue Nose Shiner <i>Pteronotrophis welaka</i>	LS			G4,S4		Tier 1
Southern Tessellated Darter <i>Etheostoma olmstedii maculaticeps</i>	LS			G5,S1		Tier 1
AMPHIBIANS						
Gopher frog <i>Rana capito</i>	LS			G3,S3	10	Tier 1
REPTILES						
Gopher Tortoise <i>Gopherus polyphemus</i>	LT			G3, S3	1,2,6,7 , 10	Tier 3
American Alligator <i>Alligator mississippiensis</i>	LS	LT(S/A)		G5, S4	4, 10	Tier 1
Eastern Indigo Snake <i>Drymarchon corais couperi</i>	LT	LT		G3, S3	1, 6, 7, 10	Tier 1
Florida Pine Snake <i>Pituophis melanoleucus mugitus</i>	LS			G4T3, S3	1, 6, 7, 10	Tier 1
Short-tailed Snake <i>Stilosoma extenuatum</i>	LT			G3, S3	1	Tier 1
BIRDS						
Snowy Egret <i>Egretta thula</i>	LS			G5, S3	10	Tier 1
Little Blue Heron <i>Egretta caerulea</i>	LS			G5, S4	10	Tier 1
Tricolored Heron <i>Egretta tricolor</i>	LS			G5, S4	10	Tier 1
White Ibis <i>Eudocimus albus</i>	LS			G5, S4	10	Tier 1
Wood Stork <i>Mycteria americana</i>	LE	LE		G4, S2	10	Tier 1
Osprey <i>Pandion haliaetus</i>	LS			G5, S3S4	10	Tier 1
Southeastern American Kestrel <i>Falco sparverius paulus</i>	LT			G5T4,S 3	1, 5, 6, 7, 10	Tier 1
Limpkin <i>Aramus guarauna</i>	LS			G5, S3	10	Tier 1
Bald Eagle <i>Haliaeetus leucocephalus</i>	LS			G5, S3		Tier 1

Common And <i>Scientific Name</i>	Imperiled Species Status				Management Actions	Monitoring Level
	FFWCC	USFWS	FDACS	FNAI		
MAMMALS						
Sherman's Fox Squirrel <i>Sciurus niger shermani</i>	LS			G5T3, S3S3	1, 6, 7, 10	Tier 2
Florida Black Bear <i>Ursus americanus floridanus</i>	LT			G5T2, S2	13	Tier 1
Florida Manatee <i>Trichechus manatus</i>	LE	LE		G2, S2		Tier 1

Management Actions:

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

Monitoring Level:

Tier 1:.....Non-Targeted Observation/Documentation: includes documentation of species presence through casual/passive observation during routine park activities (i.e. not conducting species-specific searches). Documentation may be in the form of *Wildlife Observation Forms*, or other district specific methods used to communicate observations.

Tier 2:.....Targeted Presence/Absence: includes monitoring methods/activities that are specifically intended to document presence/absence of a particular species or suite of species.

Tier 3:.....Population Estimate/Index: an approximation of the true population size or population index based on a widely accepted method of sampling.

Tier 4:Population Census: A complete count of an entire population with demographic analysis, including mortality, reproduction, emigration, and immigration.

Tier 5:Other: may include habitat assessments for a particular species or suite of species or any other specific methods used as indicators to gather information about a particular species.

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

Exotic Species

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

The sandhills, upland mixed forest, mesic and wet flatwoods, floodplain swamp and spring-run stream are subject to the aggressive spread of exotic plants. Where highly competitive exotic plants have become established, annual removal plans will be developed to eliminate them from the natural communities they have invaded. Several highly invasive exotic plants are currently being treated at Silver River State Park including cogongrass, air potato, camphor tree, Chinaberry, mimosa, tropical soda apple and water hyacinth. Taro and cat's claw vine, both Category I plants, and bamboo also occur in the park. As listed in the species list, two additional Category I species, shrub lantana and water-lettuce occur in the park. There are also several Category II species, including alligator weed, umbrella sedge, rose natalgrass, Caesar-weed, Chinese wisteria, and elephant-ear.

All the exotic plant species are a threat to the integrity of the unit's natural communities and are in conflict with the Division's goal of preserving and maintaining examples of the natural Florida. Park staff has successfully obtained several grants to treat exotic plants; these efforts will continue. There are several upland and aquatic exotic plant species that pose a grave threat to the biological integrity of the unit. Some of the exotics are encroaching from the attraction parcel that is not managed as part of Silver River State Park.

The species most prevalent on the property is cogongrass. It occurred in hundreds of acres within the sandhills, upland mixed forest and mesic and wet flatwoods at Silver River State Park. There are reports that it was seeded into areas by the former owners. Numerous dense patches of cogongrass both north and south of the Silver River have been treated and retreated by both park staff and contractors. Park staff currently retreat existing patches as resources allow and monitor for new occurrences.

Monitoring and treatment efforts for invasive exotic plant species are on going. Efforts

are underway to GPS and map all known locations of exotic plants in the park. Since 2002, 2,249 acres of invasive exotic plants have been treated at the park.

Table 4 contains a list of the FLEPPC Category I and II invasive, exotic plant species found within the park (FLEPPC, 2009). 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. Addendum 5 contains an inventory of all exotic species within the park.

Table 4: Inventory of FLEPPC Category I and II Exotic Plant Species

Common And Scientific Name	FLEPPC Category	Distribution	Management Zone
Mimosa <i>Albizia julibrissin</i>	I	2	18
Alligator weed <i>Alternanthera philoxeroides</i>	II	2	30
Camphor tree <i>Cinnamomum camphora</i>	I	2	1, 18, 23, 29
Wild taro <i>Colocasia esculenta</i>	I	3	30
Umbrella plant <i>Cyperus involucratus</i>	II	2	1
Air Potato <i>Dioscorea bulbifera</i>	I	1	13, 20
Durban crowfootgrass <i>Dactyloctenium aegyptium</i>	II	2	9, 18
Cogongrass <i>Imperata cylindrical</i>	I	3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 19, 21, 29
Glossy privet <i>Ligustrum lucidum</i>	I	0	2, 1
Chinese privet <i>Ligustrum sinense</i>	I	0	13, 1
Japanese climbing fern <i>Lygodium japonicum</i>	I	0	2, 1
Shrub lantana <i>Lantana camara</i>	I	1	9, 18, 23
Cat's claw vine <i>Macfadyena unguis-cati</i>	I	1	1, 9, 10,
Chinaberry <i>Melia azedarach</i>	II	1	13, 18, 22, 23, 24, 29

Common And Scientific Name	FLEPPC Category	Distribution	Management Zone
Rose Natalgrass <i>Melinis repens</i>	I	6	11, 19, 21
Water-lettuce <i>Pistia stratiotes</i>	I	4	30
Caesar's weed <i>Urena lobata</i>	II	2	1, 9, 10, 13, 18, 24, 29

Distribution Categories (FNAI):

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

Exotic animal species include non-native wildlife species, free ranging domesticated pets or livestock, and feral animals. Because of the negative impacts to natural systems attributed to exotic animals, the Division actively removes exotic animals from state parks, with priority being given to those species causing the 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, gray squirrels, venomous snakes and alligators. Nuisance animals are dealt with on a case-by-case basis.

Nine-banded armadillos (*Dasypus novemcinctus*) and feral hogs (*Sus scrofa*) are commonly found in the park. Hog rooting can devoid large areas of vegetation, create extensive ground disturbance, disrupt surface water flow, inhibit fire from moving across the landscape, decimate the arthropod community and compete with native wildlife species for food resources. Evidence of hog disturbance can easily be found in

the floodplain forest and flatwoods communities both north and south of the Silver River. Armadillos create the same disturbances on a smaller scale. Armadillo disturbances can be found throughout the park. Park staff currently removes armadillos and feral hogs. Park staff monitor for the animals and their ground disturbance. Since 2002, park staff efforts have resulted in the removal of 130 feral hogs and 29 armadillos. USDA Wildlife Services has been hired to perform aggressive removal of hogs during times when populations are elevated. This contract will continue until funds are depleted. 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.

Asian rhesus monkeys (*Macaca mulatta*) are currently found in the floodplain swamps adjacent to the Silver and Ocklawaha Rivers. They were introduced to the Silver Springs attraction area in the 1930s and have ranged freely since that time. Removal of the monkeys will proceed according to the lease agreement between the Department and the attraction.

Coyotes (*Canis latrans*), Sika deer (*Cervus nippon*) and fallow deer (*Cervus dama*) have been occasionally seen on the property. A sika deer was observed as recently as 2007. Direct impacts to the park resources from these animals have not been documented, though these species compete with native species for resources.

Armored catfish (*Pterygoplichthys* sp.) now inhabit the Silver River. The type of this species is not known. Negative effects of this species on the park's water resources are not yet known, though their burrowing activities have led to shore erosion problems in other waterways.

Special Natural Features

The former (prior to blowdown in 1993) national champion cedar elm (*Ulmus crassifolia*), the current national co-champion cedar elm (shared with a tree in Texas), and a current state champion shumard oak (*Quercus shumardii*) are found in the unit. An exceptionally large swamp chestnut oak (*Quercus michauxii*) also occurs in the unit. These large trees all occur on the north side of the river just above the floodplain forest.

Several listed species that occur in the park are restricted in both range and numbers. Two rarely encountered shrubs, silver buckthorn and Godfrey's privet occur on the property. Additionally, pinkroot, a small herbaceous perennial listed as endangered by FDACS, occurs in large numbers at Silver River. This may constitute the largest protected population of this plant. Florida crabgrass also occurs in large numbers but has a limited distribution within the park.

A number of tree species reportedly reach the southern limit of their continuous distributions along the Silver River. These include box-elder (*Acer negundo*), white ash

(*Fraxinus americana*), hop-hornbeam (*Ostrya virginiana*), bluff oak (*Quercus austrina*), swamp chestnut oak (*Quercus michauxii*), shumard oak, and cedar elm.

A large freshwater shrimp, (*Macrobrachium carcinus*), has been reported from the springs (Martin 1966). There is also a site record from Silver Glen Springs in the Ocala National Forest (Williams 1984). The shrimp was regarded as rare in the spring but not infrequently seen in deep holes and under large rock outcrops. Whether this interesting species still occurs in Silver Springs is unknown.

The Silver Springs that form the Silver River are special natural features. According to Munch et al., Silver Springs discharges approximately 766 cubic feet per second (cfs) (514 million gallons per day [mgd]) from the Floridan aquifer, and is one of the largest first magnitude springs in the world. It has the largest discharge of all inland first-magnitude springs in Florida (Walsh et al. 2009). In addition to the main boil, there are several springs located along the river including Catfish Reception Hall, Ladies Parlor, Devil's Kitchen, Blue Grotto, Christmas Tree Springs, First Fishermans Paradise, Second Fishermans Paradise and Timber Springs. The Silver Springs constitutes a complex aquatic ecosystem displaying most of the structural and functional features identified in aquatic ecology (Munch et al. 2006).

Cultural Resources

This section addresses the cultural resources present in Silver River State Park that may include archaeological sites, historic buildings and structures, cultural landscapes and collections. The Florida Department of State (FDOS), Division of Historical Resources (DHR) 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 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 historic structures and landscapes 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, quickly compromising the physical integrity of the resource. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests the need for immediate action 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. Every cultural resource's significance derives from historical, architectural or archaeological contexts. Evaluation 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.

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

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

Pre-Historic 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.

The FMSF lists 26 sites within the park. Of these, 25 are archeological sites and one is a historic bridge. There are five recorded sites on state land within the Silver Springs Attraction and outside the park's current management responsibility. They are 8MR59, 8MR83, 8MR92, 8MR93 and 8MR1082 (Edwards pers. comm., FDOS, LaMont pers. comm.).

North and east central Florida have a rich cultural prehistory and history. The Silver

River area saw occupation and/or utilization by a cultural sequence of Paleo Indian, Archaic, Mount Taylor, Orange, Transitional, St. Johns, First Spanish Period, British Period, Second Spanish Period, Territorial and Seminole (Milanich and Fairbanks 1980).

Silver River State Park encompasses highly significant prehistoric cultural resources. Several archaeological surveys and studies have been undertaken at the park this quarter century. 8MR130, the Guest Mammoth Kill Site also known as the Silver Run Mammoth Site, is a significant Paleo Indian site located 1.5 miles downstream from the head-spring of Silver River, on the south bank. Northern Arizona University conducted underwater excavations in 1973-74 (FDOS, 8MR130, Rayl 1974, Hoffman 1982, Warzeski 2000). In addition to important Paleo Indian sites such as the Guest Mammoth Kill Site, there are important Archaic and Woodland period sites represented. The Paradise Park site (8MR92, on state property but currently outside the park boundary) contains successive layers of occupation, which date from Paleo-Indian times (12,000-10,000 B.P.) through the Woodland tradition. It is rare for a single archaeological site to yield such a long continuous sequence of occupation (FDOS: 8MR92, 8MR130, Hemmings 1975). 8MR1081 is a prehistoric burial mound, of undetermined cultural association (FDOS, 8MR1081). Its condition assessment is good, although its location is accessible enough that unauthorized access is a threat to its condition. Therefore, park development and visitor use should avoid the general area of the site.

In addition to the prehistoric sites, the park contains significant historic sites. Beginning in the 1820s, the Silver River was utilized to transport military supplies to Fort King and Fort Brooke. Supplies were shipped up the river then carried overland to the forts located south of the springs (FDOS: 8MR1084, Baker 1990, Gannon 1996).

The earliest historic occupation of the Silver River valley dates to the Second Seminole War era. In accordance with the Armed Occupation Act of 1842, Lewis Ballard was granted a permit to settle the northeast quarter of Sec. C, T15S and R23E on 11 March. His homestead, and that of Param Moody, is evident on the original survey plat of the area, dated 6 May 1844 (Warzeski 2000). 8MR1084, Franklin 93, was initially believed to be the remains of a Seminole War era American Army fort, Fort Brooke, but subsequent archeological and historical investigations have placed Fort Brooke in present-day Tampa (FDOS: 8MR1084, 8H10013). Its condition assessment is fair, although its location is accessible enough to be potentially threatened by unauthorized access. Therefore, park development and visitor use should avoid the general area of the site.

In 1852, George Pasteur experimented with raising oranges and cotton. In 1855, he built the Marshall Plantation, containing a sugar mill, which burned in 1868. A rubble pile containing limerock foundation blocks from the Marshall Plantation has been identified on park property. The park also contains sites dating to the late 19th and early 20th centuries, including a 1930s structure, a 1950s structure and an unidentified concrete structure that may have been a watering trough or cattle dip vat (Warzeski 2000) as well

as two cattle dipping vats.

The park needs to have an archaeological predictive model created to guide future development and survey work. Portions of the park have been subjected to survey; however, these surveys were single purpose. For example, in 1991, Denson surveyed the Ocklawaha River sites; Weisman recorded the Boardwalk site as part of a project clearance, and Wisenbaker (1999) found an unexpected Seminole site while monitoring construction of a park camping area. Wilburn A. Cockrell conducted a subsequent archaeological and historical survey within the cabin area at each of the cabin sites and the museum parking area. A Phase II survey of the cabin area is recommended. This future survey will help determine the sites eligibility for listing on the National Register of Historic Places.

A cultural resources evaluation was conducted at Silver River State Park in March 2000. Areas inspected during the evaluation included sites that reportedly showed disturbance, from either human activity or natural occurrences. The areas inspected included the following sites: MR33 (Mound near Silver Springs), MR83 (NN), MR532 (Silver River 2), MR533 (Silver River 3), and MR1922 (Canoe Launch).

A local historian (Mickey Summers) has reported finding evidence of historic roadways in areas of the park. His findings are still being researched and have not yet been recorded. The roadways, including a portion of the Fort King Military Road, are especially evident in the area immediately north of Sharpe's Ferry Road and south of Silver River. These findings are preliminary and only hand drawn maps of the roads have been created. It is very likely that a comprehensive survey of the park would yield both additional information about recorded sites and the location of new sites.

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. Every significant archaeological site's significance derives from historical or archaeological contexts. Evaluation 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.

Three archaeological sites on park property are recorded in the FMSF as potentially eligible for the National Register of Historic Places: Cactus Flower Site (8MR1878), Oak Hammock (8MR1920) and Canoe Launch Site (8MR1922). The Cactus Flower Site (8MR1878) is considered to be of local, regional and statewide significance as part of a complex of sites associated with Silver Springs. Phase I and Phase II archaeological investigations yielded materials that determined that the site was utilized during the Archaic, Post-Archaic and possibly the Paleo Periods, and as such, have the potential to provide information about changing "settlement patterns, resource exploitation, and

other patterns of temporal and intraregional variation.” (Chance and Smith 1991, p. 113) The Oak Hammock (8MR1920) site is considered significant for its high density of artifacts showing evidence of occupation for eight to ten thousand years during the Alachua and Orange periods. (Baker 1990, pp.8, 23) The structural ruins at Canoe Launch Site (8MR1922) were identified as possibly being associated with the Lewis Ballard homestead dating from the 1840s. Preliminary investigations of the area indicate that subsurface features relative to the early home site remain in the ground. (Baker 1990, pp.16, 24) All Three of these sites are considered significant under National Register Criteria D: Information Potential.

General management measures: Today, river erosion, vegetation growth, vandalism and animal burrowing threaten some of the recorded sites. Many of the sites are further threatened by their remote location from frequent staff work locations, easy access by unauthorized visitors, and the resulting difficulties maintaining a park staff presence. Park staff should backfill open pot-hunting pits, animal burrows and erosion channels with sterile sand and close and re-vegetate unauthorized access trails.

There is much woody vegetation on top of the midden at 8MR53/8MR533, Silver Springs Run Midden or Silver River 3, including trees over 4 inches in diameter. Careful consideration should be made as to whether the larger trees should remain or be removed, and if so, when. Their roots may have become part of the structure of the midden and removing the trees may result in the surrounding area slumping or receding as the roots rot. Trees of less than four inches in diameter should be removed by cutting the tree at ground level and then applying an approved herbicide to the stump to prevent re-sprouting. No attempt should be made to remove the roots or grind the stump. Large dead or dying trees should be removed by cutting the tree at ground level in a manner that will not affect the earthworks.

Site 8MR1925 Concrete Structure may warrant further evaluation to determine if it was a cattle-dipping vat. The verification of this past use may warrant testing and treatment of the surrounding area for chemical contamination.

Site 8MR1878, the Cactus Flower Site, was heavily impacted during State Road 40 construction. The condition assessment for this site was poor. This site currently suffers from erosion problems and is located in a highly visible area. As a protective measure, the park staff has fenced off access to the site in an effort to keep the public from looting it. The park has consulted with experts who have recommended stabilization by means of silt fence installation, replacing eroding sediment, and ground cover plantings to prevent further erosion.

Evaluation of sites that do not currently have significance determined will be required and will help guide the management of these sites. All other archaeological sites should receive preservation treatments, which are essentially monitoring and maintenance.

Historic Structures/Sites

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

Description: A 1950s cottage style building is located on the property near the shop/group camp area and is currently used as a ranger residence. It has been remodeled and is maintained as a residence. It has not been documented in the FMSF, but will be within this plan cycle. A 1938 farmhouse was also built on the property prior to state purchase and is located near the cracker village and day use area. The shed located behind the house served as temporary living quarters for the family while they built the house. The shed is also maintained and protected by park staff. The farmhouse has served as a residence in the past but is currently used as a storage facility and meeting room. This structure is not currently documented in the FMSF but will be within the current plan cycle.

Condition Assessment: The 1938 farmhouse is in good condition as of December 2009. It is inspected and maintained by park staff regularly. The shed associated with the house is in need of a new roof and replacement doors. There are no discernable threats to the structure that require management action at this time.

The 1950s cottage is in good condition as of December 2009. It is currently a ranger residence. It is inspected and maintained regularly by park staff. Some of the windows and the back porch are in need of repair or replacement. There are no discernable threats to the structure that require management action at this time.

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. Every significant historical or cultural resource's significance derives from historical contexts. Evaluation 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). The historical significance of these two houses will need to be evaluated based on the National Register of Historic Places criteria.

General management measures: The two historic houses should be inspected regularly, to identify potential threats or damage, and necessary rehabilitation treatments. The DHR should be consulted for guidance with rehabilitation treatments.

Collections

Desired future condition: All historic, natural history and archaeological objects within the park that represent Florida's cultural periods, significant historic events or persons,

or natural history specimens are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

The park itself does not currently maintain any collections of archeological artifacts or archival materials. Collections do exist within the park but are loaned to and managed by Marion County for use in their museum and environmental center located within the park.

Exhibits concerning archaeology and history are found at the Silver River Museum and Environmental Education Center. The facility is located on park property and is owned and managed by the Marion County School Board. Collection objects are on loan from DHR and managed by the school board. The exhibits show careful research and professional exhibit design and appear to be in good condition.

Level of Significance: Criteria do not exist which helps in the evaluation of the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered highly significant. In the same way, a high quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium collected from a specific park over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park’s history, including construction and resource management efforts, would all be significant.

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 5 contains the name, reference number, culture or period, and brief description of all the cultural sites within the park that are listed in the FMSF. 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 5: Cultural Sites Listed in the Florida Master Site File

Site Name And Fmsf #	Culture/Period	Description	Significance	Condition	Treatment
Delks Landing Mound 8MR32	unknown	Archaeological Site	NE	Unknown	P

Mound near Silver Springs 8MR33	St. Johns 1a and 1b	Archaeological Site	NE	Poor	P
Silver Springs Run Midden/Silver Site River 3) 8MR53/8MR533	Prehistoric	Archaeological Site	NE	Unknown	P
Silver Springs 8MR59	Paleoindian	Archaeological Site	NE	Unknown	P
Guest Mammoth Kill Site 8MR130	Paleoindian	Archaeological Site	NE	Unknown	P
Silver River 2 8MR532	Weeden Island, A.D. 450-1000	Archaeological Site	NE	Good	P
F 65 8MR1081	Indeterminate	Archaeological Site	NE	Good	P
F 67 8MR1083	Indeterminate	Archaeological Site	NE	Unknown	P
Fort Brooke / Franklin 93 8MR1084	Nineteenth century American 1821-1899	Archaeological Site	NE	Fair	P
Cactus Flower Site 8MR1878	Alachua A.D. 1250-A.D. 1600 Archaic, 8500 B.C -1000 B.C. Middle Archaic Orange Paleoindian 10,000B.C.-8500B.C. St.Johns 700B.C. - A.D.1500 Transitional 1000B.C.-700B.C.	Archaeological Site	NR	Poor	S
Oak Hammock 8MR1920	Alachua A.D., 1250-A.D. 1600. Orange	Archaeological Site	NR	Good	P
Silver River State Park 8MR1921	Twentieth century American, 1900-present	Archaeological Site	NE	Unknown	P
Canoe Launch Site 8MR1922	Nineteenth century American, 1821-	Archaeological Site	NR	Unknown	P

	1899. Twentieth century American, 1900- present Prehistoric				
Junk Car Site 8MR1923	Modern, 1950- present. World War II and Aftermath 1941-1950	Archaeological Site	NE	N/A	n/a
Trash Dump Site 8MR1924	Modern, 1950- present. World War II and Aftermath 1941-1950	Archaeological Site	NS	Unknown	P
Concrete Structure Site 8MR1925	Twentieth century American, 1900- present	Archaeological Site	NE	Unknown	P
Boardwalk Site 8MR2195	Prehistoric lacking pottery	Archaeological Site	NE	Unknown	P
Friendly Tortoise 8MR2451	Prehistoric lacking pottery	Archaeological Site	NS	Unknown	P
Suburban Sanctuary 8MR2452	St. Johns, 700 B.C. - A.D. 1500	Archaeological Site	NS	Unknown	P
Ishti Semoli 8MR2703	Twentieth century. American 1900- present. Late Archaic. Cades Pond 300B.C.-A.D.800. Orange. Seminole 1716- present. St.Johns 700B.C.- A.D.1500. St.Johns I 700B.C.-A.D.800	Archaeological Site	NE	Unknown	P
Silver River Run Canoe 8MR3173	Prehistoric	Archaeological Site	NE	Unknown	P
Marshall Plantation 8MR3214	Nineteenth century American 1821-	Archaeological Site	NE	Unknown	P

	1899				
Mystery Snail Midden 8MR3266	Prehistoric	Archaeological Site	NE	Unknown	P
Delk's Bluff Midden 8MR3377	Twentieth century American 1900-present, Prehistoric	Archaeological Site	NE	Unknown	P
State Road 40/326 Site 8MR3477	Prehistoric lacking pottery	Archaeological Site	NS	Unknown	P
Old Ocklawaha Bridge 8MR3507	unknown	Historic Bridge	NS	Ruinous	P
Farm House (FMSF # pending)	c. 1938	Historic Structure	NE	Good	RH
Shed (FMSF# pending)	c. 1930s	Historic Structure	NE	Fair	RH
Ranger Residence (FMSF# pending)	c. 1950s	Historic Structure	NE	Good	RH

Significance:

NR.....National Register eligible
 LSlocally significant
 NEnot evaluated
 NS.....not significant

Recommended Treatment:

RSRestoration
 RHRehabilitation
 STStabilization
 PPreservation

RESOURCE MANAGEMENT PROGRAM

Management Goals, Objectives and Actions

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

While, the Division of Recreation and Parks 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 Division staff to accomplish many of the resource management goals and objectives of the park. Where such detailed planning is appropriate to the character and scale of the park's natural resources, annual work plans are developed for prescribed fire management, exotic plant management and imperiled species management. Annual or longer-term work plans are developed for natural community restoration and hydrological restoration. The work plans provide the Division with crucial flexibility in its efforts to generate and implement adaptive resource management practices in the state park system.

The work plans are reviewed and updated annually. Through this process, the Division'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. Since the plan is based on conditions that exist at the time the plan is developed, the annual work plans will 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: Monitor and analyze water resources of the park.

Several management concerns at the park pertain to hydrology. The SJRWMD is

responsible for water control in the unit as well as in the surrounding drainage basin. Minimum Flows and Levels (MFL) have not been set for Silver Springs but are scheduled for 2011. Collaboration between USGS, SJRWMD and FPS should continue to insure water flow and level measurement activities can be maintained and expanded if needed. Currently, the water quality in the unit has been shown to be declining. Groundwater nutrient levels are increasing, and the springs collect water from an extremely large area, at least some of which is unconfined. Aquifer connections run in several directions towards the headsprings and cover a large geographic area. The capture zone for Silver Springs extends almost 20 miles north and south and nearly ten miles east and west of the main spring boil. This includes the cities of Ocala and Belleview. Accordingly, activities in the surrounding uplands can potentially affect the water quality and quantity of the unit even if activities occur at some distance from the park. In 2005, the annual nitrate-loading rate for Silver Springs was 529 tons per year (SJRWMD 2006). Nitrate nitrogen is not a naturally occurring compound in the aquifer. This synthetic compound has been shown to damage aquatic life at very low levels (2 mg/l). There is great reason to be concerned about the Florida aquifer in the area around Silver Springs as the springs watershed covers a vast area, as the aquifer is unconfined just west of the park, and as development is steadily increasing in the area. Since the headsprings collect water from a large surrounding area, any projects that threaten the quality of the groundwater are of concern to the park. FDEP (2001) completed a yearlong water quality sampling effort attempting to quantify where pollutant inputs were arising from in the upper portion of the river. The nitrate input is predominantly in the groundwater while high bacterial and phosphorus levels were detected in Halfmile Creek.

In addition to concern about the spring's water quality, there is need for a qualitative investigation of the surface water entering the park. The largest area of concern is the input from the Halfmile Creek drainage. This creek receives direct runoff from State Road 40 that travels for only a short distance before emptying into the spring-run at about 0.75 mile downstream of the spring boil. Redirection of storm water runoff received from State Road 40 is scheduled for completion in September 2010; however, Halfmile Creek may still receive direct runoff during extreme rainfall.

The Division should stay involved in area development planning. Properties in the spring recharge basin should be acquired when possible to protect spring water quality. The Division staff will continue to participate in the Silver Springs Basin Working Group to protect the long-term quality of the Silver River. Effort should be made to encourage and participate in a comprehensive, basin-wide hydrological study to document historic conditions and model recent trends in surface and ground water level regimes and water quality when the opportunity presents itself. The FPS District staff reviews all water consumptive use permits submitted to the SJRWMD within the vicinity of Silver Springs and its basin and provides comments to SJRWMD regarding issues that will negatively impact Silver River State Park's hydrological resources. The

SJRWMD monitors surface and groundwater levels on and around Silver Springs. Water quality information is collected periodically and made available.

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

In some instances, roads and debris from logging operations have altered natural drainage. Changes in the water regime, brought about through a series of ditches, may have led to encroachment of woody species into the depression marshes. Conversely, the damming effect of roads and woody debris in drainage systems could eventually alter the species composition in other communities.

As funds become available a hydrological study of the park's current surface water features including ditches needs to be conducted. Historical sheet flow of the property needs to be determined. The feasibility of restoration needs to be determined and the impact of the restoration evaluated. Negative impacts, such as flooding developed areas should be assessed and mitigated for if possible. A sequential and prioritized hydrological restoration plan should then be developed and used as a tool to aid park management in the restoration of the park's hydrology.

Objective: Restore natural hydrological conditions and functions to approximately five acres of Depression Marsh.

The feasibility of filling or plugging approximately 1 mile of ditch running from the northern park boundary through the park and emptying into the Silver River should be investigated. This ditch may be impeding natural surface flow from depression wetlands as well as affecting Silver River's water quality depending on the source of the drainage.

Management actions are needed to address the vegetative encroachment the depression marshes within the park are experiencing due to a lack of fire and possibly altered hydrology. Off-site trees that are invading the depression marshes should be girdled or cut down. The vegetated edges of the wetlands may require mechanical treatment to lower vegetation height and to facilitate fire into edges better. A tractor and tree cutter type mower could be used to mow thick shrubs and small trees down around edges of ponds. Such mechanical work should be planned for dry periods when soils around depression marshes will be less susceptible to tire rutting.

Objective: Analyze impacts of park roads on surface drainage and provide corrective measures.

In the unit, topographic and soil disturbances include nonfunctional or inappropriate roads and ditches, as well as adverse visitor impacts. These pose a problem as they alter natural systems and interfere with management goals. Appropriate actions for restoring topographic and soil disturbances may include closing roads, filling ditches, reshaping contours, rerouting foot traffic and establishing plantings as needed.

Areas where interior service roads are obstructing or altering the surface drainage need to be determined. Culverts or low water crossings, comprised of geo-web and inert material such as granite, need to be installed to reduce damage to waterways where crossings are required. Culverts, appropriate in size, may be suitable where sheet flow does not occur and the drainage is narrow. Ditches, roads, and any logging debris, which are unnaturally draining some wetlands and impeding surface flow in other areas will be dealt with as soon as possible to prevent further undesirable changes in the park's natural communities. Unauthorized trails and their use in this area is causing adverse impacts to resources should be closed. Roads need to be closed if they serve no purpose. Areas currently identified as possible locations for low water crossings or culverts are the ditch crossing on the northern perimeter break of the park in management zone 2 that prevents access to the remainder of the eastern portion of the park via the north perimeter break. Other ephemerally wet areas along the northern perimeter break exist in management zones 3 and 4 where the northern perimeter break is too wet and impassable at times due to outside runoff into the park. In addition, an area exists along the southern boundary of the park in management zone 22 south of a depression pond that during times of high water levels is impassable.

Objective: Improve or restore approximately 40 feet of the disturbed riverine shoreline.

In the past, boat wakes posed a serious threat to the shoreline of the river, eroding substrate from the floodplain and banks along the river. With the institution of a no-wake zone, damage has decreased; however, boats are still accelerating erosion in several areas where they stop and pull up to the bank along the river. Park staff should work with law enforcement to insure they are aware of the threat to the resources due to unauthorized use along the river. Park staff should monitor known sites of shore erosion and document new sites as necessary. As funds become available it may be necessary to stabilize and replant eroded river shoreline areas.

Natural Communities Management

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

As discussed above, the Division 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 community 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 the authorization of the DOF. Wildfire suppression activities in the park are coordinated with the DOF.

Objective: Within ten years, have 800 fire type acres of the park maintained within the optimum fire return interval.

Some of the natural communities at Silver River State Park are fire adapted or at least fire influenced. The sandhills require frequent burning to maintain their natural diversity and to prevent invasion by non-fire tolerant species. The scrub and flatwoods areas require burning for long-term maintenance of the natural community. Even communities such as the mixed hardwood forest and xeric hammock are affected by fire along ecotones with fire-adapted communities. The maintenance of natural ecotones between these communities is important for those plant and animal species that are adapted to fringe areas. For this reason, the use of hard firebreaks, such as roads and disked lines, between community types is discouraged.

The park is divided into zones based on existing firebreaks and roads (see Management Zones Map). Pre-burn preparation is an important consideration when applying fire to areas that have had fire excluded for long periods. Perimeter and internal firebreaks should be maintained and established according to agency policy. They should provide for adequate park protection and safe prescribed fire application. The complexity of the burn unit including the structure and height of the fuel within the zone and the receptiveness of fuels adjacent to the zone should be taken into account when preparing the firebreaks. Fire lines twice as wide as the fuel heights adjacent to the fireline is a general guideline for fire line preparation (ten foot fuel heights adjacent to line = 20 foot wide firebreak). Mechanical treatment of fuels adjacent to the firebreak may be needed to burn the zone safely. Perimeter lines need to be wide enough for defense and to allow a type 6 fire engine to move safely down the line. When widening the firebreaks, the vegetation along the boundary/fence line should be removed first to allow the perimeter break to function as such (the presence of wetlands, large native trees or protected plant species that pose no line defense threat may be an exception). Any additional widening can then be made on the zone side of the firebreak. There is currently a need for approximately 1 mile of fire line widening to allow fire equipment to pass safely. These areas consist of the northwester perimeter break of the park in management zone 11 (approximately 0.2 miles). The southern perimeter break south of the depression pond in management zone 22 (approximately 0.1 miles) needs to be widened as well. In addition, the southern perimeter break in management zone 18 beginning where the existing perimeter break ends and continuing eastward until the plant community transitions into wet floodplain forest (approximately 0.5 miles).

In sandhill and flatwoods areas, the buildup of leaf litter or duff beneath large pines can

endanger those pines if fires burn during periods of low humidity or drought. Raking duff away from the bases of these trees will help prevent destruction of surface feeder roots and will minimize the danger of cambium damage from a smoldering subsurface fire.

Some of the old pines in the park may have been turpented prior to park acquisition. The cat-faces left by the turpentine practices greatly increase the risk of killing these older trees during prescribed burns due to gaps left in the protective bark. These trees are also somewhat of a cultural resource as they depict a previous land use and are relicts of the turpentine industry. Before burning, underbrush and leaf litter should be raked from the canopy zones of cat-faced pines where reasonably feasible to do so. If located near firebreaks, cat-faced pines can be hosed down with water prior to ignition.

Preparation and planning for wildfires or escaped prescribed burns within the park should also be a component of the park's prescribed burn plan. Preferred fire suppression techniques and guidelines should be identified and discussed with the local DOF staff prior to the need for fire suppression within the park. Sensitive resources such as wetlands, imperiled species and cultural sites should be identified and mapped and that information conveyed to DOF prior to any suppression activities.

In developing prescribed burn plans for the fire-adapted communities in the park, every effort should be made to mimic natural fire regimes in both timing and technique. In most natural fires, flank fires and head fires probably burned the majority of acres. Care should be taken during prescribed burns to avoid creating the hot spots that occur when two fire lines rapidly converge. To minimize the intensity of the fire convergence, narrow strip-head fires, point source ignition fires or flanking fires are preferred over a single backing fire that converges with a head fire.

Fire season and fire-return interval are both critical components of a fire regime. In most cases after initial fuel reduction burns have been completed during the non-growing season, all burns should then be conducted during the natural lightning season, given staffing and weather constraints. However, non-growing season burns are favorable as a last resort to prevent the zone from going into backlog.

The scrub should be burned in the growing season ideally, but dormant season burning may be required for fuel reduction and desired burning weather conditions. Lower humidity and live fuel moisture content may be needed to ensure combustion of the shrub layer. The small amount of scrub that exists within the park may require mowing to reduce fuel heights and reduce shading of fuels beneath the canopy to get it to burn.

In order for prescribed fire to meet its objective in the scrubby flatwoods areas, the appropriate mechanical means may need to be employed to lower the height of the fuel and facilitate fire. A fuel reduction burn should be conducted in the scrubby flatwoods

prior to burning them in the growing season.

The wet flatwoods and mesic flatwoods will require a fuel reduction burn to remove accumulated fuel. These areas may also need mechanical treatment to open up the stand to reduce shading and allow wind penetration prior to burning. Consideration for duff moisture content in these communities is important. Ground-truthing for moisture content in the duff layer throughout the zone should be conducted prior to the burn to insure adequate moisture content. If the duff is dry pine kill could result when the fine roots growing in this organic layer are killed. Duff ignition could also result in prolonged smoking and hazardous amounts of residual smoke being produced. State Road 40, State Road 35 and County Road 314 are within close proximity to the park. Accumulated duff should be burned off gradually. Burns should be planned for periods when deeper duff deposits are wet and only manageable amounts of duff are dry enough to burn. The flatwoods zones should be burned during the growing season once fuel reduction burns have been conducted. The depression marshes should be incorporated into the burn when the zones they are contained within are burned. If heavy muck and duff deposits are present in the ponds then they should not be burned due to prolonged smoking risks.

Fire management within the sandhill community of the park will focus on reducing the total amount of hardwood cover, encouraging native herbaceous groundcover and restoring the community to an earlier successional stage.

The sandhill within the park would benefit from a spring burn timed to stress and kill sprouting oaks that have become too dense throughout most of the sandhill in the park. Girdling, tree cutter mowing, and herbicidal removal of invading oaks would also benefit this community.

The sandhill located north of main park drive are the best quality sandhill in the park concerning longleaf pine densities and age classes as well as ground cover diversity and continuity. Relatively young oaks are invading these areas, and frequent burning should still be an effective management tool for restoration to natural plant compositions, however the combination of burning plus mechanical or herbicide treatments that target the oaks will expedite the restoration.

The sandhill located south of the main park drive are currently more degraded due to thick oak intrusion and ground cover shading. Growing season fire and mechanical or herbicidal oak removal will be required to restore this community. In order to facilitate fire into succeeding sandhill zones in the southwestern portion of the park, herbicide should be applied to off site hardwoods, primarily laurel oak, water oak and sweetgum. It is not recommended that soil active herbicides be used in this area, as they will be taken up by non-target species such as turkey oak, bluejack oak, post oak, southern red oak, and mockernut hickory. If soil active herbicides are used, they must be used

sparingly and applied in spots or a grid like pattern that would be approved by district biological staff. The project should be planned to begin in the interior of the zones and proceed outward to areas that are more visible to the public. Interpret the intent of the project to the public. Ground cover restoration may be necessary in areas heavily shaded by oaks and in the clearcut slash pine area near County Road 35 and the park boundary. The clearcut area will also need to be replanted with longleaf pine seedlings at densities of 200-300 trees per acre.

It is important that the results of management practices be monitored. Post burn evaluations, that include review of established photo points, should be conducted to determine progress towards restoration goals and if adaptations to management practices are needed. Table 6 contains a list of all fire-dependent natural communities found within the park, their associated acreage and optimal fire return interval.

Table 6: Prescribed Fire Management

Natural Community	Acres	Optimal Fire Return Interval (Years)	Acres To Burn Per Year (Min - Max)
Sandhill	656	1-3	219 - 656
Wet Flatwoods	429	3-5	86 - 143
Mesic Flatwoods	52	2-5	10 - 26
Depression Marsh	26	3-5	5 - 9
Scrubby Flatwoods	124	3-5	25 - 41
Scrub	3	4-7	0.4 - 0.75
Totals	1,290		345 - 876

The park is partitioned into management zones, and burn prescriptions are implemented on the prescribed burn cycle for each zone (see Management Zones Map). 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.

Based upon the fire return intervals and acreage figures for the natural communities within the park, optimally at least 345 acres should be burned each year to maintain the natural communities within their target fire return intervals. Park staffing, funding and weather conditions will influence the ability of the park to keep natural communities within their optimal fire return intervals. Not all zones will be burned within the maximum recommended fire return intervals, while others may be burned more frequently. Some fire type acres will be unavailable for burning until conditions within the management zone allow.

In order to track fire management activities, the Division 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, if burn objectives have been met, etc. The database is also used for annual burn planning which allows the Division to document fire management goals and objectives on an annual basis. Each quarter the database is updated and reports are produced that track progress towards meeting annual burn objectives.

Natural Community Restoration: In some cases, the reintroduction and maintenance of natural processes is not enough to reach the 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 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 function of degraded natural communities to desired future condition, including the re-establishment of biodiversity, ecological processes, vegetation structure and physical characters.

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

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

Objective: Conduct habitat/natural community restoration activities on 20 acres of the sandhill community.

A sandhill restoration plan will be developed for the park to guide yearly restoration work. Aggressive removal of turkey oak, laurel oak, sandpine and other off-site and/or invading tree species should be encouraged. Several sandhill areas have been heavily invaded by hardwoods and off-site sandpine. The sandpine are mainly located in the northern portion of the park near the shop area in management zones 12 and 14. Turkey oaks can be found in thick densities in the sandhills both north and south of the Main Park Drive. Laurel oaks are found south of Main Park Drive in very thick densities, so thick much of the ground cover has been completely shaded. These areas will require special attention to restore a natural fire regime and to recover the groundcover species

that are being suppressed. In some areas, a tree cutter or girdling may be useful in reducing the stems of offsite hardwoods. The use of herbicide treatments may be needed to control resprouting from rootstocks. Mature sandpines can be removed by chainsaw. Options for removal include contract treatments of large areas or small-scale treatments using park staff and volunteers. The selected option will depend upon future funding levels, and will influence the number of acres removed on an annual basis. A removal plan for these areas will be developed and implemented as part of the annual work plan. Some progress has already been made by park staff to cut down several of the mature off site sandpines that are invading the sandhills near the shop in management zone 14.

The small offsite slash pine plantation, approximately 20 acres in size, in management zones 19 and 21 was clearcut in 2007. As funds become available, this area needs to be replanted in longleaf pines at natural densities. Ground cover plantings will be required to augment the very sparse native ground cover already existing. Wiregrass tubelings should be planted throughout the area to facilitate fire spread across the area. This area will also require fire and possibly herbicide treatments to control sprouting oaks.

Maintenance of the restored areas will require application of prescribed fire within the recommended fire return interval. Long-term monitoring will be accomplished as part of the burn photo point process. Control of offsite hardwoods in areas with intact, but suppressed, groundcover (particularly wiregrass) will receive the highest priority. Those areas requiring groundcover restoration will be a secondary priority.

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

Objective: Conduct natural community/habitat improvement activities on 40 acres of the wet flatwoods community.

Portions of the wet flatwoods community that exists on the north side of the park could be improved by conducting a mechanical thinning of its regenerating loblolly pines. Following previous timber harvests for removal of SPB infested trees, several large gaps were created in the stand. These gaps are now densely filled with regenerating pines. The pines are so thick in places that fire would not progress through the stand unless under very dry and extreme fire behavior conditions. Such conditions could result in a very high intensity fire. It is recommended that the stand be evaluated and thinned to more manageable natural densities. Thinning operations should be timed to occur when soil conditions are dry enough that rutting from timbering equipment is minimized. Soil disturbance should be minimized and equipment checks for exotic plant material should be conducted prior to equipment entering the site. Photopoints should be established in the project area to monitor project success over time.

Imperiled Species Management

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

The Division strives to maintain healthy 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, Division staff consulted with staff of the FFWCC's Imperiled Species Section or its 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, Division staff consulted with FDACS. Data collected by the FFWCC, USFWS, FDACS and FNAI as part of their ongoing research and monitoring programs will be reviewed by park staff periodically to inform management of decisions that may have an impact on imperiled species at the park.

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

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

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

Park and District staff will survey and monitor the park's gopher tortoise population per the Division's established guidelines. All attempts will be made to survey for gopher tortoises following prescribed burns. Survey transects will be used to sample at

least ten percent of the zone. Protection of the gopher tortoises and their burrows, along with prescribed burning, should suffice to maintain populations of burrow commensals such as Florida mice and gopher frogs.

Additional surveys for Florida mice, gopher frogs and Sherman's fox squirrel should be conducted. It should be determined if Florida mice and gopher frogs currently exist within the park. Sherman's fox squirrels are seen often. Staff will develop a list of prioritized management zones for initial surveys.

The park is located near the Ocala National Forest that has a large bear population. The park will continue to document the occurrences of Florida black bear that are occasionally seen within the park. The park will document occurrences of indigo snakes and wood storks within the park if they occur.

The Division will continue to depend upon the partnerships with other agencies and academic institutions in the monitoring other imperiled species that have been documented at the park.

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

Park and District staff will survey known and locations of silver buckthorn, pinkroot and Godfrey's swamp privet and establish a monitoring protocol for each plant species. A monitoring protocol currently does not exist for these three plant species and needs to be developed. Areas not known to contain the plants will be incorporated into the surveying efforts as resources allow.

Exotic Species Management

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

The Division 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 approximately 20 acres of exotic plant species in the park.

An exotic plant removal plan is recommended that maps infested areas by management zone and determines priorities for treatment. The plan will provide guidance for subsequent annual work plans. The number of acres of exotic plants treated per year is likely to vary widely depending on the status of current infestations and any new infestations that might arise during the life of this management plan. Cogongrass will continue to be treated promptly and repeatedly. All infestations of rose natalgrass must be located and herbicided. Priority should be given to FLEPPC Category I and II species when treating exotic plant species in the park. Non-invasive exotic plants that occur

within the park will be removed whenever possible; however, ornamentals that are known to be non-invasive and occur in landscaping around residences may remain. All other scattered invasive exotic plant species will be treated upon detection and mapped for follow-up treatments. Any cut stumps will be treated with appropriate herbicide to prevent resprouting.

A plan and schedule that complies with the Division of Recreation and Parks standards for scouting and mapping invasive exotics in every zone within the park should be developed. Areas that have sources of particularly aggressive species, such as cogongrass, may need to be scouted more frequently. Finding new populations of invasive exotic plants before they become established will help prevent larger infestations and reduce the cost and effort needed to control them. The focus should be on FLEPPC Category I and II plant species.

Though many of the large cogongrass patches have been reduced by herbicide treatments to smaller more manageable areas, efforts should remain ongoing to retreat known infestations and scout new infestations. All known and newly detected locations of exotic plants should be GPSed and mapped. The park should develop an exotic plant management plan to outline procedures for scouting, marking, treatment scheduling, treatment progress, retreatment, herbicide use procedures, as well as herbicide use and needs. As funds become available, contract herbicide treatments should be considered.

Objective: Practice preventative measures to avoid accidental introduction and spreading of exotics within the park.

Guidelines for clean sod, fill dirt, limerock, mowing, as well as cleaning and inspecting equipment that enters the park are recommended. New infestations of exotics can be prevented by ensuring that contractors such as mowers and loggers clean their equipment before entering the park and do not spread exotics by moving from a contaminated area within the park without cleaning their equipment.

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

Control activities will focus on areas where feral hogs and armadillos are causing the most damage. Park staff actively removes hogs from the property. Contractual services to remove feral hogs should be investigated to increase the number of hogs removed. The park also occasionally has to remove feral or stray cats and dogs from the property. These animals should be turned over to the county animal control facility. Removal of the Asian rhesus monkeys will proceed according to the lease agreement #4022A between the Trustees and Smartparks - Silver Springs, Inc., dated December 2005.

Special Management Considerations

Timber Management Analysis

Chapters 253 and 259, Florida Statutes, require an assessment of the feasibility of

managing timber in land management plans for parcels greater than 1,000 acres if the lead agency determines that timber management is not in conflict with the primary management objectives of the land. The feasibility of harvesting timber at this park during the period covered by this plan was considered in context of the Division'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.

During the development of this plan, an analysis was made regarding the feasibility of timber management activities in the park. It was determined that the primary management objectives of the unit could be met without conducting timber management activities for this management plan cycle. Timber management will be re-evaluated during the next revision of the management plan.

Additional Considerations

Throughout much of the park, the park owns both sides of the shoreline and the river. In portions of the Ocklawaha River where the park does not manage both sides of the river, the park also manages a 400-foot strip of sovereign submerged land. This portion is managed to maintain the natural character of the Ocklawaha River.

Approximately 106 acres of the park is subject to a conservation easement with the SJRWMD. Within this portion of the park, the easement language restricts such activities as the construction of facilities, the building of roads or firebreaks and the removal of trees and vegetation, without the prior written consent of the SJRWMD. The Division will consult with the staff of the SJRWMD when planning resource management activities or recreational development within the boundaries of the conservation easement.

Cultural Resource Management

Cultural resources are individually unique, and collectively, very challenging for the public land manager whose goal is to preserve and protect them in perpetuity. The Division of Recreation and Parks is implementing the following goals, objectives and actions, as funding becomes available, to preserve the cultural resources found in Silver River State Park.

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

The management of cultural resources is often complicated because these resources are irreplaceable and extremely vulnerable to disturbances. The advice of historical and archaeological experts is required in this effort. All activities related to land clearing, ground disturbing activities, major repairs or additions to historic structures listed or eligible for listing in the National Register of Historic Places and collections care must be submitted to DHR for review and comment before undertaking the proposed project.

Recommendations may include, but are not limited to concurrence with the project as submitted, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effect. In addition, any demolition or substantial alteration to any historic structure or resource must be submitted to DHR for consultation and the Division of Recreation and Parks must demonstrate that there is no feasible alternative to removal and must provide a strategy for documentation or salvage of the resource. Florida law further requires that the Division of Recreation and Parks 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 26 of 26-recorded cultural resources in the park.

The park intends to have 26-recorded cultural sites evaluated and condition assessments updated during the plan period. Park staff will attempt to locate sites and provide information to include but not limited to any threats to the site's condition such as natural erosion; vehicular damage; horse, bicycle or pedestrian damage; looting; construction including damage from firebreak construction; animal damage; plant or root damage or other factors that might cause deterioration of the site. Site assessments should be documented on appropriate forms and a copy sent to the Division of Historical Resource to be filed in the Silver River State Park master files. A copy of this information should also be maintained at the park and district offices. The park will prioritize preservation projects identified by the assessments/evaluations.

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

The park has not had a comprehensive archaeological survey and needs to have an archaeological predictive model developed. This model will provide for high, medium and low areas or probability for the occurrence of pre-historic sites. The model will provide guidance for future development as well as Phase 1 surveys.

A Scope of Collections will need to be developed should the park acquire any collection items. An administrative history is needed for the park that will help interpret the history of the park. Oral histories of local historians and park staff need to be done to help document the park's history.

The park needs to develop and implement a monitoring plan to prepare yearly condition assessments of the parks cultural resources. Consequently, the FMSF should be updated as needed.

The primary cultural management need for Silver River State Park is to locate the known resources. This is a problem at the park because archaeologists and other

resource surveyors have rarely made marking the locations of recorded resources a product of their activities. Because park management must undertake protection as a strategy for preserving recorded resources, it will be necessary to map site locations. This is a survey product and can be performed as a part of a Level I survey. It must be noted in light of communications with a local historian that a specific goal of such activity should be locating and identifying historic roads and trails.

Once having physically located the resources, park management should develop patrol and monitoring plans that will permit them to issue an annual condition report and summary for the resources. Such monitoring measures should include training personnel to review resource conditions and establishing photo points.

Mitigation of both natural and human imposed impacts is the final aspect of cultural resource management at Silver River. Denson (1991) reported several Ocklawaha River sites that had been looted and several others that were affected by diversions of the river's current. Sites should be evaluated for damages and, whatever the cause, measures should be planned and implemented either to ameliorate the adverse effects or to salvage important sites. Park management must be aware that as cultural resource laws are enforced in the nearby Ocala National Forest, pothunters may respond by transferring their activities to the park. Therefore, one element of mitigation will be to establish and to continue close links with Ocala National Forest's cultural resource managers.

The general objective for the management of the cultural resources of Silver River State Park is to protect, preserve and interpret the prehistoric and historic resources. Park management will ensure adequate staff, materials and administrative support so that cultural resources management activities are conducted.

As the composition of park staff changes over time, efforts should be made to insure that there is always at least one staff member who is a certified archaeological monitor. Management should ensure that park personnel are adequately trained in cultural resource management and establish a park library to support the training. Unit staff will ensure that any ground disturbing activities shall be conducted in accordance with DHR guidelines and monitored by appropriately trained personnel. Management should develop professional relationships with area university archaeologists, National Forest cultural resource specialists, Water Management District land managers and area law enforcement officials to discuss cultural resource management issues and opportunities.

Because of the recorded archaeological sites in the park, management measures for cultural resources should include monitoring of identified archaeological sites. A periodic monitoring program for the parks' prehistoric and historic cultural resource sites should be developed and implemented by establishing photo points and other

appropriate cultural resource monitoring protocols. In accordance with the monitoring program, updated site file information should be provided to DHR. Management should retain professional archaeological assistance in marking the recorded sites within the park, including GPS locations and datum points. Management should identify funding needs and initiate planning for submission of grant applications to support a Level I comprehensive cultural resources survey of the entire park.

Division staff should document the history of the park and the surrounding area. The available information should be analyzed and synthesized to develop recommendations for additional research and survey actions. These recommended additional research and survey actions should be conducted. Management should develop and implement patrol and monitoring routines that enable personnel to report on the condition (level of integrity) of the recorded cultural resources.

Objective: Bring one of 26-recorded cultural resources into good condition.

A cyclical maintenance plan should be developed and implemented to help guide the park with needed preservation of its sites. Park staff should develop and implement a preservation and maintenance plan for all cultural resources. Management measures for cultural resources should include development of a phased plan for managing the currently identified recorded sites in the context of their surroundings. This should include developing a workable written plan for the physical management of the identified cultural resources. The plan should outline approved methodologies for executing the plan and training staff and volunteers in managing the cultural resources of the park. Management should arrange for a Level I survey in all areas planned for development and utilize development project funds to accomplish the survey. Such surveys aim to identify and record features (including historic roads and trails) to be avoided during construction. Park management will continue the partnership with Marion County School Board for interpretation, protection of cultural resources on the School Board's leased property.

Site 8MR1878, the Cactus Flower Site, is a cultural site that could potentially be in need of stabilization if not rehabilitation as well. This site suffers from erosion problems and was heavily disturbed during the construction of State Road 40. As a protective measure, the park has fenced off access to the site. The park has consulted with experts who have recommended stabilization by means of silt fence instillation for stabilization and backfilling eroded areas of the site to conceal artifacts that are washing out and prevent further erosion.

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.

Silver River State Park was subject to a land management review on March 21, 2007 (see Addendum 8). The review team made the following determinations:

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

LAND USE COMPONENT

INTRODUCTION

Land use planning and park development decisions for the state park system are the dual responsibilities of the Division of Recreation and Parks (Division). 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 to guide the location and extent of future park development. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation and management, and through public workshops, and user groups. With this approach, the Division objective is to provide quality development for resource-based recreation with a high level of sensitivity to the natural and cultural resources at each park throughout the state.

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

Silver River State park is located within Marion County. The park is seven miles northeast of downtown Ocala in the north central part of the state. Significant resource-based recreation opportunities occur within the vicinity of the park (see reference map).

Existing Use of Adjacent Lands

State Road 40 runs along the northern park boundary, State Road 35 (Baseline Road) parallels the park's western boundary and County Road 314 (Sharps Ferry Road) is aligned with the park's southern boundary. Land uses surrounding the park include commercial development associated with the Silver Springs attraction at the

intersection of State Roads 35 and 40. Residential development occurs to the west and south of the park. The Marshall Swamp, floodplain of the Ocklawaha River and adjacent conservation lands (Silver Springs Conservation Area and Marjorie Harris Carr Cross Florida Greenway) provide some buffer from development pressures immediately adjacent to the park (see Reference Map).

A boat ramp and basin owned by the Florida Department of Transportation (FDOT) and leased to Marion County (Ray Wayside Park) is located at the State Road 40 Bridge on the Ocklawaha River. This facility generates a large amount of motorized boat use of both the Ocklawaha and Silver Rivers, especially during the weekends. Vehicular traffic on highways surrounding the park, high levels of motorized boat traffic and the input of untreated stormwater runoff into the Silver River are the primary impacts from adjacent land uses on the park's resources and visitor experience.

Planned Use of Adjacent Lands

Over 1.35 million people reside within 50 miles of the park, which includes the incorporated areas of Ocala, Sanford, Daytona Beach, Gainesville and Palm Coast (U.S Bureau of the Census, 2000). As lands near the park become more urbanized, concerns arise related to changes in surface and groundwater quality and quantity, additional fragmentation of wildlife habitat, complication of prescribed fire management activities, traffic congestion and degradation of the aesthetic character of the surrounding land. Marion County has taken steps to address land use impacts on the Silver Springs system by establishing a Springs Protection Overlay Zone in the Land Development Code. The Code prohibits certain uses and establishes development standards related to impervious surfaces and wastewater treatment that are designed to protect groundwater within this vulnerable karst system. Marion County has also passed a new ordinance to restrict fertilizer use on developed lots in the unincorporated sections of the county. Despite the provisions in the County's Land Development Code and Comprehensive Plan, it will still be important for Division staff to participate in the review of all Comprehensive Plan amendments, proposed zoning changes and development plans within the vicinity of the park to ensure that protection of park resources is given due consideration.

Marion County is ranked sixteenth and thirtieth out of Florida's 67 counties in terms of total population and population density, respectively. The estimated 2007 population was just over 325,000 and is projected to grow another 32 percent by 2015. The adjacent city of Ocala (population 49,943) accounts for 16 percent of the county's population. It is anticipated that growth from the Ocala metro area will continue to drive the conversion of adjacent lands to increasingly higher intensity uses. While there were no significant land use changes being pursued on adjacent lands at the time of the writing of this plan, additional medium density residential development is likely to the northwest and to the southwest of the park (Marion County Planning,

pers. communication, February 2009).

The projected increase in population and land use density will also generate changes in the area's transportation network. State Road 35 that runs along the park's western boundary is currently being widened to four lanes from County Road 464 to State Road 40. This project is slated for completion in 2011. The design of this project locates all stormwater management facilities west of State Road 35 from Sharps Ferry Road to State Road 40. State Road 40 that runs along the parks northern boundary will be widened to four lanes from Silver Springs Attraction east to SE 183rd Avenue (Levy Hammock Road). This project is funded for design in fiscal year 2011/12. A Project Development and Environmental Study for this project is currently underway. The State Road 40 project will impact the park, due to the road widening and the design and location of stormwater management facilities. Marion County has also recently constructed a large stormwater management facility near the intersection of State Road 40 and State Road 326 to prevent direct stormwater discharge into Half Mile Creek. Further discussion of potential impacts from these projects is provided in the resource management component of this plan. Division staff will continue to work with Marion County and FDOT to ensure that the protection of park resources is a planning and design priority.

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, can support various resource-based recreation activities. Breaking down the property into such elements provides a means for identifying the individual recreation activities that could be developed within the unit and an analysis of the existing spatial factors that either favor or limit the provision of each activity.

Land Area

The Silver River bisects the park. To the north of the Silver River the park is heavily forested, and slopes gently from State Road 40 towards the wide river floodplain. Numerous pre-existing jeep trails are available for recreational trail use, although certain areas can be seasonally inaccessible due to high water.

The portion of the park south of the Silver River provides extensive recreational opportunities. Natural communities, like sandhill, xeric hammock and mixed upland

forest can support a broader range of recreational activities than the wetter areas of the park.

By virtue of its size, natural community composition and proximity to other conservation lands, the park provides significant habitat for a range of imperiled plant and animal species. Opportunities for wildlife observation are excellent.

In addition to creating significant wildlife habitat, the parks proximity to the Marjorie Harris Carr Cross Florida Greenway, Marion County's Silver Springs Conservation Area, the Ocala National Forest, and Indian Lake State Forest, provides a valuable opportunity for recreational trail connections to over 100,000 acres of additional conservation lands outside of park boundaries. Division staff will continue to work with federal, state, and local agencies to develop opportunities for regional trail connections between adjacent conservation lands.

Water Area

The Silver River is the primary scenic attraction of the park and a popular boating destination. The river is a clear, spring run stream, varying in width from 75 to 150 feet with a broad forested floodplain. The river bisects the state park, flows approximately six miles east to its junction with the Ocklawaha River and is contained entirely within the park boundary.

The Ocklawaha River, a blackwater stream, runs along the park's eastern boundary for approximately six miles and separates two park parcels from the main body of the park. The Ocklawaha River provides additional high quality scenery, boating and fishing recreation and connects the park with Lake Griffin to the south (upstream) and Rodman Reservoir to the north (downstream). Like the Silver River, the Ocklawaha's wide floodplain limits opportunities for direct public access to the waterway.

The Silver River is accessible to private and commercially operated boats from the Ocklawaha River. The nearest boat ramp is located at Ray Wayside Park. Both rivers experience high levels of motorboat traffic during weekends and holidays. This detracts from the wilderness experience within the park and creates potentially hazardous conditions. Marion County Resolution 85-R-128 establishes a "no wake-idle speed only" zone on a portion of the river that extends about .5 miles from the head spring (see Reference Map). In addition, fishing is prohibited in the Silver River from the headwaters at Silver Springs to its junction with the Ocklawaha River under Rule 62D-2. The Division does not actively manage or restrict powerboat access on the rivers, but does manage potential impacts to adjacent park property from the boating public.

The forested floodplain of the Silver River provides a beautiful scenic backdrop and

wildlife viewing is excellent along the river corridor. The river is most accessible near its mid-point along the south shore. Known as River Bend, this is a wide bend in the river with a cleared shoreline and bank that has traditionally supported recreational use. It is also a known archaeological site and within a SJRWMD conservation easement (see Reference Map). As noted in earlier sections, considerable erosion from high water, boat landings and visitor traffic had occurred at this site before use patterns were altered and improvements made. Although the site has road access the easement limits opportunities for public use by prohibiting such activities as construction of facilities, building of roads, or removal of trees and vegetation, without the written consent of the SJRWMD.

Natural Features

Silver Springs, the Silver River its floodplain and the increasingly rare sandhills found in the surrounding uplands are the outstanding natural features of this park. Scattered sinkholes found throughout the uplands are also significant features that require special management and protection. A third group of notable features are the national co-champion cedar elm, the state champion Shumard oak and other exceptionally large trees discussed earlier in the Resource Management Component.

Archaeological and Historical Features

As previously noted, human beings have used the Silver River and its surrounding environment for thousands of years. The park contains numerous significant prehistoric and historic cultural resources. This cultural record provides abundant opportunities for interpretive programming. The natural and cultural history of the region is effectively interpreted at the park's Silver River Environmental Education Center and Museum, operated by the Marion County School Board.

Assessment of Use

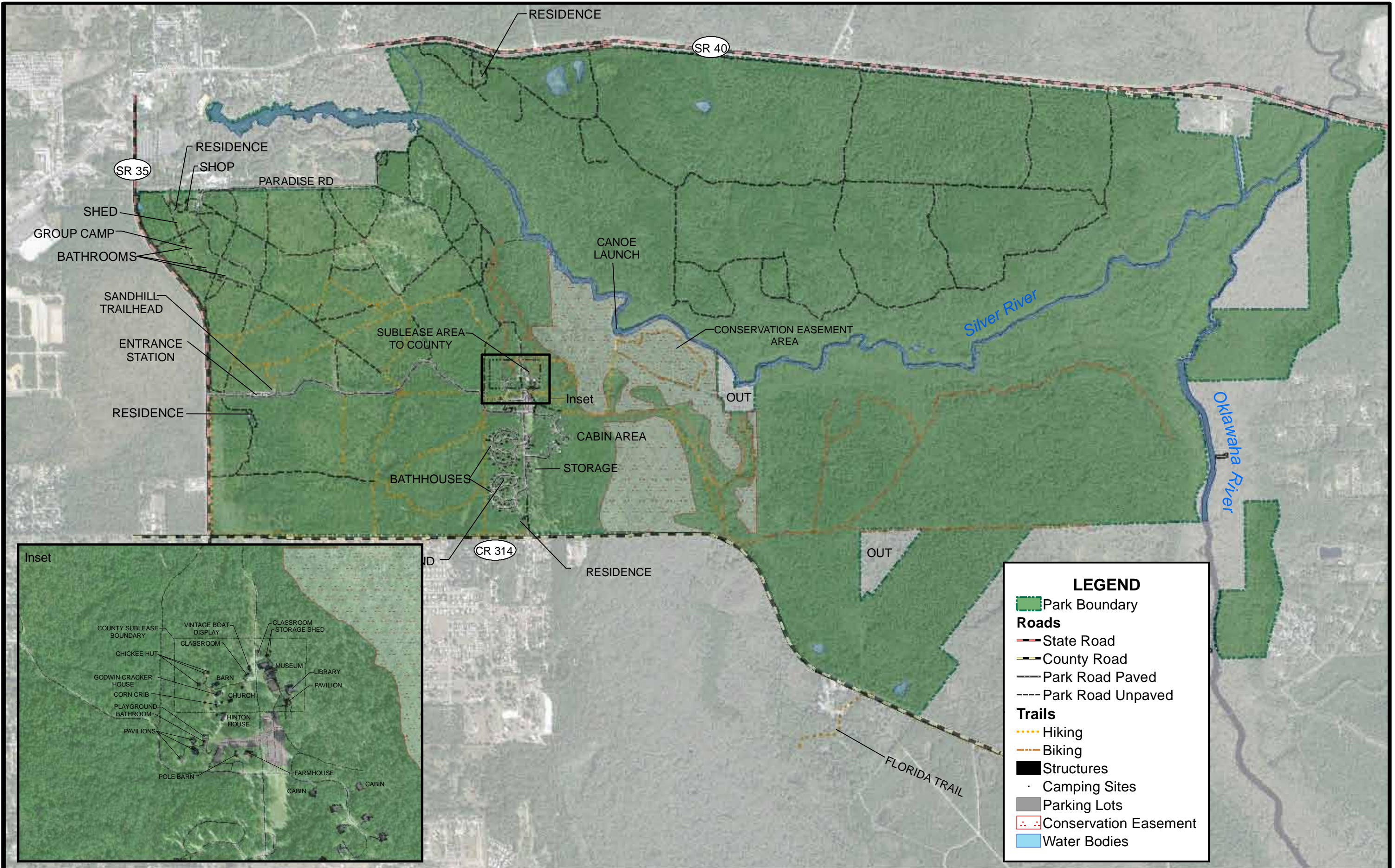
All legal boundaries, significant natural features, structures, facilities, roads and trails existing in the unit are delineated on the base map (see Base Map). Specific uses made of the unit are briefly described in the following sections.

Past Uses

Several large areas of the southern half of the park property were cleared for pasture and other agricultural uses in the past. A historic use of the property was hunting, and numerous jeep trails remain in certain sections of the park from that period. A mid-point bend in the river that is within a SJRWMD conservation easement was traditionally used as a boat landing and swimming area.

Future Land Use and Zoning

The Division works with local governments to establish future land use (FLU) and zoning designations that provide both consistency between comprehensive plans and land development codes and permit typical state park uses and facilities necessary for the provision of resource-based recreation opportunities. FLU and



SR 35

SR 40

CR 314

RESIDENCE
SHOP

PARADISE RD

SHED
GROUP CAMP
BATHROOMS

SANDHILL
TRAILHEAD

ENTRANCE
STATION

RESIDENCE

SUBLEASE AREA
TO COUNTY

CANOE
LAUNCH

CONSERVATION EASEMENT
AREA

OUT

Inset

CABIN AREA

STORAGE

BATHHOUSES

RESIDENCE

OUT

Silver River

Oklawaha River

FLORIDA TRAIL

LEGEND

- Park Boundary
- Roads**
- State Road
- County Road
- Park Road Paved
- Park Road Unpaved
- Trails**
- Hiking
- Biking
- Structures
- Camping Sites
- Parking Lots
- Conservation Easement
- Water Bodies

Inset

- COUNTY SUBLEASE BOUNDARY
- VINTAGE BOAT DISPLAY
- CLASSROOM STORAGE SHED
- CLASSROOM
- CHICKEE HUT
- GODWIN CRACKER HOUSE
- CORN CRIB
- PLAYGROUND
- BATHROOM
- PAVILIONS
- POLE BARN
- FARMHOUSE
- CABIN
- CABIN
- MUSEUM
- LIBRARY
- PAVILION
- BARN
- CHURCH
- HINTON HOUSE

SILVER RIVER STATE PARK

N

0 1,000 2,000 4,000 Feet

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial photography: 2008

BASE MAP

zoning designations not clearly related to state park uses generally reflect patterns of previous ownerships or a lack of specific options dedicated to accommodate such uses.

The current FLU designation for Silver River State Park is Natural Reservation (NR). NR covers the all park property, including the existing facilities as well as areas identified for future development, and is reserved for lands that are managed by state agencies for conservation purposes. The current land use designation for all park lands is Rural Preservation (RP). Park zoning includes, Single Family Dwelling (R-1), Government Use (GU) and General Agriculture (A-1). A-1 applies to the majority of park lands and areas in the northern portion of the park identified for future development. Government Use (GU) includes most existing facilities and areas identified for future development. Additionally park lands are included within the Environmentally Sensitive Overlay Zone (ESOZ) and the Springs Protection Overlay Zone (SPOZ). Typical state park uses and facilities are currently permissible within current land use categories, zoning and zoning overlays however, specific development standards may be applicable to future park development.

Current Recreational Use and Visitor Programs

The recreational uses available at this time include hiking, off-road biking, canoeing, kayaking, nature observation, camping, picnicking and museum visitation. Power boating and paddling are popular on the Silver River and Ocklawaha River. Cabins are also available for extended stays at the park. Visitor use is carefully monitored to avoid unacceptable impacts to sensitive resources and management action initiated, if necessary. Trail hardening or rerouting, area closure and prohibition of certain uses may be considered to address resource impacts.

Ranger programs include bird walks, star-gazing events and tours of the Cracker Village. Tram tours are also offered for seniors by the park citizen support organization. Additional ranger guided talks and tours and offsite educational programs are provided by the park on a request basis. The park hosts the Marion County Springs Festival and Ocala Country Days. The latter event is sponsored by Marion County School Board and is the main fundraiser for the Silver River Museum. The Museum also hosts all fourth and seventh grade classes in the Marion County School System, with more than 15,000 student visits annually.

The park experienced its highest level of visitation on record in fiscal year 2008/09 with 262,688 visitors recorded. Peak visitation for both day and overnight visitors occurs in spring and fall. Overnight visitation is at its lowest during the summer months. Total visitation has increased dramatically over the previous ten-year period as facilities have been constructed at the park. Fiscal year 2006/07 visitation was the highest on record for the park.

By Division estimates, visitors during the FY 2008/2009 contributed nearly \$11 million in direct economic impact and the equivalent of 218 jobs to the local economy (Florida Department of Environmental Protection, 2009).

Other Uses

The Marion County School Board has constructed, through a lease with the Division, an Environmental Education Center and Museum in the park. Opened in 1991, this complex includes a museum, classroom, office, library and meeting room structures, a well house, a reconstructed Florida Cracker Village, a nature trail and river overlook.

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 Silver River State Park the blackwater and spring-run streams, depression marsh, dome swamp, floodplain forest, floodplain swamp, wet flatwoods, sandhill, and scrub have been designated as protected zones and delineated on the Conceptual Land Use Plan. Protected zones encompass approximately 3,237 acres or over 76 percent of the park.

Existing Facilities

Recreation Facilities

The majority of park recreational facilities are located in close proximity to one another. These include the Silver River Museum, Cracker Village, picnic area, campground and cabins. The main parking area serves as the trailhead for the Sinkhole, River and Swamp Trails. Access to a canoe/kayak launch on the Silver River is via the 1.2 mile River Trail. The Sandhill Trailhead is located just east of the ranger station. The park has 12.5 miles of trails that are open to hiking and biking, although soft sands in some areas are not ideally suited for the latter. A large primitive group camping area is accessible from Paradise Road, just south of the park shop.

Support Facilities

Park operations are supported by a Ranger Station that includes the park's administrative offices, a four bay shop that includes an office, two storage buildings, including one for flammable storage, an old farmhouse that is being temporarily

used for storage, four on-site residences, two of which are used by the park manager and assistant park manager, the park entrance drive, and multiple service roads. All support facilities are in good condition. Thanks to the generosity of the park's citizen support organization recent upgrades were made to interior of the ranger station including, new office furniture and floor coverings. The following is a listing of recreation and support facilities at the park:

Environmental Education Center and Museum

- Museum
- Classrooms
- Library
- Pavilion
- Glass-bottom boat exhibit

Cracker Village

- Goodwin Family Home
- School House / Church
- Hinton Family Home
- Cane Syrup Kettle and Mill
- Blacksmith Shed
- Cracker Barn / Pantry
- Silver Springs School
- Chickee Huts (2)
- Paved parking (47 standard, 4 handicap, 8 RV)

Picnic Area

- Restroom
- Pavilion with BBQ pit (15 tables)
- Pavilion (2, 10 tables each)
- Playground
- Paved parking (57 standard, 4 handicap)

Primitive Group Camp

- Nine group sites
- Composting restrooms (3)

Fire rings

Overnight Facilities

- Standard Campground (59 sites)
- Developed cabins (10)

River Bend Paddling Facilities

- Canoe/kayak launch/landing
- Tram stop
- Kiosk

Sinkhole, River and Swamp Trailhead

- Sinkhole Trail (2.1 miles)
- River Trail and (1.2 miles)
- Swamp Trail and boardwalk (1.8 miles)
- Bike Trail (5.8 miles)

Sandhill Trailhead

- Kiosk
- Paved parking (15 standard, 2 handicap)
- Sandhill Trail (1.6 miles)

Support Facilities

- Ranger Station
- 4-bay shop and administrative office
- Storage shed
- Flammable storage shed
- Residences (4)
- Old farmhouse
- Park drive (1 mi.)
- Service roads (29 mi.)

CONCEPTUAL LAND USE PLAN

The following section presents the current conceptual land use plan for this park. The conceptual land use plan (see Conceptual Land Use Plan) may be amended to address new information regarding the park's natural or cultural resources,

changes in recreational usage, or as new land is acquired. 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 management plan, the Division assesses the potential impacts of proposed uses or development on park resources and applies that analysis to decisions on the 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 and vegetation, sewage disposal and stormwater management) and design constraints (such as designated 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 that limit resource impacts. Federal, state and local permit and regulatory requirements are met during the final design and facility development. All new park facilities are consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, the park staff monitors the surrounding conditions to ensure that resource impacts remain within acceptable levels.

Potential Uses

Public Access and Recreational Opportunities

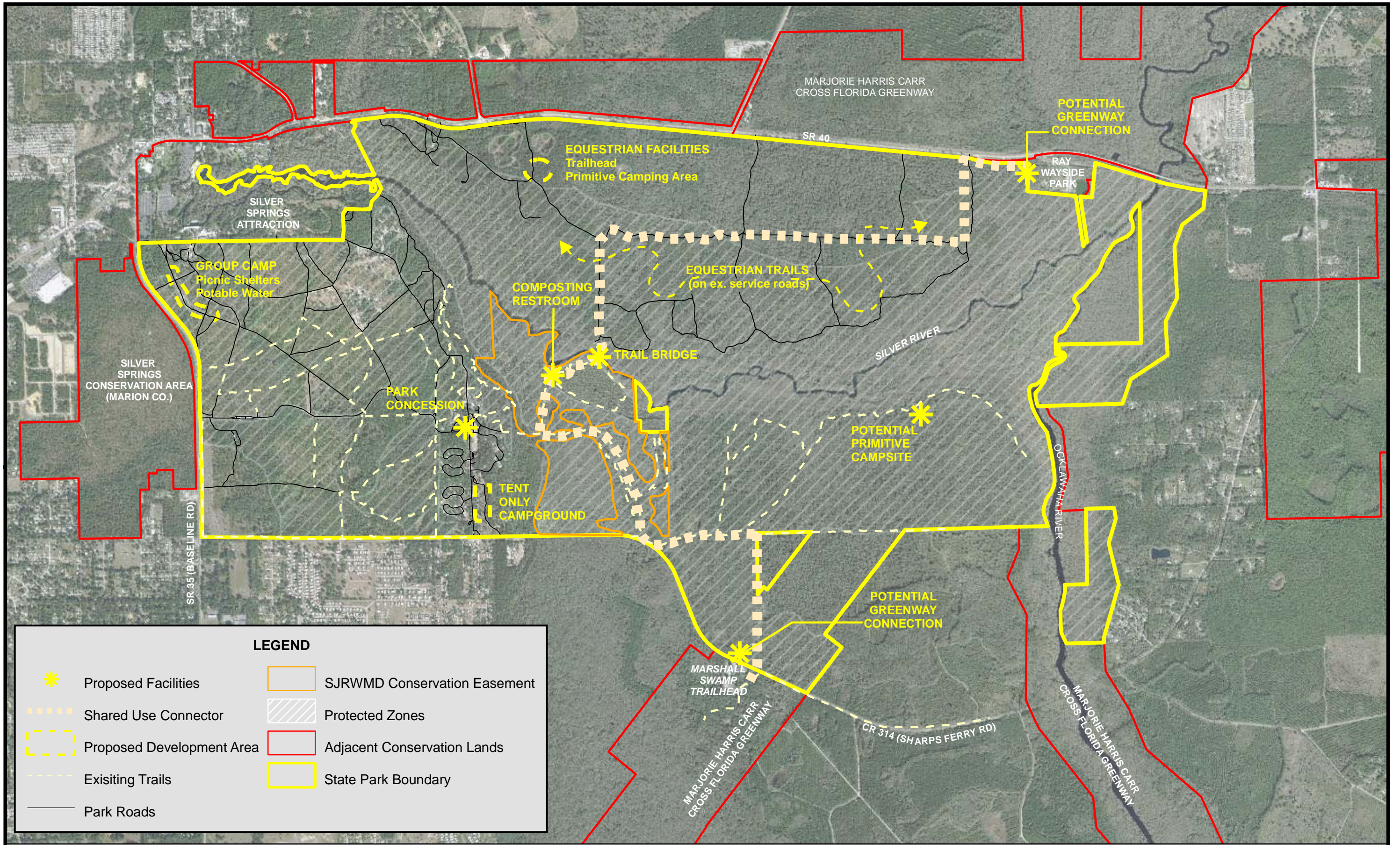
Goal: Provide public access and recreational opportunities in the park.

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

Proposed improvements focus on enhancing connectivity to adjacent conservation lands, providing additional trail and camping opportunities, establishing more convenient access to the Silver River and achieving the full potential for interpretive programming at the park. If implemented, the potential uses and proposed facilities in this plan will introduce horseback riding to the park, expose more visitors to the wonders of paddling the Silver River, diversify the types of camping available and provide expanded opportunities to learn about the resources of the park.

Objective: Maintain the park's current recreational carrying capacity of 1,332 users per day.

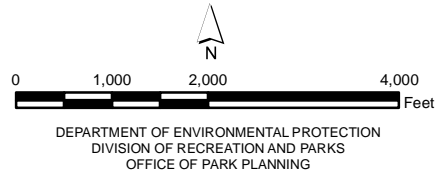
The park will continue to provide opportunities for hiking, nature observation, camping, cabin lodging, canoeing and picnicking. Interpretive exhibits and



LEGEND

	Proposed Facilities		SJRWMD Conservation Easement
	Shared Use Connector		Protected Zones
	Proposed Development Area		Adjacent Conservation Lands
	Existing Trails		State Park Boundary
	Park Roads		

SILVER RIVER STATE PARK



CONCEPTUAL LAND USE PLAN

programs will continue to be offered at the museum.

Objective: Expand the park's recreational carrying capacity by 162 users per day.

Hiking opportunities within the park will be expanded with the proposed construction of a pedestrian bridge over the Silver River. Camping opportunities will be expanded with the addition of a tent-only campground. Canoeing and kayaking opportunities will be expanded once a concessionaire is established. Equestrian opportunities will be added with the creation of an equestrian trailhead with trailer parking, designated equestrian trails and primitive group camp. New and expanded recreational opportunities are discussed in further detail below.

Objective: Continue to provide the current repertoire of three interpretive/educational programs on a regular basis.

Two interpretive programs are currently offered to park visitors. These programs include a guided hike led by a local birding expert on the different birds that inhabit the natural communities within the park. Visitors can also discover what life was like in Florida at the turn of century by participating in a ranger-led tour of the Cracker homestead and kitchen that is part of the Silver River Museum. The local astronomy club also invites park visitors to join them on the second Saturday of every month to learn about the stars, planets, and other facts about the night sky.

The park is also host to one of Marion County's most popular local festivals, the Ocala Country Days. This festival is the annual fund-raiser for the Silver River Museum and Educational Center. The festival includes two days of exhibits and demonstrations that include flintknapping, woodworking, basket making and sugar cane syrup making.

Objective: Develop three new interpretive/educational programs.

There is potential for improving interpretive programs and nature and heritage based tourism at Silver River State Park. The programs should build on the resources and facilities of the state park and the diverse range of natural and cultural sites in the Ocala region. Interpretive content should focus on the ecosystem of the relatively unspoiled spring run stream, the Division's restoration efforts in the sandhill community of the park, the important need for control of invasive exotic plants in natural areas such as this, the need for protection of surface and groundwater in the river basin, and the significance of cultural sites located in and around the park. The Silver River Museum and its staff could provide unique educational and interpretive resources for this effort. Activities available at the Silver Springs attraction, the Marjorie Harris Carr Cross Florida Greenway, the Ocala National Forest and other locations convenient to the state park could support a wide range of additional interpretive program and tour opportunities. Division staff should expand the frequency and content of existing programming, as resources allow, and encourage the involvement of other land managing agencies, public and private sector interests and citizen volunteers in the

development and delivery of interpretive programs at the state park.

Objective: Educate park visitors about the importance of proper food and garbage storage to prevent the habituation of Florida black bears to humans.

Visitor education and interpretation regarding the proper storage and disposal of food and garbage will be conducted to prevent the habituation of bears to humans. Though it is not currently a problem, efforts should be made to obtain bear-proof garbage cans and dumpsters when funds become available as a preventative measure. The FFWCC will be consulted for recommendations regarding bear management measures to be taken at the park.

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 recreational opportunities, to improve the protection of park resources, and to streamline the efficiency of park operations. The following is a summary of improved renovated and/or new facilities needed to implement the conceptual land use plan for Silver River State Park:

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

All capital facilities, trails and roads within the park will be kept in proper condition through the daily or regular work of park staff and/or contracted help. The Division is responsible for ensuring an appropriate level of public access and visitor safety at the River Bend use area. Picnicking, swimming, boat launching and scenery appreciation are activities that have occurred at this site for decades, as people arrived either from the river or from the jeep trail leading to Sharps Ferry Road. Basic public facilities have been established to protect the resources of the park and to manage the existing public uses.

Objective: Improve three existing facilities.

Major repair projects for park facilities may be accomplished within the ten-year term of this management plan, if funding is made available. These include the modification of existing park facilities to bring them into compliance with the Americans with Disabilities Act (a top priority for all facilities maintained by the Division). The following discussion of other recommended improvements and repairs are organized by use area within the park.

Canoe/Kayak Facilities: A composting restroom should be located at the existing River Bend Use Area. Since private vehicle access is not allowed to the River Bend area, the

Division is pursuing a private vendor to provide a shuttle service, and/or canoe carts to transport canoes and kayaks to the launch point.

Park Concession: The historic farmhouse building adjacent to the main parking area is to be adaptively reused as a concession facility operated by a vendor. The vendor will provide canoe, kayak and bicycle rentals as well as snack foods, groceries, and picnic and camping supplies. Since private vehicle access is not allowed to the River Bend area, the Division is pursuing a private vendor to provide a shuttle service to transport canoes and kayaks to the launch point.

Camping Facilities: Facilities at the primitive group camp are currently limited to composting restrooms. It is recommended that potable water eventually be provided in this area and up to four picnic shelters constructed to provide gathering places for groups and shelter during inclement weather.

Objective: Construct five new facilities.

Trails: The 2007 Marjorie Harris Carr Cross Florida Greenway Land Management Plan proposes a continuous trail through public lands of the Silver River area, including Silver River State Park. Trail connections to link the Greenway to the north and south sections of the park would provide enhanced recreational opportunities. A trail connection from the northern portion of the park through Ray Wayside Park and under the Ocklawaha River Bridge would allow hikers to avoid crossing four lanes of traffic on State Road 40. The logical point of connection to the Greenway in the southern portion of the park is near the Greenway's Marshall Swamp Trailhead on Sharps Ferry Road. Trail information kiosks/sign-in stations should accompany the new entry points into the park, and additional pedestrian safety improvements may be necessary to ensure a safe crossing of Sharps Ferry Road.

The primary challenge to completing a Greenway connection is a required crossing of the Silver River. A rustic bridge could provide this important trail connection while minimizing impacts to natural resources and the visual landscape. The Florida Department of Transportation has agreed to construct a pedestrian and equestrian bridge within the park and across the Silver River as part of a Memorandum of Agreement concerning the widening of State Road 40. Additional study will be necessary to determine the appropriate location, design and resource impacts of the proposed bridge. The Department will approve the final design and location of the bridge.

Equestrian Facilities: An equestrian camping area and trail system is proposed north of the Silver River with access from State Road 40. The site is a transitional area between mesic/wet flatwoods and floodplain forest and will offer seasonal recreational opportunities depending on rainfall patterns. There is the potential to create approximately ten miles of trails using the existing network of service roads. The

feasibility of connecting this trail system with the Greenway in the future should be explored with the Office of Greenways and Trails. Recommended facilities include trailhead parking for up to 15 vehicles with trailers, small primitive camping area (a 12-person capacity), hand pump for watering horses and a small restroom. Water and restroom facilities should be sited to service both trail users and campers. Adequate separation between the trailhead parking and campers should be established in the design of this area. Care will be taken in the design and management of these facilities to protect the resources of the park from unacceptable impacts. The conditions of soils and wildlife impacts from trail use will be monitored. The equestrian trail may be closed during rainy seasons or re-routed to protect specific resources or areas, as necessary.

Camping Facilities: A tent only camping area of up to twelve sites is proposed for the area directly east of the existing campground. This area is former pasture and contains scattered clusters of live oaks and pines. These sites would be unimproved but provide room for two large family size tents, a picnic table and a fire ring. Potable water would be available at two or three central locations and all twelve sites would be served by a four-fixture two-shower bathhouse. A stabilized unpaved access road and stabilized unpaved parking will also need to be provided. These sites should be clustered between existing stands of trees to provide an effective buffer between the tent sites. Parking spaces should likewise be distributed in order to provide parking within easy walking distance of each campsite.

Facilities Development

Preliminary cost estimates for these recommended facilities, improvements are provided in the Ten-Year Implementation Schedule, and Cost Estimates 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 Division in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes. The following is a summary of facilities needed to implement the conceptual land use plan for Silver River State Park:

Trails

Silver River pedestrian bridge
Trail kiosks/sign-in stations (2)

Equestrian Facilities

Equestrian trail (8-10 miles)	Water pump
Equestrian camping area	Trailhead parking (12 vehicles with trailers)
Restroom	

Canoe/Kayak Facilities

Composting Restroom

Concession and shuttle service

Camping Facilities

Group picnic shelters (4) and potable water

Primitive campsite

Tent-only Campground

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

Table 7.--Existing Use And Recreational Carrying Capacity

Activity/Facility	Existing Capacity		Proposed Additional Capacity		Estimated Recreational Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
Museum/Education Ctr.	100	200			100	200
Trails						
Hiking & biking	40	80	6	12	46	92
Horseback riding			24	24	24	24
Picnicking	140	280			140	280
Overnight Facilities						
Cabins	60	60			60	60
Campground	472	472	48	48	520	520
Group camp	400	400			400	400
Equestrian camping			12	12	12	12
Primitive camping			6	6	6	6
Boating						
Canoeing/kayaking	20	40	30	60	50	100
TOTAL	1,132	1,332	126	162	1,258	1,494

*Note: Recreational capacity for canoeing/kayaking determines number of boats launched from within park boundaries.

The recreational carrying capacity for this park is a preliminary estimate of the number of users the unit could accommodate after the current conceptual development program has been implemented. When developed, the proposed new facilities would approximately increase the unit's carrying capacity.

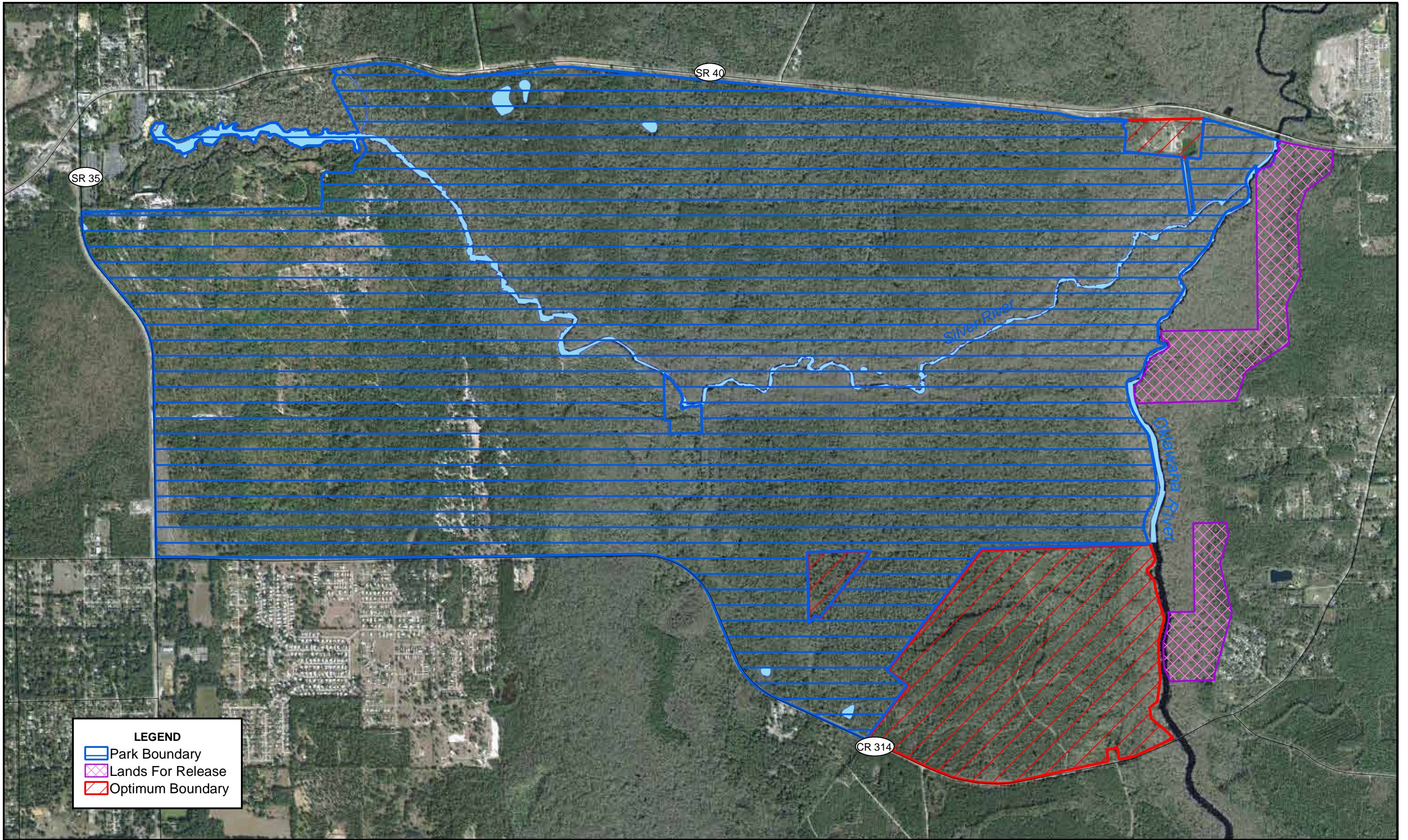
Optimum Boundary

The optimum boundary map reflects lands identified for direct management by the Division as part of the park. These parcels may include public as well as privately owned lands that improve the continuity of existing park lands, provide additional natural and cultural resource protection and/or allow for future expansion of recreational activities.




As additional needs are identified through park use, development, research, and as adjacent land uses change on private properties, modification of the unit's optimum boundary may occur for the enhancement of natural and cultural resources, recreational values and management efficiency.

Identification of lands on the optimum boundary map is solely for planning purposes and not for regulatory purposes. A property's identification on the optimum boundary map is not for use by any party or other government body to reduce or restrict the lawful right of private landowners. Identification on the map does not empower or require any government entity to impose additional or more restrictive environmental land use or zoning regulations. Identification is not for use as the basis for permit denial or the imposition of permit conditions.

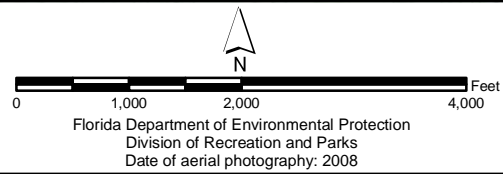
The current optimum boundary includes Ray Wayside Park, and one outparcel located in the interior of the park and a large parcel to the southeast that would align the park boundary with Sharps Ferry Road and the Ocklawaha River. Existing park lands east of the Ocklawaha River are recommended for release to be managed as part of the Marjorie Harris Carr Cross Florida Greenway by the Office of Greenways and Trails.



LEGEND

-  Park Boundary
-  Lands For Release
-  Optimum Boundary

SILVER RIVER STATE PARK



OPTIMUM BOUNDARY MAP

IMPLEMENTATION COMPONENT

The resource management and land use components of this management plan provide a thorough inventory of the park's natural, cultural and recreational resources. They outline the park's management needs and problems, and recommend both short and long-term objectives and actions to meet those needs. The implementation component compiles the management goals, objectives and actions expressed in the separate parts of this management plan for easy review and reports on the Division's progress toward achieving resource management, operational and capital improvement goals and objectives. An estimate of cost over the ten-year period of this plan is 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 Silver River State Park in 2002, significant work has been accomplished and progress made towards meeting the Division of Recreation and Parks (Division) management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and the Division.

Park Administration and Operations

Nearly members of the park's citizen support organization (CSO) have contributed 70,000 hours of volunteer service to the park. Volunteers regularly assist with trail and sign maintenance, split wood for sale to campers and serve as docents at the Silver River Museum on weekends and holidays. Two campground hosts also help manage the campground. Members of the CSO have created a native plant garden at the ranger station and donated funds to upgrade the interior of the ranger station including new tile floors and office furniture.

Resource Management

Natural Resources

- Over 1,000 acres of the park has been treated with prescribed fire with an average of just over 150 acres burned per year.
- Continued removal of exotic animals including feral hogs, feral cats, and nine-banded armadillo
- Continued maintenance removal of exotic plant species. Exotic plant species have been removed from nearly 2,300 acres of park land with over 250 acres of land treated per year on average
- Maintained participation in Silver Springs Working Group
- Worked with Marion County, Florida Department of Transportation (FDOT) and the Silver Springs Working Group to minimize impacts to park from the State Road 40 widening project, the State Road 35 widening project and the replacement of the Sharpe's Ferry Bridge.

Park Facilities

- At the River Bend Day Use Area, shoreline and archaeological site stabilization has occurred and a canoe/kayak launch and landing, kiosk and tram stop were constructed in cooperation with the SJRWMD.
- A new picnic area was constructed north of the park entrance drive and adjacent to the Silver River Museum. The picnic area contains two medium and one large picnic shelter, restrooms, and a playground.
- Fencing projects were completed along State Road 40 on the north side of the park and along Sharpe's Ferry Road.
- The park partnered with Ocala Electric on a number of infrastructure projects including placing approximately 1500 ft. of overhead power line underground, installation of photovoltaic solar panels to power the ranger station as part of a net metering demonstration project and installation of a new solar hot water heater for the campground bathhouse.
- The park with the assistance of local equestrians has also developed equestrian facilities north of the Silver River. Work completed to date includes the development of over ten miles of equestrian trails, a stabilized parking area for horse trailers, picnic tables, hitching posts, signage and a hand water pump.

MANAGEMENT PLAN IMPLEMENTATION

This management plan is written for a period of ten years, as required by Section 253.034 Florida Statutes. The Ten-Year Implementation Schedule and Cost Estimates (Table 8) summarizes the management goals, objectives and actions that are recommended for implementation over this period. Measures are identified for assessing progress toward completing each objective and action. A time frame for completing each objective and action is provided. A preliminary estimate of cost for each action is provided and the estimated total costs to complete each objective are computed. Finally, all costs are consolidated under the following five standard land management categories: Resource Management, Administration and Support, Capital Improvements, Recreation Visitor Services and Law Enforcement.

Many of the actions identified in the plan can be implemented using existing staff and funding sources based on previous grants, partnerships, and legislative appropriations. However, as the plan guides long-term management over a period of ten years, a number of actions have been identified that may require additional resources. The ten-year Implementation Schedule and Cost Estimates table therefore includes both "funded" and "unfunded" needs. It should be noted that the costs associated with each of the five standard land management categories are expected to increase over the ten-year period covered by this plan. The estimate of costs provide herewith is based on the best information available at the time this plan was completed and can not be considered a final determination of actual costs over the ten-year life of the plan.

The administration of the state park is an ongoing cost that will increase in the future as additional staff, programs and responsibilities are assigned. These administrative costs include a variety of activities, such as the administration of personnel, the management of vendors and contractors for all the park's supply and service needs and the coordination of the park's Citizen Support Organization, to name a few.

A high degree of adaptability and flexibility is necessary for implementation of this management plan to ensure that the Division can adjust to changes in the availability of funds, improved understanding of the park's natural and cultural resources, and changes in statewide land management issues, priorities and policies.

Statewide priorities for all aspects of land management are evaluated each year as part of the process for developing the Division's annual legislative budget requests. When preparing these annual requests, the Division considers the needs and priorities of the entire state park system and the projected availability of funding from all sources during the upcoming fiscal year. In addition to annual legislative appropriations, the Division pursues supplemental sources of funds and staff resources wherever possible, including grants, volunteers and partnerships with other entities. The Division's ability to accomplish the specific actions identified in the plan will be determined largely by the availability of funds and staff for these purposes, which may vary from year to year. Consequently, the target schedules and estimated costs identified in Table 8 may need to be adjusted during the ten-year management planning cycle.

Table 8
Silver River State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 1 of 4

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Goal I: Provide administrative support for all park functions		Measure	Planning Period	Total Estimated Manpower and Expense Cost
Objective A	Continue day-to-day administrative support at current levels	Administrative support ongoing	C	\$550,000
Objective B	Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise	Administrative support expanded	UFN	\$70,000
Goal II: Protect water quality and quantity in the park, restore natural hydrology to the extent feasible, and maintain the restored condition.		Measure	Planning Period	Total Estimated Manpower and Expense Cost
Objective A	Monitor and analyze water resources of the park.	Monitoring/analysis ongoing	C	\$12,800
Action 1	Continue to participate in the Silver Springs Basin Work Group and work with partner agencies to protect the park's water resources.	Program ongoing	C	\$9,300
Action 2	Continue to review water quality and quantity data provided by the SJRWMD.	Program ongoing	C	\$2,000
Action 3	Continue to review consumptive use permits in collaboration with the SJRWMD.	Program ongoing	C	\$1,500
Objective B	Conduct/obtain an assesment of the park's hydrological restoration needs.	Assesment conducted	LT	\$45,000
Action 1	Develop a sequential and prioritized hydrological restoration plan.	Plan completed	UFN	\$10,000
Action 2	Conduct a hydrological study of the park's current surface water features including existing ditches.	Study completed	UFN	\$35,000
Objective C	Restore natural hydrological conditions and function to approximately 5 acres of Depression Marsh	# Acres restored or with restoration underway	LT	\$16,300
Action 1	Investigate feasibility of filling or plugging approximately 1 mile of ditches	# miles filled	UFN	\$10,000
Action 2	Girdle all pines and off-site hardwoods within approximately 5 acres of the park's depression marshes	# acres treated	ST	\$6,300
Objective D	Address impacts of park roads on surface drainage and provide corrective measures	Analysis completed	LT	\$8,000
Action 1	Close roads, install culverts or low-water crossings where necessary	# of miles closed and/or remediated	LT	\$8,000
Objective E	Improve or restore the disturbed riverine shoreline	Improvements underway	LT	\$18,200
Action 1	Monitor known sites of shore erosion and document new sites.	Monitoring ongoing	C	\$7,500
Action 2	Stabilize and replant eroded river shoreline areas	# linear ft. restored	UFN	\$8,700
Action 3	Coordinate with law enforcement to limit unauthorized access to the river shoreline.	Program ongoing	C	\$2,000

* 2010 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 8
Silver River State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 2 of 4

NOTE:THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.					
Goal III: Restore and maintain the natural communities/habitats of the park			Measure	Planning Period	Total Estimated Manpower and Expense Cost
Objective A	Within 10 years have 800 fire type acres of the park maintained within optimal fire return interval.		# Acres burned	C	\$233,300
Action 1	Update annual burn plan..		Plan updated	C	\$16,000
Action 2	Manage fire dependent communities for ecosystem function, structure and processes by burning approximatley 345 acres annually.		# Acres burned annually	C	\$181,000
Action 3	Widen approximately 1 mile of fire line, complete mechanical treatments and pre-burn preparation in accordance with annual burn plan.		# Miles established	C	\$35,000
Action 4	Identify and protect "cat-faced" old growth pines within each management zone.		# of zones completed	C	\$1,300
Objective B	Conduct habitat/natural community restoration activities on 20 acres of sandhill		# Acres restored or with restoration underway	C	\$17,200
Action 1	Develop a sandhill restoration plan		Plan completed	ST	\$2,200
Action 2	Implement restoration plan		# Acres with restoration underway	UFN	\$15,000
Objective C	Conduct habitat improvement activities on 40 acres of Mesic flatwoods		# Acres improved or with improvements underway	ST	\$1,600
Action 1	Evaluate regeneration of loblolly pine stand		Evaluation completed	ST	\$400
Action 2	Conduct mechanical thinning of approximatly 40 acres to achieve manageable natural densities of loblolly pine		# acres treated	ST	\$1,200
Goal IV: Maintain, improve or restore imperiled species populations and habitats in the park.			Measure	Planning Period	Total Estimated Manpower and Expense Cost
Objective A	Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.		List UPDATED	C	\$2,000
Objective B	Monitor and document 7 selected imperiled animal species within the park.		# Species monitored	C	\$8,000
Action 1	Develop monitoring protocols for 7 selected imperiled animal species including Florida black bear, Sherman's fox squirrel, Eastern indigo snake, Wood stork, Gopher tortoise, Florida mouse, Gopher Frog		# Protocols developed	ST	\$2,500
Action 2	Implement monitoring protocols for 7 selected imperiled animal species including Florida black bear, Sherman's fox squirrel, Eastern indigo snake, Wood stork, Gopher tortoise, Florida mouse, Gopher Frog		# Species monitored	LT	\$5,500
Objective C	Monitor and document 3 selected imperiled plant species within the park.		# Species monitored	C	\$7,600
Action 1	Develop monitoring protocols for 3 imperiled plant species including Florida pinkroot,Silver buckthorn and Godfrey's swamp privet		# Protocols developed	LT	\$1,200
Action 2	Implement monitoring protocols for 3 imperiled plant species as identified in Action 1 above.		# Species monitored	C	\$6,400

* 2010 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 8
Silver River State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 3 of 4

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		Measure	Planning Period	Total Estimated Manpower and Expense Cost
Objective A	Annually treat approximately 20 acres of exotic plant species in the park.	# Acres treated	C	\$17,400
Action 1	Develop an exotic plant removal plan to map infested areas by management zone and determine priorities for treatment	Plan completed	ST	\$1,200
Action 2	Develop and implement exotic plant management annual work plans.	Plan developed	C	\$16,000
Action 3	Develop and implement preventative measures to avoid accidental introduction and spreading of exotics within the park.	Measures developed	ST	\$200
Objective B	Implement control measures on 5 exotic and nuisance animal species in the park.	# Species for which control measures implemented	C	\$25,400
Action 1	Continue control activities on feral hogs, armadillos and Asian rhesus monkeys	# removed	C	\$23,400
Action 2	Relocate feral cats and stray dogs to County Animal Control Facility as necessary	# relocated	C	\$2,000
Goal VI: Protect, preserve and maintain the cultural resources of the park.		Measure	Planning Period	Total Estimated Manpower and Expense Cost
Objective A	Assess and evaluate 26 of 26 recorded cultural resources in the park.	Assessments complete	ST	\$2,100
Action 1	Complete 26 assessments/evaluations of archaeological sites. Prioritize preservation and stabilization projects.	Assessments complete	ST	\$2,100
Objective B	Compile reliable documentation for all recorded historic and archaeological sites.	Documentation complete	LT	\$17,100
Action 1	Ensure all known sites are recorded in the Florida Master Site File.	# Sites recorded or updated	ST	\$400
Action 2	Complete a predictive model for high, medium and low probability of locating archaeological sites within the park.	Probability Map completed	ST	\$14,000
Action 3	Conduct Level 1 Archaeological survey for priority areas identified by the predictive model, including historic roads and trails and all areas proposed for future development.	Survey complete	UFN	\$150,000
Action 4	Continue to compile oral history interviews of local historians and residents in the Silver River area and provide copies of documentation to BNCR.	Interviews complete	C	\$400
Action 5	Develop and adopt a Scope of Collections Statement.	Document completed	ST	\$2,300
Objective C	Bring 1 of 26 recorded cultural resources into good condition.	# Sites in good condition	LT	\$73,000
Action 1	Design and implement regular monitoring program for 26 cultural sites	# Sites monitored	C	\$600
Action 2	Create and implement cyclical maintenance program for each cultural resource.	Program implemented	C	\$69,500
Action 3	Bring 1 of 1 priority site into good condition	# sites stabilized	LT	\$1,500

* 2010 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

**Table 8
Silver River State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 4 of 4**

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Goal VII: Provide public access and recreational opportunities in the park.		Measure	Planning Period	Total Estimated Manpower and Expense Cost
Objective A	Maintain the park's current recreational carrying capacity of 1332 users per day.	# Recreation/visitor opportunities per day	C	\$1,626,000
Objective B	Expand the park's recreational carrying capacity by 162 users per day.	# Recreation/visitor opportunities per day	UFN	\$200,700
Objective C	Continue to provide the current repertoire of 3 interpretive, educational and recreational programs on a regular basis.	# Interpretive/education programs	C	\$24,000
Objective D	Develop and implement 3 new interpretive, educational and recreational programs.	# Interpretive/education programs	LT	\$30,500
Action 1	Finalize the Statement for Interpretation.	Document completed/implemented	ST	\$5,000
Action 2	Develop and implement an interpretive program regarding the habituation of bears to humans	Program implemented	LT	\$8,500
Action 3	Develop and implement and additional 2 interpretive programs as identified in the Statement for Interpretation	Programs implemented	LT	\$17,000
Goal VIII: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.		Measure	Planning Period	Total Estimated Manpower and Expense Cost
Objective A	Maintain all public and support facilities in the park.	Facilities maintained	C	\$2,470,000
Objective B	Expand maintenance activities for new facilities as they are completed.	Facilities maintained	UFN	\$328,000
Objective C	Improve 3 existing facilities as identified in the Land Use Component.	# Facilities/Miles of Trail/Miles of Road	UFN	\$340,000
Objective D	Construct 6 new facilities as identified in the Land Use Component.	# Facilities/Miles of Trail/Miles of Road	UFN	\$650,000
Summary of Estimated Costs				
		Management Categories	Estimated Cost	
		Resource Management	\$505,000	
		Administration and Support	\$620,000	
		Capital Improvements	\$990,000	
		Recreation Visitor Services	\$4,679,200	
		Law Enforcement Activities**	**Law enforcement activities in Florida State Parks are conducted by the DEP Division of Law Enforcement and by local law enforcement agencies.	

* 2010 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Addendum 1 – Acquisition History

Silver River State Park Outstanding Reservations

Sequence of Acquisition

On December 11, 1985, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) leased a 1,508.87-acre property, which constitutes the initial area of Silver River State Park, from the St. Johns River Water Management District (SJRWMD). On May 8, 1986, the Trustees purchased thirteen percent undivided interest in the leased property; and on April 8, 1987, the Trustees purchased the remaining eighty-seven percent undivided interest in the leased property. The Conservation and Recreation Lands (CARL) program funded these purchases. Since these initial purchases, the Trustees have acquired several individual parcels with P2000 funds and under a lease from Marion County, Florida, and added them to Silver River State Park.

Lease Agreements

On April 8, 1987, the Trustees conveyed management authority of Silver River State Park to the Florida Department of Environmental Protection (Department), Division of Recreation and Parks (Division) under Lease No. 3488. The lease is for a period of fifty (50) years, expiring on April 7, 2037. According to the lease agreement, the Division's management responsibility is the development and management for public outdoor recreation, conservation and related purposes.

On March 5, 1996, the Division leased a 219.57-acre property from Marion County, Florida, to manage this property as part of Silver River State Park. The Marion County's lease is a twenty (20)-year lease, and will expire on March 4, 2016. This county's lease states that the Division shall manage the county's property for the establishment and operation of a resource-based park in conformance with the laws and ordinances of Marion County, all agreements, covenants and management plans in effect for the property including the Florida Communities Trust approved management plan and grant award agreement.

Title Interest

The Trustees hold fee simple title to 4,010 acres of Silver River State Park. Marion County, Florida, holds fee simple title to 220 acres.

Special Conditions on Use

Silver River State Park is designated single-use for the development and management for public outdoor recreation, conservation and 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.

Silver River State Park Outstanding Reservations

Outstanding Reservations

Following is a listing of outstanding rights, reservations and encumbrances that apply to Silver River State Park.

Instrument:..... Easement (No. 31737)
Instrument Holder:..... City of Ocala
Instrument Issuer:..... Trustees
Beginning Date:..... January 23, 2008
Ending Date:..... January 22, 2058
Encumbrances:..... This non-exclusive easement was granted to allow the City of Ocala to install and maintain new power poles and transmission and distribution lines over a certain portion of Silver River State Park.

Instrument:..... Easement (No. 31427)
Instrument Holder:..... David Carter and Victoria Carter
Instrument Issuer:..... Trustees
Beginning Date:..... June 2, 2005
Ending Date:..... When the easement area ceases to be used for the intended purpose
Encumbrances:..... This easement allows private ingress, egress and construction of private underground utilities over certain portion of Silver River State Park.

Instrument:..... Easement (No. 30873)
Instrument Holder:..... State of Florida Department of Transportation
Instrument Issuer:..... Trustees
Beginning Date:..... November 8, 2005
Ending Date:..... When the easement area ceases to be used for the intended purpose
Encumbrances:..... This easement allows construction and maintenance of State Road Number 35 over a certain portion of Silver River State Park.

Silver River State Park Outstanding Reservations

Instrument:..... Easement (No. 30970)
Instrument Holder:..... William Rod Busbee and Doris Diane Busbee
Beginning Date:..... June 30, 2003
Ending Date:..... When the easement area ceases to be used for
the intended purpose
Encumbrances:..... This easement was granted for private ingress,
egress and utility.

Instrument:..... Amended and Restarted Sublease Agreement
Instrument Holder:..... School Board of Marion County
Instrument Issuer:..... Department/Division
Beginning Date:..... May 25, 1995
Ending Date:..... May 24, 2040
Encumbrances:..... This Amended and Restated Sublease
Agreement allows the School Board of Marion
County to develop, support and operate a
History and a Natural History Museum and
Environmental Education Center on a certain
portion of Silver River State Park.

Instrument:..... License Agreement
Instrument Holder:..... School Board of Marion County
Instrument Issuer:..... Department/Division
Beginning Date:..... May 24, 1995
Ending Date:..... coextensive with the term of the Amended and
Restated Sublease Agreement
Encumbrances:..... This License Agreement gives the School Board
of Marion County a non-exclusive right of
access to any area of Silver River State Park at
no charge for supervised group educational
activities conducted and directly supervised by
employees of the School Board of Marion
County or their trained volunteers.

Instrument:..... Warranty Deed
Instrument Holder:..... The City of Ocala
Instrument Issuer:..... Florida Leisure Acquisition Corporation
Beginning Date:..... December 16, 1993
Ending Date:..... There is no specific ending date given.
Encumbrances:..... The warranty deed is subject to several
easements granted to the City of Ocala.

Silver River State Park Outstanding Reservations

Instrument:..... Easement (No. 28491)
Instrument Holder:..... The City of Ocala Electric Engineering Division
Instrument Issuer:..... Trustees
Beginning Date:..... April 16, 1991
Ending Date:..... When the easement area ceases to be used for
the intended purposes
Encumbrances:..... The easement enables the City of Ocala to
construct, operate and maintain an
underground three phase electric line.

Instrument:..... Fee Simple Deed
Instrument Holder:..... SJRWMD
Instrument Issuer:..... SJRWMD
Beginning Date:..... May 8, 1986
Ending Date:..... Forever
Encumbrances:..... The conveyance is subject to a certain
conservation easement

Addendum 2 – Advisory Group Members and Report

Silver River State Park Advisory Group Members

Greg Barton, Forester
Florida Division of Forestry
2735 NE Silver Springs Blvd.
Ocala, Florida 32670

Dennis David, Regional Director
Florida Fish and Wildlife Commission
1239 S.W. 10th Street
Ocala, Florida 34474-2797

Mike Abbott, Regional Biologist
Florida Fish and Wildlife
Conservation Commission
1239 S.W. 10th Street
Ocala, Florida 34474-2797

Bob Lamont, Manager
Silver Springs State Park
1425 N.E. 58th Avenue
Ocala, Florida 34470

Mickey Thomason, Manager
Cross Florida Greenway
Office of Greenways & Trails
8282 SE Highway 314
Ocala, Florida 34470

Grant Gelhart, Environmental
Administrator
Florida Communities Trust
2740 Centerview Drive
Tallahassee, Florida 32399-2100

Fay Baird, Hydrogeologist IV
St. Johns River Water Management
District
Post Office Box 1429
Palatka, Florida 32178

Barbara Fitos, Chair
Marion County Commissioners
601 S.E. 25th Avenue
Ocala, Florida 34471

John Priestler, Councilman
City of Ocala
151 SE Osceola Avenue
Ocala, Florida 34471

Dr. Thomas J. Lane, Chair
Marion Soil & Water Conservation
District
Natural Resources Conservation Service
USDA Ocala Service Center
2441 NE 3rd St., Suite 204-2
Ocala, Florida 34470-6926

Guy Marwick
12950 NE 1st Road
Silver Springs, Florida 34488

Jane Pope
Marion County Audubon Society
350 NE 172nd Avenue
Silver Springs, Florida 34488

Dave Costakis
Florida Crackers Association
Florida Trail Association
5616 NW 45th Drive
Gainesville, Florida 32653

Helena Smejda, President
Friends of Silver River State Park
2121 NE 40th Avenue
Ocala, Florida 34470

Karen Lappi
Altoona Trail Riders Association.
18108 Demco Road
Altoona, Florida 32702

Renee Lewis
Altoona Trail Riders Association
42201 Rice Drive
Altoona, Florida 32702-9642

Mark Clere, President

Silver River State Park Advisory Group Members

Marion County Aquaholics
Post Office Box 6583
Ocala, Florida 34478

Scott Mitchell
Silver River Museum
7189 Northeast 7th Street
Ocala, Florida 34470-1913

Terry Turner, General Manager
Palace Entertainment
5656 East Silver Springs Boulevard
Silver Springs, Florida 34488

Lynn Radok
Post Office Box 1376
Silver Springs, Florida 34489

Notes on Composition of the Advisory Group

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

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

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

Silver River State Park Advisory Group Staff Report

The appointed Advisory Group met to review the draft management plan update for Silver River State Park at the Silver River Museum on Thursday, July 8, 2010. Mr. Hank Vinson represented Mr. Grant Gelhardt, Ms. Renee Lewis represented Ms. Karen Lappi, Mr. Dennis David represented Mr. Mike Abbott. Mr. Mitchell and Mr. Turner did not attend the meeting. Division staff attending included Larry Fooks, Clif Maxwell, Amy Copeland, Bob LaMont, Christine Dorrier, Lew Scruggs and Sine Murray.

Staff began the meeting by giving a brief description of the management plan process and the procedures used to conduct the Advisory Group review of the draft management plan. The group indicated that staff presentations on the contents of the draft plan were not necessary, and staff opened the floor for questions and comments.

SUMMARY OF ADVISORY GROUP COMMENTS

Mr. Clere provided a list of minor typographical errors located throughout the document. Mr. Clere asked for additional specifics on fire management in the scrub community. District biologist, Amy Copeland explained that the reasoning for a fire return interval of 4-7 years is consistent with the size and type of scrub found within the park. Mr. Clere also asked why we did not list a fire return interval for floodplain forest within the table. Ms. Copeland explained that floodplain forest is not considered a pyric community.

Mr. Marwick mentioned that he had grown up in the area and that over that last forty years the characteristics of the natural communities adjacent to State Road 40 had changed. Mr. Marwick remembered that historically these woods burned at night, and that the trees were more widely spaced. Mr. Marwick also mentioned that efforts by the St. Johns River Water Management District (SJRWMD) to set minimum daily flows and levels for the Silver Springs Basin were a serious threat to the park. He noted that there has been a steady decrease in flow when measured at the confluence of the Silver River and the Ocklawaha. Mr. Marwick voiced concern over potential plans to pump water from the Ocala area to points south. He also mentioned that he has personally noticed a decline in plant and fish species diversity within the headspring and the Silver River. He suggested that DEP should take a stronger stand on these issues, particularly the setting of minimum flow levels by the SJRWMD. Mr. Marwick also commented that the removal of cogon grass should be a management priority as well as the removal of the laurel oaks along Baseline Rd.

Mr. Thomason asked that we revise the language in the plan referring to the Rodman Dam. Mr. Thomason agreed that the Rodman Dam does affect water levels but since the installation of manatee protection measures on the lock, he does not believe that the dam restricts manatee or fish access to the Silver River. He noted that the Rodman Reservoir was acting as a nutrient sink for the lower St. John's River. Mr. Thomason also mentioned that we want to update the language regarding the "monster pipe" and impacts to Halfmile Creek in light of the recently completed stormwater

Silver River State Park Advisory Group Staff Report

improvements by Marion County. The new bridge across Halfmile Creek will also provide a wildlife crossing. Mr. Thomason inquired about parklands that were identified as “to be released” on the east side of the Ocklawaha. He believed that the Office of Greenways and Trails already managed those lands under lease from the Board of Trustees. Division staff agreed to investigate the status of these properties.

Mr. Vinson stated that both he and Mr. Gelhardt were impressed with the plan. In particular, the thorough discussion of future land use and zoning provided in within the Land use Component.

Ms. Lewis commented that the reader of the plan should understand the writer’s intent and that she found some of the text in the plan confusing. She mentioned that equestrian use of the park is steadily increasing and that once the equestrian camping area is completed, camping by equestrians will most certainly occur.

Ms. Smejda expressed interest in connecting equestrian trails between different conservation lands. Mr. Thomason responded that there might be wildlife issues associated with extending some trails into sections of OGT property and the State Forest lands. Ms. Smejda suggested that we might consider potential connections between the recreational opportunities offered by the various local, state and federal agencies within the plan.

Mr. David mentioned the Florida Fish and Wildlife Conservation Commissions statewide youth conservation network and encouraged the Division to collaborate with other agencies on integrated interpretative and educational opportunities. He also mentioned that collaboration with other agencies was an effective strategy for land management.

Ms. Pope expressed concern over equestrian improvements to trails and service roads in the northern section of the park and hoped that the Division we seek a true balance between recreational development and protection of natural and cultural resources. Ms. Pope also felt that the park needed more interpretive signage and improvements to interpretive programming.

Ms. Raddok mentioned that she is the boat captain for the Silver River Museum and often sees inappropriate behavior occurring on the Silver River. She felt that the park should develop signage that was interpretive and explanatory about the reasons that certain boating behaviors might damage natural resources. Ms. Raddok has concerns over the plans by the Florida Department of Transportation to construct a potential trail bridge crossing of the Silver River. She stated that the FDOT has a tendency to “overdo things” and wondered about impacts to water quality from horse waste if equestrians regularly use the bridge. Ms. Raddok also expressed concern over the removal of exotic animal species from the park. Staff explained state policies regarding exotic animal species removal from all state managed lands, and the impacts that the

Silver River State Park Advisory Group Staff Report

species can have on natural resources.

Commissioner Fitos stated that the involvement of stakeholders including park supporters during the recent county and city visioning process was impressive. She emphasized the county's commitment to the protection and preservation of water resources. She pointed to the "monster pipe" issue as an example of the type of interagency cooperation that can produce results. Overall, the county is taking "baby steps" on springs protection issues but is moving in the right direction concerning resource management.

Mr. Barton inquired as to how the park was meeting its goals for fire management and suggested that cooperation between agencies might be something for the park to consider as a method for achieving its burn goals. He also suggested conducting prescribed burns at night. Mr. Barton mentioned that he could provide contacts for small scale timber harvesting. Minimal resource impacts occur with small-scale timber harvests and they are often an effective way to accomplish natural resource management goals. Mr. Barton states that the Division of Forestry is conducting southern pine beetle trapping and that a trap close to the park will allow the park to become aware of any potential problems. He encouraged further communication between park staff and the Division of Forestry on the status of the southern pine beetle. Mr. Barton also expressed concern about potential impacts from the proposed trail bridge.

Summary of Written Comments

Ms Baird of the St. John's River Water Management District was unable to attend the meeting. Written comments by Ms. Baird included a request to mention the considerable amount of hydrological research conducted along the Silver River since the early 1900s. She expressed support for the continued collaboration between the SJRWMD and Division staff on monitoring the water quality of the river. Ms. Baird also expressed concern over the proposed construction of a pedestrian/equestrian bridge over the Silver River.

Ms. Lewis provided additional written comments that expanded comments she expressed during the meeting, concerning the potential popularity of and support for the proposed equestrian facilities identified in the plan. She also expressed her appreciation for the opportunity to participate in the advisory group process and her hopes that there will be continue dialogue between Division staff and the various agencies and interest groups of the advisory group.

STAFF RECOMMENDATION

Suggestions received from the Advisory Group meeting resulted in revisions to the draft management plan. The Resource Management Component and Land Use Component now contain updated language concerning recent stormwater improvement projects undertaken by Marion County. Revised language concerning improvements to the Rodman Dam, ongoing hydrological research along the Silver River and the detection of Southern Pine Beetle is also now contained in the Resource Management Component. In the Land Use Component, additional discussion was included regarding continued cooperation with other federal, state and local agencies to develop interconnected trails for additional recreational opportunities. The Division feels that the current language in the Land Use Component adequately identifies the need to minimize potential resource impacts from equestrian development.

Several members of the Advisory Group expressed concern over the proposed trail bridge across the Silver River. The proposed bridge was included in the management plan for Silver River State Park approved by the Board of Trustees in the year 2000. The Florida Department of Transportation (FDOT) had recently agreed to construct the proposed bridge through a Memorandum of Understanding regarding mitigation for the proposed widening of State Road 40. FDOT will coordinate all planning, design, and construction of the bridge with the Division and the Division will retain final approval authority for all matters pertaining to the location, design and construction of the bridge. The Division continues to support the proposed trail bridge as a necessary component to complete the ultimate vision for the Cross Florida Greenway. The Division believes that the approval for the proposed bridge should remain in effect through the 10-year lifetime of the updated management plan.

The following new or revised language has been added to the draft management plan:

RESOURCE MANAGEMENT COMPONENT

In response to discussions with Advisory Group members, a number of small changes were made to the text. The changes are not detailed in this staff report, for the sake of brevity.

The revised language contained within the Hydrology section of the Resource Management Component is as follows:

Hydrology

The U.S. Geological Survey (USGS), the St. Johns River Water Management District (SJRWMD), and the Florida Department of Environmental Protection's Springs Initiative have conducted considerable hydrologic research along the Silver River. The research by these agencies continues to occur. Of particular note is the record of flow measurement by the U.S.G.S. taken at Silver Springs and the Silver River. It is among the longest in the state, going back to the early

Silver River State Park Advisory Group Staff Report

1900's (Baird, written comm.).

In addition to the river, hydrological features of the park include semi-permanent ponds and intermittent waterways. In general, the latter drain into the floodplain or other aquatic systems. The ponds vary in size, being marshy or wooded to varying degrees. A small, natural creek enters the river approximately 3/4 mile downstream of the headwater spring (Halfmile Creek). This creek drains several square miles of flatwoods north of State Road 40 and east of the attraction and in the past has received direct road runoff from State Road 40. During this time, varieties of pollutants were likely to enter the stream before it flowed into the spring run. Since it is the only tributary to Silver River, its potential impact on the water quality of the river is of concern to the park. The tannin colored creek has a minimal discharge except during periods of high rainfall when considerable flow comes through the creek. In testing extending from the head springs to Halfmile Creek, an FDEP (2001) study found the highest bacterial counts in Halfmile Creek, where two (out of four) and four (out of four) of the Class III water quality criterion for fecal and total coliforms, respectively, were observed to have been exceeded. Discharge from Halfmile Creek into the Silver River led to increases in bacterial counts immediately downstream in the Silver River, where one of the total coliform criteria was exceeded. Halfmile Creek also showed higher levels of phosphorus than the other stations sampled. A large drainage pipe exists near the northern boundary of the park and Halfmile Creek. Until 2010, the pipe drained untreated storm water runoff from State Road 40 into a short channel that appears manmade and leads directly into Halfmile Creek. Trash and other pollutants entered Halfmile Creek and subsequently the Silver River at this point. Recently, Marion County explored options for redirecting the untreated storm water runoff entering Half Mile Creek. Marion County, the Office of Greenways and Trails, SJRWMD, Florida Geologic Survey, and Division staff are currently involved in a project which will divert and capture the untreated storm water runoff of the developed impervious areas along SR 40 that previously flowed into Halfmile Creek via the large drainage pipe. The project is designed to allow sediment and trash removal from the storm water and then the water will be pumped to a retention pond north of SR 40 on property leased by the Office of Greenways and Trails where the water will then percolate down into the ground water table. The current storm water infrastructure will remain in place and allow for direct draining of storm water runoff into Halfmile Creek during peak rain events such as a 100 year rain event when more water will be collected than can be pumped to the retention pond. The project to divert the storm water runoff is scheduled to be completed in September of 2010. Marion County is also interested in further restoration of Halfmile Creek. Activities such as impact assessment, exotic plant removal and trash removal may be considered as part of this effort. As opportunities arise to address these issues park staff should continue to work with appropriate partners to seek opportunities to address these issues. The Florida Department of

Silver River State Park Advisory Group Staff Report

Transportation (FDOT) has widened State Road 35 on the western boundary of the park. The FDOT is currently placing the stormwater retention ponds needed to treat anticipated runoff west of State Road 35. FDOT will also widen State Road 40, along the northern border of the park and this project is still in the Project Development and Environment (PD and E) phase. Park staff will continue to be involved with the planning process as this project could have a direct impact on the park.

The following text was revised in the Imperiled Species section of the Resource Management Component:

Imperiled Species

*The Florida Manatee (*Trichechus manatus*) historically utilized the Silver and Ocklawaha Rivers. They are occasionally still documented in these rivers. Since the last unit management plan, a state of the art pressure detection and laser grid system has been integrated into the Rodman Dam locks to prevent manatee mortalities and facilitate their movements (Bowman, pers. comm.).*

The following paragraph was revised to include additional information concerning southern pine beetle.

NATURAL COMMUNITIES

FLOODPLAIN FOREST

General management measures: *Because loblolly pine is particularly susceptible to southern pine beetle (SPB) attack, resource management will need to focus on keeping the regenerating forest in a low SPB hazard condition. Such management will involve the infrequent application of prescribed fire that will act to thin loblolly pines. A SPB trap for early detection has been placed at Ray Wayside Park and is maintained and checked regularly by the Marion county forester. Should SPB be detected the county forester will notify the park staff to be on the look out for infestations in the park so action can be taken sooner and hopefully keep the infestation small. A longer inter-fire interval will favor the growth of the hardwood component over the pine component, letting the community regenerate into a mixed hardwood stand with scattered loblolly pine. Widely scattered loblolly of varying ages mixed with hardwoods and cabbage palms fit with Harper's original description of this particular community association. Exotic plant species removal will continue.*

LAND USE COMPONENT

The following text has been added to Conceptual Land Use Plan regarding continued cooperation with other federal, state and local agencies to develop interconnected recreational opportunities:

Silver River State Park Advisory Group Staff Report

Land Area

In addition to creating significant wildlife habitat, the parks proximity to the Marjorie Harris Carr Cross Florida Greenway, Marion County's Silver Springs Conservation Area, the Ocala National Forest, and Indian Lake State Forest, provides a valuable opportunity for recreational trail connections to over 100,000 acres of additional conservation lands outside of park boundaries. Division staff will continue to work with federal, state and local agencies to develop opportunities for regional trail connections between adjacent conservation lands.

With these changes, Division staff recommends approval of the draft management plan for Silver River State Park.

July 15, 2010

Silver River State Park Advisory Group Staff Report

Addendum 3 – References Cited

Silver River State Park References Cited

- Aydelott, D. G., H. C. Bullock, A. L. Furman, H. O. White, and J. W. Spieth. 1975. Soil Survey of Ocala National Forest Area, Florida, Parts of Marion, Lake, and Putnam Counties. U.S. Dept. of Agric., Soil Cons. Ser. and Forest Ser. in cooperation with Univ. of Florida, Agric. Exper. Stations.
- Baird, F. 2010. Written comm. St. Johns River Water Management District.
- Baker, H. 1990. An Archaeological Survey of Selected Portions of Silver River State Park, Marion County, Florida. Florida Department of State, Division of Historical Resources, Bureau of Archaeological Research, Tallahassee. Florida Archaeological Reports 20.
- Bowman, D. 2010. Pers. comm. FL Department of Environmental Protection, Office of Greenways and Trails.
- Brooks, H. K., 1981a. Physiographic Regions. FL Coop. Ext. Serv., Inst. Food Agric. Sci., Univ. of Florida, Gainesville, FL.
- Brooks, H. K., 1981b. Geologic Map of Florida. FL Coop. Ext. Serv., Inst. Food Agric. Sci., Univ. of Florida, Gainesville, FL.
- Chance, M.A., and G.C. Smith. 1991. A Phase II Investigation of Six Archaeological Sites in Florida (8GU84, 8JA551, 8MR1878, 8PO1037, 8PO1038, and 8HI3382) for the Florida Gas Transmission Company. Ms. on file, Silver River State Park.
- Denson, R.L. 1992. The Oklawaha River Survey. Ms. on file. Florida Museum of Natural History, Gainesville.
- Fernald, E. A. and D. J. Patton. 1984. Water Resources Atlas of Florida. Institute of Science and Public Affairs, Florida State Univ., Tallahassee, FL.
- Florida Defenders of the Environment. 2000. Water Quality Considerations for Oklawaha River Restoration. The Monitor 19(4):4-7.
- Florida Department of Environmental Protection. 1995. Ecosummary, Silver River Upstream of the Boat Ramp Canal. Orlando, FL.
- Florida Department of Environmental Protection. 2001. Bacteriological and Water Quality Assessment of Silver River Marion County. Bureau of Laboratories Division of Resource Assessment and Management.
- Florida Department of Environmental Protection. 2006. Florida State Park System Economic Impact Assessment for Fiscal Year 2005/2006. Tallahassee, Florida.

Silver River State Park References Cited

- Florida Department of State. Florida Master Site Files: 8MR32, 8MR33, 8MR53 (and 8MR533), 8MR130, 8MR532, 8MR1081, 8MR1083, 8MR1084, 8MR1878, 8MR1920, 8MR1921, 8MR1922, 8MR1923, 8MR1924, 8MR1925, 8MR2195, 8MR2451, 8MR2452, and 8MR2703.
- Bureau of Economic and Business Research, Warrington College of Business Administration, University of Florida. 2006. Florida Statistical Abstract.
- Franz, R., and L.L. Smith. 1993. Distribution and Status of the Striped Newt and Florida Gopher Frog in Peninsular Florida. Nongame Wildlife Program, Florida Game and Fresh Water Fish Commission.
- Harper, R. M. 1915. "Vegetation Types". pp. 135-188 in Natural Resources Survey of an Area in Central Florida. Sellards, E. H., R. M. Harper, E. N. Mooney, W. J. Latimer, H. Gunter, and E. Gunter, eds. Florida Geol. Surv. Ann. Rep. 7:117-251.
- Hemmings, E.T. 1975. "The Silver Springs Site, Prehistory in the Silver Springs Valley, Florida." Florida Anthropologist 28: 141-158.
- Hoffman, C.A. 1982. A Mammoth Kill Site in the Silver Springs Run. Ms. on file. Tallahassee, Florida. Florida Department of State, Division of Historical Resources, Bureau of Archaeological Research.
- Hyde, L. W. 1965. Principle Aquifers in Florida. U.S. Geological Survey in cooperation with Bureau of Geology, FL Dept. of Natural Resources, Tallahassee, FL.
- Gannon, M. 1996. The New History of Florida. University Press of Florida, Gainesville. 480pp.
- LaMont, R. 2000. Pers. comm. Florida Department of Environmental Protection, Florida Park Service.
- Martin, R. A. 1966. Eternal Spring. Man's 10,000 Years of History at Florida's Silver Springs. Great Outdoors Publ. Co., St. Petersburg, Florida. 264pp.
- Milanich, J.T. and C.H. Fairbanks. 1980. Florida Archaeology. Academic Press, Inc. New York, NY. 290pp.
- Munch DA, Toth DJ, Huang C, Davis JB, Fortich CM, Osburn WL, et al. 2007. Fifty-year Retrospective Study of the Ecology of Silver Springs, Florida. St. Johns River Water Management District.

Silver River State Park References Cited

- Rayl, S.L. 1974. A Paleo-Indian Mammoth Kill Site near Silver Springs, Florida. Unpublished M.A. thesis, Department of Anthropology, Northern Arizona University.
- Spechler, R. M. and D. M. Schiffer. 1995. Springs of Florida. Fact Sheet FS-151-95. U.S. Geological Survey. Tallahassee, FL.
- Thomas, B. P., L. Law, Jr., and D. L. Stankey. 1979. Soil Survey of Marion County Area, Florida. U.S. Dept. of Agric., Soil Cons. Ser. in cooperation with Univ. of Florida, Agric. Exper. Stations.
- United States Department of Commerce, Bureau of the Census. 2000. U. S. Census 2000.
- United States Department of Agriculture, Economic Research Service. *County-Level Unemployment and Median Household Income Data Set.* 24 May 2007. <<http://www.ers.usda.gov/>>
- Walsh, S.J., Knowles, Leel Jr., Katz, B.G., and Strom, D.G., 2009, Hydrology, Water Quality, and Aquatic Communities of Selected Springs in the St. Johns River Water Management District, Florida: U.S. Geological Survey Scientific Investigations Report 2009-5046, 116p.
- Warzeski, J. M. 2000. Memo on file. Florida Department of Environmental Protection, Florida Park Service.
- Wisnbacker, M. 1999. An Archaeological Survey of a Proposed New Camping Area At Silver River State Park, Marion County, Florida. Fla. Dept. of State, Div. Hist. Resources, Bur. Arch. Res., CARL Arch. Survey.
- Williams, A. B. 1984. Shrimps, Lobsters and Crabs of the Atlantic Coast of the Eastern United States, Maine to Florida. Smithsonian Inst. Press. 550pp.

Silver River State Park References Cited

Addendum 4 – Soil Descriptions

Silver River State Park Soil Descriptions

Adamsville sand, 0 to 5 percent slopes (2). - The Adamsville series consists of nearly level to gently sloping, somewhat poorly drained soils that are sandy to a depth of 80 inches or more. This is a nearly level to gently sloping, somewhat poorly drained soil that occurs as small and large areas in the flatwoods and along the lower slopes of the sandy uplands.

In a representative profile, the surface layer is dark gray sand about 6 inches thick. The underlying material to a depth of 88 inches is sand. The upper 14 inches is gray mottled with light brownish gray, the next 8 inches is gray mottled with brownish yellow, and the lower 60 inches is white mottled with light gray.

Anclote sand (3). - The Anclote series consists of nearly level, very poorly drained sandy soils that formed in beds of sandy marine sediments. These soils are in depressions, on low flats, and along poorly defined drainageways in the flatwoods. Slopes are 0 to 2 percent.

In a representative profile the surface layer is sand about 20 inches thick. The upper 16 inches is black, and the lower 4 inches is very dark gray. The underlying material to a depth of 80 inches is light gray sand mottled with dark gray.

Anclote-Tomoka association (4). - This mapping unit consists of very poorly drained, nonacid mineral and organic soils. It occurs as large areas on the flood plain along the Oklawaha River. It is about 45 percent Anclote soil and 40 percent Tomoka soil but the composition differs from area to area. The outer rims of delineated areas are dominantly Anclote soil, and the flooded areas toward the river are dominantly Tomoka soil. Slopes are less than 2 percent.

In this unit are areas where a 24 to 35 inch, very dark gray sandy surface layer is underlain to a depth of more than 60 inches by gray or light gray, nonacid sand; areas where an 8 to 16 inch, black surface layer that is more than 20 percent organic matter is underlain to a depth of more than 60 inches by sandy material; and many areas of Okeechobee and Terra Ceia soils.

Arredondo sand, 0 to 5 percent slopes (9). - The Arredondo series consists of nearly level to sloping, well drained soils that formed in thick beds of sandy and loamy marine material. This soil is a nearly level to gently sloping, well drained soil that occurs as both small and large areas in the upland.

In a representative profile, the surface layer is dark grayish brown sand about 7 inches thick. The subsurface layer is mixed yellowish brown and dark yellowish brown sand about 11 inches thick. The subsoil extends to a depth of 90 inches or more. In sequence downward, it is 28 inches of yellowish brown sand mottled with strong brown, 19 inches of strong brown sand having a few white mottles, 5 inches of strong brown loamy sand,

Silver River State Park Soil Descriptions

and 20 inches of strong brown fine sandy loam.

Bluff sandy clay (19). - The Bluff series consists of nearly level, very poorly drained soils that formed in thick beds of alkaline loamy marine sediments. Slopes are 0 to 2 percent.

In a representative profile, the surface layer is about 17 inches thick. The upper 6 inches is black sandy clay, the next 7 inches is black sandy clay loam, and the lower 4 inches is very dark gray sandy clay. The subsoil is between depths of 17 and 60 inches. The upper 12 inches is dark gray sandy clay and has few medium streaks and pockets of white calcium carbonate; the next 9 inches is gray sandy clay loam and has common fine streaks and pockets of white calcium carbonate; and the lower 22 inches is gray sandy clay loam and has common fine streaks and pockets of white calcium carbonate.

Candler sand, 0 to 5 percent slopes (22). - The Candler series consists of nearly level to strongly sloping, excessively drained soils that formed in thick beds of sandy marine deposits. These soils occur as broad areas of the sandy uplands.

In a representative profile, the surface layer is dark gray sand about 5 inches thick. It is underlain by 62 inches of yellow sand. The next 42 inches is very pale brown sand that is mottled with white and has thin lamellae of yellowish brown loamy sand. Below this is 6 inches of brownish yellow sandy loam.

Eaton loamy sand (25). - The Eaton series consists of nearly level, poorly drained soils that formed in thick beds of sandy and clayey marine sediments. These soils occur as broad areas of the flatwoods. Slopes are 0 to 2 percent.

In a representative profile, the surface layer is dark gray loamy sand about 6 inches thick. The subsurface layer is gray loamy sand about 24 inches thick. The subsoil extends to a depth of 78 inches. The upper 3 inches is mottled gray sandy clay loam, and the lower 45 inches is mottled gray sandy clay. The underlying material to a depth of 92 inches is mottled gray sandy clay that has pockets of light gray loamy sand.

Electra sand, 0 to 5 percent slopes (26). - The Electra series consists of nearly level to gently sloping, somewhat poorly drained sandy soils that formed in thick beds of sandy and loamy marine sediments. These soils occur in the flatwoods and in the sandy areas of the upland.

In a representative profile, the surface layer is gray sand about 4 inches thick. Next, in sequence downward, is 13 inches of light gray sand; 24 inches of white sand streaked with grayish brown; 4 inches of black, weakly cemented sand that is well coated with organic matter; 5 inches of dark reddish brown, weakly cemented sand that is mottled with black and dark brown and is well coated with organic matter; 4 inches of brown sand; and 6 inches of mottled light brownish gray and pale brown sandy clay loam.

Silver River State Park Soil Descriptions

Below the sandy clay loam is 12 inches of mottled gray light sandy clay.

Eureka loamy fine sand (27). - The Eureka series consists of nearly level, poorly drained to very poorly drained soils that formed in thick beds of clayey marine sediments. These soils occur as low, broad areas of the flatwoods. Slopes are 0 to 2 percent.

In a representative profile, the surface layer is very dark gray loamy fine sand about 5 inches thick. The subsurface layer is grayish brown loamy fine sand about 8 inches thick. The subsoil extends to a depth of 81 inches. The upper 56 inches is gray, firm sandy clay mottled with brown and red, and the lower 12 inches is mottled gray, firm sandy clay mixed with fine lenses of sandy loam and loamy sand.

Eureka loamy fine sand, ponded (28). - This is a very poorly drained soil in small depressions in the flatwoods. Slopes are 0 to 2 percent. This soil is similar to Eureka loamy fine sand, but the water table is within a depth of 10 inches for more than 6 months during most years and the surface is ponded for more than 4 months annually.

Holopaw sand (40). - The Holopaw series consists of nearly level, poorly drained soils that formed in thick beds of stratified sandy and loamy marine deposits. These soils occur on low-lying flats and in shallow depressions in the flatwoods. Slopes are 0 to 2 percent.

In a representative profile, the surface layer is dark gray sand about 5 inches thick. The subsurface layer extends to a depth of 59 inches. The upper 7 inches is grayish brown sand, the next 28 inches is gray sand, and the lower 19 inches is gray sand mottled with light gray. The subsoil, between depths of 59 to 72 inches, is mottled gray light sandy clay loam.

Lynne sand (48). - The Lynne series consists of nearly level, poorly drained soils that formed in thick deposits of sandy and loamy or clayey marine sediments. These soils occur as broad areas of the flatwoods. Slopes are 0 to 2 percent.

In a representative profile, the surface layer is dark gray sand about 6 inches thick. The subsurface layer is sand about 14 inches thick. It is light brownish gray in the upper 7 inches and light gray in the lower 7 inches. Next, in sequence downward, is 4 inches of black, weakly cemented loamy sand that is well coated with organic matter; 7 inches of mixed black and dark reddish brown, weakly cemented loamy sand that is also well coated with organic matter; 2 inches of dark grayish brown sand mottled with gray; and 5 inches of mottled gray sandy clay loam. Below this to a depth of 67 inches is mottled gray sandy clay.

Paisley loamy fine sand (54). - The Paisley series consists of nearly level, poorly drained soils that formed in beds of clayey marine sediments. These soils are in low-lying areas of the flatwoods. Slopes are 0 to 2 percent.

Silver River State Park Soil Descriptions

In a representative profile, the surface layer is very dark gray loamy fine sand about 4 inches thick. The subsurface layer is grayish brown loamy fine sand about 5 inches thick. The subsoil extends to a depth of 69 inches. The upper 17 inches is mottled dark gray sandy clay, the next 19 inches is mottled gray sandy clay, and the lower 24 inches is mottled gray sandy clay that has a few fine pockets of soft carbonatic nodules. The underlying material to a depth of 80 inches is mottled gray and yellowish brown sandy clay that has many soft, white carbonatic nodules.

Placid sand (58). - The Placid series consists of nearly level, very poorly drained sandy soils that formed in thick beds of sandy marine deposits. These soils are in small depressions and along poorly defined drainageways of the flatwoods and in shallow depressions on sandy ridges. Slopes are 0 to 2 percent.

Pomona sand (61). - The Pomona series consists of nearly level, poorly drained soils that formed in beds of sandy and loamy marine deposits. These soils occur as broad areas of the flatwoods and as areas adjacent to wet depressions on sandy ridges. Slopes are 0 to 2 percent.

In a representative profile, the surface layer is very dark gray sand about 5 inches thick. The subsurface layer is 21 inches of sand. The upper 7 inches is gray mottled with dark gray, and the lower 14 inches is light gray mottled with light brownish gray. Below this, in sequence downward, is 3 inches of mixed very dark gray and dark reddish brown, weakly cemented sand that is well coated with organic matter; 7 inches of very dark gray, weakly cemented sand that is also well coated with organic matter; 3 inches of mixed dark brown and dark grayish brown sand mottled with dark reddish brown; 12 inches of brown sand; 7 inches of mottled gray sandy clay loam; and 14 inches of mottled gray sandy clay.

Pompano sand, ponded (63) - The Pompano series consists of nearly level, poorly drained soils that formed in thick beds of sandy marine deposits. This is a very poorly drained soil in shallow depressions and sloughs of the flatwoods and sandy ridges. Slopes are 0 to 2 percent.

In a representative profile the surface layer is sand about 5 inches thick. The upper 3 inches is black, and the lower 2 inches is dark gray. The underlying material to a depth of more than 80 inches is sand. The upper 7 inches is gray mottled with grayish brown, the next 62 inches is white, and the lower 6 inches is white streaked with dark grayish brown.

Sparr fine sand, 0 to 5 percent slope (65). - The Sparr series consists of nearly level to sloping, somewhat poorly drained soils that formed in thick beds of sandy and loamy marine sediments. This is a nearly level to gently sloping, somewhat poorly drained soil

Silver River State Park Soil Descriptions

that occurs as small and large areas in the flatwoods and uplands.

In a representative profile, the surface layer is fine sand about 8 inches thick. The upper 5 inches is dark gray, and the lower 3 inches is mixed dark gray, grayish brown, and pale brown. The subsurface layer is about 31 inches of very pale brown fine sand mottled with gray. It is underlain by 9 inches of yellowish brown sand mottled with light gray. The subsoil is between depths of 48 and 99 inches. The upper 8 inches is yellowish brown sandy loam that has yellowish red and gray mottles and is about 3 percent plinthite, and the lower 27 inches is mottled gray sandy clay that is about 2 percent plinthite, and the lower 27 inches is mottled gray sandy clay loam that has lenses of sandy loam.

Tavares sand, 0 to 5 percent slopes (69). - The Tavares series consists of nearly level to gently sloping, moderately well drained soils that formed in thick beds of sandy marine deposits. These soils occur in the broad sandy flatwoods and along lower slopes of the sandy uplands.

In a representative profile the surface layer is sand about 6 inches thick. The upper 3 inches is dark gray, and the lower 3 inches is gray. The underlying material to a depth of 85 inches is sand. It is pale brown between depths of 6 and 33 inches, pale brown mottled with yellowish red between 33 and 42 inches, very pale brown mottled with yellowish red and light gray between 42 and 53 inches, light gray mottled with very pale brown and yellowish red between 53 and 63 inches, white mottled with yellowish brown between 63 and 67 inches, and white mottled with gray between 67 and 85 inches.

Terra Ceia muck (70). - The Terra Ceia series consists of nearly level, very poorly drained organic soils that formed largely in nonwoody, fibrous hydrophytic plant remains. This is a very poorly drained organic soil that occurs as small and large areas in the swamps and marshes adjacent to the Okalwaha River. Slopes are 0 to 2 percent.

Included with this soil in mapping are small areas of a very poorly drained, nonacid soil that has an organic layer less than 16 inches deep over sandy material.

In a representative profile the upper 61 inches is black muck. Below this to a depth of 68 inches is dark reddish brown mucky peat.

Udorthents (79). - Udorthents, excavated, consists of excavated areas from which soil and geologic materials have been removed mainly for use in road construction and as fill material. These are commonly referred to as borrow pits. Most of these areas have been excavated to a depth of 6 feet or more. Slopes are 1 to 5 percent. Depth to restrictive feature is 40 to 72 inches to paralithic bedrock. The typical profile is 0 to 48 inches variable and 48 to 50 inches for fine sand.

Included in this map unit is spoil material that is mostly a mixture of sand and sandy

Silver River State Park Soil Descriptions

loam, which has been scattered around the edge of the pits.

Udorthents has not been assigned to a capability subclass or to a woodland group.

Addendum 5 – Plant And Animal List

Silver River State Park – Plants

Common Name (species)	Scientific Name	Primary Habitat (for designated
Slender threeseed mercury	<i>Acalypha gracilens</i>	15,23
Hispid starburr*	<i>Acanthospermum hispidum</i>	
Boxelder	<i>Acer negundo</i>	
Red maple	<i>Acer rubrum</i>	
Oppositeleaf spotflower	<i>Acmella oppositifolia</i>	
Brittle maidenhair	<i>Adiantum tenerum</i>	
Red buckeye	<i>Aesculus pavia</i>	
Twoline false foxglove	<i>Agalinis laxa</i>	
Purple false foxglove	<i>Agalinis purpurea</i>	
Florida hobblebush; Pipestem	<i>Agarista populifolia</i>	
Hammock snakeroot	<i>Ageratina jucunda</i>	
Silktree, mimosa *	<i>Albizia julibrissin</i>	
Alligatorweed*	<i>Alternanthera philoxeroides</i>	
Common ragweed	<i>Ambrosia artemisiifolia</i>	
Bastard false indigobush	<i>Amorpha fruticosa</i>	
Peppervine	<i>Ampelopsis arborea</i>	
Blue maidencane	<i>Amphicarpum muhlenbergianum</i>	
Fringed bluestar	<i>Amsonia ciliata</i>	
Florida bluestem	<i>Andropogon floridanus</i>	
Bushy bluestem	<i>Andropogon glomeratus var. pumilus</i>	
Splitbeard bluestem	<i>Andropogon ternarius</i>	
Chalky bluestem	<i>Andropogon virginicus var. glaucus</i>	
Devil's walkingstick	<i>Aralia spinosa</i>	
Greendragon	<i>Arisaema dracontium</i>	
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	
Wiregrass	<i>Aristida beyrichiana</i>	
Big threeawn	<i>Aristida condensata</i>	
Corkscrew threeawn	<i>Aristida gyrans</i>	
Virginia snakeroot	<i>Aristolochia serpentaria</i>	
Florida indian plantain	<i>Arnoglossum floridanum</i>	
Switchcane	<i>Arundinaria gigantea</i>	
Curtiss' milkweed	<i>Asclepias curtissii</i>	
Pinewoods milkweed	<i>Asclepias humistrata</i>	
Swamp milkweed	<i>Asclepias incarnata</i>	
Butterflyweed	<i>Asclepias tuberosa</i>	
Whorled milkweed	<i>Asclepias verticillata</i>	
Woolly pawpaw; Polecat bush	<i>Asimina incana</i>	
Bigflower pawpaw	<i>Asimina obovata</i>	
Smallflower pawpaw	<i>Asimina parviflora</i>	
Dwarf pawpaw	<i>Asimina pygmaea</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Netted pawpaw	<i>Asimina reticulata</i>	
Cutleaf spleenwort.....	<i>Asplenium abscissum</i>	21
Ebony spleenwort.....	<i>Asplenium platyneuron</i>	21
Black-stemmed spleenwort	<i>Asplenium resiliens</i>	
Smooth yellow false foxglove	<i>Aureolaria flava</i>	
Fernleaf yellow false foxglove	<i>Aureolaria pedicularia</i>	
Climbing aster	<i>Aster carolinianus</i>	
Rice button aster	<i>Aster dumosus</i>	
Annual saltmarsh aster	<i>Aster subulatus</i>	
Walter's aster.....	<i>Aster walteri</i>	
Big carpetgrass.....	<i>Axonopus furcatus</i>	
Carolina mosquito fern	<i>Azolla caroliniana</i>	
Silverling	<i>Baccharis glomeruliflora</i>	
Groundsel tree; Sea myrtle	<i>Baccharis halimifolia</i>	
Lemon bacopa;		
Blue waterhyssop	<i>Bacopa caroliniana</i>	
Tropical waterhyssop.....	<i>Bacopa innominata</i>	
Herb-of-grace.....	<i>Bacopa monnieri</i>	
Coastalplain honeycombhead	<i>Balduina angustifolia</i>	
Tarflower.....	<i>Befaria racemosa</i>	
Alabama supplejack.....	<i>Berchemia scandens</i>	
Florida greeneyes	<i>Berlandiera subacaulis</i>	
Beggarticks; Romerillo.....	<i>Bidens alba</i>	
Spanish needles	<i>Bidens bipinnata</i>	
Burrmarigold	<i>Bidens laevis</i>	
Smallfruit beggarticks.....	<i>Bidens mitis</i>	
Crossvine.....	<i>Bignonia capreolata</i>	
False nettle, Bog hemp	<i>Boehmeria cylindrica</i>	
Southern grape-fern	<i>Botrychium biternatum</i>	
Rattlesnake fern	<i>Botrychium virginianum</i>	
American bluehearts	<i>Buchnera americana</i>	
Densetuft hairsedge	<i>Bulbostylis ciliatifolia</i>	
Pindo palm *	<i>Butea capitata</i>	
American beautyberry	<i>Callicarpa americana</i>	
Woodland poppymallow.....	<i>Callirhoe papaver</i>	
Grassleaf roseling.....	<i>Callisia graminea</i>	
Matted waterstarwort	<i>Callitriche peploides</i>	
Florida bellflower.....	<i>Campanula floridana</i>	
Trumpet creeper	<i>Campsis radicans</i>	
Bandana-of-the-everglades.....	<i>Canna flaccida</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Hairy bittercress*	<i>Cardamine hirsuta</i>	
Pennsylvania bittercress	<i>Cardamine pensylvanica</i>	
Cherokee sedge	<i>Carex cherokeensis</i>	
Slender woodland sedge	<i>Carex digitalis</i>	
Limestone meadow sedge	<i>Carex granularis</i>	
Long's sedge	<i>Carex longii</i>	
Sedge	<i>Carex sp.</i>	
Owlfruit sedge	<i>Carex stipata</i>	
Warty sedge	<i>Carex verrucosa</i>	
Coastalplain chaffhead	<i>Carphephorus corymbosus</i>	
Vanillaleaf	<i>Carphephorus odoratissimus</i>	
American hornbeam; Bluebeech	<i>Carpinus caroliniana</i>	
Mockernut hickory	<i>Carya alba</i>	
Water hickory	<i>Carya aquatica</i>	
Pignut hickory	<i>Carya glabra</i>	
Pecan *	<i>Carya illinoensis</i>	
Southern catalpa*	<i>Catalpa bignonioides</i>	
Madagascar periwinkle *	<i>Catharanthus roseus</i>	
Sugarberry; Hackberry	<i>Celtis laevigata</i>	
Southern sandbur	<i>Cenchrus echinatus</i>	
Slender sandbur	<i>Cenchrus gracillimus</i>	
Coast sandbur	<i>Cenchrus spinifex</i>	
Spadeleaf	<i>Centella asiatica</i>	
Common buttonbush	<i>Cephalanthus occidentalis</i>	
Mouseear chickweed *	<i>Cerastium glomeratum</i>	
Florida rosemary; Sand heath	<i>Ceratiola ericoides</i>	
Coontail	<i>Ceratophyllum demersum</i>	
Eastern redbud	<i>Cercis canadensis</i>	
Hairyfruit chervil	<i>Chaerophyllum tainturieri</i>	
Partridge pea	<i>Chamaecrista fasciculata</i>	
Hyssopleaf sandmat	<i>Chamaesyce hyssopifolia</i>	
Spotted sandmat	<i>Chamaesyce maculata</i>	
Alicia	<i>Chapmannia floridana</i>	
Indian woodoats	<i>Chasmanthium latifolium</i>	
Slender woodoats	<i>Chasmanthium laxum</i>	
Longleaf chasmanthium	<i>Chasmanthium laxum var. sessiliflorum</i>	
Mexican tea*	<i>Chenopodium ambrosioides</i>	
Maryland goldenaster	<i>Chrysopsis mariana</i>	
Spotted water hemlock	<i>Cicuta maculata</i>	
Camphortree *	<i>Cinnamomum camphora</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Yellow thistle	<i>Cirsium horridulum</i>	
Nuttall's thistle.....	<i>Cirsium nuttallii</i>	
Citron*	<i>Citrus medica</i>	
Tangerine *	<i>Citrus reticulata</i>	
Sweet orange *	<i>Citrus sinensis</i>	
Jamaica swamp sawgrass	<i>Cladium jamaicense</i>	
Satincurls.....	<i>Clematis catesbyana</i>	
Netleaf leather-flower	<i>Clematis reticulata</i>	
Sweet autumn virginsbower*	<i>Clematis terniflora</i>	
Virginsbower	<i>Clematis virginiana</i>	
Stickbush*	<i>Clerodendrum chinense</i>	
Tread-softly; Finger-rot.....	<i>Cnidocolus stimulosus</i>	
Wild taro; Dasheen; Coco yam * ..	<i>Colocasia esculenta</i>	
Whitemouth dayflower.....	<i>Commelina erecta</i>	
Blue mistflower	<i>Conoclinium coelestinum</i>	
Large-flowered rosemary	<i>Conradina grandiflora</i>	
Canadian horseweed.....	<i>Conyza canadensis var. pusilla</i>	
Lanceleaf tickseed	<i>Coreopsis lanceolata</i>	
Leavenworth's tickseed.....	<i>Coreopsis leavenworthii</i>	
Roughleaf dogwood.....	<i>Cornus asperifolia</i>	
Flowering dogwood.....	<i>Cornus florida</i>	
Swamp dogwood; Stiff dogwood	<i>Cornus foemina</i>	
Smallflower fumewort; Harlequin	<i>Corydalis micrantha</i>	
Cockspur hawthorn.....	<i>Crataegus crus-galli</i>	
Yellowleaf hawthorn.....	<i>Crataegus flava</i>	
Parsley hawthorn	<i>Crataegus marshallii</i>	
Michaux's hawthorn.....	<i>Crataegus michauxii</i>	
Seven-sisters; String-lily	<i>Crinum americanum</i>	
Slender scratchdaisy.....	<i>Croptilon divaricatum</i>	
Shakeshake*	<i>Crotalaria incana</i>	
Smooth rattlebox*	<i>Crotalaria pallida</i>	
Rabbitbells.....	<i>Crotalaria rotundifolia</i>	
Showy rattlebox*	<i>Crotalaria spectabilis</i>	
Silver croton; Healing croton	<i>Croton argyranthemus</i>	
Lobed croton	<i>Croton lobatus</i>	
Rushfoil; Michaux's croton	<i>Croton michauxii</i>	
Colombian waxweed	<i>Cuphea carthagenensis</i>	
Grassleaf roseling	<i>Cuthbertia graminea</i>	
Marsh parsley *	<i>Cyclosporum leptophyllum</i>	

* Non-native Species

Silver River State Park – Plants

Common Name species)	Scientific Name	Primary Habitat (for designated
Baldwin's flatsedge	<i>Cyperus croceus</i>	
Swamp flatsedge	<i>Cyperus distinctus</i>	
Umbrella plant*	<i>Cyperus involucratus</i>	
Fragrant flatsedge.....	<i>Cyperus odoratus</i>	
Manyspike flatsedge	<i>Cyperus polystachyos</i>	
Pinebarren flatsedge	<i>Cyperus retrorsus</i>	
Strawcolored flatsedge.....	<i>Cyperus strigosus</i>	
Tropical flatsedge	<i>Cyperus surinamensis</i>	
Fourangle flatsedge.....	<i>Cyperus tetragonus</i>	
Green flatsedge.....	<i>Cyperus virens</i>	
Durban crowfootgrass *	<i>Dactyloctenium aegyptium</i>	
Feay's prairieclover	<i>Dalea feayi</i>	
Summer farewell	<i>Dalea pinnata var. adenopoda</i>	
Willow-herb;		
Swamp loosestrife	<i>Decodon verticillatus</i>	
Climbing hydrangea	<i>Decumaria barbara</i>	
Western tansymustard	<i>Descurainia pinnata</i>	
Ticktrefoil	<i>Desmodium incanum</i>	
Panicledleaf ticktrefoil	<i>Desmodium paniculatum</i>	
Threeflower ticktrefoil*.....	<i>Desmodium triflorum</i>	
Needleleaf witchgrass.....	<i>Dichanthelium aciculare</i>	
Deertongue witchgrass	<i>Dichanthelium clandestinum</i>	
Variable witchgrass.....	<i>Dichanthelium commutatum</i>	
Cypress witchgrass.....	<i>Dichanthelium dichotomum</i>	
Openflower witchgrass.....	<i>Dichanthelium laxiflorum</i>	
Carolina ponysfoot.....	<i>Dichondra caroliniensis</i>	
Sixangle foldwing.....	<i>Dicliptera sexangularis</i>	
Southern crabgrass	<i>Digitaria ciliaris</i>	
Slender crabgrass.....	<i>Digitaria filiformis</i>	
Florida crabgrass	<i>Digitaria floridana</i>	33
Poor joe; Rough buttonweed	<i>Diodia teres</i>	
Virginia buttonweed	<i>Diodia virginiana</i>	
Air-potato *	<i>Dioscorea bulbifera</i>	
Common persimmon	<i>Diospyros virginiana</i>	
Vegetable fern *	<i>Diplazium esculentum</i>	
Dwarf sundew	<i>Drosera brevifolia</i>	
Indian strawberry*	<i>Duchesnea indica</i>	
Swamp twinflower.....	<i>Dyschoriste humistrata</i>	
Oblongleaf twinflower.....	<i>Dyschoriste oblongifolia</i>	
Barnyardgrass *	<i>Echinochloa crusgalli</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
False daisy.....	<i>Eclipta prostrata</i>	
Baldwin's spikerush; Roadgrass ..	<i>Eleocharis baldwinii</i> ..	
Mountain spikerush.....	<i>Eleocharis montana</i> ..	
Viviparous spikerush.....	<i>Eleocharis vivipara</i> ..	
Carolina elephantsfoot.....	<i>Elephantopus carolinianus</i> ..	
Tall elephantsfoot.....	<i>Elephantopus elatus</i> ..	
Carolina scalystem	<i>Elytraria caroliniensis</i> ..	
Green-fly orchid	<i>Epidendrum conopseum</i>	21,23,33
Elliott's lovegrass.....	<i>Eragrostis elliottii</i> ..	
American burnweed; Fireweed ...	<i>Erechtites hieracifolia</i> ..	
Centipede grass *	<i>Eremochloa ophiuroides</i> ..	
Oakleaf fleabane.....	<i>Erigeron quercifolius</i> ..	
Prairie fleabane.....	<i>Erigeron strigosus</i>	
Early whitetop fleabane.....	<i>Erigeron vernus</i> ..	
Narrow pipewort	<i>Eriocaulon lineare</i> ..	
Dogtongue wild buckwheat.....	<i>Eriogonum tomentosum</i>	
Baldwin's eryngo.....	<i>Eryngium baldwinii</i>	
Coralbean; Cherokee bean.....	<i>Erythrina herbacea</i> ..	
Wild coco.....	<i>Eulophia alta</i>	
American strawberrybush.....	<i>Euonymus americanus</i> ..	
White thoroughwort	<i>Eupatorium album</i> ..	
Dogfennel.....	<i>Eupatorium capillifolium</i> ..	
Yankee weed.....	<i>Eupatorium compositifolium</i>	
Mohr's thoroughwort.....	<i>Eupatorium mohrii</i> ..	
Lateflowering thoroughwort.....	<i>Eupatorium serotinum</i> ..	
Wood spurge.....	<i>Euphorbia commutata</i> ..	20,33
Lesser Florida spurge.....	<i>Euphorbia polyphylla</i> ..	
Saltmarsh fingergrass.....	<i>Eustachys glauca</i>	
Fourspike fingergrass	<i>Eustachys neglecta</i> ..	
Pinewoods fingergrass.....	<i>Eustachys petraea</i>	
Slender goldenrod.....	<i>Euthamia caroliniana</i> ..	
Climbing fig*.....	<i>Ficus pumila</i> ..	
Slender fimbry	<i>Fimbristylis autumnalis</i> ..	
Hairy fimbry.....	<i>Fimbristylis puberula</i> ..	
Godfrey's swampprivet	<i>Forestiera godfreyi</i>	21
White ash.....	<i>Fraxinus americana</i>	
Carolina ash; Pop ash.....	<i>Fraxinus caroliniana</i> ..	
Green ash; Pumpkin ash.....	<i>Fraxinus pennsylvanica</i> ..	
Cottonweed; Plains snakecotton ..	<i>Froelichia floridana</i>	
Drug fumitory; Earthsmoke*	<i>Fumaria officinalis</i> ..	

* Non-native Species

Silver River State Park – Plants

Common Name (species)	Scientific Name	Primary Habitat (for designated
Firewheel.....	<i>Gaillardia pulchella</i>	
Elliott's milkpea	<i>Galactia elliottii</i>	
Eastern milkpea	<i>Galactia regularis</i>	
Downy milkpea	<i>Galactia volubilis</i>	
Goosegrass; Spring cleavers	<i>Galium aparine</i>	
Coastal bedstraw	<i>Galium hispidulum</i>	
Hairy bedstraw	<i>Galium pilosum</i>	
Stiff marsh bedstraw	<i>Galium tinctorium</i>	
American everlasting	<i>Gamochaeta americana</i>	
Narrowleaf purple everlasting....	<i>Gamochaeta falcata</i>	
Pennsylvania everlasting	<i>Gamochaeta pennsylvanica</i>	
Garberia.....	<i>Garberia heterophylla</i>	13,14
Southern beeblossom	<i>Gaura angustifolia</i>	
Dwarf huckleberry	<i>Gaylussacia dumosa</i>	
Confederate huckleberry	<i>Gaylussacia nana</i>	
Blue huckleberry	<i>Gaylussacia tomentosa</i>	
Yellow jessamine	<i>Gelsemium sempervirens</i>	
Carolina cranesbill.....	<i>Geranium carolinianum</i>	
American everlasting	<i>Gnaphalium americanum</i>	
Narrowleaf purple everlasting....	<i>Gnaphalium falcatum</i>	
Sweet everlasting.....	<i>Gnaphalium obtusifolium</i>	
Pennsylvania everlasting.....	<i>Gnaphalium pennsylvanicum</i>	
Globe amaranth *.....	<i>Gomphrena serrata</i>	
Loblolly bay	<i>Gordonia lasianthus</i>	
Rough hedgehyssop.....	<i>Gratiola hispida</i>	
Roundfruit hedgehyssop	<i>Gratiola virginiana</i>	
Longhorn false reinorchid	<i>Habenaria quinqueseta</i>	
Firebush.....	<i>Hamelia patens</i>	
Spanish daisy; Bitterweed	<i>Helenium amarum</i>	
Purplehead sneezeweed	<i>Helenium flexuosum</i>	
Carolina frostweed.....	<i>Helianthemum carolinianum</i>	
Pinebarren frostweed.....	<i>Helianthemum corymbosum</i>	
Georgia frostweed	<i>Helianthemum georgianum</i>	
Florida scrub frostweed	<i>Helianthemum nashii</i>	
Camphorweed	<i>Heterotheca subaxillaris</i>	
Scarlet rosemallow	<i>Hibiscus coccineus</i>	
Queen-devil	<i>Hieracium gronovii</i>	
Coastalplain hawkweed	<i>Hieracium megacephalon</i>	
Innocence; Roundleaf bluet.....	<i>Houstonia procumbens</i>	
Oakleaf hydrangea; Graybeard....	<i>Hydrangea quercifolia</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Floating marshpennywort	<i>Hydrocotyle ranunculoides</i>	
Manyflower marshpennywort	<i>Hydrocotyle umbellata</i>	
Whorled marshpennywort	<i>Hydrocotyle verticillata</i>	
Streambank spiderlily	<i>Hymenocallis rotata</i>	
Pineweeds; Orangegrass.....	<i>Hypericum gentianoides</i>	
St. Andrew's-cross	<i>Hypericum hypericoides</i>	
Dwarf St. John's-wort.....	<i>Hypericum mutilum</i>	
Fourpetal St. John's-wort	<i>Hypericum tetrapetalum</i>	
Common yellow stargrass	<i>Hypoxis curtissii</i>	
Fringed yellow stargrass	<i>Hypoxis juncea</i>	
Clustered bushmint; Musky mint	<i>Hyptis alata</i>	
Tropical bushmint*.....	<i>Hyptis mutabilis</i>	
Carolina holly; Sand holly	<i>Ilex ambigua var. ambigua</i>	
Dahoon	<i>Ilex cassine</i>	
Inkberry; Gallberry	<i>Ilex glabra</i>	
American Holly	<i>Ilex opaca</i>	
Scrub holly	<i>Ilex opaca var. arenicola</i>	82
Yaupon	<i>Ilex vomitoria</i>	
Yellow anisetree	<i>Illicium parviflorum</i>	
Cogongrass *	<i>Imperata cylindrica</i>	
Carolina indigo.....	<i>Indigofera caroliniana</i>	
Hairy indigo *	<i>Indigofera hirsuta</i>	
Tievine.....	<i>Ipomoea cordatotriloba</i>	
Largeroot morning-glory*	<i>Ipomoea macrorhiza</i>	
Man-of-the-earth.....	<i>Ipomoea pandurata</i>	
Saltmarsh morning-glory.....	<i>Ipomoea sagittata</i>	
Standingcypress;		
Spanish larkspur.....	<i>Ipomopsis rubra</i>	
Juba's bush	<i>Iresine diffusa</i>	
Dixie iris; Prairie iris	<i>Iris hexagona</i>	
Virginia willow.....	<i>Itea virginica</i>	
Forked rush.....	<i>Juncus dichotomus</i>	
Soft rush	<i>Juncus effusus</i>	
Shore rush; Grassleaf rush.....	<i>Juncus marginatus</i>	
Red cedar.....	<i>Juniperus virginiana</i>	
Wicky; Hairy laurel.....	<i>Kalmia hirsuta</i>	
Sandspur; Ratany	<i>Krameria lanceolata</i>	
Virginia dwarfdandelion.....	<i>Krigia virginica</i>	
Japanese clover *	<i>Kummerowia striata</i>	
Low spikesedge	<i>Kyllinga pumila</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Carolina redroot	<i>Lachnanthes caroliniana</i>	
Southern bogbutton.....	<i>Lachnocaulon beyrichianum</i>	
Canada lettuce	<i>Lactuca canadensis</i>	
Woodland lettuce	<i>Lactuca floridana</i>	
Grassleaf lettuce.....	<i>Lactuca graminifolia</i>	
Lantana; Shrubverbena*	<i>Lantana camara</i>	
Dickert's pinweed.....	<i>Lechea deckertii</i>	
Pineland pinweed	<i>Lechea sessiliflora</i>	
Southern cutgrass	<i>Leersia hexandra</i>	
Whitegrass.....	<i>Leersia virginica</i>	
Little duckweed.....	<i>Lemna obscura</i>	
Valdivia duckweed	<i>Lemna valdiviana</i>	
Lion's-ear *	<i>Leonotis nepetifolia</i>	
Virginia pepperweed	<i>Lepidium virginicum</i>	
Swamp doghobble.....	<i>Leucothoe racemosa</i>	
Pinkscale gayfeather	<i>Liatris elegans</i>	
Shortleaf gayfeather	<i>Liatris tenuifolia</i>	
Shortleaf gayfeather	<i>Liatris tenuifolia var. quadriflora</i>	
Gopher apple	<i>Licania michauxii</i>	
Glossy privet *	<i>Ligustrum lucidum</i>	
Chinese privet *	<i>Ligustrum sinense</i>	
American spongeplant; Frog's-bit.....	<i>Limnobium spongia</i>	
Canada toadflax.....	<i>Linaria canadensis</i>	
Apalachicola toadflax	<i>Linaria floridana</i>	
Malaysian false pimpernel*	<i>Lindernia crustacea</i>	
Savannah false pimpernel	<i>Lindernia grandiflora</i>	
Sweetgum.....	<i>Liquidambar styraciflua</i>	
Cardinalflower.....	<i>Lobelia cardinalis</i>	33
Coral honeysuckle.....	<i>Lonicera sempervirens</i>	
Yerba de jicotea.....	<i>Ludwigia erecta</i>	
Seaside primrosewillow	<i>Ludwigia maritima</i>	
Smallfruit primrosewillow	<i>Ludwigia microcarpa</i>	
Creeping primrosewillow	<i>Ludwigia repens</i>	
Shrubby primrosewillow.....	<i>Ludwigia suffruticosa</i>	
Skyblue lupine	<i>Lupinus diffusus</i>	
Taperleaf waterhorehound.....	<i>Lycopus rubellus</i>	
Rose-rush.....	<i>Lygodesmia aphylla</i>	
Japanese climbing fern *	<i>Lygodium japonicum</i>	
Rusty staggerbush.....	<i>Lyonia ferruginea</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Coastalplain staggerbush.....	<i>Lyonia fruticosa</i>	
Maleberry	<i>Lyonia ligustrina</i>	
Fetterbush.....	<i>Lyonia lucida</i>	
Catclawvine*	<i>Macfadyena unguis-cati</i>	
Marianna maiden fern *	<i>Macrothelypteris torresiana</i>	
Southern magnolia	<i>Magnolia grandiflora</i>	
Sweetbay	<i>Magnolia virginiana</i>	
Florida milkvine	<i>Matelea floridana</i>	
Angularfruit milkvine.....	<i>Matelea gonocarpos</i>	
Trailing milkvine.....	<i>Matelea publiflora</i>	
Axilflower	<i>Mecardonia acuminata</i>	
Baby jumpup.....	<i>Mecardonia procumbens</i>	
Black medick *	<i>Medicago lupulina</i>	
Snow squarestem.....	<i>Melanthera nivea</i>	
Chinaberrytree*	<i>Melia azedarach</i>	
White sweetclover *	<i>Melilotus alba</i>	
Chocolateweed*	<i>Melochia corchorifolia</i>	
Creeping cucumber	<i>Melothria pendula</i>	
Noyau vine*	<i>Merremia dissecta</i>	
Climbing hempvine	<i>Mikania scandens</i>	
Sensitive briar	<i>Mimosa quadrivalvis</i>	
Powderpuff	<i>Mimosa strigillosa</i>	
Partridgeberry; Twinberry	<i>Mitchella repens</i>	
Tropical girdlepod*	<i>Mitracarpus hirtus</i>	
Lax hornpod.....	<i>Mitreola petiolata</i>	
Carolina bristlemallow	<i>Modiola caroliniana</i>	
Spotted beebalm	<i>Monarda punctata</i>	
Indianpipe.....	<i>Monotropa uniflora</i>	
Red mulberry	<i>Morus rubra</i>	
Nimblewill muhly.....	<i>Muhlenbergia schreberi</i>	
Southern bayberry; Wax myrtle.....	<i>Myrica cerifera</i>	
Cutleaf watermilfoil	<i>Myriophyllum pinnatum</i>	
Tropical puff	<i>Neptunia pubescens</i>	
Crowpoison; False garlic	<i>Nothoscordum bivalve</i>	
Spatterdock; Yellow pondlily.....	<i>Nuphar advena ssp. orbiculata</i>	
Spatter-dock; Cowlily	<i>Nuphar luteum</i>	
American white waterlily	<i>Nymphaea odorata</i>	
Big floatingheart	<i>Nymphoides aquatica</i>	
Swamp tupelo.....	<i>Nyssa sylvatica var. biflora</i>	
Common eveningprimrose.....	<i>Oenothera biennis</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (species)	Scientific Name	Primary Habitat (for designated)
Cutleaf eveningprimrose	<i>Oenothera laciniata</i>	
Flattop mille graines*	<i>Oldenlandia corymbosa</i>	
Clustered mille graine.....	<i>Oldenlandia uniflora</i>	
Woodsgrass; Basketgrass.....	<i>Oplismenus hirtellus</i>	
Pricklypear	<i>Opuntia humifusa</i>	
Piedmont leatherroot	<i>Orbexilum lupinellus</i>	
Wild olive.....	<i>Osmanthus americanus</i>	
Cinnamon fern.....	<i>Osmunda cinnamomea</i>	33,41
Royal fern.....	<i>Osmunda regalis</i>	33,41
Eastern hophornbeam.....	<i>Ostrya virginiana</i>	
Common yellow woodsorrel.....	<i>Oxalis corniculata</i>	
Pink woodsorrel*	<i>Oxalis debilis var. corymbosa</i>	
Water cowbane	<i>Oxypolis filiformis</i>	
Butterweed.....	<i>Packera glabella</i>	
Coastalplain palafox.....	<i>Palafoxia integrifolia</i>	
Beaked panicum	<i>Panicum anceps</i>	
Fall panicgrass	<i>Panicum bartowense</i>	
Maidencane	<i>Panicum hemitomon</i>	
Redtop panicum	<i>Panicum rigidulum</i>	
Panicum.....	<i>Panicum spp.</i>	
Warty panicgrass.....	<i>Panicum verrucosum</i>	
Florida pellitory.....	<i>Parietaria floridana</i>	
White pellitory.....	<i>Parietaria praetermissa</i>	
Baldwin's nailwort	<i>Paronychia baldwinii</i>	
Virginia creeper; Woodbine	<i>Parthenocissus quinquefolia</i>	
Egyptian paspalidium.....	<i>Paspalidium geminatum</i>	
Dallisgrass*	<i>Paspalum dilatatum</i>	
Florida paspalum	<i>Paspalum floridanum</i>	
Rustyseed paspalum	<i>Paspalum langei</i>	
Thin paspalum.....	<i>Paspalum setaceum</i>	
Purple passionflower	<i>Passiflora incarnata</i>	
Yellow passionflower.....	<i>Passiflora lutea</i>	
Buckroot	<i>Pedimelum canescens</i>	
Green arrow arum.....	<i>Peltandra virginica</i>	
Elephantgrass; Napiergrass*	<i>Pennisetum purpureum</i>	
Manyflower beardtongue	<i>Penstemon multiflorus</i>	
Pepper-elder; Rat-ear *.....	<i>Peperomia pellucida</i>	
Redbay.....	<i>Persea borbonia var. borbonia</i>	
Swamp bay.....	<i>Persea palustris</i>	
Guinea hen weed.....	<i>Petiveria alliacea</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Savannah panicum.....	<i>Phanopyrum gymnocarpon</i>	
Golden polypody	<i>Phlebodium aureum</i>	
Annual phlox*.....	<i>Phlox drummondii</i>	
Florida false sunflower	<i>Phoebanthus grandiflorus</i>	
Oak mistletoe	<i>Phoradendron leucarpum</i>	
Red chokeberry.....	<i>Photinia pyrifolia</i>	
Turkey tangle fogfruit.....	<i>Phyla nodiflora</i>	
Carolina leafflower.....	<i>Phyllanthus caroliniensis</i>	
Walter's groundcherry	<i>Physalis walteri</i>	
Obedientplant*.....	<i>Physostegia virginiana</i>	
American pokeweed	<i>Phytolacca americana</i>	
Wild pennyroyal.....	<i>Piloblephis rigida</i>	
Small butterwort.....	<i>Pinguicula pumila</i>	
Sand pine.....	<i>Pinus clausa</i>	
Slash pine	<i>Pinus elliottii</i>	
Longleaf pine	<i>Pinus palustris</i>	
Pond pine	<i>Pinus serotina</i>	
Loblolly pine.....	<i>Pinus taeda</i>	
Florida needlegrass	<i>Piptochaetium avenacioides</i>	
Water-lettuce*	<i>Pistia stratiotes</i>	
Narrowleaf silkgrass.....	<i>Pityopsis graminifolia</i>	
English plantain;		
Narrowleaf plantain*	<i>Plantago lanceolata</i>	
Virginia plantain	<i>Plantago virginica</i>	
Resurrection fern.....	<i>Pleopeltis michauxianum</i>	
Camphorweed	<i>Pluchea camphorata</i>	
Longleaf camphorweed	<i>Pluchea longifolia</i>	
Sweetscent.....	<i>Pluchea odorata</i>	
Showy milkwort.....	<i>Polygala grandiflora</i>	
Orange milkwort.....	<i>Polygala lutea</i>	
Candyroot	<i>Polygala nana</i>	
Racemed milkwort.....	<i>Polygala polygama</i>	
King Solomon's seal	<i>Polygonatum biflorum</i>	
Mild waterpepper	<i>Polygonum hydropiperoides</i>	
Dotted smartweed.....	<i>Polygonum punctatum</i>	
Rustweed; Juniperleaf.....	<i>Polypreum procumbens</i>	
Hardy orange *	<i>Poncirus trifoliata</i>	
Pickerelweed.....	<i>Pontederia cordata</i>	
Hairy shadow witch.....	<i>Ponthieva racemosa</i>	
Marsh mermaidweed.....	<i>Proserpinaca palustris</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Combleaf mermaidweed	<i>Proserpinaca pectinata</i>	
Chickasaw plum.....	<i>Prunus angustifolia</i>	
Carolina laurelcherry	<i>Prunus caroliniana</i>	
Black cherry	<i>Prunus serotina</i> var. <i>serotina</i>	
Flatwoods plum; Hog plum	<i>Prunus umbellata</i>	
Sweet everlasting;		
Rabbit tobacco.....	<i>Pseudognaphalium obtusifolium</i>	
Wild coffee	<i>Psychotria nervosa</i>	
Common hoptree; Wafer ash.....	<i>Ptelea trifoliata</i>	
Bracken fern.....	<i>Pteridium aquilinum</i>	
Blackroot	<i>Pterocaulon pycnostachyum</i>	
Carolina desertchicory	<i>Pyrrhopappus carolinianus</i>	
Bastard white oak.....	<i>Quercus austrina</i>	
Chapman's oak	<i>Quercus chapmanii</i>	
Running oak.....	<i>Quercus elliotii</i>	
Spanish oak; Southern red oak....	<i>Quercus falcata</i>	
Sand live oak.....	<i>Quercus geminata</i>	
Bluejack oak	<i>Quercus incana</i>	
Turkey oak	<i>Quercus laevis</i>	
Laurel oak; Diamond oak	<i>Quercus laurifolia</i>	
Overcup oak.....	<i>Quercus lyrata</i>	
Small post oak.....	<i>Quercus margaretta</i>	
Basket oak	<i>Quercus michauxii</i>	
Dwarf live oak	<i>Quercus minima</i>	
Myrtle oak.....	<i>Quercus myrtifolia</i>	
Water oak	<i>Quercus nigra</i>	
Shumard's oak	<i>Quercus shumardii</i>	
Bluff oak; Bastard white oak	<i>Quercus sinuata</i>	
Virginia live oak	<i>Quercus virginiana</i>	
Low spearwort.....	<i>Ranunculus pusillus</i>	
Needle palm.....	<i>Rhapidophyllum hystrix</i>	33
West Indian meadowbeauty	<i>Rhexia cubensis</i>	
Maid marian	<i>Rhexia nashii</i>	
Fringed meadowbeauty	<i>Rhexia petiolata</i>	
Rose natalgrass*.....	<i>Rhynchelytrum repens</i>	
Dollarleaf.....	<i>Rhynchosia reniformis</i>	
Anglestem beaksedge	<i>Rhynchospora caduca</i>	
Starrush whitetop.....	<i>Rhynchospora colorata</i>	
Shortbristle horned beaksedge....	<i>Rhynchospora corniculata</i>	
Gray's beaksedge.....	<i>Rhynchospora grayi</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (species)	Scientific Name	Primary Habitat (for designated
Giant whitetop	<i>Rhynchospora latifolia</i>	
Sandyfield beaksedge	<i>Rhynchospora megalocarpa</i>	
Bunched beaksedge.....	<i>Rhynchospora microcephala</i>	
Millet beaksedge.....	<i>Rhynchospora miliacea</i>	
Fragrant beaksedge	<i>Rhynchospora odorata</i>	
Tropical Mexican clover*	<i>Richardia brasiliensis</i>	
Largeflower mexican clover*.....	<i>Richardia grandiflora</i>	
Rough Mexican clover*	<i>Richardia scabra</i>	
Rougeplant.....	<i>Rivina humilis</i>	
Swamp rose.....	<i>Rosa palustris</i>	
Lowland rotala; Toothcup	<i>Rotala ramosior</i>	
Sawtooth blackberry	<i>Rubus argutus</i>	
Sand blackberry	<i>Rubus cuneifolius</i>	
Southern dewberry.....	<i>Rubus trivialis</i>	
Softhair coneflower	<i>Rudbeckia mollis</i>	
Carolina wild petunia	<i>Ruellia caroliniensis</i>	
Heartwing dock.....	<i>Rumex hastatulus</i>	
Swamp dock.....	<i>Rumex verticillatus</i>	
Scrub palmetto.....	<i>Sabal etonia</i>	
Dwarf palmetto;		
Bluestem palm	<i>Sabal minor</i>	
Cabbage palm	<i>Sabal palmetto</i>	
Shortleaf rosegentian.....	<i>Sabatia brevifolia</i>	
Coastal rosegentian	<i>Sabatia calycina</i>	
American cupscale	<i>Sacciolepis striata</i>	
Smallflower mock buckthorn.....	<i>Sageretia minutiflora</i>	
Grassy arrowhead	<i>Sagittaria graminea</i>	
Springtape	<i>Sagittaria kurziana</i>	
Delta arrowhead.....	<i>Sagittaria platyphylla</i>	
Carolina willow	<i>Salix caroliniana</i>	
Azure blue sage	<i>Salvia azurea</i>	
Lyreleaf sage	<i>Salvia lyrata</i>	
Water spangles	<i>Salvinia minima</i>	
American elder; Elderberry.....	<i>Sambucus canadensis</i>	
Pineland pimpernel.....	<i>Samolus valerandi ssp. parviflorus</i>	
Canadian blacksnakeroot	<i>Sanicula canadensis</i>	
Soapberry	<i>Sapindus saponaria</i>	
Sassafras	<i>Sassafras albidum</i>	
Lizard's tail.....	<i>Saururus cernuus</i>	
Drooping bulrush.....	<i>Scirpus lineatus</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (species)	Scientific Name	Primary Habitat (for designated
Baldwin's nutrush	<i>Scleria baldwinii</i>	
Sweetbroom; Licoriceweed	<i>Scoparia dulcis</i>	
Florida scrub skullcap.....	<i>Scutellaria arenicola</i>	
Helmet skullcap.....	<i>Scutellaria integrifolia</i>	
Small's skullcap	<i>Scutellaria multiglandulosa</i>	
Maryland wild sensitive plant	<i>Senna marilandica</i>	
Coffeeweed; Sicklepod.....	<i>Senna obtusifolia</i>	
Saw palmetto	<i>Serenoa repens</i>	
Whitetop aster; Dixie aster	<i>Sericocarpus tortifolius</i>	
Danglepod.....	<i>Sesbania herbacea</i>	
Coastal bristlegrass.....	<i>Setaria corrugata</i>	
Yellow bristlegrass	<i>Setaria parviflora</i>	
Common wireweed.....	<i>Sida acuta</i>	
Llima*	<i>Sida cordifolia</i>	
Cuban jute; Indian hemp	<i>Sida rhombifolia</i>	
Silver buckthorn; Silver bully	<i>Sideroxylon alachuense</i>	21
Buckthorn bully	<i>Sideroxylon lycioides</i>	
Florida bully	<i>Sideroxylon reclinatum ssp. reclinatum</i>	
Tough bully.....	<i>Sideroxylon tenax</i>	
Kidneyleaf rosinweed	<i>Silphium compositum</i>	
Narrowleaf blueeyed grass	<i>Sisyrinchium angustifolium</i>	
Annual blueeyed grass*	<i>Sisyrinchium rosulatum</i>	
Earleaf greenbrier.....	<i>Smilax auriculata</i>	
Saw greenbrier.....	<i>Smilax bona-nox</i>	
Cat greenbrier; Wild sarsaparilla.....	<i>Smilax glauca</i>	
Sarsaparilla vine	<i>Smilax pumila</i>	
Jackson vine	<i>Smilax smallii</i>	
Bristly greenbrier.....	<i>Smilax tamnoides</i>	
American black nightshade.....	<i>Solanum americanum</i>	
Soda apple; Cockroachberry	<i>Solanum capsicoides</i>	
Carolina horsenettle	<i>Solanum carolinense</i>	
Tropical soda apple*	<i>Solanum viarum</i>	
Pinebarren goldenrod	<i>Solidago fistulosa</i>	
Chapman's goldenrod.....	<i>Solidago odora var. chapmanii</i>	
Downy ragged goldenrod	<i>Solidago petiolaris</i>	
Seaside goldenrod	<i>Solidago sempervirens</i>	
Wand goldenrod	<i>Solidago stricta</i>	
Twistedleaf goldenrod.....	<i>Solidago tortifolia</i>	
Spiny sowthistle*	<i>Sonchus aspera</i>	
Slender indiagrass.....	<i>Sorghastrum elliottii</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Lopsided Indiangrass	<i>Sorghastrum secundum</i>	
Prostrate false buttonweed	<i>Spermacoce prostrata</i>	
Roughfruit scaleseed.....	<i>Spermolepis divaricata</i>	
Bristly scaleseed.....	<i>Spermolepis echinata</i>	
Florida pinkroot.....	<i>Spigelia loganioides</i>	21,33,41
Longlip ladiestresses.....	<i>Spiranthes longilabris</i>	33
Fragrant ladiestresses.....	<i>Spiranthes odorata</i>	
Greenvein ladiestresses.....	<i>Spiranthes praecox</i>	
Florida hedgenettle	<i>Stachys floridana</i>	
Common chickweed*	<i>Stellaria media</i>	
Prostrate starwort.....	<i>Stellaria prostrata</i>	
St. Augustinegrass*	<i>Stenotaphrum secundatum</i>	
Queensdelight.....	<i>Stillingia sylvatica</i>	
Pineland scalypink.....	<i>Stipulicida setacea</i>	
Coastalplain dawnflower	<i>Stylisma patens</i>	
Climbing aster	<i>Symphotrichum carolinianum</i>	
Eastern silver aster	<i>Symphotrichum concolor</i>	
Rice button aster	<i>Symphotrichum dumosum</i>	
Elliott's aster.....	<i>Symphotrichum elliotii</i>	
Annual saltmarsh aster	<i>Symphotrichum subulatum</i>	
Walter's aster.....	<i>Symphotrichum walteri</i>	
Yellow hatpins.....	<i>Syngonanthus flavidulus</i>	
Bald-cypress.....	<i>Taxodium distichum</i>	
Scurf hoarypea.....	<i>Tephrosia chrysophylla</i>	
Florida hoarypea	<i>Tephrosia florida</i>	
Pineland nerveray; Squarehead ...	<i>Tetragonotheca helianthoides</i>	
Alligatorflag; Fireflag.....	<i>Thalia geniculata</i>	
Hairy maiden fern.....	<i>Thelypteris hispida</i> var. <i>versicolor</i>	
Widespread maiden fern.....	<i>Thelypteris kunthii</i>	
Carolina basswood.....	<i>Tilia americana</i> var. <i>caroliniana</i>	
Bartram's airplant.....	<i>Tillandsia bartramii</i>	
Ballmoss	<i>Tillandsia recurvata</i>	
Southern needleleaf.....	<i>Tillandsia setacea</i>	
Spanish moss.....	<i>Tillandsia usneoides</i>	
Atlantic poison oak;		
Eastern poison oak	<i>Toxicodendron pubescens</i>	
Eastern poison ivy	<i>Toxicodendron radicans</i>	
Bluejacket; Ohio spiderwort.....	<i>Tradescantia ohiensis</i>	
Wavyleaf noseburn	<i>Tragia urens</i>	
Forked bluecurls.....	<i>Trichostema dichotomum</i>	

* Non-native Species

Silver River State Park – Plants

Common Name (for designated species)	Scientific Name	Primary Habitat (for designated species)
Tall redtop; Purpletop tridens.....	<i>Tridens flavus var. flavus</i>	
Field clover; Hop clover*	<i>Trifolium campestre</i>	
White clover; Dutch clover *.....	<i>Trifolium repens</i>	
Clasping Venus's looking glass....	<i>Triodanis perfoliata</i>	
Perennial sandgrass	<i>Triplasis americana</i>	
Eastern gamagrass.....	<i>Tripsacum dactyloides</i>	
Southern cattail.....	<i>Typha domingensis</i>	
Cattail	<i>Typha sp.</i>	
Winged elm.....	<i>Ulmus alata</i>	
American elm; Florida elm.....	<i>Ulmus americana</i>	
Cedar elm.....	<i>Ulmus crassifolia</i>	33
Caesarweed.....	<i>Urena lobata</i>	
Eastern purple bladderwort.....	<i>Utricularia purpurea</i>	
Zigzag bladderwort	<i>Utricularia subulata</i>	
Sparkleberry; Farkleberry.....	<i>Vaccinium arboreum</i>	
Highbush blueberry	<i>Vaccinium corymbosum</i>	
Darrow's blueberry	<i>Vaccinium darrowii</i>	
Shiny blueberry	<i>Vaccinium myrsinites</i>	
Deerberry	<i>Vaccinium stamineum</i>	
Tapegrass; American eelgrass.....	<i>Vallisneria americana</i>	
Brazilian vervain*.....	<i>Verbena brasiliensis</i>	
Texas vervain.....	<i>Verbena officinalis ssp. halei</i>	
Sandpaper vervain	<i>Verbena scabra</i>	
White crownbeard; frostweed.....	<i>Verbesina virginica</i>	
Corn speedwell *	<i>Veronica arvensis</i>	
Neckweed	<i>Veronica peregrina</i>	
Walter's viburnum.....	<i>Viburnum obovatum</i>	
Florida vetch.....	<i>Vicia floridana</i>	
Common vetch *	<i>Vicia sativa</i>	
Early blue violet	<i>Viola palmata</i>	
Primroseleaf violet	<i>Viola primulifolia</i>	
Common blue violet.....	<i>Viola sororia</i>	
Carolina violet	<i>Viola villosa</i>	
Prostrate blue violet.....	<i>Viola walteri</i>	
Summer grape	<i>Vitis aestivalis</i>	
Muscadine.....	<i>Vitis rotundifolia</i>	
Calloose grape	<i>Vitis shuttleworthii</i>	
Shoestring fern.....	<i>Vittaria lineata</i>	
Southern rockbell*.....	<i>Wahlenbergia marginata</i>	
American wisteria	<i>Wisteria frutescens</i>	

* Non-native Species

Silver River State Park – Plants

Common Name species)	<i>Scientific Name</i>	Primary Habitat (for designated
Chinese wisteria *	<i>Wisteria sinensis</i>	
Netted chain fern	<i>Woodwardia areolata</i>	
Virginia chain fern	<i>Woodwardia virginica</i>	
Arrowleaf elephantear*	<i>Xanthosoma sagittifolium</i>	
Shortleaf yelloweyed grass	<i>Xyris brevifolia</i>	
Carolina yelloweyed grass	<i>Xyris caroliniana</i>	
Bog yelloweyed grass	<i>Xyris difformis</i>	
Fringed yelloweyed grass	<i>Xyris fimbriata</i>	
Richard's yelloweyed grass*	<i>Xyris jupicai</i>	
Oriental false hawksbeard*	<i>Youngia japonica</i>	
Spanish bayonet; Aloe yucca*	<i>Yucca aloifolia</i>	
Adam's needle	<i>Yucca filamentosa</i>	
Hercules'-club	<i>Zanthoxylum clava-herculis</i>	
Atamasco lily; Rainlily	<i>Zephyranthes atamasco</i>	8
Redmargin zephyrlily	<i>Zephyranthes simpsonii</i>	
Soldier's orchid; Lawn orchid*	<i>Zeuxine strateumatica</i>	

* Non-native Species

Silver River State Park – Animals

Common Name	Scientific Name	Primary Habitat (for all species)
-------------	-----------------	--------------------------------------

PISCES

FISH

Longnose gar	<i>Lepisosteus osseus</i>	53,55
Florida gar.....	<i>Lepisosteus platyrhincus</i>	53,55
Bowfin	<i>Amia calva</i>	53,55
American eel.....	<i>Anguilla rostrata</i>	53,55
Gizzard shad.....	<i>Dorosoma cepedianum</i>	53,55
Threadfin shad.....	<i>Dorosoma petenense</i>	53,55
Chain pickerel.....	<i>Esox niger</i>	53,55
Golden shiner	<i>Notemigonus crysoleucas</i>	53,55
Redeye chub.....	<i>Notropis harperi</i>	53,55
Sailfin shiner	<i>Notropis hypselopterus</i>	53,55
Coastal shiner	<i>Notropis petersoni</i>	53,55
Pugnose minnow	<i>Opsopoeodus emiliae</i>	53,55
Lake chubsucker.....	<i>Erimyzon sucetta</i>	53,55
Snail bullhead	<i>Ameiurus brunneus</i>	53,55
White catfish	<i>Ameiurus catus</i>	53,55
Yellow bullhead.....	<i>Ameiurus natalis</i>	53,55
Channel catfish	<i>Ictalurus punctatus</i>	53,55
Tadpole madtom	<i>Noturus gyrinus</i>	53,55
Redfin needlefish.....	<i>Strongylura notata</i>	53,55
Golden topminnow	<i>Fundulus chrysotus</i>	53,55
Lined topminnow	<i>Fundulus lineolatus</i>	53,55
Pygmy killifish	<i>Leptolucania ommata</i>	53,55
Bluefin killifish.....	<i>Lucania goodei</i>	53,55
Rainwater killifish.....	<i>Lucania parva</i>	53,55
Eastern mosquitofish.....	<i>Gambusia holbrooki</i>	53,55
Least killifish.....	<i>Heterandria formosa</i>	53,55
Sailfin molly	<i>Poecilia latipinna</i>	53,55
Brook silverside	<i>Labidesthes sicculus</i>	53,55
Okefenokee pygmy sunfish.....	<i>Elassoma okefenokee</i>	53,55
Redbreast sunfish	<i>Lepomis auritus</i>	53,55
Warmouth	<i>Lepomis gulosus</i>	53,55
Bluegill	<i>Lepomis macrochirus</i>	53,55
Redear sunfish	<i>Lepomis microlophus</i>	53,55
Spotted sunfish	<i>Lepomis punctatus</i>	53,55
Largemouth bass	<i>Micropterus salmoides</i>	53,55
Black crappie.....	<i>Pomoxis nigromaculatus</i>	53,55
Swamp darter	<i>Etheostoma fusiforme</i>	53,55

Silver River State Park – Animals

Common Name	Scientific Name	Primary Habitat (for all species)
-------------	-----------------	--------------------------------------

Blackbanded darter	Percina nigrofasciata	53,55
Armored catfish*	Pterygoplichthys disjunctivus	

AMPHIBIA

AMPHIBIANS

Lesser siren	Siren intermedia.....	33,53,55
Narrow-striped dwarf siren.....	Pseudobranchius striatus axanthus	33,53,55
Southern cricket frog.....	Acris gryllus gryllus	29,30,33,41
Pine woods treefrog	Hyla femoralis.....	21,29,30
Southern spring peeper.....	Pseudacris crucifer bartramiana	29,30,53,55
Bullfrog.....	Rana catesbeiana	29,33,30,53,55
Bronze frog.....	Rana clamitans clamitans	21,33,53,55
Pig frog	Rana grylio	29,30,53,55
River frog	Rana heckscheri.....	33,53,55
Florida leopard frog.....	Rana utricularia sphenoccephala.....	33,53,55

REPTILIA

REPTILES

Florida snapping turtle	Chelydra serpentina osceola.....	30,53,55
Florida mud turtle.....	Kinosternon subrubrum steindachneri	30,53,55
Loggerhead musk turtle	Sternotherus minor minor.....	53,55
Common musk turtle	Sternotherus odoratus	33,53,55
Florida redbelly turtle.....	Pseudemys nelsoni	53,55
Florida box turtle.....	Terrapene carolina bauri.....	8,21,33
Gopher tortoise	Gopherus polyphemus	13,14,15,23,82
Florida softshell	Apalone ferox	53,55
American alligator.....	Alligator mississippiensis.....	29,30,33,53,55
Green anole	Anolis carolinensis carolinensis.....	8,21,33
Brown anole *	Anolis sagrei	82
Southern fence lizard	Sceloporus undulatus undulatus.....	13,14,15,23
Six-lined racerunner.....	Cnemidophorus sexlineatus sexlineatus.....	13,14,15
Ground skink	Scincella lateralis	21,33
Southern black racer.....	Coluber constrictor priapus	8,23,41
Eastern indigo snake	Drymarchon corais couperi	8,13,14,15,21
Corn snake	Elaphe guttata guttata	8,13,21,33
Yellow rat snake	Elaphe obsoleta quadrivittata.....	8,13,21,33
Eastern mud snake	Farancia abacura abacura	30,33

* Non-native Species

Silver River State Park – Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Rainbow snake.....	<i>Farancia erythrogramma erythrogramma</i>	33,55
Scarlet kingsnake.....	<i>Lampropeltis triangulum elapsoides</i>	8,41
Eastern coachwhip	<i>Masticophis flagellum flagellum</i>	8,14
Banded water snake	<i>Nerodia fasciata fasciata</i>	53,55
Brown water snake.....	<i>Nerodia taxispilota</i>	33,53,55
Short-tailed snake.....	<i>Stilosoma extenuatum</i>	13,14,15
Peninsula ribbon snake.....	<i>Thamnophis sauritus sackeni</i>	30
Rough earth snake.....	<i>Virginia striatula</i>	8,23
Eastern coral snake.....	<i>Micrurus fulvius fulvius</i>	21,33
Eastern cottonmouth	<i>Agkistrodon piscivorus piscivorus</i>	30,33
Eastern diamondback rattlesnake.....	<i>Crotalus adamanteus</i>	8,21,33,41

AVES

BIRDS

Pied-billed Grebe.....	<i>Podilymbus podiceps</i>	53,55
Double-crested Cormorant.....	<i>Phalacrocorax auritus</i>	53,55
Anhinga.....	<i>Anhinga anhinga</i>	53,55
American Bittern	<i>Botaurus lentiginosus</i>	29,33,53,55
Least Bittern	<i>Ixobrychus exilis</i>	29,33,53,55
Great Blue Heron.....	<i>Ardea herodias</i>	29,33,53,55
Great Egret.....	<i>Ardea alba</i>	29,33,53,55
Snowy Egret.....	<i>Egretta thula</i>	29,33,53,55
Little Blue Heron	<i>Egretta caerulea</i>	29,33,53,55
Tricolored Heron.....	<i>Egretta tricolor</i>	29,33,53,55
Cattle Egret	<i>Bubulcus ibis</i>	82
Green Heron	<i>Butorides virescens</i>	29,33,53,55
Black-crowned Night-Heron.....	<i>Nycticorax nycticorax</i>	33,53,55
White Ibis	<i>Eudocimus albus</i>	29,30,33,53,55
Glossy Ibis.....	<i>Plegadis falcinellus</i>	29,30,33,53,55
Wood Stork	<i>Mycteria americana</i>	29,30,33,53,55
Black Vulture	<i>Coragyps atratus</i>	OF
Turkey Vulture	<i>Cathartes aura</i>	OF
Wood Duck	<i>Aix sponsa</i>	30,33,53,55
Green-winged Teal.....	<i>Anas crecca</i>	53,55
Mottled Duck.....	<i>Anas fulvigula</i>	53,55
Osprey	<i>Pandion haliaetus</i>	53,55
Swallow-tailed Kite.....	<i>Elanoides forficatus</i>	30,33
Cooper's Hawk	<i>Accipiter cooperii</i>	8,13,21
Red-shouldered Hawk.....	<i>Buteo lineatus</i>	8,21,33,41
Red-tailed Hawk	<i>Buteo jamaicensis</i>	8,13,21

Silver River State Park – Animals

Common Name	Scientific Name	Primary Habitat (for all species)
American Kestrel	<i>Falco sparverius</i>	8,13,15,21
Southeastern American Kestrel...	<i>Falco sparverius paulus</i>	8,13,15,21
Wild Turkey	<i>Meleagris gallopavo</i>	8,13,21,23
Northern Bobwhite	<i>Colinus virginianus</i>	8,13,15
Common Moorhen	<i>Gallinula chloropus</i>	53,55
American Coot.....	<i>Fulica americana</i>	53,55
Limpkin.....	<i>Aramus guarauna</i>	53,55
Sandhill Crane	<i>Grus canadensis</i>	29
Black-necked Stilt	<i>Himantopus mexicanus</i>	29,55
American Avocet.....	<i>Recurvirostra americana</i>	29,55
Mourning Dove	<i>Zenaida macroura</i>	8,13,21
Yellow-billed Cuckoo.....	<i>Coccyzus americanus</i>	8,13,21,30
Barred Owl.....	<i>Strix varia</i>	20,21,30,33
Common Nighthawk	<i>Chordeiles minor</i>	8,13,21
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	8,13,21
Chimney Swift	<i>Chaetura pelagica</i>	OF
Belted Kingfisher	<i>Ceryle alcyon</i>	30,53,55
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	8,13,21
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	8,13,14,21
Downy Woodpecker	<i>Picoides pubescens</i>	8,13,21,33
Hairy Woodpecker	<i>Picoides villosus</i>	8,13,33
Northern Flicker	<i>Colaptes auratus</i>	8,13,14,21
Pileated Woodpecker	<i>Dryocopus pileatus</i>	21,30,33
Acadian Flycatcher.....	<i>Empidonax virescens</i>	21,33
Eastern Phoebe	<i>Sayornis phoebe</i>	13,21,23
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	8,13,14,15,21,30
Tree Swallow	<i>Tachycineta bicolor</i>	53,55
Barn Swallow	<i>Hirundo rustica</i>	8,13,14,15,21,30
Blue Jay.....	<i>Cyanocitta cristata</i>	8,13,23
American Crow	<i>Corvus brachyrhynchos</i>	8,13,21
Fish Crow	<i>Corvus ossifragus</i>	21,33
Carolina Chickadee	<i>Parus carolinensis</i>	8,13,14,21
Tufted Titmouse	<i>Parus bicolor</i>	8,13,14,21
Carolina Wren.....	<i>Thryothorus ludovicianus</i>	8,20,21,33
Ruby-crowned Kinglet.....	<i>Regulus calendula</i>	21,33
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	8,13,21,35
Hermit Thrush.....	<i>Catharus guttatus</i>	21,33
American Robin.....	<i>Turdus migratorius</i>	21,33
Gray Catbird	<i>Dumetella carolinensis</i>	21,23
Northern Mockingbird	<i>Mimus polyglottos</i>	8,21,82
Brown Thrasher	<i>Toxostoma rufum</i>	8,21

Silver River State Park – Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Cedar Waxwing.....	<i>Bombycilla cedrorum</i>	8,21
White-eyed Vireo	<i>Vireo griseus</i>	21,33
Yellow-throated Vireo.....	<i>Vireo flavifrons</i>	8,13,14,15
Red-eyed Vireo.....	<i>Vireo olivaceus</i>	21,33
Northern Parula.....	<i>Parula americana</i>	8,13,14,15,21,23,33
Yellow-rumped Warbler.....	<i>Dendroica coronata</i>	8,14,21
Yellow-throated Warbler.....	<i>Dendroica dominica</i>	8,13,14,15,21,33
Pine Warbler	<i>Dendroica pinus</i>	8,13,21,41
Prairie Warbler	<i>Dendroica discolor</i>	8,13,14,15
Black-and-white Warbler.....	<i>Mniotilta varia</i>	21,33
Prothonotary Warbler	<i>Protonotaria citrea</i>	30,33
Summer Tanager	<i>Piranga rubra</i>	8,21
Northern Cardinal.....	<i>Cardinalis cardinalis</i>	8,13,14,15,21,23,33,41
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	8,13,14,15,23
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	29,53,55
Boat-tailed Grackle.....	<i>Quiscalus major</i>	53,55
Common Grackle.....	<i>Quiscalus quiscula</i>	8,41,53,55,82
American Goldfinch.....	<i>Carduelis tristis</i>	8,21

MAMMALIA

MAMMALS

Virginia opossum	<i>Didelphis virginiana</i>	21,33,41
Eastern mole	<i>Scalopus aquaticus</i>	21,82
Southeastern myotis	<i>Myotis austroriparius</i>	53,55
Eastern pipistrelle.....	<i>Pipistrellus subflavus</i>	53,55
Red bat.....	<i>Lasiurus borealis</i>	53,55
Nine-banded armadillo *	<i>Dasyurus novemcinctus</i>	8,21,23,33,82
Marsh rabbit.....	<i>Sylvilagus palustris</i>	30,41
Eastern cottontail.....	<i>Sylvilagus floridanus</i>	8,13,41
Gray squirrel.....	<i>Sciurus carolinensis</i>	21,33,82
Fox squirrel	<i>Sciurus niger</i>	8,13,23
Southern flying squirrel.....	<i>Glaucomys volans</i>	21,23,33
Southeastern pocket gopher	<i>Geomys pinetis</i>	13,82
Coyote *	<i>Canis latrans</i>	13,21,82
Gray fox.....	<i>Urocyon cinereoargenteus</i>	8,13,21,33
Florida black bear.....	<i>Ursus americanus floridanus</i>	8,13,21,33,41
Raccoon	<i>Procyon lotor</i>	8,13,21,33,41,82
River otter.....	<i>Lutra canadensis</i>	53,55
Striped skunk.....	<i>Mephitis mephitis</i>	21,41
Bobcat	<i>Felis rufus</i>	8,13,14,15,21,33,41

* Non-native Species

Silver River State Park – Animals

Common Name	<i>Scientific Name</i>	Primary Habitat (for all species)
White-tailed deer	<i>Odocoileus virginianus</i>	8,13,14,15,21,33,41
Florida manatee	<i>Trichechus manatus</i>	55, 57

Natural Community Habitat Codes

Terrestrial

1. Beach Dune
2. Bluff
3. Coastal Berm
4. Coastal Rock Barren
5. Coastal Strand
6. Dry Prairie
7. Maritime Hammock
8. Mesic Flatwoods
9. Mesic Hammock
10. Coastal Grasslands
11. Pine Rockland
12. Prairie Hammock
13. Rockland Hammock
14. Sandhill
15. Scrub
16. Scrubby Flatwoods
17. Shell Mound
18. Sinkhole
19. Slope Forest
20. Upland Glade
21. Upland Hardwood Forest
22. Upland Mixed Forest
23. Upland Pine Forest
24. Xeric Hammock

Palustrine

25. Basin Marsh
26. Basin Swamp
27. Baygall
28. Bog
29. Bottomland Forest
30. Coastal Interdunal Swale
31. Depression Marsh
32. Dome
33. Floodplain Forest
34. Floodplain Marsh
35. Floodplain Swamp
36. Freshwater Tidal Swamp
37. Hydric Hammock
38. Marl Prairie
39. Seepage Slope
40. Slough
41. Strand Swamp
42. Swale
43. Wet Flatwoods
44. Wet Prairie

Lacustrine

45. Clastic Upland Lake
46. Coastal Dune Lake
47. Coastal Rockland Lake

Lacustrine--Continued

48. Flatwood/Prairie Lake
49. Marsh Lake
50. River Floodplain Lake
51. Sandhill Upland Lake
52. Sinkhole Lake
53. Swamp Lake

Riverine

54. Alluvial Stream
55. Blackwater Stream
56. Seepage Stream
57. Spring-Run Stream

Estuarine

58. Estuarine Algal Bed
59. Estuarine Composite Substrate
60. Estuarine Consolidated Substrate
61. Estuarine Coral Reef
62. Estuarine Grass Bed
63. Estuarine Mollusk Reef
64. Estuarine Octocoral Bed
65. Estuarine Sponge Bed
66. Estuarine Tidal Marsh
67. Estuarine Tidal Swamp
68. Estuarine Unconsolidated Substrate
69. Estuarine Worm Reef

Marine

70. Marine Algal Bed
71. Marine Composite Substrate
72. Marine Consolidated Substrate
73. Marine Coral Reef
74. Marine Grass Bed
75. Marine Mollusk Reef
76. Marine Octocoral Bed
77. Marine Sponge Bed
78. Marine Tidal Marsh
79. Marine Tidal Swamp
80. Marine Unconsolidated Substrate
81. Marine Worm Reef

Subterranean

82. Aquatic Cave
83. Terrestrial Cave

Miscellaneous

84. Ruderal
85. Developed

MTC.....Many Types of Communities
OFOver Flying



Addendum 6 – Imperiled Species Ranking Definitions

Imperiled Species Ranking Definitions

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

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

Federal and State status information is from the U.S. Fish and Wildlife Service; and the Florida 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)

Imperiled Species Ranking Definitions

- 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#Qrank 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
- SHof 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
- SEan exotic species established in Florida may be native elsewhere in North America
- SNregularly 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)
- NNot currently listed, nor currently being considered for listing, by state or federal agencies.

Imperiled Species Ranking Definitions

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.

STATE

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

- LE..... Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.
- LT..... 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.
- LS..... 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?

Imperiled Species Ranking Definitions

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

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised February 2007)

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 in the following:

Chapter 253, F.S. – State Lands

Chapter 267, F.S. – Historical Resources

Chapter 872, F.S. – Offenses Concerning Dead Bodies and Graves

Other helpful citations and references:

Chapter 1A-32, F.A.C. – Archaeological Research

Other helpful citations and references:

Chapter 1A-44, F.A.C. – Procedures for Reporting and Determining Jurisdiction Over Unmarked Human Burials

Chapter 1A-46, F.A.C. – Archaeological and Historical Report Standards and Guidelines

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised February 2007)

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, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

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, the following information, at a minimum, must be submitted for comments and recommendations.

Project Description – A detailed description of the proposed project including all related activities. For land clearing or ground disturbing activities, the depth and extent of the disturbance, use of heavy equipment, location of lay down yard, etc. For historic structures, specific details regarding rehabilitation, demolition, etc.

Project Location – The exact location of the project indicated on a USGS Quadrangle map, is preferable. A management base map may be acceptable. Aerial photos indicating the exact project area as supplemental information are helpful.

Photographs – Photographs of the project area are always useful. Photographs of structures are required.

Description of Project Area – Note the acreage of the project, describe the present condition of project area, and any past land uses or disturbances.

Description of Structures – Describe the condition and setting of each building within project area if approximately fifty years of age or older.

Recorded Archaeological Sites or Historic Structures – Provide Florida Master Site File numbers for all recorded historic resources within or adjacent to the project area. This information should be in the current management plan; however, it can be obtained by contacting the Florida Master Site File at (850) 245-6440 or Suncom 205-6440.

* * *

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised February 2007)

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

Susan M. Harp
Historic Preservation Planner
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) 245-6333
Suncom: 205-6333
Fax: (850) 245-6438

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised February 2007)

Eligibility Criteria for National Register of Historic Places

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

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

- 2)** Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the *National Register*. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
 - a)** a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
 - b)** a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
 - c)** a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
 - d)** a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; or
 - e)** a reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
 - f)** a property achieving significance within the past 50 years, if it is of exceptional importance.

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

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

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which 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--2007 Final Land Management Review Report

LAND MANAGEMENT REVIEW OF SILVER RIVER STATE PARK

LEASE NO. 3488--MARCH 21, 2007

Prepared by Division of State Lands Staff
Keith Singleton, Land Acquisition & Management Planner
Lyndi Meeks, Administrative Assistant

For
Silver River State Park Review Team

FINAL
June 19, 2007

Land Manager:	<u>DEP/DRP</u>
Area:	<u>4,867 acres</u>
County:	<u>Marion</u>
Mgmt. Plan Revised:	<u>4/25/02</u>
Mgmt. Plan Due:	<u>4/25/12</u>

Silver River State Park 2007 Final Land Management Review Report

Management Review Team Members

Agency Represented	Team member Appointed	Team member In attendance
DOF	Bill Korn	Bill Korn
Conservation Org. (FNPS)	Mary Rhodes	Mary Rhodes
DEP Central	Kimberly Eisele	Kimberly Eisele
Marion County	Guy Marwick	Guy Marwick
Marion SWCD	Katherine Green	Katherine Green
FWCC	Andrea Boliek	Andrea Boliek
Private Land Manager	Walt Thomson	Walt Thomson
DRP District	Amy Copeland	Amy Copeland
Observer (DRP)	Bob Lamont	
Observer (DRP)	Christine Dorrier	
Observer (DEP District)	Lauren Staly	
Observer (DOS/DHR)	Louis Tesar	

Process For Implementing Regional Management Review Teams

Legislative Intent And Guidance:

Chapter 259.036, F. S. was enacted in 1997 to determine whether conservation, preservation and recreation lands owned by the state Board of Trustees of the Internal Improvement Trust Fund (Board) are being managed properly. It directs the Department of Environmental Protection (DEP) to establish land management review teams to evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions and archaeological features. The teams also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, comply with the adopted management plan. If a land management plan has not been adopted, the review shall consider the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices comply with the management policy statement and management prospectus for that property. If the land management review team determines that reviewed lands are not being managed for the purposes for which they were acquired or in compliance with the adopted land management plan, management policy statement, or management prospectus, DEP shall provide the review findings to the Board, and the managing agency must report to the Board its reasons for managing the lands as it has. A report of the review team findings are given to the managing agency under review, the Acquisition and Restoration Council, and the Governor and Cabinet and made available by site on the web at www.dep.state.fl.us/lands/landmgt/maps/default.htm.

REVIEW SITE

The management review of Silver River State Park considered approximately 4,867 acres in Marion County that are managed by the Division of Recreation and Parks. The team evaluated the extent to which current management actions are sufficient, whether the land is being managed for the purpose for which it was acquired, and whether actual management practices, including public access, comply with the management plan. The management plan update is due on April 25, 2012.

Review Team Determination

1. Is the land being managed for the purpose for which it was acquired? Six out of eight team members agreed Silver River State Park is being managed for the purpose for which it was acquired.
2. Are actual management practices, including public access, in compliance with the management plan? Six out of eight team members agreed Silver River State Park complies with the management plan.

Commendations to the Managing Agency

1. The team commends the staff for the partnership with the county and the Silver River Museum to provide the outstanding public education facilities and programs at the park.
2. The team commends the manager on the long-term, aggressive invasive exotic plant treatment program, especially cogongrass that has led to a maintenance condition over much of the park.
3. The team commends the manager and staff for their effective and efficient use of resources to manage the multiple demands of this park.
4. The team commends the manager for the thoughtful design and outstanding management of camping, cabin and public access facilities at this park.
5. The team commends the manager for his diligence in participation in local planning decisions, the Silver Springs Basin Working Group and other growth management forums.

Exceptional Management Actions

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

1. Management of the Natural Communities including, the upland mixed forest, xeric hammock, depression marsh, dune and floodplain swamp.
2. Restoration of the wetland area.
3. Control of invasive animals and plants.
4. Resource protection with signage.

5. Public access including roads, parking, recreational opportunities and interpretive signs.
6. Environmental education and outreach programs.
7. Sanitary facilities and waste disposal.

Recommendations and Checklist Findings

Recommendations: The following recommendations resulted from a discussion and vote of review team members.

1. The team recommends that DRP increase the level of staffing and/or resources at this park to address the natural resource management, biological science and facilities management needs. At least three additional staff members (1 ranger, 1 park specialist, and 1 biologist) are needed at this park.

DRP Response: No new staff can be assigned to this or any other park unit unless they are appropriated by the Legislature or reassigned from other units. Additional staff is needed by a majority of parks statewide that is why we regularly seek positions, volunteers and partners. Funding is determined annually by the Florida Legislature. The updated unit management plan will address land management funding needs.

2. The team recommends that DEP work with other agencies to conduct a comprehensive, basin-wide hydrogeologic study to document historic conditions and model recent trends in surface and ground water level regimes and water quality. This research is needed for DRP to effectively participate in regulatory decisions that affect park aquatic resources.

DRP Response: Agree. DRP regularly interacts with the local water management district and county officials to express the need to monitor the surface and ground water quality at the park as well the hydrogeologic features of the spring. This is a research need that will be addressed in the plan and could be met by seeking grants, partnering with universities, and with mitigation work.

3. The team recommends that DRP address the water quality problems associated with the "Monster Pipe" effluent into Half Mile Creek.

DRP Response: Agree. The park along with city, county, and state agencies and local officials have already been working on correcting this problem and a number of options are being considered that take in account the sensitive biological resources along with the need for storm water retention.

4. The team recommends that DRP shorten the fire frequency in the sandhills of the park, and focus on more growing season fires.

DRP Response: Agree. DRP is working on shortening the fire frequency of the sandhills and understand the importance of this unique and disappearing natural community. We have begun this process by combining burn zones together so that larger tracks can be burned in fewer burn days. Our goal is to burn these zones in a 2 to

Silver River State Park 2007 Final Land Management Review Report

4 year fire return interval depending on onsite conditions.

5. The team recommends that DRP revisit the upland mixed forest and wet flatwoods designations, and include sinkholes in the natural communities section of the next unit management plan.

DRP Response: Agree. DRP is currently working on revising the unit management plan of the park that includes remapping of the natural communities. Attempts are made to survey as much of the landscape as possible on the ground and by using aerial interpretation.

6. The team recommends that the manager consult with FWCC to implement bear-proofing of the park facilities, including a visitor education component, as outlined in the existing unit management plan.

DRP Response: Agree. DRP will work with FWCC to implement this program when funding is secured.

7. The team recommends that DRP and DSL aggressively pursue completion of land acquisition within the park's optimum boundary and the existing Florida Forever land acquisition projects in this area.

DRP Response: Agree

8. The team recommends that DRP increase plant and animal monitoring effects at this park as indicators of ecosystem health.

DRP Response: Agree. To the extent possible, additional plant and animal surveys will be conducted at the park with a focus on species that could serve as accurate indicators of ecosystem health.

9. The team recommends that DRP include in the next unit management plan more detailed strategies and measurable goals and objectives for prescribed fire, ecosystem protection and hydrologic protection in the park.

DRP Response: Agree. DRP is currently revising the unit management plan to include the above suggestions.

Checklist findings

The following items received low scores on the review team checklist that indicates that management actions, in the field, were insufficient (f) or that the issue was not sufficiently addressed in the management plan (p). These items need to be further addressed in the management plan update.

1. Discussion in the management plan of management issues related to the Blackwater Stream(p,f), mesic flatwoods(f), sandhill(f), scrub(f), scrubby flatwoods(f), wet flatwoods(f), Spring-run Stream(f) and sinkhole.(f)

DRP Response: Agree. DRP will expand the descriptions in the management plan to include current conditions and management issues for the above communities.

2. Discussion in the management plan of the desired frequency and area of prescribed fire.(f)

DRP Response: Agree. The discussion within the plan has been expanded and updated

Silver River State Park 2007 Final Land Management Review Report

to include measurable goals, indicators and ecological objectives for fire type communities.

3. Discussion in the management plan of the efforts to restore the wetland area.(p)

DRP Response: Agree. DRP will continue to seek funding for restoration work on the eroded river shore and will continue to work with law enforcement to discourage use by the public in unauthorized areas.

4. Discussion in the management plan of the need to monitor ground water quantity/quality(p,f) and surface water quantity/quality.(f)

DRP Response: Agree. Currently updating the plan to include this.

5. Discussion in the management plan of potential impacts from expanding development (f), existing landfill (f), drainage (p,f), water consumption (p,f), ground water pollution caused by adjoining properties (p,f), Silver Springs Attraction (p,f) and inholdings/additions.(f)

DRP Response: Agree. To some extent, the plan already describes the above issues. The discussion will be expanded to include the missing information.

6. Discussion in the management plan of hydrologic/geologic function and hydro-alteration including, roads/culverts (f,p), ditches (p), hydro-period alteration (f,p), and water level alteration.(f,p)

DRP Response: Agree. This is a research need that that will be addressed in the plan and could be met by seeking grants, partnering with universities, and with mitigation work.

7. Discussion in the management plan of the protection and preservation of listed species including plant inventory.(f)

DRP Response: Agree. Plant inventory project opportunities will be sought. The procedures for protection and preservation of listed species is addressed in the DRP Operations Manual, section 10, subsection a, # 2.

http://depnet/parks/om/resource_management_policies.htm#three

8. Discussion in the management plan of resource protection including law enforcement presence.(f)

DRP Response: Disagree: Park resource protection protocol is addressed in the DRP Operations Manual, chapter 10, section 4 and is not in the scope of the plan.

http://depnet/parks/om/chapter10.htm#PROTECTING_NATURAL_RESOURCES_chp10

9. Discussion in the management plan of the need for additional staff and funding.(f)

DRP Response: Agree. It will be noted in our next revision of the unit management plan. However, no new staff can be assigned to this or any other park unit unless they are appropriated by the Legislature or reassigned from other units. Additional staff is needed by a majority of parks statewide that is why we regularly seek positions, volunteers and partners. Funding is determined annually by the Florida Legislature.

Silver River State Park 2007 Final Land Management Review Report
