

# FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building 3900 Commonwealth Boulevard Tallahassee, FL 32399 Ron DeSantis Governor

Jeanette Nuñez Lt. Governor

Shawn Hamilton Secretary

June 10, 2024

Mr. Brian Camposano Florida Forest Service Department of Agriculture and Consumer Services 3125 Conner Boulevard, Room 236 Tallahassee, Florida 32399-1650

#### RE: Seminole State Forest – Lease No. 3936

Dear Mr. Camposano:

On **June 7, 2024**, the Acquisition and Restoration Council (ARC) recommended approval of the **Seminole State Forest** management plan. Therefore, Division of State Lands, Office of Environmental Services (OES), acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Seminole State Forest** management plan. The next management plan update is due June 7, 2034.

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

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

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

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

Mr. Brian Camposano Page 2 June 10, 2024

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

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

Sincerely,

Sine Murray Program Administrator Office of Environmental Services Division of State Lands

# **TEN-YEAR LAND MANAGEMENT PLAN**

## FOR THE

# SEMINOLE STATE FOREST

## LAKE COUNTY



Oaks Camp at Seminole State Forest

Photo courtesy of Marylea Leuth

## PREPARED BY THE

## FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

## FLORIDA FOREST SERVICE

## APPROVED ON

JUNE 10, 2024

## **TEN-YEAR LAND MANAGEMENT PLAN**

## FOR THE

# SEMINOLE STATE FOREST



Approved by:

Richard Dolan, Director Florida Forest Service

6/17/2024 Date

James Roberts, Chief Forest Management Bureau

Date

## TEN-YEAR LAND MANAGEMENT PLAN SEMINOLE STATE FOREST TABLE OF CONTENTS

<ul> <li>Introduction</li></ul>	3 4 5 10 10 10 10 10 11 13
<ul> <li>A. General Mission and Management Plan Direction</li></ul>	3 10 10 10 10 10 10 11 13
<ul> <li>B. Past Accomplishments</li></ul>	4 5 10 10 10 10 11 13
<ul> <li>C. Goals / Objectives for the Next Ten-Year Period</li> <li>II. Administration Section</li> <li>A. Descriptive Information</li></ul>	5 10 10 10 10 11 13
<ul> <li>II. Administration Section</li> <li>A. Descriptive Information</li></ul>	10 10 10 10 11 13
<ol> <li>Administration Section</li> <li>A. Descriptive Information</li></ol>	10 10 10 10 11 13
<ul> <li>A. Descriptive information</li></ul>	10 10 10 11 13
<ol> <li>Common Name of Property</li> <li>Legal Description and Acreage</li> </ol>	
2. Legal Description and Acreage	
	11
3. Proximity to Other Public Resources	13
4. Property Acquisition and Land Use Considerations	
B. Management Authority, Purpose, and Constraints	15
1. Purpose for Acquisition / Management Prospectus	15
2. Degree of Title Interest Held by the Board	15
3. Designated Single or Multiple-Use Management	16
4. Revenue Producing Activities	16
5. Conformation to State Lands Management Plan	16
6. Legislative or Executive Constraints	17
7. Aquatic Preserve / Area of Critical State Concern	17
C. Capital Facilities and Infrastructure	17
1. Property Boundaries Establishment and Preservation	17
2. Improvements	17
3. On-Site Housing	
4. Operations Infrastructure	19
D. Additional Acquisitions and Land Use Considerations	19
1. Alternate Uses Considered	19
2. Additional Land Needs	20
3. Surplus Land Assessment	20
4. Adjacent Conflicting Uses	20
5. Compliance with Local Comprehensive Plan	21
6. Utility Corridors and Easements	
E. Agency and Public Involvement	21
1. Responsibilities of Managing Agencies	21
2. Law Enforcement	
3. Wildland Fire	
4. Public and Local Government Involvement	
5. Volunteers	23
6. Friends of Florida State Forests	23
III Archaeological / Cultural Resources and Protection	22
A Past I less	
B. Archaeological and Historical Resources	/ <b>`</b>

	C. Ground Disturbing Activities	25
	D. Survey and Monitoring	
IV	Natural Resources and Protection	26
1 .	A Soils and Geologic Resources	20
	1 Resources	20
	2 Soil Protection	20 27
	B Water Resources	27 27
	1. Resources	
	2. Water Classification	
	3. Water Protection	
	4. Swamps, Marshes, and Other Wetlands	
	5. Wetlands Restoration	
	6. Basin Management Action Plan	
	C. Flora and Fauna Resources	
	1. Rare, Threatened, and Endangered Species	
	2. Florida Natural Areas Inventory	
	3. Florida Fish and Wildlife Conservation Commission	
	4. Game Species and Other Wildlife	
	5. Survey and Monitoring	
	6. Gopher Tortoise Recipient Site Feasibility Assessment	
	D. Sustainable Forest Resources	
	E. Beaches and Dune Resources	
	F. Mineral Resources	
	G. Unique Natural Features and Outstanding Native Landscapes	
	H. Research Projects / Specimen Collection	
	I. Ground Disturbing Activities	
V.	Public Access and Recreation	40
	A. Existing Recreation Opportunities	
	B. Planned Recreation Opportunities	
	C. Hunter Access	
	D. Education	
VI.	Forest Management Practices	44
	A. Prescribed Fire	44
	B. Wildfire Prevention and Mitigation Strategies	
	1. Suppression Strategies	47
	2. Smoke Management	
	3. Firebreaks and Firelines	
	4. Sensitive Areas	
	5. Firewise Communities	
	6. Adjacent Neighbor Contacts	
	7. Post-Burn Evaluations	
	C. Sustainable Forestry & Silviculture	
	1. Strategies	
	2. Silvicultural Operations	
	5. Forest Inventory	
	4. 1 imper Sales	

		5. Cattle Grazing	.49
	D.	Invasive Species Control	49
	E.	Insects, Disease, and Forest Health	51
	F.	Use of Private Land Contractors	52
VII.	Pro	pposed Management Activities for Natural Communities	52
	A.	Basin Marsh	54
	В.	Basin Swamp	55
	C.	Baygall	57
	D.	Depression Marsh	58
	E.	Dome Swamp	. 59
	F.	Flatwoods Lake	60
	G.	Floodplain Marsh	61
	Η.	Floodplain Swamp	.62
	I.	Hydric Hammock	62
	J.	Mesic Flatwoods	63
	K.	Mesic hammock	65
	L.	Sandhill	66
	M.	Sandhill Upland Lake	.67
	N.	Scrub	68
	О.	Scrubby Flatwoods	.69
	P.	Wet Flatwoods	70
	Q.	Wet Prairie	.72
	R.	Xeric Hammock	73
	S.	Managed Landcover Types	73
	Τ.	Other Altered Landcover Types	75
VIII.	Re	ferences	76
IV	GL	assant of Abbreviations	77
IA			. / /

## **TABLES**

Table 1. Acreage by Funding Source	Page 10
Table 2. Nearby Public Conservation Land and Easements	Page 11
Table 3. Parcel Acquisition	Page 13
Table 4. Archaeological and Historical Sites on SSF	Page 24
Table 5. Rare, Endangered or Threatened Species	Page 31
Table 6. Invasive Plant Species Occurring on SSF	Page 50
Table 7. Natural Community Types	Page 52
Table 8. Managed Landcover Types	Page 53
Table 9. Other Altered Landcover Types	Page 53
Table 10. Prescribed Fire Interval Guide on SSF	Page 54

## TEN-YEAR LAND MANAGEMENT PLAN SEMINOLE STATE FOREST EXHIBITS

Twelve-Year Management Accomplishment Summary	Exhibit A
Boundary, Tract, Primary Roads, and Acreage Map	Exhibit B
Optimal Management Boundary Map	Exhibit C
Facilities, Recreation, and Improvements Maps	Exhibit D
Seminole State Forest Parcels Map	Exhibit E
Proximity to Significant Managed Lands Map	Exhibit F
Department of State Report on Archeological and Historical Sites	Exhibit G
Management Procedures for Archaeological and Historical Sites and Properties	
on State Owned or Controlled Lands	Exhibit H
Soil Types Map and Descriptions	Exhibit I
FDEP Outstanding Florida Waters	Exhibit J
Water Resources and BMAP Maps	Exhibit K
FNAI Managed Area Tracking Record	Exhibit L
FWC Listed Species Occurrence Records	Exhibit M
SSF Twelve-Year Fire History	Exhibit N
Invasive Species Map	Exhibit O
Current FNAI Natural Communities and Cover Type Map	Exhibit P
Historic FNAI Natural Communities and Cover Type Maps	Exhibit Q
FDEP Florida Forever Land Acquisition Project	Exhibit R
Land Management Reviews (2014 & 2019)	Exhibit S
Compliance with Local Comprehensive Plan	Exhibit T
State Forest Management Plan Advisory Group Summary	Exhibit U
State Forest Summary Budget	Exhibit V
Arthropod Control Plan	Exhibit W
Barrow Pit Map	Exhibit X

#### LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY:	Florida Department of Agriculture and Consumer Services (FDACS), Florida		
	Forest Service		
COMMON NAME:	Seminole State Forest (SSF)		
LOCATION:	Lake County		
ACREAGE TOTAL:	30,169.25 acres		

Historic Natural	Approximate	
Communities	Acreage	
Mesic flatwoods	8,363	
Scrub	5,495	
Hydric hammock	3,282	
Floodplain swamp	2,508	
Basin swamp	2,426	
Sandhill	1,995	
Basin marsh	1,564	
Scrubby flatwoods	1,280	
Wet flatwoods	1,182	

# TIITF LEASE AGREEMENT NUMBER: 3936 USE: Single \_\_\_\_\_ Multiple \_X

#### MANAGEMENT AGENCY

Florida DACS, Florida Forest Service Florida Fish and Wildlife Conservation Commission St. Johns River Water Management District Department of State, Division of Historical Resources

Historic Natural	Approximate
Communities	Acreage
Depression marsh	1,123
Baygall	370
Sandhill upland lake	238
Dome swamp	124
Mesic hammock	87
Floodplain marsh	61
Flatwoods lake	58
Wet prairie	13

## RESPONSIBILITY

General Forest Resource Management Wildlife Resources and Laws Water Resource Protection and Restoration Historical and Archaeological Resource Management

DESIGNATED LAND USE:	Multiple-Use State Forest	
SUBLEASES:	None	
ENCUMBRANCES:	Easements: Sumter Electric Cooperative, Progress Energy,	
	Florida Gas Transmission, City of Orlando, Lake County,	
	SJRWMD Conservation, and private ingress/egress	
TYPE OF ACQUISITION:	CARL, Preservation 2000, Florida Forever, SOR	
UNIQUE FEATURES:	Significant area of scrub and scrubby flatwoods; 19 named	
	springs, Wekiva River and Black Water Creek which are part	
	of the National Wild and Scenic Rivers System	
ARCHAEOLOGICAL / HISTORICAL:	Thirty-one (31) known sites	
MANAGEMENT NEEDS:	Restoration and maintenance of native ecosystems and	
	disturbed site restoration	
ACQUISITION NEEDS:	22,373 Acres of Optimal Management Boundary	
SURPLUS ACREAGE:	None	
PUBLIC INVOLVEMENT:	Liaison Committee, Lake County Council, Management Plan	
	Advisory Group and Public Hearing, Acquisition and	
	Restoration Council	

#### DO NOT WRITE BELOW THIS LINE (FOR DIVISION OF STATE LANDS USE ONLY)

ARC Approval Date:	TIITF Approval Date:
Comments:	

#### I. Introduction

Seminole State Forest (SSF) is comprised of 30,169.25-acres in two separate tracts. The Seminole Tract is within the Wekiva River Basin in eastern Lake County, approximately 9 miles west of Sanford, Florida. The Warea Tract is on the northern end of the Lake Wales Ridge in southern Lake County, approximately six miles east-southeast of Clermont, Florida. The distinctive character of SSF is its ecological diversity, which includes nearly all of the naturally occurring vegetation communities found in Central Florida. Some of the major natural communities found on the forest include mesic flatwoods, hydric hammocks, scrub, and sandhill. Other unique features include 19 named springs, and portions of two of the three waterways that make up a federally dedicated National Wild and Scenic River System.

Together with other adjacent public and private lands, the forest provides a vital wildlife corridor between the Wekiva Basin and the Ocala National Forest. This corridor has an abundance of wildlife including the Florida black bear. The forest provides habitat for one of the largest populations of the federally threatened Florida scrub-jay on any state-owned land and is one of the few areas with a stable population. The Florida scrub-jay is the only bird species found exclusively in Florida and can be seen in several areas across SSF.

The first of over 90 individual parcels that comprise the forest was acquired beginning in 1990. These properties were acquired under the Conservation and Recreation Lands (CARL), Save Our Rivers (SOR), Preservation 2000 (P2000), FFS in-holdings and additions programs, and Florida Forever to protect significant habitat for endangered species. The majority of the 30,169.25-acre Seminole Tract was acquired as part of the Wekiva-Ocala Greenway CARL Project, formerly known as the Wekiva-Ocala Connector. The 120-acre Warea Tract was acquired as part of the Lake Wales Ridge Ecosystem CARL Project.

Prior to State acquisition, historic use of SSF properties included bald cypress logging in the swamps, followed by hardwood logging, naval stores production, pine logging in the flatwoods and sandhill, cattle ranching, hunting, fishing, and in some locations homesteads.

#### A. General Mission and Management Plan Direction

The primary mission of the Florida Forest Service (FFS) is to "protect Florida and its people from the dangers of wildland fire and manage the forest resources through a stewardship ethic to assure they are available for future generations."

Management strategies for SSF center on the multiple-use concept, as defined in sections 589.04(3) and 253.034(2)(a) F.S. Implementation of this concept will utilize and conserve SSF resources in a harmonious and coordinated combination that will best serve the people of the state of Florida, and that is consistent with the purpose for which the forest was acquired. Multiple-use management for SSF will be accomplished with the following strategies:

- Practice sustainable forest management for the efficient generation of revenue and in support of state forest management objectives;
- Provide for resource-based outdoor recreation opportunities for multiple interests;

- Restore and manage healthy forests and native ecosystems ensuring the long-term viability of populations and species listed as endangered, threatened, or rare, and other components of biological diversity, including game and non-game wildlife, and plants;
- Protect known archaeological, historical, and cultural resources;
- Restore, maintain, and protect hydrological functions, related water resources, and the health of associated wetlands and aquatic communities; and
- > Provide research and educational opportunities related to natural resource management.

This management plan is provided according to requirements of Sections 253.034, 259.032, and 373, Florida Statutes (F.S.), and was prepared utilizing guidelines outlined in Section 18-2.021 of the Florida Administrative Code (F.A.C.). It is not an annual work plan or detailed operational plan but provides general guidance for the management of SSF for the next tenyear period and outlines the major concepts that will guide management activities on the forest. Though not part of this plan, each state forest also updates and maintains five-year action plans for silviculture, ecology, prescribed fire, roads and bridges, boundary maintenance, and recreation. These internal plans are updated annually with the current year serving as the annual operations plan for the forest.

#### B. Past Accomplishments

Data regarding past management activities and public use on SSF have been compiled monthly and are available from the Forest Manager. A table has been prepared for this plan that summarizes the accomplishments made over the past twelve years. See Exhibit A. The table does not attempt to account for all activities on the forest but summarizes major activities. Among the most notable are the following:

- Forest Management
  - Conducted forest inventory targeting 10% of total forest acres annually
  - Planted 147,000 bareroot slash pines on 203 acres
  - Planted 398,500 containerized longleaf pines on 573 acres
  - Harvested 36,503 tons of timber from approximately 1,914 acres
  - Harvested 164,000 pieces of Crooked Wood
- Fire Management
  - Conducted prescribed burns totaling 22,159 acres
  - Rehabilitated 8 miles of firelines
- Road / Boundary Management
  - Improved or rebuilt 12 miles of forest roads
  - Graded 78 miles of roads
  - Maintained 96 miles of forest boundary
  - Opened 1.3 miles of open-designated road for public access
- Recreation Management
  - Hosted more than 893,000-day use and camping visitors on the forest
  - Completed six informational kiosks
  - Installed five vaulted restrooms at two trailheads and three group campsites
  - Established interpretive trail around Bear Pond

- Added 7.9 miles of hiking trails
- Opened 1 group campsite and three camp zones
- Established interpretive paddling trail on Black Water Creek
- Conducted annual Welcome to The Woods event to promote recreational opportunities
- Provided native ecosystem educational tours for youths and adults, focusing on scrub and springs
- o Educational youth hunts held on areas not part of the WMA
- Biological Management
  - Actively controlled more than 30 invasive plant species on 1,750 acres
  - Removed 50 feral hogs
  - Monitored, surveyed, and sampled 24 threatened and endangered plant species, including Clasping warea, Lewton's milkwort, Florida hasteola (first recorded count known), and giant orchid, among others
  - Discovered and mapped six threatened and endangered plant species previously not known to be found on SSF
  - Mapped T&E plant species locations, gopher frog breeding ponds and holes, and striped newt breeding ponds
  - o Identified, counted, and delineated largest known giant orchid population in Florida
  - Continued monitoring, mapping, and banding of the SSF Florida scrub-jay population
  - Installed and monitored 10 nest boxes for the threatened southeastern American kestrel
  - o Identified over 450 plants not previously known to be found on SSF
  - Implemented ongoing scrub habitat treatment program
- Education / Public Outreach
  - Hosted more than 70 forest-related program events (local school programs, clubs, and professional groups)
  - Produced 2 radio, television, and / or print articles featuring forest activities
  - Hosted 9 research projects

#### C. Goals / Objectives for the Next Ten-Year Period

The following goals and objectives provide direction and focus of management resources for the next ten-year planning period. Funding, agency program priorities, and the potential for wildfire or other natural disasters during the planning period will determine the degree to which these objectives can be met. Management activities on SSF during this management period must serve to conserve, protect, utilize, and enhance the natural and historical resources and manage resource-based public outdoor recreation, which is compatible with the conservation and protection of this forest. Most of the management operations will be conducted by the FFS, although appropriate activities will be contracted to private sector vendors or completed with the cooperation of other agencies. All activities will enhance the property's natural resource or public recreation value. The management activities listed below will be addressed within the ten-year management period and are defined as short-term goals, long-term goals, or ongoing goals. Short-term goals are goals that are achievable within a two-year planning period, and long-term goals are achievable within a ten-year planning period. Objectives are listed in priority order for each goal.

#### **<u>GOAL 1</u>**: Sustainable Forest Management

**Objective 1**: Continue to update and implement the Five-Year Silviculture Action Plan including reforestation, timber harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. (Ongoing objective)

#### **Performance Measures**:

- Annual updates of the Five-Year Silviculture Action Plan completed
- Continued implementation of the Five-Year Silviculture Action Plan (acres treated)

**Objective 2**: Continue to implement the FFS process for developing stand descriptions and conducting forest inventory, including maintaining a GIS database containing forest stands, roads, and other attributes (including, but not limited to: rare, threatened, and endangered species, archaeological and historical resources, and invasive species locations). (Ongoing objective)

#### **Performance Measures:**

- Update GIS database and re-inventory all attributes as required by FFS procedures
- Number of acres inventoried

#### > <u>GOAL 2</u>: Public Access and Recreation Opportunities

**Objective 1**: Maintain public access and recreation activities that are compatible with multiple-use management. (Ongoing objective)

Performance Measure: Number of visitor opportunities per day

**Objective 2**: Continue to safely integrate visitor use into SSF, following the Five-Year Outdoor Recreation Plan, and update annually. (Ongoing objective) **Performance Measures**:

- Continued implementation of the Five-Year Outdoor Recreation Plan
- Annual updates of the Five-Year Outdoor Recreation Plan completed

**Objective 3**: Continue to involve and meet with the Liaison Committee. The purpose of Liaison Committee meetings is to facilitate communication between the FFS and committee members (and the groups they represent) about state forest management and to obtain feedback from these entities. The Liaison Committee consists of local residents, community leaders, special interest group representatives (vendors, hunters, and other recreation users, etc.), environmental group representatives, and other public / private entities. (Ongoing objective)

#### **Performance Measures**:

- Liaison Committee remains organized
- Annual meetings continue

**Objective 4**: Evaluate the potential for additional public access and recreation areas on SSF that are compatible with multiple-use management. Recreation opportunities will fall under the scope of multi-use management in accordance with watershed protection, conservation, and ecosystem restoration; and as detailed in the purpose for acquisition. (Short-term objective)

**Performance Measure**: List of viable access points and visitor opportunities for consideration.

**Objective 5**: Maintain cooperation with Florida Fish and Wildlife Conservation Commission (FWC) to develop specific hunting season quotas and bag limits, and to address hunting issues which are to be agreed upon at an annual cooperator meeting between FFS and FWC. (Ongoing objective)

#### **Performance Measures:**

- Annual letter on agreed-upon hunting issues
- Updated rules posted and WMA brochures available online at MyFWC.com

**Objective 6**: Recruit volunteers and volunteer organizations to assist with recreation and / or resource management. (Ongoing objective)

#### **Performance Measures:**

- Number of volunteers and organizations that assist with projects
- Number of hours provided by volunteers

#### **<u>GOAL 3</u>**: Habitat Restoration, Improvement, and Fire Management

**Objective 1**: The SSF currently contains approximately 16,184 acres of fire-dependent communities. SSF staff will plan and conduct prescribed burns in a manner that benefits these fire-dependent natural communities within the forest. To achieve an adequate fire-return interval for its fire-dependent communities, SSF will plan and attempt to conduct prescribed fires every two (2) to four (4) years for all flatwoods, sandhill, and associated communities; and eight (8) to twelve (12) years for scrub, scrubby flatwoods, and associated communities. FFS will attempt to conduct prescribed burns on an average of approximately 3,800 to 4,600 acres per year. Currently, FFS staff estimates 6,400 acres at SSF are within the desired fire-return interval. (Ongoing objective)

#### **Performance Measures:**

- Annual number of acres burned
- Number of acres burned within target fire-return interval

**Objective 2**: Continue to annually update and implement the Five-Year Prescribed Burning Management Plan and the prescribed burning goals. (Ongoing objective)

#### **Performance Measures:**

- Annual updates of the Five-Year Prescribed Burning Management Plan completed
- Continued implementation of the Five-Year Prescribed Burning Management Plan (acres treated)

**Objective 3**: Reduce the threat of wildfire within the wildland urban interface on SSF and the surrounding community through a comprehensive mitigation strategy that includes

evaluating vegetative fuels near residential areas and identifying potential fuel reduction projects. (Ongoing objective)

#### **Performance Measures:**

- Evaluations complete
- Should the evaluations determine that fuel reduction is necessary, number of acres treated for fuel reduction

**Objective 4**: Utilize prescribed fire to enhance restoration of native groundcover. Evaluate areas where native groundcover has been eliminated or heavily impacted from historical land use on a case-by-case basis for alternative methods to address re-establishment of native groundcover. Restore native groundcover from historical land use, where practical, or, heavily impacted from historical land use. (Long-term objective)

#### **Performance Measures:**

- Number of acres evaluated
- Number of acres treated

# **GOAL 4**: Listed and Rare Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

**Objective 1**: In cooperation with FWC, develop a Wildlife Management Strategy addressing wildlife species for SSF, with emphasis on imperiled species and associated management prescriptions for their habitats. (Ongoing objective)

#### **Performance Measures:**

- Imperiled species management strategy completed
- Acres of habitat treated or restored
- Number of occurrences of a species, or locations of habitat found, recorded, and reported
- Baseline listed and rare species list completed for SSF

**Objective 2**: In consultation with FWC, implement survey and monitoring protocols, where feasible, for listed and rare species. (Ongoing objective)

**Performance Measure**: Number of species for which monitoring is ongoing

**Objective 3:** In cooperation with the FNAI and the FFS Forest Management Bureau State Lands Section, develop and implement strategies for locating, identifying, mapping, preserving, and monitoring threatened and endangered plant species and/or associated plant community(ies).

#### **Performance Measures:**

- Newly found threatened and endangered plant species, or newly identified populations of known species, added to running species list on a timely basis and reported to appropriate entity
- Surveys of threatened and endangered plant species in known populations completed on a regular schedule and reports provided to the appropriate entities

#### **<u>GOAL 5</u>**: Invasive Species Management and Control

**Objective 1**: Continue to follow and annually update the Five-Year Ecological Plan for SSF, to locate, identify, and control invasive species. (Ongoing objective)

#### **Performance Measures**:

- Total number of acres mapped and treated
- Annual updates of the Five-Year Ecological Plan completed
- Continue to maintain SSF invasive species database

#### **<u>GOAL 6</u>**: Cultural and Historical Resource Management

**Objective 1**: Ensure all known cultural and historical sites are recorded in the Florida Department of State, Division of Historical Resources (DHR) Florida Master Site File. (Ongoing objective)

Performance Measure: Documentation of known sites

**Objective 2**: Monitor recorded sites annually and send updates to the DHR Florida Master Site File as needed. (Ongoing objective)

Performance Measure: Number of sites monitored. Reports submitted to DHR

**Objective 3**: Maintain at least one (1) qualified staff member as an Archaeological Resource Management (ARM) Monitor. (Ongoing objective) **Performance Measure**: Number of local staff trained as ARM monitors

#### **<u>GOAL 7</u>**: Hydrological Preservation and Restoration

**Objective 1**: Protect water resources during management activities through the implementation of all applicable Silviculture Best Management Practices (BMPs). (Ongoing objective)

**Performance Measure**: Percent compliance with Silviculture BMPs

**Objective 2**: Conduct or obtain a site assessment/study to identify potential hydrological restoration needs. (Short-term objective)

Performance Measure: Assessment conducted

**Objective 3**: Close, rehabilitate, or restore roads, firelines, and trails that are causing hydrologic alterations or negatively impacting water quality. (Ongoing objective) **Performance Measure:** Total number of roads, firelines, and trails closed, rehabilitated, and / or restored

#### > <u>GOAL 8</u>: Capital Facilities and Infrastructure

**Objective 1**: SSF staff, along with help from volunteers and / or user groups, will continue maintenance of the visitor center, picnic pavilion, eight primitive camping sites, 11 parking areas and two trailheads, 45 miles of trails, and 133 miles of primary and service roads. (Ongoing objective)

**Performance Measure**: The number of existing facilities, miles of roads, and miles of trails maintained

**Objective 2**: Continue to follow the Five-Year Roads and Bridges Management Plan and update annually. (Ongoing objective)

#### **Performance Measures**:

- Continued implementation of the Five-Year Roads and Bridges Management Plan
- Annual updates of the Five-Year Roads and Bridges Management Plan completed

**Objective 3**: Continue to implement the Five-Year Boundary Survey and Maintenance Management Plan and update annually. Approximately 20 percent of the forest boundary will be remarked annually as necessary, which includes harrowing, reposting signage, and repainting boundary trees. (Ongoing objective)

#### **Performance Measures**:

- Continued implementation of the Five-Year Boundary Survey and Maintenance Management Plan
- Percentage of forest boundary maintained each year
- Annual updates of the Five-Year Boundary Survey and Maintenance Management Plan completed

#### II. Administration Section

#### A. <u>Descriptive Information</u>

#### 1. <u>Common Name of Property</u>

The common name of the property is Seminole State Forest.

#### 2. Legal Description and Acreage

The SSF is comprised 30,169.25 acres.

The forest's two tracts are comprised of 100 parcel acquisitions totaling 30,169.25 acres located in Lake County in central Florida. The Seminole Tract is located in northeastern Lake County, between the Ocala National Forest and State Road 46 (SR 46). The Warea Tract is located in southeastern Lake County, approximately six miles east-southeast of the City of Clermont. The tracts and major parcels are identified in Exhibits B and E. The state forest area proper is located in all or part of the following: Township 17 South, Range 27 East, Sections 33-36; Township 17 South, Range 28 East, Sections 13-17, 21-27, 31, 34, and 36; Township 17 South, Range 29 East, Sections 17-20 and 29-31; Township 18 South, Range 27 East, Section 1; Township 18 South, Range 28 East, Sections 1-6, 8-14, 21-29 and 33-36; Township 18 South, Range 29 East, Sections 5-8, 17-20, and 27-33; Township 19 South, Range 28 East, Sections 1-3, 21-25, and 27-28; Township 19 South, Range 28 East, Section 12. Acreage acquired by funding source is identified in Table 1.

Funding Source	Acres
P2000	12,924.72
CARL	9,359.73
Florida Forever	4,071.72
WMD Acquisition	3,549.35
Donation	160.96
Land Exchange with USFS	103.33

#### Table 1. SSF Acreage by Funding Source

A complete legal description of lands owned by the Board of Trustees of the Internal Improvement Trust Fund (TIITF) and SJRWMD is on record at the Withlacoochee Forestry Center office, Florida Department of Environmental Protection (FDEP), and the FFS State Office in Tallahassee.

#### 3. Proximity to Other Public Resources

Lands managed by State, Federal, Local government, or by private entity for conservation of natural or cultural resources that are located within approximately 12 miles of the forest are listed in Table 2 and illustrated in Exhibit F.

The Seminole Tract provides connectivity with other adjacent and nearby public properties to form a central and western wildlife corridor between the Ocala National Forest and the Wekiva Basin. The public lands within the Wekiva Basin, the Ocala National Forest, and the connector properties comprise over a half a million acres.

Public Conservation Land	Managing Agency	Distance	
Near SSF Seminole Tract			
Akron Meadows	Lake County	Adjacent W	
Bear Track Preserve	LCWA	Adjacent S	
Holman Conservation Easement	SJRWMD	Adjacent W	
Lake Norris Conservation Area	SJRWMD	Adjacent S	
Lake Tracy	LCWA	Adjacent S, W	
Lower Wekiva River Preserve State Park	DRP	Adjacent E	
South Pine Lakes Reserve	Lake County	Adjacent W	
Maxwell Conservation Easement	DSL	Adjacent S	
Ocala National Forest	USFS	Adjacent N	
Rock Springs Run State Reserve	DRP	Adjacent S	
Wekiva River Aquatic Preserve	ORCP	Adjacent E	
Mt. Plymouth	Lake County	<1 mile SW	
Ellis Acres	Lake County	<1 mile SW	
Wilson's Landing	Seminole County	<1 mile SW	
Black Bear Wilderness Area	Seminole County	1 mile E	
Neighborhood Lakes	Lake County	1 mile SW	
Pine Forest Park	Lake County	1 mile NE	
Lower Wekiva River Preserve State Park	DRP	2 miles S	
Honey Creek Research Natural Area	USFWS	3 miles NE	
Lake Lucie Conservation Area	Orange County	3 miles SW	
Hontoon Island State Park	DRP	3 miles E	
Lake Woodruff National Wildlife Refuge	USFWS	3 miles NE	
St. Johns River	SJRWMD	3 miles E	
Wekiva River Buffer Conservation Area	SJRWMD	3 miles S	

#### Table 2. Nearby Public Conservation Land and Easements

Public Conservation Land	Public Conservation Land Managing Agency		
Near SSF Semino	ole Tract		
Blue Sink City of Apopka		4 miles SW	
Helberg Estate Parcel	SJRWMD	4 miles E	
Kelly Park	Orange County	4 miles S	
Sandhill Preserve	Orange County	4 miles SW	
Blue Spring State Park	DRP	5 miles E	
Brautcheck Flowage Easement	SJRWMD	5 miles W	
Gemini Springs Park	Volusia County	5 miles E	
Lake May	Lake County	5 miles SW	
Promise Ranch Conservation Easement	DSL	5 miles SW	
Wolf Branch Sink Preserve	LCWA	5 miles SW	
Holiday Highlands Sanctuary	Audubon Florida	6 miles SW	
Lake Beresford	Volusia County	6 miles NE	
Pine Meadows Conservation Area	Lake County	6 miles SW	
Lake George State Forest	FFS	7 miles N	
Sabal Point Sanctuary	Audubon Florida	7 miles SE	
Sawgrass Island Preserve	LCWA	7 miles W	
Tanner Preserve	LCWA	7 miles W	
Trout Lake Nature Center	TLNC	7 miles SW	
Hidden Waters Preserve	LCWA	8 miles W	
Lake Apopka Restoration Area	SJRWMD	8 miles SW	
Spring Hammock Preserve	Seminole County	8 miles SE	
East Central Regional Rail Trail	Volusia County	9 miles E	
De Leon Springs State Park	DRP	10 miles NE	
Sunnyhill Restoration Area South Tract	SJRWMD	10 miles W	
Barberville Mitigation Bank	Volusia County	11 miles N	
Cross Seminole Trail	Seminole County	11 miles SW	
Flowing Waters Preserve	LCWA	11 miles SW	
Heart Island Conservation Area	SJRWMD	11 miles NE	
Lake Monroe Conservation Area	SJRWMD	11 miles E	
Lyonia Preserve	Volusia County 11 miles F		
Sunnyhill Restoration Area North Tract	SJRWMD	11 miles NW	
Clark Bay Conservation Area	SJRWMD 12 miles NE		
Lake Jesup Conservation Area	SJRWMD 12 miles SE		
Lake Jesup Wilderness Area	Seminole County 12 miles SE		
Public Conservation Land Managing Agence		Distance	
Near SSF Warea Tract			
Scrub Point Preserve LCWA 1 mile N			

Public Conservation Land	Managing Agency	Distance	
Near SSF Warea Tract			
Lake Louisa State Park	DRP	3 miles SW	
Stucki Property	Orange County	3 miles NE	
Crooked River Preserve	LCWA	4 miles W	
Oakland Nature Preserve	ONP	4 miles NE	
Hilochee Wildlife Management Area	FWC	6 miles SW	
Alice Lockmiller Parcel	SJRWMD	7 miles SW	
Boggy Marsh Sanctuary	Audubon Florida	7 miles SW	
Island Grove	City of Clermont	7 miles MW	
Crown Point Conservation Easement	SJRWMD	8 miles NE	
Ferndale Preserve	Lake County	8 miles NW	
Tibet-Butler Preserve	Orange County	8 miles SE	
FDEP Green Swamp Conservation Easement	DSL	9 miles SW	
Lake Apopka Restoration Area	SJRWMD	10 miles N	
Bill Frederick Park at Turkey Lake	City of Orlando	11 miles E	
Shadow Bay Park	Orange County	11 miles E	
SWFWMD Green Swamp Conservation Easement	SWFWMD	11 miles SW	
The Jahna Ranch Conservation Easement	DWRM	11 miles SW	
The Pasture	Lake County	11 miles W	
Green Swamp	SWFWMD	12 miles SW	
ORCP – FDEP, Office of Resilience and Coastal Protection DRP – FDEP, Division of Recreation and Parks	FDEP, Office of Resilience and Coastal ProtectionONP – Oakland Nature Preserve, Inc.DEP, Division of Recreation and ParksSJRWMD – St. Johns River Water Management Distr		

DSL - FDEP, Division of State Lands DWRM - FDEP, Division of Water Resource Management FFS – FDACS, Florida Forest Service FWC - Florida Fish and Wildlife Conservation Commission SWFWMD - Southwest Florida Water Management District TLNC – Trout Lake Nature Center, Inc. USFS - US Forest Service

LCWA - Lake County Water Authority

USFWS - US Fish and Wildlife Service

#### 4. Property Acquisition and Land Use Considerations

SSF was purchased under the CARL, SOR, P2000, and Florida Forever programs. Acquisition began in 1990 and continued through 2023. The 26,619.90 acres of land owned by the TIITF was purchased as part of the Wekiva-Ocala Greenway and the Lake Wales Ridge Ecosystem CARL Project. The major TIITF parcel acquisitions are identified in Table 3.

#### **Table 3. Major TIITF Parcel Acquisitions**

Parcel Name	Lease Date	Acres* **
Carter	4/20/1992	6,116.33
Brumlick	8/5/1993	1,090.08
Design Homes	8/1/1994	761.91
Carter / Witte / Thomas / Ellis	3/6/1995	1,029.63
River Run Development / Roche / Tanner	8/20/1996	1,271.74

Parcel Name	Lease Date	Acres* **
River Run Development / Roche / Lee	8/20/1996	710.00
Anderson	8/20/1996	104.00
Musslewhite / Chaudoin / Hamrick	8/11/1997	426.37
Seminole Pines / M. K. Citrus	8/11/1997	994.71
Poole	8/11/1997	267.59
Fisch	8/12/1998	2,928
Adventist / Sunbelt	3/24/1998	89.51
Simpson	8/28/1998	160.46
Grafton	8/28/1998	120.46
Baty / Howard	6/2/1999	219.25
Clemmons	10/18/1999	3,557.00
Kittredge	10/18/1999	645.44
Tucker	10/18/1999	79.06
Maxwell	10/28/1999	89.67
Van Dellen	11/22/1999	185.50
Stone	11/22/1999	179.74
Boyette	3/3/2000	172.98
Hagstrom	3/3/2000	82.15
Vergera	9/12/2000	381.10
Lee, T. R. & S.	9/12/2000	366.49
Walker	8/1/2001	165.82
Johnson / Shockley	10/22/2001	1,212.07
Coffman / Roberts	10/22/2001	55.18
Ury, B	10/30/2001	100.22
Ellis, J. & L.	10/30/2001	79.16
Brooks	10/30/2001	49.98
Two Lakes	7/26/2002	163.63
Frey	7/26/2002	155.73
Jones	7/26/2002	99.97
Ury / Discount	7/26/2002	97.11
Malex	7/26/2002	55.05
Ury, M. & A.	1/17/2003	50.00
Lakewood	6/11/2003	166.39
Ell	8/8/2003	281.50
Hunter / Palmer	4/6/2004	630.99
Perrett	4/6/2004	81.73
Shockley	4/29/2004	548.85
Lee, R.	4/29/2004	347.32
Woodard	4/29/2004	111.85
Lee, V. D.	4/29/2004	80.70
Knab	8/24/2004	330.38

Parcel Name	Lease Date	Acres* **
R.D.R. Industries	8/24/2004	272.31
Narbi	8/24/2004	267.30
Ocala NF	4/5/2005	192.20
Lawford	11/23/2009	90.12
Royal Trails	7/19/2010	84.91
TNC / Baragona	9/10/2013	97.82
Lake County BOCC	8/4/2016	63.14
Sun Land Citrus	2/1/2019	604.00
Holm	7/2/2019	248.17
Bennett / Fincher / Goodwin / Christoph / Sellers	7/2/2019	84.09
Brecher/Ivory	7/2/2019	136.25
Rodgers/Arnold	7/8/2021	165.01
Richards	7/8/2021	83.41
Hunter Acquisition	12/27/2022	150.21

\* 38 additional parcels smaller than 50 acres total to a combined 809.04 acres

\*\* An additional 3,549.35 acres were acquired by the SJRWMD with SOR funding

#### B. Management Authority, Purpose, and Constraints

#### 1. <u>Purpose for Acquisition / Management Prospectus</u>

Acquisition of SSF began in 1990 with funding from the Conservation and Recreation Lands (CARL) program. The goals and objectives defined by these acquisitions include:

- Conservation and protection of environmentally unique and irreplaceable lands that contains native, relatively unaltered flora and fauna representing a natural area unique to, or scarce within, a region of this state or a larger geographical area;
- Conservation and protection of native species habitat and listed species;
- Conservation, protection, management and restoration of important ecosystems, landscapes, and forests, if the protection and conservation of such lands is necessary to enhance or protect significant surface water, ground water, coastal, recreation, and timber resources, or to protect fish or wildlife resources which cannot otherwise be accomplished through local and state regulatory programs;
- Providing areas for nature-based recreation;
- Preserving archaeological or historical sites; and
- Providing research and educational opportunities related to natural resource management.

#### 2. Degree of Title Interest Held by the Board

The TIITF holds fee simple title to the property with exception of the Ralph Fisch parcel (2,928 acres) and Hubler parcel (17.35 acres). SJRWMD holds fee simple title to the Fisch and Hubler parcels. The Fisch parcel, through Intergovernmental Management Agreement, (FDACS Contract Number 4462), assigns management to the FFS. Lease Agreement Number 3936, between the TIITF, FDACS, and FFS, provides authority for the FFS to manage the TIITF portion of SSF.

Numerous private ingress/egress easements exist on SSF. Linear facility easements

include City of Orlando, Progress Energy, Florida Gas Transmission Company, Sumter Electric Cooperative, FDOT and Lake County. All easements are on record at the SSF Visitor Center, and the FDEP Division of State Lands office in Tallahassee.

#### 3. Designated Single or Multiple-Use Management

SSF is managed under a multiple-use concept by the FFS, under the authority of Chapters 253 and 589, F.S. The FFS is the lead managing agency as stated in TIITF Management Lease number 3936.

Multiple-use management is the harmonious and coordinated management of timber, recreation, conservation of fish and wildlife, forage, archaeological and historic sites, habitat and other biological resources, and water resources so they are utilized in the combination that will best serve the people of the state, making the most judicious use of the land for some or all these resources and considering the relative values of the various resources. Local demands, acquisition objectives, and other factors influence the array of uses that are compatible with and allowed on any specific area of the forest. This management approach is believed to provide for the greatest public benefit, by allowing compatible uses while protecting overall forest health, native ecosystems, and the functions and values associated with them.

#### 4. <u>Revenue Producing Activities</u>

Numerous activities on SSF provide for multiple-use as well as generate revenue to offset management costs. Revenue producing activities will be considered when they have been determined to be financially feasible and will not adversely impact management of the forest. Current and potential revenue producing activities for the SSF include, but are not limited to:

- *Timber Harvests* Timber harvests on SSF will be conducted to improve forest health, promote wildlife habitat, restore plant communities, and provide additional benefits.
- *Recreation Fees* Fees are currently collected for some day-use areas, all campgrounds, annual passes, and vendor / special use permits.
- *Cattle grazing* SSF currently has three (3) cattle grazing leases, for a total of 1,528 acres, providing an annual income of \$37,211 per year.
- *Apiary Leases* There is one apiary lease on SSF. The feasibility of pursuing and establishing additional apiary leases on SSF in areas where appropriate will be evaluated in accordance with guidelines stated in the State Forest Handbook.
- *Miscellaneous Forest Product Sales* Other miscellaneous forest product sales, including but not limited to, palm fronds, crooked wood, pinecones, pine straw and firewood, may be considered.

#### 5. Conformation to State Lands Management Plan

Management of the forest under the multiple-use concept complies with the State Lands Management Plan and provides optimum balanced public utilization of the property. Specific authority for the FFS's management of public land is derived from Chapters 253, 259, and 589 F.S.

#### 6. <u>Legislative or Executive Constraints</u>

There are no known legislative or executive constraints specifically directed toward SSF.

FFS makes every effort to comply with applicable statutes, rules, and ordinances when managing the forest. For example, when public facilities are developed on state forests, every effort is made to comply with Public Law 101-336, the Americans with Disabilities Act. As new facilities are developed, the universal access requirements of this law are followed in all cases except where the law allows reasonable exceptions (e.g., where handicap access is structurally impractical or where providing such access would change the fundamental character of the facility being provided).

#### 7. Aquatic Preserve / Area of Critical State Concern

This area is not within an aquatic preserve or an area of critical state concern, nor is it in an area under study for such designation.

#### C. Capital Facilities and Infrastructure

#### 1. <u>Property Boundaries Establishment and Preservation</u>

SSF boundaries, 190 miles in total, are managed by state forest personnel in accordance with the guidelines of the State Forest Handbook. There are 113 gates throughout SSF that require periodic maintenance. State forest boundaries are maintained by periodic clearing, repainting, and reposting, and placement of state forest boundary signs by FFS personnel.

#### 2. <u>Improvements</u>

Major improvements located on the Seminole Tract include a visitor center, two trailheads, two day-use areas, five reservable, drive-up primitive camp sites, three reservable hike-in primitive camp sites, three camp zones, a pavilion, five vaulted restrooms, two small cabins, a parking area, and an FWC wildlife check station. Other improvements consist of an equipment storage area and barn, three staff residences, visitor center screen room and shed, two mobile home sites, two pole barns, and a concrete bridge. Improvements in disrepair include two vacant residences and two pole barns, which will be removed during this planning period. See Exhibit D for a map of the buildings and improvements on the Seminole Tract at SSF.

No improvements exist on the Warea Tract.

Buildings / Recreation infrastructure present on the SSF include:

- Office / Visitor Center / Block / Carter Parcel, 1,655 sq. ft.
- Storage Building / Metal / Carter Parcel, 64 sq. ft.
- Screen Room / Frame / Carter Parcel 1,250 sq. ft.
- Pumphouse / Wood / Carter Parcel, 32 sq. ft.
- Residence / Brick / Tanner Parcel, 1,900 sq. ft.
- Residence Storage Building / Block / Tanner Parcel
- Residence / Frame / Tanner Parcel, 1,200 sq. ft.
- Residence / Frame / Arnold Parcel, 2,109 sq. ft.
- Residence Storage Building / Metal / Arnold Parcel, 532 sq. ft.

- Pole Barn / Metal / Arnold Parcel, 649 sq. ft.
- Carport / Metal / Arnold Parcel, 429 sq. ft.
- Pumphouse / Wood / Arnold Parcel, 25 sq. ft.
- Residence / Mobile home / Richards Parcel, 1,440 sq. ft.
- Residence Storage Building / Metal / Richards Parcel, 280 sq. ft.
- Pumphouse / Wood / Richards Parcel, 35 sq. ft.
- Cabin / Frame / Frey Parcel, 378 sq. ft.
- Cache Pole Barn / Metal / Tanner Parcel, 3000 sq. ft.
- Cache Pole Barn / Metal / Tanner Parcel, 4200 sq. ft.
- Cache Storage Building/ Metal / Tanner Parcel, 288 sq. ft.
- Residence / Frame / Lee, R. Parcel, 1,344 sq. ft. (to be demolished)
- Barn / Metal / Lee, R. Parcel, 1600 sq. ft.
- Vaulted Restroom / Cassia Trailhead, 112 sq. ft.
- Vaulted Restroom / Bear Pond Trailhead, 112 sq. ft.
- Vaulted Restroom / Jumper Camp, 42 sq. ft.
- Vaulted Restroom / Bunk, 42 sq. ft.
- Vaulted Restroom / Oaks Camp, 42 sq. ft.
- Compost Restroom / Bear Pond Trailhead, 64 sq. ft.
- Pavilion / Bear Pond Trailhead, 580 sq. ft.
- Bunk Camp Cabin / Wood 420 sq. ft.
- Corral Camp Shelter / Metal / 192 sq. ft.
- Shelter Camp Shelter / Wood / 328 sq. ft.
- Cabin / Wood / Sun Land Citrus Parcel, 870 sq. ft.
- FWC Pole Barn / Metal / Tanner Parcel, 1,500 sq. ft.
- FWC Check Station / Metal / Carter Parcel, 700 sq. ft.
- FWC Check Station Storage Building/ Metal / Carter Parcel, 96 sq. ft.
- FWC Check Station Skinning Station/ Metal / Carter Parcel, 225 sq. ft.
- FWC Check Station / Plastic / Carter Parcel, 80 sq. ft.
- FWC Wildlife Blind / Wood / Carter Parcel, 36 sq. ft.
- FWC Check Station Trailer, 224 sq. ft.

#### 3. On-Site Housing

Currently, three (3) occupied residences exist on the forest that include a brick home occupied by the Forestry Supervisor II, a mobile home occupied by the Forest Area Supervisor, and a frame home occupied by the SSF Senior Ranger. Two mobile home sites with privately owned mobile homes are occupied by a volunteer FWC Investigator and a volunteer Day Use Area Assistant. Housing is prioritized based on FFS policy.

FFS may establish additional on-site housing (mobile / manufactured home) on SSF if deemed necessary to alleviate security and management issues. The need and feasibility for the state forest will be evaluated and established if considered appropriate by the Center Manager and approved by the FFS Director. Prior to the occurrence of any ground disturbing activity for establishing on-site housing, a notification will be sent to the DHR and Florida Natural Areas Inventory (FNAI) for review and recommendations. This type of housing will not exceed three homes per location with the possibility of more than one

on-site housing location occurring if considered necessary by the Center Manager and approved by the FFS Director.

#### 4. **Operations Infrastructure**

#### a. Operations Budget

For Fiscal Year 2022-2023 the total annual budget for SSF was \$99,904.76. This amount includes expenses, contractual services, Other Personal Services Employment (OPS), etc. A summary budget for SSF is contained in Exhibit V. Implementation of any of the activities within this management plan is contingent on availability of funding, other resources, and other statewide priorities.

#### b. Equipment

To carry out the mission of the FFS, equipment assigned to the SSF includes: one (1) type I dozer, two (2) type VI engines, two (2) harrows, four (4) pickup trucks, two (2) ATVs, one (1) UTV, two (2) farm tractors, one (1) front-end loader, one (1) motor grader, six (6) trailers, one (1) excavator, one (1) lawn mower, and six (6) attachments for the farm tractors.

#### c. Staffing

Seven (7) individuals are assigned to SSF: one (1) Forestry Supervisor II, one (1) Forester, one (1) Park Ranger, one (1) Senior Forest Ranger, one (1) OPS Biologist II, one (1) OPS Park Ranger, and one (1) Senior Clerk. Other personnel from the Lake Forestry Station and Withlacoochee Forestry Center provide assistance with management activities at SSF.

The Forester will work to achieve the goals outlined in this management plan. Recreation planning and management activities as well as resource management and planning activities, such as trail flagging / identification, recreation facility placement, timber cruising, and sale administration, and volunteer program, etc., are the responsibility of the Forester under the direction of the Forestry Supervisor II, Resource Administrator, and Center Manager. Forest operations, such as road maintenance, operations / recreation facility maintenance, prescribed burning, etc., are the responsibility of the Forest Area Supervisor under the direction of the Operations Administrator and the Center Manager.

Additionally, a State Forest Liaison Committee comprised of private citizens and representatives of forest user groups meets bi-annually to provide input on forest management activities and share ideas with FFS staff to improve the state forest.

#### D. Additional Acquisitions and Land Use Considerations

#### 1. Alternate Uses Considered

No alternate uses are being considered at this time. Alternate uses will be considered as requests are made and will be accommodated as appropriate if they are determined to be compatible with existing uses and with the management goals and objectives of the forest. Uses determined as incompatible include but are not limited to: water resource development projects, water supply projects, storm-water management projects, sewage treatment facilities, linear facilities, off highway vehicle use, dumping, mining, and oil well stimulation (e.g., hydraulic fracturing / fracking), or as determined by law, regulation,

or other incompatible uses as described elsewhere in the management plan. Deadhead logging is not compatible with nor considered appropriate use within or adjacent to the forest boundaries. Although no water resource projects are being considered at this time on SJRWMD-owned lands within SSF, they should not be precluded.

#### 2. Additional Land Needs

Purchasing of additional land within the optimal management boundary would facilitate restoration, protection, maintenance, and management of the natural resources on SSF. The SSF falls within the Wekiva-Ocala Greenway Florida Forever project area. One of the main goals of the project is to provide a natural corridor that provides a significant benefit for the movement of the Florida black bears and other wildlife. In addition, numerous other listed species have been protected through acquisitions with the Wekiva-Ocala project. See Exhibits C and R.

There are 751 parcels of land comprised of 22,373 acres adjacent to the property which should receive priority for acquisition because they would benefit the management of the property. The FFS will work with these property owners, on a willing seller basis, to acquire these parcels.

#### 3. Surplus Land Assessment

On conservation lands where FFS is the lead manager, FFS assesses and identifies areas for potential surplus land. This assessment consists of an examination of resource and operational management needs, public access and recreational use, and GIS modeling and analysis.

The evaluation of SSF by FFS has determined that all portions of the area are being managed and operated for the original purposes of acquisition, as well as center on the multiple-use concept, as defined in sections 589.04(3) and 253.034(2)(a) F.S. Implementation of this concept will utilize and conserve state forest resources in a harmonious and coordinated combination that will best serve the people of the state of Florida. Therefore, no portion of the SSF is recommended for potential surplus.

#### 4. Adjacent Conflicting Uses

During the development of this management plan, FFS staff identified and evaluated adjacent land uses, reviewed current local comprehensive plans, and future land use maps in making the determination that there are currently no known conflicting adjacent land uses. Additionally, FFS staff met with adjacent landowners and maintains liaison with those landowners to ensure that any conflicting future land uses may be readily identified and addressed.

FFS will cooperate with adjacent property owners, prospective owners, or prospective developers to discuss methods to minimize negative impacts on management, resources, facilities, roads, recreation, etc., and discuss ways to minimize encroachment onto the forest.

Adjacent residential areas, adjoining highway systems, Camp Boggy Creek, and the Wekiva Parkway may hinder prescribed burning on the Forest due to smoke management

concerns. The sand mine adjacent to the Warea Tract could potentially affect the hydrology of the site. Plans for the CR455/Hartle Road Extension, and the proposed McKinnon Grove housing development also have potential to affect management on the Warea Tract.

#### 5. <u>Compliance with Local Comprehensive Plan</u>

This plan was submitted to the Lake County Board of County Commissioners for review and compliance with their local comprehensive plans. See Exhibit T.

#### 6. <u>Utility Corridors and Easements</u>

Current linear facility easements on SSF include Duke Energy (formerly Progress Energy), Sumter Electric Cooperative Inc., FDOT, and Florida Gas Transmission Company. Lake County has an easement to maintain a communications tower on the Design Homes parcel. Additional easements were transferred during parcel acquisitions, or granted following parcel acquisitions, to provide landlocked private landowners' ingress / egress and utilities corridors. All existing easements are on file with FDEP's Division of State Lands and also are available at the FFS Lake Forestry Station and at the SSF Visitor Center.

FFS does not favor the fragmentation of natural communities with linear facilities. Consequently, easements for such uses will be discouraged to the greatest extent practical. When such encroachments are unavoidable, previously disturbed sites will be the preferred location. The objectives, when identifying possible locations for new linear facilities, will be to minimize damage to sensitive resources (e.g., listed species and archaeological sites), minimize habitat fragmentation, limit disruption of management activities, including prescribed burns, and limit disruption of resource-based multiple use activities such as recreation.

Co-location of new linear facilities with existing corridors will be considered but will be used only where expansion of existing corridors does not increase the level of habitat fragmentation and disruption of management and multiple-use activities. FFS will further encourage the use of underground cable where scenic considerations are desirable as well as encourage the development and use of wildlife crossings for unavoidable roadway development projects. Easements for such utilities are subject to the review and approval of the TIITF and the SJRWMD. Requests for linear facility uses will be handled according to the Governor and the Cabinet's linear facilities policy.

The State has been granted ingress / egress easements across private property to access the Baty / Howard, Tucker, Boyette and Grafton parcels.

#### E. Agency and Public Involvement

#### 1. <u>Responsibilities of Managing Agencies</u>

FFS is the lead managing agency, responsible for overall forest management and public recreation activities, as stated in TIITF Management Lease number 3936. Pursuant to the management lease, the lead managing agency may enter into further agreements or to subleases on any part of the forest.

FFS will cooperate with the DHR regarding appropriate management practices on historical or archaeological sites on the property as stated in Section 267.061, F.S. FFS will consult DHR prior to the initiation of ground disturbing activities as required per DHR guidelines.

FWC assumes law enforcement responsibilities, enforces hunting regulations, cooperatively sets hunting season dates with FFS, and conducts other wildlife management activities with input from FFS.

#### 2. Law Enforcement

Primary law enforcement responsibilities will be handled by FWC law enforcement officers. Rules governing the use of SSF are stated in Chapter 5I-4, F.A.C. FWC will enforce fish and wildlife regulations and aid in enforcing state forest rules. FWC does not currently have an officer dedicated to patrolling and enforcement on SSF. This task is shared among multiple FWC officers who also patrol and enforce laws on properties and waterways outside of SSF. The FWC Investigator who assists with patrol in Lake and Sumter County currently resides on SSF.

The FDACS Office of Agricultural Law Enforcement (OALE) will assist with open burning and wildfire investigations as needed. The Lake County Sheriff's Office provides additional assistance as needed.

Special rules under Chapter 5I-4, F.A.C. were promulgated for FDACS-FFS to manage the use of state lands and better control traffic, and to oversee camping and other uses on SSF.

#### 3. Wildland Fire

The FFS has the primary responsibility for prevention, detection, and suppression of wildfires wherever they may occur. The FFS shall provide leadership and direction in the evaluation, coordination, allocation of resources, and monitoring of wildfire management and protection (F.S. 590.01). The FFS also has the responsibility of authorizing prescribed burns (F.S. 590.02 [1][i]).

#### 4. Public and Local Government Involvement

This plan has been prepared by FFS and will be carried out primarily by the FFS. FFS responds to public involvement through liaison committees, management plan advisory groups, public hearings, and through ongoing direct contact with user groups. Land Management Review Teams, as coordinated by the Division of State Lands, have conducted reviews of management plan implementation in 2014 and 2018. See Exhibit S. The review team's recommendations were addressed in this plan, as appropriate.

This plan was developed with input from the SSF Management Plan Advisory Group and was reviewed at a public hearing on February 1, 2024. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit U. The Acquisition and Restoration Council (ARC) public hearing and meeting serve as an additional forum for public input and review of the plan.

Interagency cooperation is needed to produce coordinated and targeted efforts to implement the management plan for the Wekiva National Wild and Scenic River System. The river system is administered in partnership with state and local governments and non-governmental organizations. The Seminole Tract is one of many public properties located within the Wekiva River Basin. The Forestry Supervisor II and Forester are members in the Wekiva Wild and Scenic River System Management Committee. This committee is made up of a broad coalition of state and local partners, led in coordination with the National Park Service, and tasked with ensuring that the outstanding remarkable values of the river system are protected and enhanced into perpetuity. This plan was submitted to the members of the Wekiva Wild and Scenic River System Management Committee for their review and comment. All elements in this Ten-Year Resource Management Plan have been reviewed to ensure compatibility with the recently updated Wekiva Wild and Scenic River System Comprehensive Management Plan.

#### 5. Volunteers

Volunteers are important assets to SSF. Volunteer activities may occur as one-time events or in association with recurring projects and routine maintenance. Additional volunteer recruitment will continue to assist furthering the FFS's mission.

#### 6. Friends of Florida State Forests

Friends of Florida State Forests, Inc. (FFSF) is a Direct Support Organization (DSO) of the Florida Forest Service. FFSF supports management activities and projects on Florida's state forests. FFSF is established by Florida Statute, supports programs within Florida's state forests and is governed by a board of directors representing all areas of the state. Through community support, FFSF assists the FFS to expand opportunities for recreation, environmental education, fire prevention, and forest management within Florida's state forests.

The FFSF program is referenced in Chapter 589.012, F.S. For more information visit: www.floridastateforests.org.

#### III. Archaeological / Cultural Resources and Protection

#### A. Past Uses

#### Seminole Tract

Beginning in the late 1800s, all of the floodplain swamps and hydric hammocks on SSF were logged. The cypress was cut, and the forests were re-entered for the remaining hardwoods. Portions of a railroad tramway that was used for transporting cut logs and equipment still exist within these areas. Upland pine harvesting occurred on the majority of the parcels without consideration for future management of pine timber. Approximately 3,500 acres of the upland areas on several parcels had been cleared and planted with improved pasture grasses. Cattle operations were active on these parcels prior to acquisition. A dairy farm was active on the Design Homes parcel. Some of the uplands on the Poole and Musselwhite parcels were cleared, but improved pastures were never established. The Carter parcel had narrow bahia grass (*Paspalum notatum*) pastures planted north of Black Water Creek where cattle operations began in the 1960s. South of Black Water Creek, slash pine was planted in the

early 1960s. Relict "cat face" longleaf pines, plus ubiquitous Herdy clay pot shards, show the history of naval stores production on SSF in the late 1800s and early 1900s.

Organized hunting for white-tailed deer (*Odocoileus virginianus*) and other wildlife has been ongoing for decades throughout the forest. Hunt camps were established on the Carter, Fisch and River Run Dev. / Roche / Lee parcels. Organized fox hunting occurred on the Hunter / Palmer parcel. The property perimeter was fenced to keep red fox (*Vulpes vulpes*.) within the property; numerous culverts and other structures were installed on and in the ground to provide fox dens.

A large borrow pit on the south end of the Carter parcel yielded sand and clay and was active until 1989. Sand was mined from the southwestern portion of the Narbi parcel. On the Clemmons parcel, vegetable farms were active in the early 1900s. A hotel was erected adjacent to the vegetable farms on a current in-holding of the Clemmons parcel and was a center of activity in the area. The hotel was demolished and is now the site of a private residence. The Kittredge parcel was platted as part of the Royal Trails Subdivision, but no roads or homes were ever built. A 3,000-foot grass aircraft runway exists on the Vergara parcel, which was used by the previous landowner. For reference to the parcels that are mentioned within this plan, see Exhibit E.

#### Warea Tract

The Warea Tract is a relatively undisturbed remnant island of the ancient Lake Wales Ridge ecosystem. Turpentine operations occurred on the site over 70 years ago but appear to have been of limited scale and duration. The presence of old pine stumps indicates past logging activity. No other previous agricultural or silvicultural uses are known.

#### B. Archaeological and Historical Resources

A review of information contained in the Florida Department of State, DHR, Florida Master Site File has determined there are twenty-four (24) recorded archaeological sites, three (3) historical resource groups, and two (2) historical structures found within the designated area for SSF. Currently, none of the known sites on SSF are listed in the National Register of Historic Places. See Table 4.

Site ID	Site Name	Site Type
LA00264	USFS 86-58 OCA	Historic refuse / dump
LA00471	Palm Springs	Campsite (prehistoric)
LA00524	USFS OCA 92-7	Building remains
LA00532	Bear Crossing	Land (terrestrial)
LA02244	FGT New Smyrna Lateral 1	Campsite (prehistoric)
LA02613	01-18 Ocala	Land (terrestrial)
LA02615	01-20 Ocala	Land (terrestrial)
LA02616	01-21 Ocala	Land (terrestrial)
LA02760	Cassia Station	Railroad grade segment
LA02761	South Loop Hill	Historic refuse / dump

#### Table 4. Archeological Historical Sites on SSF

Site ID	Site Name	Site Type
LA02762	Sulphur Ridge I	Campsite (prehistoric)
LA02772	Sulphur Ridge II	Historic refuse / dump
LA02773	Outskirts Hammock	Homestead
LA02774	Cassia Church Road	Homestead
LA02775	Griffin House	Private residence
LA02776	WCC 1923 Camp	Historic refuse / dump
LA02777	Triple Pond	Lithic scatter / quarry
LA02778	Low Ridge Slough	Lithic scatter / quarry
LA02779	Runway Hammock	Campsite (prehistoric)
LA02780	Ponceannah	Historic ghost town
LA02781	Brainard's Farm	Homestead
LA02782	Electric fence	Ceramic scatter
LA02783	Carter House	Private residence
LA02957	Seaboard Coast Line RR grade	Railroad grade segment
LA04480	Slater Lane	Land (terrestrial)
LA04506	MJ1601	Ceramic scatter
LA04507	MJ1608	Ceramic scatter
LA04508	Blue Horse Trail, Southern Loop	Land (terrestrial)
LA04520	Wekiva Relocation Site 1	Land (terrestrial)
LA04660	Radar building	Building remains
LA04921	CR-42	Linear resource

All discoveries have been on the Seminole Tract. The Carter House was built in 1938 and is located on the Carter parcel and, after renovation, is currently being used as the SSF Visitors Center. The Griffin House, formerly a private residence, was built in 1883 and is located on the Tanner parcel. The structure was in very poor condition and structurally unsound when it was acquired. Further decay of the structure has occurred, including the collapse of the front porch. Its current condition presents an attractive nuisance and a safety hazard. Demolition of the structure will be conducted during this ten-year planning cycle.

#### C. Ground Disturbing Activities

Representatives of DHR and FNAI will be consulted prior to the initiation of proposed ground disturbing activity as required per DHR guidelines. FFS will make every effort to protect known archaeological and historical resources. FFS will follow the "Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands" and will comply with all appropriate provisions of Section 267.061(2)(a, b), F.S. See Exhibit H. Any significant ground disturbing activity proposal will be submitted to DHR's Compliance and Review office for review prior to undertakings and allow the Division a reasonable opportunity to comment. Ground disturbing activities not specifically covered by this plan will be conducted under the parameters of the "Interim Management Guidelines".

#### D. Survey and Monitoring

Currently one (1) SSF staff is trained by DHR as Archaeological Resource Management (ARM) monitors. FFS will pursue opportunities for additional personnel to receive ARM Monitor training. FFS will consult with public lands archaeologists at DHR as necessary to determine an appropriate priority and frequency of monitoring at each of the listed sites, and any protection measures that might be required. Unless required on a more frequent basis, all archaeological and historical sites within the state forest will be monitored at least annually. FFS field staff will monitor the listed sites to note condition and any existing or potential threats.

Any known archaeological and historical sites will be identified on maps to aid state forest personnel and if necessary, law enforcement personnel in patrolling and protecting sites. Applicable surveys will be conducted by ARM monitors or contracted archaeologists during the process of planning and implementing multiple-use management activities. FFS personnel will remain alert for any environmentally significant resources discoveries, and protective actions will be taken as necessary. In addition, FFS will seek the advice and recommendations of DHR regarding any additional archaeological survey needs. Trained monitors will oversee limited types of ground disturbing activities in which DHR recommends monitoring. FFS will utilize the services of DHR Public Lands archaeologists, when available, to locate and evaluate unknown resources, and to make recommendations in the management of known resources.

#### IV. Natural Resources and Protection

The parcels comprising SSF were originally purchased to protect a vital wildlife corridor between the Wekiva Basin and the Ocala National Forest, while also preserving in perpetuity the healthy natural lands and waters of the Wekiva watershed. The primary purpose of FFS's management of SSF is to assure these resources will be available for future generations. As such, management activities will be executed in a manner to prevent the destruction of and damage to these resources.

Efforts will be made to monitor and protect SSF's waterbodies and their associated water quality and native plants and animals, and to maintain and protect / enhance the hydrological resources on SSF. In furtherance of this goal, during necessary land management activities, all efforts will be made to minimize undue soil disturbance and erosion. If problems arise, corrective action will be implemented by FFS staff under the direction of FFS's Forest Hydrology Section.

SSF falls within the jurisdiction of the SJRWMD. FFS will coordinate with SJRWMD and / or FDEP, as necessary, on activities pertaining to water resource protection and management. Any activities requiring water management district permits will be handled accordingly. FFS will work with SJRWMD to ensure that levels and quality of ground and surface water resources are appropriately monitored.

#### A. Soils and Geologic Resources

#### 1. <u>Resources</u>

Soil information for SSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS). The major soils listed by the NRCS

include: Myakka wet sand, Anclote and Myakka soils, Immokalee sand, Pomello sand, Swamp, and Paola sand. Detailed information on all soils present on the forest may be found in Exhibit I.

#### 2. Soil Protection

Management activities will be executed in a manner that minimizes negative impacts to the soil. As problems arise, corrective action will be implemented by FFS staff under the direction of the FFS Forest Hydrology section in conjunction with recommendations as contained in the most current version of the Florida Silviculture BMP manual.

Currently there are no major or significant soil erosion problems on SSF.

#### B. <u>Water Resources</u>

The water resources on SSF perform essential roles in the protection of water quality, groundwater recharge, flood control, and aquatic habitat preservation. In the interest of maintaining these valuable resource functions, state forest management personnel will work with the FFS Hydrology Section to incorporate wetlands restoration into the overall resource management program as opportunities arise, particularly where wetlands systems have been impaired or negatively impacted by previous management activities or natural disasters. See Exhibit K for a map of the water resources on SSF.

#### 1. <u>Resources</u>

The SSF is located in the Central Lake District of Florida. In this area, the uplifted limestone of the Floridan Aquifer lies below surficial sands. The area is sandhill karst with solution basins, and there is active sinkhole development.

The Wekiva River forms the southeastern border of the Seminole Tract, and portions of Black Water Creek, a major tributary to the Wekiva River, bisects the tract. Sulphur Run, a tributary to Black Water Creek, forms the northern perimeter of Sulphur Island. In 2000, the Wekiva River, together with Black Water Creek and Rock Springs Run (not on SSF), were designated by the United States Congress as a National Wild and Scenic River. The act required the river segments be designated according to the following classification schemes:

<u>Wild River Segments (9.4 miles on SSF)</u> – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

<u>Scenic River Segments (0.45 miles on SSF)</u> – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

<u>Recreational River Segments (2.2 miles on or adjacent to SSF)</u> – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some
impoundment or diversion in the past.

<u>Barrow pits (Bear Pond (13 acres) and Oaks Pond (1.2 acres)</u> – Two barrow pits located on the Seminole Tract are managed for recreational fishing. Many depressional marshes exist throughout the mesic flatwoods. Several of the depressional marshes and sandhill upland lakes on the Tanner parcel were mined for peat and are now perennial ponds or lakes. The forest boundary crosses over the southern end of Lake Jordan, a 15-acre sandhill upland lake.

Nineteen (19) named springs are found on the Seminole Tract. The springs include Black Water, Helene, Moccasin, Palm, Shark's Tooth, Droty, Markee, Boulder, Cedar, Green Algae Boil, Blue Algae Boil, Blueberry, Snail, Uncle Baird, Trickle, Guard Frog, Kingfisher, Cattail, and Sirena. The largest springs are Black Water Spring and Helene Spring; both are 3rd magnitude springs. Five of the springs are 4th magnitude springs, and five of the springs are 5th magnitude springs. The magnitude is unknown for six of the springs. The apparent source for all of the springs is the Upper Floridan Aquifer.

Lake Tracy Canal is a man-made drainage that traverses the northern part of the Seminole Tract for 2.5 miles between the community of Lake Kathryn Heights and Lake Norris.

## 2. <u>Water Classification</u>

The Florida Department of Environmental Protection, Standards Development Section reports that the surface waters within and adjacent to SSF are classified as Class III waters (Fish Consumption, Recreation, Propagation and Maintenance of a healthy, Well-Balanced Population of Fish and Wildlife), which is the statewide default classification under subsection 62-302.400, F.A.C.

According to subsection 62-302.700(9), F.A.C., five Outstanding Florida Waters (OFWs) are at least partially within SSF and two more are adjacent to the forest. OFWs within the state forest are: Wekiva River System Special Water OFW, Wekiva River Aquatic Preserve, Lower Wekiva State Park, Wekiva-Ocala Connector, and Seminole Springs / Woods OFW. Adjacent OFWs include: Rock Springs Run State Reserve and BMK Ranch. An additional OFW, Lake Dorr, which is within the Ocala National Forest, is about 0.7 miles away from the state forest. There is a smaller section of the state forest about 28 miles south of the main forest area. The nearest OFWs are Clermont Chain of Lakes and Lake Louisa State Park over 3.5 miles away. See Exhibit J.

#### 3. Water Protection

An objective for the acquisition and management of this public land was to optimize ecological restoration, protect and manage existing natural resources, and facilitate sustainable public use. Concerns over a continuous, usable source of fresh water requires emphasis on protecting this vital resource. Water resource protection measures, at a minimum, will be accomplished using BMPs as described in the most current version of Silviculture BMP Manual.

Nine (9) monitoring wells of varying depths are maintained by SJRWMD on the Seminole Tract.

Eight (8) supply wells are active and provide water to the visitor center, equipment cache, residences, game check station, and grazing leases. Three capped wells are available for future use as needed. One inactive well on the recently acquired Rodgers/Arnold parcel should be evaluated to determine if it should be capped or abandoned. A free flowing well on the Ponceannah grazing lease (Johnson/Shockley parcel) is one of two primary sources of water for cattle operations. The SJRWMD has been contacted regarding plans to abandon the well. A replacement well would be considered for establishment in the adjacent uplands. A second free flowing well is located in a remote area of a hydric hammock on the Seminole Pines/M.K. Citrus parcel. Consultation with the SJRWMD is needed to determine appropriate actions needed.

Efforts will be made to continue to monitor and protect SSF's springs and their associated water quality, discharge, and native plants and animals, including two species of endemic aquatic snails: *Aphaostraicon spp.* and *Cincinnatia spp.* All activities around springs will be conducted in compliance with Silviculture BMPs. The publication "Protecting Florida's Springs-Land Use Planning Strategies and Best Management Practices" will be considered to assist in planning management activities in or around springs.

As part of the recently completed Wekiva Parkway Project, a portion of the old CR46A was removed and the road path was returned to historic grade, restoring water sheet flow for drainage to Black Water Creek. Consideration will be given to eliminating ditches created to drain abandoned pastures between the removed section of CR46A and Black Water Creek. Wetland restoration will be coordinated with SJRWMD. Any activities requiring water management district permits will be handled accordingly.

# 4. Swamps, Marshes, and Other Wetlands

In addition to the waterways, SSF currently contains approximately 11,381 acres in nine (9) hydric communities: basin marsh, basin swamp, baygall, depression marsh, dome swamp, floodplain marsh, floodplain swamp, hydric hammock, and wet prairie.

Maintenance of naturally occurring wetland communities is a high priority and will be accomplished through appropriate management activities, including prescribed fire and adherence to Silviculture BMPs.

# 5. Wetlands Restoration

Wetland restoration objectives on the SSF include erosion control, restoration of hydrology and / or hydroperiod, and restoration of wetland plant and animal communities. To achieve these objectives, restoration activities may involve road and soil stabilization, water level control structure removal or installation, invasive species control, site preparation and re-vegetation with native wetlands species, and project monitoring. These activities may be conducted individually or concurrently; implemented by FFS personnel or by non-FFS personnel under mitigation or grant contractual agreements. Wetland restoration projects should be conducted in

conjunction with other restoration activities indicated elsewhere in this plan.

Where applicable, SSF, with assistance from the FFS Forest Management Bureau, may pursue funding to develop and implement wetlands restoration projects. Additionally, cooperative research among FFS, other state agencies, and the federal government will provide valuable information in determining future management objectives of wetland restoration.

Wetland restoration will be coordinated with the SJRWMD. Any activities requiring permits from the water management district will be handled accordingly and will follow the latest edition of the FFS Silviculture Best Management Practices Manual.

## 6. Florida Department of Environmental Protection Basin Management Action Plan

A Basin Management Action Plan (BMAP) is a "blueprint" for restoring impaired waters by reducing pollutant loadings to meet the allowable loadings established in a Total Maximum Daily Load (TMDL). It represents a comprehensive set of strategies, including, but not limited to: permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, financial assistance, and revenue generating activities, all designed to implement the pollutant reductions established by the TMDL. These broad-based plans are developed with local stakeholders, as they rely on local input and local commitment, and are adopted by Secretarial Order to be enforceable.

The BMAP provides for phased implementation under Subparagraph 403.067(7)(a)1, F.S. The phased BMAP approach allows for the implementation of projects designed to achieve incremental reductions, while simultaneously monitoring and conducting studies to better understand the water quality dynamics (sources and response variables) in the watershed.

A substantial portion of SSF resides in the Wekiva River Middle St. Johns BMAP. See Exhibit K.

#### C. Flora and Fauna Resources

# 1. Rare, Endangered, and Threatened Species

SSF's natural communities help preserve some of Florida's rare and endangered plants and animals, notably including the Florida scrub-jay (*Aphelocoma coerulescens*), southeastern American kestrel (*Falco sparverius paulus*), short-tailed hawk (*Buteo brachyurus*), Florida black bear (*Ursus americanus floridanus*), gopher tortoise (*Gopherus polyphemus*), gopher frog (*Lithobates capito*), striped newt (*Notophthalmus perstriatus*), Florida pine snake (*Pituophis melanoleucus mugitus*), eastern indigo snake (*Drymarchon couperi*), short-tailed snake (*Lampropeltis extenuate*), sand skink (*Neoseps reynoldsi*), Florida hasteola (*Hasteola robertiorum*), scrub bay (*Persea humilis*), scrub holly (*Ilex opaca var. arenicola*), giant orchid (*Orthochilus ecristatus*), clasping warea (*Warea amplexifolia*), Lewton's milkwort (*Polygala lewtonii*), and scrub plum (*Prunus geniculata*), among others. The forest is also a wintering area for many migratory bird species including the peregrine falcon (*Falco peregrinus*). Numerous depressional marshes provide breeding grounds for gopher frogs and striped newts, as well as habitat for piedmont joint-grass (*Coelorachis tuberculosa*) and Florida three-awned grass (*Aristida rhizomorpha*).

The intent of FFS is to manage SSF in a manner that will minimize the potential for wildlife species to become imperiled. FFS employees continually monitor the forest for threatened or endangered species while conducting management activities. Specialized management techniques may be used, as necessary, to protect or increase protection of rare, threatened, and endangered species, as applicable for both plants and animals. See Table 5.

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status*
Florida black bear	Ursus americanus	G5/T4	S4	N	N
Sand skink	Plestiodon reynoldsi	G3	S3	Т	FT
Scrub pigeon-wing	Clitoria fragrans	G2/G3	S2/S3	N	Е
Lewton's milkwort	Polygala lewtonii	G2	S2	Е	Е
Clasping warea	Warea amplexifolia	G1	S1	Е	Е
Florida bonamia	Bonamia grandiflora	G3	S3	Т	Е
Southern fox squirrel	Sciurus niger	G5/T5	S3	N	N
Gopher tortoise	Gopherus polyphemus	G3	S3	N	ST
Scrub plum	Prunus geniculata	G3	S3	Е	Е
Scrub buckwheat	Eriogonum longifolium var. gnaphalifolium	G4/T2?	S2	Т	Е
Austin's dawnflower	Stylisma abdita	G3	S3	N	Е
Britton's beargrass	Nolina brittoniana	G3	S3	Е	Е
Paper-like nailwort	Paronychia chartacea var. chartacea	G3/T3	S3	Т	Е
Florida scrub-jay	Aphelocoma coerulescens	G1/G2	S1/S2	Т	FT
Striped newt	Notophthalmus perstriatus	G2/G3	S2	N	С
Eastern indigo snake	Drymarchon couperi	G4/T3	S3	Т	FT
Florida mouse	Podomys floridanus	G3	S3	N	N
Short-tailed snake	Lampropeltis extenuata	G3	S3	N	ST
Florida pine snake	Pituophis melanoleucus mugitis	G4/T3?	S3	Ν	ST
Gopher frog	Lithobates capito	G2/G3	S3	N	N
Southeastern American kestrel	Falco sparverius paulus	G5/T4	S3	Ν	ST
Limpkin	Aramus guarauna	G5	S3	Ν	N
Little blue heron	Egretta caerulea	G5	S4	Ν	ST
Osprey	Pandion haliaetus	G5	S3/S4	Ν	Ν
Florida sandhill crane	Antigone canadensis pratensis	G5/T2	S2	Ν	ST
Tricolored heron	Egretta tricolor	G5	S4	Ν	ST

Table 5. Rare, Endangered, and Threatened Species Documented on SSF

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status*
Wood stork	Mycteria americana	G4	S2	Т	FT
Snowy egret	Egretta thula	G5	S3	N	Ν
Florida hasteola	Hasteola robertiorum	G1	S1	N	Е
Giant orchid	Orthochilus ecristatus	G2G3	S2	N	Т
Yellow butterwort	Pinguicula lutea	G5	S5	N	Т
Lacelip ladiestresses	Spiranthes laciniata	G5	S5	N	Т
Little pearl-twist	Spiranthes tuberosa	G5	S5	Ν	Т
Leafless beaked orchid	Sacoila lanceolata var. lanceolata	G5 S5		Ν	Т
Southern tubercled orchid	Platanthera flava	G5	S5	N	Т
Treat's zephyr lily	Zephyranthes atamasca var. treatiae	G5	S5	Ν	Т
Piedmont jointgrass	Coelorachis tuberculosa	G3	S3	N	Т
Florida willow	Salix floridana	G2/G3	S2/S3	UR	Е
Pinescrub bluestem	Schizachyrium niveum	G1/G2	S1/S2	N	Е
Curtiss' milkweed	Asclepias curtissii	G5	S5	N	Е
Sandhill spinypod	Matalea pubiflora	G5	S5	N	Е
Cardinal airplant	Tillandsia fasciculata	G5	S5	N	Е
Garberia	Garberia heterophypla	G5	S5	N	Т
Pineland butterfly pea	Centrosema arenicola	G2/Q	S2	N	Е
Chapman's sedge	Carex chapmannii	G3	S3	N	Т

\* STATUS / RANK KEY

FNAI Global Rank: G1= Critically Imperiled, G2 = Imperiled, G3= Very Rare, G4= Apparently Secure, G5= Demonstrably Secure, GNR = Element not yet ranked (temporary), G#? = Tentative rank, T#= Taxonomic Subgroup; numbers have same definition as G#'s.

FNAI State Rank: S1= Critically Imperiled, S2= Imperiled, S3= Very Rare, S4= Apparently Secure, S5 = Demonstrably secure in Florida, S#?= Tentative Rank, Federal Status (USFWS): E= Listed Endangered, T= Listed Threatened, N= Not currently listed, C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened. SAT, T(S/A) = threatened due to similarity of appearance. A species that is threatened due to similarity of appearance with another listed species and is listed for its protection. Species listed as T(S/A) are not biologically endangered or threatened and are not subject to Section 7 consultation.

State Status (FWC): Animals: FE = Listed as Endangered Species at the Federal level by the USFWS, FT = Listed as Threatened Species at the Federal level by the USFWS, F(XN) = Federal listed as an experimental population in Florida, FT(S/A) = Federal Threatened due to similarity of appearance, SE = State population listed as Endangered by the FWC, ST = State population listed as Threatened by the FWC, SSC = Listed as Species of Special Concern by the FWC, C = Candidate species, N = Not currently listed, nor currently being considered for listing.

Plants: E = Endangered: species of plants native to Florida 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; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act; T = Threatened: 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 number as to cause them to be Endangered; CE = Commercially Exploited; N = Not currently listed, nor currently being considered for listing.

#### 2. Florida Natural Areas Inventory

The Florida Natural Areas Inventory (FNAI) is the single most comprehensive source of information available on the locations of rare species and significant ecological resources throughout Florida. See Exhibit L. FNAI has reported the following:

#### a. Element Occurrences

FNAI element occurrences data layer includes occurrences of rare species and natural communities. For animals and plants, element occurrences usually indicate a viable population of the species. Based on the information available, this site appears to be located on or very near a significant region of scrub habitat, a natural community in decline that provides important habitat for several rare species within a small area.

## b. Likely and Potential Habitat for Rare Species

In addition to documented occurrences, other rare or threatened species may occur near SSF. Rare species and communities that have not been documented but that are likely or potential at the site are listed in Exhibit L.

# c. Land Acquisition Projects

The site is located within the Wekiva-Ocala Greenway Florida Forever project which is part of the State of Florida's Conservation and Recreation Lands land acquisition program.

FNAI recommends that professionals familiar with Florida's flora and fauna conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species before expansions or alterations are made to any facilities.

## 3. Florida Fish and Wildlife Conservation Commission

The FWC Fish and Wildlife Research Institute (FWRI) reports numerous records of listed species occurrences or critical habitats within the confines of the property. This includes state and federally listed endangered or threatened species.

Other findings by the FWC include:

- **a.** The property is located adjacent to a Strategic Habitat Conservation Area for Florida black bear (*Ursus americanus floridanus*), Cooper's hawk (*Accipiter cooperii*), Florida mouse (*Podomys floridanus*), and Florida scrub-jay (*Aphelocoma coerulescens*).
- **b.** SSF is located within an area of moderate Species Richness which indicates the total number of species within potential habitat identified in a specific location.
- **c.** SSF is adjacent to Priority Wetlands, which are wetlands significant to listed wetland-dependent vertebrates.

These data represent only those occurrences recorded by FWC staff and other affiliated researchers. The database does not necessarily contain records of all listed species that may occur in a given area. Also, data on certain species are not entered into the database on a site-specific basis. Therefore, one should not assume that an absence of occurrences in their database indicates that species of significance do not occur in the area. See Exhibit M.

The FWC recommends the review of management guidelines in the published FWC Gopher Tortoise Management Plan to guide management actions for the gopher tortoise (*Gopherus polyphemus*) on the area. The FWC Gopher Tortoise Management Plan

provides beneficial resource guidelines for habitat management and monitoring of the gopher tortoise. For reference, the FWC Gopher Tortoise Management Plan can be accessed at MyFWC.com.

The FWC has published management guidelines for the Florida scrub-jay (*Aphelocoma coerulescens*; FLSJ) which are implemented on SSF. The FLSJ population on SSF is healthy, stable, and well monitored. SSF staff consult with FWC whenever an activity affecting the FLSJs or their habitat on SSF is being proposed. Any significant changes in their patterns of survival, events that may affect this, or changing trends in their overall population will be reported. As an "umbrella species", managing scrub habitat for the FLSJ effectively manages it for a large number of other scrub-endemic species, including species listed as threatened or endangered.

FWC recommends the review of management guidelines in FWC's published Species Action Plans for the management of imperiled, rare, and focal bird species. The FWC Species Action Plans provide beneficial resource guidelines for habitat management and monitoring of the respective species. For reference, the FWC Species Action Plans can be accessed at www.MyFWC.com.

## 4. Game Species and Other Wildlife

Wildlife management plays an important role in the management of resources on the SSF. The state forest currently makes up all of the following Wildlife Management Areas: Seminole Forest WMA and the Lake Tracy Unit Seminole Forest WMA. The FWC actively manages for sport fishing in Bear Pond and Oaks Pond, which are closed system borrow pits. FWC provides cooperative technical assistance in managing the wildlife and fish populations, determining hunting seasons, establishing bag and season limits, and overall law enforcement on the forest.

Notable game species inhabiting the forest include white-tailed deer, wild turkey, and smaller species such as gray squirrel, rabbit, racoon, coyote, quail, and migratory birds in season. SSF also has a significant population of wild hogs (*Sus scrofa*). Hunter harvest of feral hogs is not adequate to reduce the population, and additional control actions are desired.

The FFS and FWC cooperatively maintain six (6) permanent wildlife openings on the SSF totaling 12 acres. Wildlife openings will be established and maintained in accordance with Chapter 5 of the FFS State Forest Handbook.

Non-game species will be managed and protected through the restoration and maintenance of native ecosystems found on the forest. The current State Forest Handbook gives additional details for such things as snag management and retention. Fallen trees and logs in Black Water Creek, Sulphur Run, and their tributaries are important for biological productivity within these water systems.

#### 5. <u>Survey and Monitoring</u>

FFS may implement species-specific management plans developed by FWC and other

agencies as applicable. FFS will cooperate with FWC and other agencies in the development of new wildlife management plans and monitoring protocols, as necessary. Such plans will be consistent with rule and statute promulgated for the management of such species.

#### a. Florida Scrub-Jay (FLSJ)

Complete surveys of all FLSJs on the forest have been conducted on SSF since 2006. The majority of FLSJs are banded each year, averaging 85% of all individuals by the start of nesting season in mid-March. Nesting success is monitored and documented, as is fledgling survival. FLSJ habitat is monitored for condition and appropriate schedules for treatment/re-treatment are planned and implemented. Collected data is made available to FWC and other concerned parties as requested.

#### b. Gopher Frog

Surveys for gopher frog breeding ponds by dip netting for larvae have been conducted by SSF and FWC personnel annually on an ad hoc basis since 2012, and all data has been provided to FWC.

#### c. Striped Newt

Surveys for striped newt breeding ponds by dip-netting for larvae have been conducted by SSF and FWC personnel annually on an ad hoc basis since 2012, while also surveying for the gopher frog breeding ponds and all data has been provided to FWC.

#### d. Southeastern American Kestrel

Ten kestrel nest boxes have been placed in potential kestrel habitat on the forest since 2015. Kestrel box checks have been done each year during nesting season, once per month for four or five months, February through May or June. Nest box activity has been reported to FWC.

#### e. Gopher Tortoises

Belt transect surveys for gopher tortoise burrows have been conducted by FFS and FWC staff opportunistically, as needed, but generally in advance of land management activities that may impact tortoises (e.g., timber harvest). All surveys are done in cooperation with FWC.

In 2020, a pilot Line Transect Distance Sampling (LTDS) survey of SSF was completed (FNAI, 2020, Pilot Survey Report submitted to FWC). A total of 7,267.50 meters of transect was surveyed within a sample frame of 5,857.40 hectares. A total of 12 burrows were scoped, 50% of which were occupied. Many areas in the pilot sample frame were deemed unsuitable because of hydrological factors or long-term fire exclusion. A full LTDS survey was not conducted due to sampling density needed for a full survey (46,463 meters) and the reduced sample frame (1,112 hectares).

The FFS follows and utilizes the Best Management Practices for gopher tortoises to assist in meeting management objectives for both the species and the communities in which it is found.

#### f. Florida Black Bear

FFS will continue to cooperate with FWC to implement FWC's Florida Black Bear Management Plan, with emphasis on maintaining sustainable black bear populations in suitable habitats throughout Florida for the benefit of the species and people.

#### g. Listed Plant Species

All known locations of listed or rare flora are GIS mapped and location data are shared with the FFS Forest Management Bureau, Plant Conservation Program Biologist and/or FNAI, as appropriate.

## h. Other Rare Biota Surveys

Surveys are done as time and staffing allow. High quality plant communities continue to incur ad hoc surveys for both plant and animal invasive species. The FFS will utilize FWC Species Action Plans for guidance both monitoring populations and for habitat management recommendations for rare and imperiled species, where appropriate.

Most of the isolated SSF wetlands have received a cursory biological survey, with rare and significant plant and animal species observed and documented. Assistance will be offered to FWC for gopher tortoise burrow commensals monitoring, as well as monitoring for other rare species, as appropriate.

During routine management activities, incidental sightings of rare animals and plants are GIS mapped by FFS staff. All rare species data is collected and sent to the FFS Forest Management Bureau, Plant Conservation Program Biologist; appropriate FWC office or personnel; and/or FNAI on an incidental basis.

Surveys conducted by university researchers, students, and knowledgeable naturalists on SSF augment information provided by formal surveys conducted by FWC and other cooperating agencies. The FFS will seek assistance from citizen scientists, colleges, universities, and other agencies to gather data on plant and animal species.

# 6. Gopher Tortoise Recipient Site Feasibility Assessment

Presently, SSF has one permitted gopher tortoise recipient site. In late 2017, construction of the Wekiva Parkway necessitated the relocation of gopher tortoises from within the footprint of the parkway easement that overlapped SSF. The Florida Department of Transportation (FDOT) and FFS agreed to keep the tortoises on SSF, and the FDOT provided all necessary funding and groundwork to create the recipient site. On December 20, 2017, a Short-Term Protected Site permit (GTSR-27-00001) was issued by FWC to the FFS on behalf of FDOT, and a total of 14 tortoises were successfully relocated on January 8, 2018. This permit expired on December 21, 2019. The permitted recipient site totals roughly 25 acres and is located in the extreme southern portion of SSF, just north of the Wekiva Parkway Road easement in historic sandhill. This site is not available for future relocations, as it was created specifically for impacts to tortoises from the parkway which already had burrows on SSF.

The FFS has assessed the feasibility of establishing additional gopher tortoise recipient sites on SSF. SSF is comprised of a complex, interwoven set of natural communities, and also features several disjunct parcels and numerous gaps/inholdings. SSF staff have identified roughly 437 acres of sandhill which could be compatible with establishing a gopher tortoise recipient site. Specifically, 112 acres were identified across three parcels within the Warea Tract and 325 acres were identified across 13 parcels within the main Seminole Tract, located in the south-central portion of the forest. Soils across all sites range from excessively drained to somewhat poorly drained. A site-specific survey would need to be completed in order to determine the current stocking density of these sites. A vegetation survey would also be needed to determine if the habitat meets the thresholds required in the FWC Gopher Tortoise Permitting Guidelines. No formal Line Transect Distance Sampling survey has been conducted on SSF to date.

Operational budget, staffing levels, and technical capacity considerations preclude the FFS from installing a gopher tortoise recipient area on SSF. The FFS would require financial and technical assistance from FWC to establish a recipient site on SSF. Should that assistance be available, the FFS would be amenable to partnering and establishing a gopher tortoise recipient site.

#### D. Sustainable Forest Resources

FFS practices sustainable multiple-use forestry to meet the forest resource needs and values of the present without compromising the similar capability of the future. Sustainable forestry involves practicing a land stewardship ethic that integrates the reforestation, managing, growing, nurturing, and harvesting of trees for useful products with the conservation of soil, air and water quality, wildlife and fish habitat, and aesthetics. This is accomplished by maintaining and updating accurate estimates of standing timber in order to assure that the timber resources retain their sustainability. Forest inventories will be updated on a continual basis according to guidelines established by the FFS Forest Management Bureau.

#### E. Beaches and Dune Resources

No beaches or dunes occur on the SSF.

#### F. Mineral Resources

There are no known significant mineral deposits of commercial value on SSF.

#### G. Unique Natural Features and Outstanding Native Landscapes

The distinctive character of SSF is its ecological diversity, which includes almost all of the naturally occurring vegetative communities found in Central Florida. There are at least 18 different natural communities on the forest, each with unique plants, animals, and physical characteristics. A few examples are flatwoods, scrub, blackwater streams, and bottomland forests.

The Seminole Tract contains approximately 4,529 acres of scrub and 920 acres of scrubby flatwoods, which are rare and rapidly disappearing natural communities. The scrub and scrubby flatwoods provide habitat for between 30 and 50 Florida scrub-jay territories and contain at least five scrub-endemic plant species. The scrub is ideally located adjacent to the

much larger FLSJ population to the north on Ocala National Forest, and the recently reestablished population on Rock Springs Run Reserve to the south, and therefore serves as an important linkage between populations. Banded FLSJs on SSF have been documented dispersing to these other two populations and subsequently producing offspring.

The species composition of the sandhill communities on the Warea Tract, while sharing a fair percentage of their rare species diversity with the more southerly Central Ridge, contains an array of species found nowhere else on earth. This Tract is a small but significant example of the rare xeric upland biodiversity of the northern Lake Wales Ridge region.

The diversity of relatively intact natural communities on the southern portions of the Seminole Tract is significant. Sulphur Island, a fairly large ancient sand ridge situated on an ancient marine reef, forms the highest area on the Seminole Tract. Sulphur Run and Black Water Creek surround most of the island. Along several areas around the island's perimeter, the terrain slopes quickly down from scrub to hydric hammocks. These areas have elevation changes that are abrupt, dropping as much as 30 feet in some places.

At least 19 named springs occur on the Seminole Tract. The Tract also borders 1.7 miles of the Wekiva River, a National Wild and Scenic River, sharing this feature with Wekiwa Springs State Park, Rock Springs Run State Reserve, and the Lower Wekiva River Preserve State Park. The Tract also contains nine miles of Black Water Creek and nearly all of Sulphur Run. The Wekiva River, together with Rock Springs Run and Black Water Creek, is designated as a National Wild and Scenic River.

#### H. Research Projects / Specimen Collection

Research projects may be conducted on the forest on a temporary or permanent basis for the purpose of obtaining information that furthers the knowledge of forestry and related fields. FFS cooperates with other governmental agencies, non-profit organizations, and educational institutions, whenever feasible, on this type of research. FFS will consider assisting with research projects when funds and manpower are available.

All proposed research on SSF must be in accordance with the guidelines stated in the State Forest Handbook. Any requests for research should be submitted in writing to the appropriate field staff to be forwarded to the Forest Management Bureau for approval. Requests must include: a letter outlining the purpose, scope, methodology, and location of the proposed research. Requests are subject to review by FFS Foresters, Biologists, the Forest Health Section, and the Forest Hydrology Section, as appropriate. Authorization to conduct research will require that the investigator provide copies of any reports or studies generated from any research to the FFS and the SSF staff. Other special conditions may be applicable, and the authorization may be terminated at any point if the study is not in compliance.

Research projects / specimen collections that have been initiated on the property include:

California Botanic Garden and Bok Tower Gardens (Kiel, Fisher, and Peterson). 2019
 2021. New World *Justicia* s.l.: A microcosm for understanding covariation of floral traits and pollinators in a phylogenetic context.

- Florida Museum of Natural History (Kawahara, St. Laurent, and de Carvalho). 2020. Collect voucher specimens of sack-bearer moths (*Cicinnus melsheimeri*) to investigate a unique phenotype that may be scrub-adapted.
- University of Florida (Kaufman/Hertz). 2015. Conduct research regarding tick ecology and pathogen prevalence rates in ticks of Florida.
- University of Florida (Daniels/Kimmel). 2020 2022. Investigate the distribution and floral hosts of the giant scrub plasterer bee (*Caupolicana floridana*) and plasterer bee (*C. electa*) in Florida.
- University of Central Florida (Savage/Gutner). 2021. Conduct research regarding southern leopard frogs (*Rana sphenocephala*) and their population response to sealevel rise.
- University of Florida (Hulcr/LeMay). 2021. Collect ambrosia beetles (*Xyleborous ferrugineus*) throughout Florida to compare genetic material for regional variation.
- Bridges/Weakley. 2021. Collect herbarium specimens of plants to produce a Floridaspecific version of Alan Weakley's Flora of the Southeastern U.S.
- University of Florida (Soltis/Molgo). 2015. Collect plant material to investigate turtle vine (*Callisia*) genetics in conjunction with its morphology and natural history.
- University of Florida (Crandall/Angel). 2018 2020. Response of Florida giant orchid (*Orthochilus ecristata*) populations to changes in fire season.
- Bok Tower Gardens (Peterson). 2017 2020. Collect clasping warea (*Warea amplexifolia*) leaves, as well as Lewton's milkwort (*Polygala lewtonii*) seeds for genetic research, long-term storage, and potential reintroduction.
- University of Florida (Kobziar/Freeman). 2014 and 2015. Conduct research assessing the effects of fuel treatments on wildlife habitat quality in longleaf pine (*Pinus palustris*) ecosystems.
- University of Florida (Steppe/Wilson). 2018. Collect cuttings and seeds from papery nailwort (*Paronychia chartacea* spp. *chartacea*) plants to develop propagation protocols and techniques.
- Drake. 2018. Collect herbarium specimens of scrub plum (*Prunus geniculata*); check plants for evidence of plum curculio.
- Florida Fish and Wildlife Conservation Commission/FWRI (Farmer/Enge). 2015 2018. Determine the status, distribution, and reproductive success of the gopher frog (*Lithobates capito*) in Florida.
- University of North Carolina, Chapel Hill (Weakley/Schoonover). 2017. Collect bluecurls (*Trichostema*) plant materials for genetic and morphological analyses and to examine populations throughout the southeastern U.S.
- Ohio State University (Freudenstein/Keesling). 2017. Investigate taxonomy of Indianpipes (*Monotropa* spp.) using specimens collected across Florida and the U.S.
- University of Florida (Flory/Clark). 2017. Investigate relationships between abiotic and biotic environmental factors and cogongrass (*Imperata cylindrica*) distribution and abundance.
- World Museum Liverpool (Ostapkowicz/Schulting). 2016. Determine the origin of wood used in Native American carvings using a strontium isotope analysis of living tree samples.

- Florida Native Plant Society (Rynear). 2016. Collect seed from clasping warea (*Warea amplexifolia*) to research this species' biology and to increase population numbers at ex situ introduction and augmentation sites.
- University of Michigan (Smith/Ng/Forscher). 2016. Determine how functional traits vary within and between coastal redwood (*Sequoia sempervirens*) and bald cypress (*Taxodium distichum*) with respect to climatic gradients.
- Florida Fish and Wildlife Conservation Commission (Scheick/McCown). 2014. Estimating black bear abundance in Florida.
- Florida Fish and Wildlife Conservation Commission (Doonan/Austin). 2014 2017. Assessing the genetic structure of the statewide Florida mouse (*Podomys floridanus*) population for more effective conservation and management.

# I. <u>Ground Disturbing Activities</u>

Although the FFS's approach to handling ground disturbing activities is identified in other sections of this plan, the FFS's overall approach to this issue is summarized here. FFS recognizes the importance of managing and protecting sensitive resources and will take steps to ensure that such resources are not adversely impacted by ground disturbing activities. Sensitive resources include areas such as known sensitive species locations; archaeological, fossil, and historical sites; ecotones, wetlands, and water resources. The process for evaluating and obtaining approval for ground disturbing activities is outlined in Appendix 2.A.6. of the State Forest Handbook.

When new pre-suppression firelines, recreation trails, or other low-impact recreation site enhancements are necessary, their placement will be reviewed by state forest field staff to avoid sensitive areas. For ground disturbing activities such as construction of buildings, parking lots, and new roads, the FFS will consult with FNAI, DHR, WMD, and ARC, as appropriate.

# V. Public Access and Recreation

The primary recreation objective on SSF is to provide the public with dispersed outdoor recreation activities that are dependent on the natural resources. FFS will continue to promote and encourage public access and recreation while protecting resources and practicing multiple-use management.

Periodic evaluations will be conducted by FFS staff to monitor recreational impacts on resources. Modifications to recreational uses will be implemented should significant negative impacts be identified. New recreation opportunities and facilities, which are compatible with the primary goals and responsibilities of the FFS, will be considered only after FFS determines their compatibility with other forest uses and forest resources. Assessment of visitor impacts, outdoor recreation opportunities and facilities, and proposed changes will all be addressed in the Five-Year Outdoor Recreation Plan updates.

# A. Existing Recreation Opportunities

A variety of recreation opportunities are available on SSF. Recreation activities include hiking, camping, horseback riding, wildlife viewing, picnicking, bicycling, swimming, fishing, hunting, and driving open-designated roads accessible to public via State Forest Use Permit. SSF is part of the Florida National Scenic Trail, the FFS Trailwalker Program, and the FFS

Trailtrotter Program. See Exhibit D for a map of the Recreation, Facilities, and Improvements.

Two trailheads provide primary access for recreational use. The Bear Pond Trailhead is located off of SR 46, approximately 5 miles west of I-4. Cassia Trailhead is located off of Brantley Branch Road, 0.1 miles east of SR 44 in Cassia. The trailheads provide parking areas, entrance gates, and access to the recreation trails.

# 1. <u>Hiking Trails</u>

Single and multiple-use trails provide connections to approximately 20 miles of multipleuse trails located on the adjacent Lower Wekiva River State Preserve. On SSF, over 32 miles of hiking trails have been developed and are maintained by the Florida Trail Association. Seventeen miles of the Florida National Scenic Trail crosses multiple parcels of the forest, stretching from State Road 46 north to the Ocala National Forest. SSF contains two hiking trails that are included in the FFS Trailwalker Hiking Program. A series of spur trails provide connections to trailheads and parking areas and the adjacent trails on the Lower Wekiva River State Preserve. There are three primitive camp zones along the orange blazed Florida National Scenic Trail that are for hikers only.

# 2. Equestrian Trails

Twenty-six miles of horse trails are available for day use. Spur trails provide connections between parking areas, three loop trails, and the adjacent trails on the Lower Wekiva River State Preserve. Loop trails include the 7.2-mile River Creek Loop, the 7.4-mile Sulphur Island Loop, and the 4.2-mile Paola Loop. The River Creek and Sulphur Island Loop trails are included in the FFS Trailtrotter Program. Horse trailer parking areas are also available at the trailheads. Horseback riding is restricted to trails designated for that use. Seminole Winds Ranch and Wekiva Pine Estates have access trails from these private properties to public trail system.

# 3. Bicycling

Off-road bicycles are permitted on over 25 miles of designated open roads (named roads). Access to the designated open roads is provided by walk-through openings located at the trailheads. The open roads system contains areas of packed and sandy roads. This woods road system provides a 7-mile connection between the two parking areas and a series of loop and spur roads. Access is also provided to the adjacent multiple-use trails on the Lower Wekiva River State Preserve.

# 4. Fishing and Boating

Areas most commonly used for fishing on SSF include Bear Pond, Oaks Pond, Black Water Creek Day Use Area, and the bridges on Sand Road, SR 44, and CR 44A. Several perennial ponds are also suitable for fishing. Canoeing on Black Water Creek provides a glimpse of an undisturbed blackwater stream. Hand-launched watercraft are permitted to access Black Water Creek, north of the concrete bridge on Sand Road. Two picnic tables are provided for day use at the canoe launch.

# 5. <u>Camping</u>

There are five reservation-only, drive-up primitive campsites, which include three group

sites, and another three reservation-only hike-in primitive campsites. Two of the reservation campsites are accessible by paddling on Black Water Creek. Each of the sites have fire rings and picnic tables. Reservations are available through the FFS Campground Reservation System. Three camp zones are located along the Florida National Scenic Trail. These hike-in sites are for trail users. One additional hike-in campsite is located on the adjacent Lower Wekiva River Preserve State Park and is accessible from the Lower Wekiva Loop trail.

#### 6. Hunting

Currently, hunting is divided into two WMA Units, the Seminole Forest WMA, and the Lake Tracy WMA, each with different hunting schedules.

#### B. Planned Recreation Activities

FFS will continue to assess plans for additional recreation opportunities based on demand, carrying capacity, demographics, and impact to the resources on the forest. All planned improvements may be completed as staff and funding permits. Both terrestrial and aquatic resources and related activities will be evaluated. Any plans will be incorporated into the Five-Year Outdoor Recreation Plan on file at SSF.

## 1. Public Access and Parking

Within this ten-year planning cycle, other parking and access points will be evaluated. Current parking areas and forest access points will continually be evaluated for improvements. Existing parking areas are for all recreational users on the SSF and FFS staff use. New designated parking areas may be established and installed as the need warrants. Listed plant and animal species and known archeological sites will be avoided. The size of parking areas will be determined by location for public access. Materials for these projects will be determined. Additional signage for the Seminole Tract will be updated as needed.

#### 2. Trails

Within this ten-year planning cycle, suitable locations will be explored for additional recreation trails. The construction, maintenance, and improvements of multi-use, equestrian, cycling, nature, and hiking trails will be ongoing. FFS will install and replace trail directional signs or re-paint blazes along all existing trails on SSF to help with trail signage and hiking access as needed. Additional trails, recreation areas, and / or observation platforms or towers may be evaluated, planned, and installed on the Seminole Tract of SSF. During this ten-year planning period, further evaluation will be conducted regarding recent equestrian user group interest to provide shortcuts to the existing longer loop trails and create new loops using existing service roads.

#### 3. Environmental Education

Environmental information on SSF is displayed on kiosks and education is conducted through guided tours and hands-on events by request. Other opportunities for interpretive / educational programs will be considered. Targeted groups include the general public, school and youth groups, and various user groups. Two interpretive self-guided trails are available and include a canoe trail on Black Water Creek, and a hiking trail around Bear

Pond. A third interpretive hiking trail is planned near the visitor center to connect with an existing trail. An event called "Welcome To The Woods" is held each spring to promote forest recreation and provide forest management information. An average of seven (7) environmental programs and tours are conducted each year to both public and private groups. Each kiosk is used for display and information for all recreational activities on SSF. Each will be installed, replaced, or repaired as needed. Additional kiosks or educational materials or displays may be installed on the Seminole Tract. If a need is determined in the future, SSF may implement an environmental education program which may include guided tours, additional self-guided tours, and hands-on events.

## 4. Equestrian, Hiker, Biker and Hunter Education

Within this ten-year planning cycle, FFS will continue communicating our needs and concerns with our user groups, cooperators, and our visitors. FFS will evaluate the best methods for communicating concerns and solutions to these user groups. Each kiosk is used for display, education, and / or information on recreational activities on SSF.

## 5. Amenities

During this ten-year planning cycle, FFS will assess the need and feasibility of installing pavilions within the Seminole Tract of SSF. Additional amenities that may be assessed during this ten-year planning period include but are not limited to: bear-proof trashcans, bear-proof storage containers, gates, educational displays, signs, or kiosks, fencing, pitcher pumps, vault toilets, boardwalks, bridges, culverts, viewing platforms, equestrian areas, native educational gardens, and gazebos may be evaluated and may be installed on the Seminole Tract of SSF.

During this ten-year planning period, the dock at Bear Pond will continue to be maintained to provide for the enjoyment and safety of forest users.

During this ten-year planning period, improvements may be made to the Black Water Creek boat launch found on SSF. Improvements would include road and creek bank stabilization.

During this ten-year planning period, the need for a vault toilet, small pavilion, and picnic table will be evaluated and, if needed, may be installed along the recreation trail system at the intersection of Grade, Pine, and Sand Roads.

During this ten-year planning period, Frey Cabin will be evaluated for special permitted use by volunteers and cooperators specifically working toward improvement of forest resources or environmental education. This may include local volunteers, the Florida Trail Association, groups such as Boy and Girl Scouts of America, and visiting researchers and environmental instructors. Due to limited staffing to maintain additional facilities, the cabin would primarily be maintained by those that use it. The addition of a vaulted restroom, outdoor kitchen, pitcher pump and cistern/shower will be evaluated.

During this ten-year planning period, the need for bear-resistant food lockers or trashcans will be evaluated and, if needed, installed at the primitive campsites.

# 6. Camping

Within this ten-year planning cycle, FFS will assess the feasibility of additional primitive campsites or group campsites on the Seminole Tract. The need for additional primitive campsites / facilities on the SSF continues to be evaluated and updated in response to public use of existing facilities. Any new campsites will be equipped with a fire ring, a grill, and a picnic table, if deemed appropriate. Campsite amenities will be installed, replaced, or repaired as needed.

During this ten-year planning period, it is proposed that Corral Camp should be moved away from the visitor center/residence area and noise of SR44, to a more suitable location approximately 0.5 miles to the southeast. The site is a short distance away from the yellow spur hiking trail and situated in an existing open area, in the shade of large scrub oaks.

## C. Hunter Access

Regulated hunting and fishing on Florida's state forests are managed cooperatively with the FWC. Hunting season dates, limits, and methods are established annually by FWC, in cooperation with FFS. Wildlife Management Area (WMA) regulations are updated annually and are identified in the current WMA brochure provided by FWC at www.MyFWC.com. Non-hunting recreation users are encouraged to check the WMA regulations and season dates before visiting SSF.

Currently, hunting is allowed on 12,616 acres on the Seminole Forest WMA and 9,311 acres on the Lake Tracy Unit. Participation in game hunts is limited through a random-drawn quota permit or first come, first-served hunt permit. A check station is located just north of the Bear Pond Day Use Area and is staffed during all hunts on the Seminole Forest WMA. The check station site has electricity, water, two information kiosks, a picnic table, and a skinning station.

#### D. <u>Education</u>

FFS may create partnerships with local K-12 schools and / or universities for the development and implementation of educational opportunities on SSF. Once partnerships are developed, the Five-Year Outdoor Recreation Plan will provide more insight to management activities as they pertain to future educational opportunities SSF may provide to the public. Educational displays are planned for the visitor center to provide historical and environmental information.

#### VI. Forest Management Practices

## A. <u>Prescribed Fire</u>

Forest management practices on SSF are important in the restoration and maintenance of forest ecosystems and provide a variety of benefits to Floridians. The prescribed burning program developed for SSF produces multiple benefits. The objectives of prescribed burning on SSF include facilitating forest management operations, enhancing wildlife and listed species habitat, decreasing fuel loading, enhancing public safety, and restoring, maintaining, and protecting all native ecosystems, ecotones, and their ecological processes. Prescribed fire is an effective tool in controlling the encroachment of shrubs and off-site hardwoods, stimulating the recovery of native herbaceous groundcover, and promoting the regeneration of native pines.

FFS utilizes a fire management program on state forests that includes wildfire prevention, detection and suppression, and prescribed burning. This program is the responsibility of FFS's Withlacoochee Forestry Center through its Operations Section and is detailed in the Five-Year Prescribed Burning Management Plan. Emphasis will be placed on prescribed burning, wildfire prevention, and education to help reduce wildfire occurrence on the forest. FFS personnel are responsible for planning and implementing the annual prescribed burn program for SSF, which will consist of dormant and growing season burns. An update to the Five-Year Prescribed Burning Management Plan is developed each year by FFS staff. All burns conducted on SSF are executed by Florida Certified Prescribed Burn Managers in accordance with Chapters 590.125, F.S. and 5I-2 F.A.C.

A Fire History chart detailing the recent history of prescribed burns and wildfires at SSF is available in Exhibit N.

FFS has one (1) fire tower, four (4) brush trucks, one (1) heavy dozer, and five (5) tractorplow units located in Lake County. Additional support is available from neighboring counties. Personnel and equipment are stationed at Lake Forestry Station, Paisley Tower, Eva Tower, Groveland, and SSF. These resources will be used for pre-suppression practices, establishment of firebreaks, rehabilitation of existing firelines, construction of new firelines, maintenance of perimeter firebreaks, and prescribed burning.

According to FNAI, historic, fire-dependent natural communities on SSF are estimated to have occupied 19,847 acres and to have burned at approximately two to four-year intervals, although scrub burned every 10 to 20 years. Current fire-dependent communities encompass 16,184 acres. Some historically fire-dependent communities have been altered through past land use practices, which inhibits the ability to meet objectives with prescribed fire alone. Based on current conditions and management objectives, SSF will plan to burn an average of 550 acres of scrub, scrubby flatwoods, and associated communities; and 3,650 acres of mesic flatwoods, wet flatwoods, sandhills and associated communities; totaling 4,200 acres annually. Priority ranking of burn units is used to keep fire-return intervals maintained while slowly adding additional acreage. Meeting prescribed fire goals will be largely dependent on weather conditions, available personnel, and statewide emergency situations such as wildfires, hurricanes, and other natural disaster response and relief.

Currently it is estimated that approximately 6,400 acres of SSF are within the desired firereturn interval.

#### 1. Fire Management

The fire management plan serves as a working tool and an informational document for SSF. The plan provides guidelines regarding wildfire suppression and prescribed fire management. It will specify burn units, burn unit prescriptions, appropriate fire return intervals, and fire pre-suppression planning. The plan may be reviewed and amended as necessary.

The use of prescribed fire in the management of timber, wildlife, and ecological resources on SSF is necessary if the FFS is to fulfill the goals and objectives stated in this plan including: enhancing and restoring native plant communities, managing protected species, managing timber, recreation, historical, and other resource values. The fire management plan and its objectives shall reflect and incorporate these multiple-resource objectives.

- **a. Prescribed Fire:** Prescribed fire is the most important land management tool, both ecologically and economically, for managing vegetation and natural communities and perpetuating existing wildlife populations in Florida. Forest operation records and staff experience should be combined with the FNAI inventory and assessment (2019) to identify areas that may require mechanical or chemical treatments in conjunction with prescribed fire to restore a more natural vegetative structure.
- **b. Burn Unit Plans:** Each prescribed fire will be conducted in accordance with FFS regulations and state law (Chapter 5I-2 F.A.C., Chapter 590, F.S.) and have a burn unit plan (or prescription). Each prescription will contain, at a minimum, the information, as required by Section 590.125(3), F.S., needed to complete the FFS Prescribed Burn Plan Form FDACS 11461.

Aerial ignition may be considered for large burn units where this tactic can be cost effective for larger acreages. Consideration should be given to rotating burn units between dormant and growing season burns over time. Fire return intervals for a burn unit are recommended to fall within the natural, historic range for the dominant natural community or communities within a given burn unit.

Based upon available species survey data, burn units within a prescription that have listed wildlife species shall explicitly state their presence and any restrictions or requirements relative to prescribed burning in proximity to these species or habitats. These may include time of year, pre-burn preparation, fire return intervals, and other burn parameters.

# B. Wildfire Prevention and Mitigation Strategies

FFS utilizes a comprehensive wildfire management approach on state forests that includes an ongoing program of wildfire prevention, detection, and suppression, and prescribed burning. Implementation of this program is the responsibility of FFS's Withlacoochee Forestry Center. Emphasis will be placed on consistent accomplishment of prescribed burning goals and community outreach to increase public understanding of wildfire prevention and the benefits of prescribed fire.

FFS has three paramount considerations regarding wildfires and are established in priority order:

- 1) Protection of human lives
- 2) Protection of improvements
- 3) Protection of natural resources

All procedures regarding wildfire will follow the State Forest Handbook and the SSF Fire Management Plan.

## 1. <u>Suppression Strategies</u>

If a wildfire occurs on SSF there are two (2) alternative suppression strategies as defined below:

- **a.** Contain and Control is defined as a suppression strategy where a fire is restricted to a certain area by using existing natural or constructed barriers that stop the fire's spread under the prevailing and forecasted weather until it is out. This strategy allows the use of environmentally sensitive tactics based on fuels, fire behavior, and weather conditions that keep a wildfire from burning a large area or for a long duration.
- **b.** Direct Suppression is defined as a suppression strategy where aggressive suppression tactics are used to establish firelines around a fire to halt its spread and to extinguish all hotspots. This alternative is used whenever there is a threat to human life, property, private lands, and / or critical natural or cultural resources. This strategy should also be used when the total district fire load dictates that crews not be involved with individual fires for any longer than necessary.

Appropriate suppression action will be that which provides for the most reasonable probability of minimizing fire suppression cost and critical resource damage, consistent with probable fire behavior, total fire load, potential resource and environmental impacts, safety, and smoke management considerations. The Incident Command System (ICS) will be used for all suppression actions.

## 2. Smoke Management

Caution will be exercised to prevent a public safety or health hazard from the smoke of any prescribed burn or wildfire. Prescribed burns must pass the smoke screening procedure and be conducted by a certified burner. If smoke threatens to cause a safety hazard, then direct, immediate suppression action will be taken.

# 3. Firebreaks and Firelines

A system of permanent fire breaks will be developed and maintained around and within the boundaries of SSF to guard against fires escaping from and entering the forest. Such fire breaks will consist of natural barriers, roads, trails, permanent grass strips, and where appropriate, well maintained harrowed lines. All pre-suppression fire breaks will meet the established Silvicultural BMP criteria.

During wildfire suppression, the use of water and foam, permanent fire breaks, natural barriers, and existing roads and trails for firelines can be used when human life, safety, property, and resource considerations allow. Plowed and / or bladed lines will be used for initial installation of firelines in heavy fuels and in cases where it's considered necessary to protect life, property, or resources and / or to minimize threats to firefighters. Plowed and bladed lines will be rehabilitated and brought to BMP compliance as soon as practical after the fire is suppressed.

#### 4. <u>Sensitive Areas</u>

SSF retains on file in the state forest headquarters an Environmentally Sensitive Area Map that identifies protected sites such as critical wetlands and archaeological and historical

sites known to occur on the state forest. FFS personnel are aware of these areas in the event of a wildfire. Special precautions will be followed when prescribed burning in sensitive areas on SSF. When possible, fire staff will avoid line construction in wetland ecotones and other areas sensitive areas throughout the forest.

## 5. <u>Firewise Communities</u>

FFS has implemented a Firewise community approach for prevention statewide. Specifically, in the area adjacent to or nearby SSF, efforts in this regard will continue to identify communities at risk and to contact their representatives.

## 6. Adjacent Neighbor Contacts

The staff at SSF maintains a list of neighbors that have requested they be notified in advance of prescribed burns. These families are contacted by telephone or email with potential sites and dates of anticipated prescribed burns.

## 7. <u>Post-Burn Evaluations</u>

A post-burn evaluation is required for each prescribed burn on the Forest to assess impacts on timber and habitat. Based on the evaluations, after prescribed fires in particular, decisions will be made on the effectiveness of the prescribed burn and improvements that can be made in the future. A historical fire record for all significant fires and prescribed burns will be maintained. This will be accomplished using completed burn plans and the maintenance of GIS data. These records are intended to provide data for future management decisions.

# C. Sustainable Forestry and Silviculture

Timber is a valuable economic and ecological resource. Timber harvesting for the purposes of generating revenue, improving stand viability, forest health, wildlife, and ecological restoration and maintenance is important to meeting the silvicultural objectives on SSF.

# 1. Strategies

The following silvicultural strategies will apply to silvicultural practices on SSF:

- **a.** To restore and maintain forest health and vigor through timber harvesting, prescribed burning, and reforestation, both naturally and artificially, with species native to the site.
- **b.** To create, through natural or artificial regeneration, uneven-aged, and even-aged management, a forest with both young and old growth components that yields sustainable economic, ecological, and social benefits.

# 2. <u>Silvicultural Operations</u>

Silvicultural operations on SSF will be directed toward improving forest health, wildlife habitat, ecological and economical sustainability, as well as toward recovery from past private management. Stands of off-site species with merchantable volume will be scheduled for harvest, followed by reforestation with the appropriate tree species. Herbicide applications may be necessary to control woody competition and to re-establish desired native species of both overstory and groundcover. Site preparation methods may include prescribed fire, mechanical vegetation control, and / or herbicide applications.

Herbicides used will be registered for forestry use by the U.S. Environmental Protection Agency (EPA) and will not adversely affect water resources.

Prescribed fire is the most desirable method of vegetation control in fire-dependent ecosystems. However, due to the existence of areas where fuel loads have reached dangerous levels or urban interface dictates prescribed fire is not suitable, mechanical, or chemical vegetation control may be used. Mechanical and / or chemical vegetation control will be utilized where appropriate as determined by FFS staff for wildlife enhancement, fuel mitigation, and reforestation.

Maintenance and restoration of timber stands and natural communities through timber harvesting will include thinning for maintenance, regeneration harvests applicable to the species present, and clear-cutting to remove off-site species, and improve wildlife and plant habitat.

All silvicultural activities, including timber harvesting and reforestation, will meet or exceed the standards in FFS's Silviculture BMPs and the State Forest Handbook, and will follow the Five-Year Silviculture Action Plan.

#### 3. Forest Inventory

The purpose of a forest inventory is to provide FFS resource managers with information and tools for short and long-range resource management and planning. Ten percent (10%) of SSF forest will be re-inventoried annually to provide an accurate estimation of the standing timber and to ensure that stands will be managed sustainably.

Timber / forestry resources available on the property include slash, pond, loblolly, sand, and a small area of longleaf pine. In addition, there are mixed hardwoods and cypress found throughout the forest.

#### 4. <u>Timber Sales</u>

Timber sales are generally advertised for competitive bids and sold on a per unit or lump sum basis. All timber sales are conducted according to guidelines specified in the State Forest Handbook.

#### 5. Cattle Grazing

Cattle grazing activities assist in maintaining pastures and controlling plants, support the maintenance of fences and gates, and provide a source of income to the FFS.

#### D. <u>Invasive Species Control</u>

FFS employees continually monitor the forest for invasive species while conducting management activities. SSF staff will locate, identify, and apply control measures with the intent to eradicate or control invasive species. Table 6 lists the general treatment strategy, acres impacted, and population stability trend for invasive plant species occurring on SSF. Also see Exhibit O.

Ongoing maintenance and monitoring strategies are outlined in the Five-Year Ecological

Management Plan which is developed to locate, identify, and control invasive plant species. Occurrences of invasive species are recorded in the SSF GIS database and are monitored and treated annually as funding permits. The GIS database is updated as new infestations are discovered.

Adjacent landowners who are known to have these species on their property may be approached to cooperate on control measures through the use of hold harmless agreements. FFS works to control the spread of invasive species by decontaminating agency equipment and equipment used by private contractors according to the State Forest Handbook.

There is a significant population of feral hogs (*Sus scrofa*) on SSF that frequent wetlands and cause obvious damage. Hunter harvest of feral hogs is not adequate to reduce the population. Additional actions, to include contracted nuisance trapping, or special permitted control efforts, are needed to help to control this population. FFS will enlist support from FWC in efforts to control invasive animal species. FWC has issued a feral hog control permit to FFS for all state forests and FFS will allow for feral hog removal on SSF through trapping and hunting as necessary.

Training in the identification and control of invasive species will be scheduled for personnel as time and resources permit. Training concerning invasive plants will be coordinated with the Forest Management Bureau's Forest Health Section. Control of invasive species will be target specific and use a variety of methods including appropriately labeled and efficacious herbicides.

Common Name	Scientific Name	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Air potato	Dioscorea bulbifera	Biological control (beetle), spot herbiciding	9.9	Decrease
Caesarweed	Urena lobata	Hand pull, spot herbiciding	311	Stable
Camphortree	Cinnamomum camphora	Girdle, spot herbiciding	69.3	Increase
Chinaberry	Melia azedarach	Girdle, spot herbiciding	15.7	Decrease
Chinese tallow	Triadica sebifera	Girdle, spot herbiciding	8.4	Increase
Cogongrass	Imperata cylindrica	Spot herbiciding	356	Increase
Japanese climbing fern	Lygodium japonicum	Spot herbiciding	13.2	Increase
Natalgrass	Melinis repens	Hand pull, spot herbiciding	211	Increase
Coral ardisia	Ardisia crenata	Hand pull, spot herbiciding	99.8	Unk.
Balsam pear	Momordia charantia	Spot herbiciding	8.3	Unk.
Ox eye	Sphagneticola trilobata	Spot herbiciding	0.1	Decrease
Rosary pea	Abrus precatorius	Spot herbiciding	0.4	Unk.
Tropical soda apple	Solanum viarum	Hand pull	138	Increase

#### Table 6. Invasive Plant Species Occurring on SSF

Common Name	Scientific Name	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Showy rattlebox	Crotalaria spectabilis	Hand pull	484	Decrease
Vaseygrass	Paspalum urvillei	Spot herbiciding	1.8	Unk.
Tuberous sword fern	Nephrolepis cordifolia	Spot herbiciding	7.8	(See notes)
Earpod tree	Enterolobium contortisiliquum	Girdle, spot herbiciding	3.3	Decrease
Asparagus fern	Asparagus setaceous	Spot herbiciding	0.6	Unk.
Catclaw vine	Dolichandra unguis-cati	Spot herbiciding	0.3	Unk.
Lantana	Lantana strigocamara	Spot herbiciding	2.1	Decrease
Mimosa/Silk tree	Albizia julibrissin	Girdle, spot herbiciding	0.8	Unk.
Llima	Sida cordifolia	Hand pull	0.2	Unk.
Guinea grass	Urochloa maxima	Spot herbiciding	11.8	Increase
Castorbean	Ricinis communis	Hand pull, spot herbiciding	0.6	Unk.
Torpedo grass	Panicum repens	Spot herbiciding	2.1	Unk.
Johnsongrass	Sorghum halapense	Spot herbiciding	0.1	Decrease
Mexican petunia	Ruellia simplex	Spot herbiciding	0.1	Unk.
Wild taro	Colocasia esculenta	Spot herbiciding	0.2	Unk.
Turks turban	Clerodendrum indicum	Hand pull, spot herbiciding	1.1	Unk.
Old World climbing fern	Lygodium microphylum	Spot herbiciding	0.2	Unk.
Paper mulberry	Brousonetia papyrifera	Girdle, spot herbiciding	0.1	Unk.
Praxelis	Praxelis climatidea	Spot herbiciding	0.1	Unk.
Arrowleaf elephant ear	Xanthosoma sagittifolium	Spot herbiciding	0.2	Unk.
Surinam cherry	Eugenia uniflora	Spot herbiciding, hand pull	0.1	Unk.

Notes: Water hyacinth (*Eichornia crassipes*) is common on Black Water Creek, and in a few other locations on SSF. Treatment is contracted out by FWC. Hairy indigo (*Indigofera hirsuta*) is abundant in abandoned fields and improved pastures, and as a ground cover in pine plantations; it is not currently being treated. Tuberous sword fern (*Nephrolepis cordifolia*) is abundant in mesic to wet habitats throughout SSF; most patches have not been GPSed, so its acreage is likely far higher than listed above and is surely increasing.

#### E. Insects, Disease and Forest Health

Currently, there are no significant insect or disease problems on SSF. In the event of a forest pest outbreak, SSF resource managers will consult with the Forest Management Bureau's Forest Health Section to formulate an appropriate response.

In compliance with Section 388.4111, F.S. and in Section 5E-13.042, F.A.C., all lands have been evaluated and subsequently designated as environmentally sensitive and biologically highly productive. Such designation is appropriate and consistent with the previously documented natural resources and ecosystem values and affords the appropriate protection for these resources from arthropod control practices that would impose a potential hazard to fish, wildlife, and other natural resources existing on this property. The local arthropod control

agencies in Lake County will be notified of the approval of this plan documenting this designation.

As a result, prior to conducting any arthropod control activities on SSF, the local agency must prepare a public lands control plan that addresses all concerns that FFS may have for protecting the natural resources and ecosystem values on the state forest. In this regard, FFS will provide the local agency details on the management objectives for SSF. This public lands control plan must comply with FDACS guidelines and use the appropriate FDACS form. The plan must then be approved and mutually adopted by the county, FFS, and FDACS, prior to initiation of any mosquito control work. Should the local mosquito control district not propose any mosquito control operations on the property, no arthropod control plan is required. See Exhibit W.

# F. Use of Private Land Contractors

The forest manager makes ongoing evaluations of the use of private contractors and consultants to facilitate the total resource management activities of this state forest. The opportunities for outsourcing land management work include:

- **1.** Herbicide applications
- 2. Restoration activities
- **3.** Site preparation
- 4. Reforestation
- **5.** Timber harvesting
- 6. Timber stand improvement
- 7. Surveying/boundary marking
- 8. Biological assessments and mapping
- 9. Contractors for fixed capital and infrastructure improvements

## VII. Proposed Management Activities for Natural Communities

In 2019, FNAI completed an inventory and natural community mapping project on SSF. Current and historic natural community cover types can be found in Exhibits P and Q, and Table 7. The inventory included managed and altered landcover types which are habitats that have been impacted by humans and do not fit into FNAI's Natural Community Classification. See Tables 8 and 9.

Community Type	Historic Acres*	Current Acres*
Basin marsh	1,564	1,552
Basin swamp	2,426	2,380
Baygall	370	364
Depression marsh	1,123	1,121
Dome swamp	125	115
Flatwoods lake	58	58
Floodplain marsh	61	61
Floodplain swamp	2,508	2,505
Hydric hammock	3,282	3,280
Mesic flatwoods	8,363	6,216

#### **Table 7. Natural Community Types**

Community Type	Historic Acres*	Current Acres*
Mesic hammock	87	121
Sandhill	1,995	1,043
Sandhill upland lake	238	232
Scrub	5,495	4,529
Scrubby flatwoods	1,280	920
Wet flatwoods	1,182	852
Wet prairie	13	4
Xeric Hammock	0	200
Managed and other altered landcover types	0	4,617
TOTAL	30,170	30,170

\* Rounding errors exist.

#### Table 8. Managed Landcover Types

Landcover Type*	Current Acres	
Pine plantation	1,109	
Pasture - Improved	1,957	
TOTAL	3,066	

\* Protocol as described in Appendix 2 of FNAI's "Guide to the Natural Communities of Florida", 2010 Edition.

#### **Table 9. Other Altered Landcover Types**

Landcover Type*	Current Acres**
Abandoned field / pasture	378
Artificial pond	26
Clearing	553
Developed	26
Road	498
Successional hardwood forest	22
Utility corridor	48
TOTAL	1,551

\* Protocol as described in Appendix 2 of FNAI's "Guide to the Natural Communities of Florida", 2010 Edition.

\*\* Rounding errors exist.

For the purposes of this management plan, restoration is defined as the process of returning ecosystems to the appropriate structure and species composition, based on soil type, representative species present, and hydrology. Management during this ten-year period will begin with a forest-wide assessment of the fuel loading, timber densities, reforestation needs, and groundcover in order to develop a five-year comprehensive action plan for prescribed burning and other management activities across the forest. Strategies may include thinning pine plantations, mowing or chopping in areas of heavy fuel buildup, application of both dormant and growing season fires, and / or the use of herbicides to control hardwoods and / or hardwood regeneration. Site preparation and reforestation may be required to increase pine stocking in stands with very poor stocking or in restoration efforts. Fire-return intervals are included as a guide and may vary depending upon specific conditions and are intended to attain desired forest and resource management goals. See Table 10.

Habitat Type	Historic Fire Return Intervals*	SSF Fire Frequency Goal (Local)	Comments
Basin marsh	highly variable	(see comments)	Allow entry of fire when burning adjacent uplands
Basin swamp	2 to 20 years	(see comments)	Allow entry of fire when burning adjacent uplands
Baygall	5 to 100 years	(see comments)	Allow entry of fire when burning adjacent uplands
Depression marsh	1 to 8 years	1 to 3 years	Burn when adjacent uplands are burned
Dome swamp	5 to 100 years	3 to 5 years (ecotone)	Burn ecotone when adjacent uplands are burned
Flatwoods lake	3 to 5 years	3 to 5 years	Burn when adjacent uplands are burned
Floodplain marsh	3 to 100 years	(see comments)	Burn when adjacent uplands are burned
Floodplain swamp	100+ years	(see comments)	Allow entry of fire when burning adjacent uplands
Hydric hammock	N/A	(see comments)	Allow entry of fire when burning adjacent uplands
Mesic flatwoods	2 to 4 years	2 to 4 years	Fire interval may be extended in areas of recent reforestation to aid seedling survival
Mesic hammock	N/A	(see comments)	Allow entry of fire when burning adjacent uplands
Pine plantation	N/A	(see comments)	Match or exceed frequency for original natural community
Sandhill	1 to 3 years	1 to 2 years	Fire frequency goal to help eliminate sand pine and scrub oaks
Sandhill upland lake	(see comments)	(see comments)	Allow entry of fire when burning adjacent uplands, 1 to 3 years typically
Scrub	6 to 19 years	8 to 12 years	Pre-burn treatment usually needed for at least 4 burn iterations to permit safe and timely burning
Scrubby flatwoods	5 to 15 years	8 to 12 years	Typically burn when burning adjacent scrub
Wet flatwoods	2 to 10 years	2 to 6 years	Burn separately or with other adjacent mesic flatwoods) or xeric (scrubby flatwoods) habitats
Wet prairie	2 to 3 years	2 to 3 years	Burn with adjacent uplands
Xeric Hammock	N/A	N/A	

Table 10. Prescribed Fire Interval Guide on SSF

\* As determined by FNAI

The following community descriptions, existing condition descriptions, and management recommendations are taken from a 2019 FNAI mapping project report and the Guide to the Natural Communities of Florida (FNAI 2010), as well as from the knowledge and experience gained by FFS during forest inventory efforts and routine field work on SSF. To achieve the objectives outlined in this plan, the following management activities will be performed in the natural and managed communities at SSF during the next ten-year planning period. Goals, desired conditions, standards, and guidelines provide management area direction. These goals and desired conditions may take many planning cycles to attain.

# A. <u>Basin Marsh</u>

# **Description:**

Basin marshes are depressional, non-forested wetlands that are typically large and/or embedded in a non-pyrogenic community and thus are not heavily influenced by frequent fires

in the surrounding landscape. This type of marsh usually develops in large solution depressions that were formerly shallow lakes. The soils are generally acidic, nutrient-poor peats overlying an impervious soil layer. This community type is dominated by herbs or occasionally shrubs that can withstand inundation for most or all of the year.

#### **Current Conditions:**

In the SSF, basin marsh is found throughout the forest although they are not very numerous. There are several large examples found in the northern portion of the forest. These marshes are generally in good condition with little woody plant encroachment. Herbs dominate the vegetation and include purple bluestem (*Andropogon glomeratus* var. glaucopsis), spadeleaf (*Centella asiatica*), sawgrass (*Cladium jamaicense*), witchgrass (*Dichanthelium* sp.), dogfennel (*Eupatorium capillifolium*), Carolina redroot (*Lachnanthes caroliana*), primrosewillow (*Ludwigia* sp.), camphorweed (*Pluchea* sp.), pickerelweed (*Pontederia cordata*), combleaf mermaidweed (*Proserpinaca pectinata*), fascicled beaksedge (*Rhynchospora fascicularis*), beaksedge (*Rhynchospora sp.*), common arrowhead (*Sagittaria latifolia*), and Virginia chain fern (*Woodwardia virginica*). This community generally has few scattered trees such as slash pine (*Pinus elliottii*), and cabbage palm (*Sabal palmetto*). The occasional shrubs include common buttonbush (*Cephalanthus occidentalis*), roundpod St. John's wort (*Hypericum cistifolium*), peelbark St. John's wort (*Hypericum cistifolium*), blackberry (*Rubus* sp.), and coastalplain willow (*Salix caroliniana*).

# **Fire Regimes:**

Fire intervals in basin marsh are highly variable, with natural fires more possible at the end of the dry season. Dense sawgrass and maidencane marshes will burn even when there is standing water. Frequency of fire varies depending on the hydrology of the marsh and its exposure to fire from surrounding areas.

# Management Needs:

Restoring historic hydrological regimes and applying fire to adjacent uplands (where appropriate) is a recommended focus for forest management. Occasional fires within the basin marshes are necessary to remove encroaching woody vegetation and reduce the buildup of organic soils. Removing feral hogs (*Sus scrofa*) is desirable in areas where these animals are impacting basin marshes and other wetlands. Control of invasive plant species would also greatly benefit the basin marshes at SSF. Management should focus on restoring historic hydrological regimes where practical and applying fire to adjacent uplands; fires should be allowed to burn into the basin marshes and extinguish naturally.

# B. Basin Swamp

# **Description:**

Basin swamps are forested depressions that are typically large and/or embedded in a nonpyrogenic community and thus are not heavily influenced by frequent fires in the surrounding landscape. The soils are generally acidic, nutrient-poor peats overlying an impervious soil layer. This community type is dominated by hydrophytic trees and shrubs that can withstand inundation for most or all of the year, including bald (or pond) cypress (*Taxodium distichum*) and/or swamp tupelo (*Nyssa sylvatica* var. *biflora*). Slash pine (*Pinus elliottii*) may be found on hummocks within the swamp. Basin swamps have variable shrub layers and sparse to dense herbaceous species cover. A mature canopy is usually closed and dominated by pond cypress, swamp tupelo, slash pine, and to a lesser extent, red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanicus*), swamp laurel oak (*Quercus laurifolia*), loblolly bay (*Gordonia lasianthus*), swamp bay (*Persea palustris*), and sweetbay (*Magnolia virginiana*). In most cases, shrubs do not form a dense layer below the canopy or in the ecotones of the swamps but are typically scattered throughout the swamp. In densely forested portions of basin swamps, herbs are sparse. Epiphytes and vines may be common.

#### **Current Conditions:**

Basin swamp occurs mainly in the northern half of the SSF. These swamps appear to be relatively undisturbed. The canopy consists mainly of pond cypress (*Taxodium ascendens*), along with swamp tupelo (*Nyssa sylvatica* var. *biflora*), red maple (*Acer rubrum*), and sweetbay (*Magnolia virginiana*). The subcanopy is semi-closed and supports dahoon (*Ilex cassine*), cabbage palm (*Sabal palmetto*), and swamp bay (*Persea palustris*). Shrubs include swamp dogwood (*Cornus foemina*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), and coastalplain willow (*Salix caroliniana*). Herbs are smallfruit beggarticks (*Bidens mitis*), longleaf woodoats (*Chasmanthium laxum* var. *sessiliflorum*), sawgrass (*Cladium jamaicense*), cinnamon fern (*Osmunda cinnamomeum*), royal fern (*Osmunda regalis* var. *spectabilis*), maidencane (*Panicum hemitomon*), redtop panicum (*Panicum rigidulum*), green arrow arum (*Peltandra virginica*), pickerelweed (*Pontederia cordata*), bulltongue arrowhead (*Sagittaria lancifolia*), lizard's tail (*Saururus cernuus*), sphagnum moss (*Sphagnum* sp.), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*Woodwardia virginica*).

#### Fire Regimes:

Fire intervals in basin swamps are highly variable. The lowest portions of basin swamps rarely, if ever, burn. Graminoid-dominated ecotones often burn in conjunction with the adjacent uplands, and these may burn as frequently as every 2 to 5 years.

Fire is more frequent in cypress dominated swamps and may be absent or rare in hardwood swamps. Slash pine, pond pine, and cypress can establish in these areas immediately after a fire, benefiting from ample sunlight and available bare mineral soils; they are also tolerant of moderate fires once past a certain size, thus systems dominated by these two pine species may have been subjected to fires every 10 to 20 years.

#### Management Needs:

Little active management should be required for this community type. Where it can be done safely, prescribed fires should be allowed to burn into basin swamp edges to restrict encroaching shrubs. Infrequent low intensity ground fires within basin swamps are necessary to maintain the cypress component. Swamp tupelo and other hardwoods dominate areas that burn less often. If hydrology has been altered (i.e., ditches/canals), normal hydroperiod should be restored, if possible, since shortened hydroperiods can also allow devastating fire to enter, potentially altering the community. Heavy equipment that causes rutting will alter the micro-hydrology of the ecotone; use of heavy equipment, if necessary, should be limited to dry seasons. This community is thought to be very stable as long as hydrological conditions and water quality are maintained.

# C. <u>Baygall</u>

# **Description:**

Baygall is an evergreen, forested wetland typically at the base of sandy slopes where water seepage maintains a saturated peat substrate. It may form an ecotone between uplands and swamps, or it may develop as a larger bay swamp in isolated basins or broad areas of seepage. These forests are dominated by a tall canopy of abundant loblolly bay (*Gordonia lasianthus*), sweetbay (*Magnolia virginiana*), and slash pine (*Pinus elliottii*), with swamp bay (*Persea palustris*) and fetterbush (*Lyonia lucida*) often forming a dense thicket in the understory. Soils are generally composed of peat and are acidic.

Characteristic canopy trees of baygalls on SSF should include loblolly bay (*Gordonia lasianthus*), sweetbay (*Magnolia virginiana*), swamp bay (*Persea palustris*), pond pine (*Pinus serotina*), slash pine (*Pinus elliottii*), red maple (*Acer rubrum*), and swamp tupelo (*Nyssa sylvatica* var. *biflora*). Common shrubs and small trees should include fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), dahoon (*Ilex cassine*), large gallberry (*Ilex coriacea*), highbush blueberry (*Vaccinium corymbosum*), coastal doghobble (*Leucothoe axillaris*), and sweet pinxter azalea (*Rhododendron canescens*). Baygall typically have little to no herbaceous cover as a result of low light levels under the dense overstory. However, herbs such as Virginia chain fern (*Woodwardia virginica*), beaksedges (*Rhynchospora* sp.), sedges (*Carex* sp.), sphagnum moss (*Sphagnum* sp.), Carolina redroot (*Lachnanthes caroliniana*), and cinnamon fern (*Osmunda cinnamomeum*) may be present. Baygalls associated with creeks may have lizard's tail (*Saururus cernuus*) and goldenclub (*Orontium aquaticum*). Epiphytes should be infrequent to absent. Vines should be found occasionally and may include laurel greenbrier (*Smilax laurifolia*) and muscadine (*Vitis rotundifolia*).

# **Current Conditions:**

Baygall is a minor component of the SSF landscape, usually found on the edges of basin swamps. It generally supports a dense canopy of loblolly bay, sweetbay, and slash pine. The percentage of each species varies greatly by site. Other trees include red maple (*Acer rubrum*). Swamp bay (*Persea palustris*) and dahoon (*Ilex cassine*) are usually present in the subcanopy and shrub strata, along with young trees of the other two bay species. Fetterbush (*Lyonia lucida*) and wax myrtle (*Myrica cerifera*) are the dominant shrubs; others include gallberry (*Ilex glabra*), and highbush blueberry (*Vaccinium corymbosum*). The herbaceous groundcover frequently includes toothed midsorus fern (*Blechnum serrulatum*), cinnamon fern (*Osmunda cinnamomeum*), sphagnum moss (*Sphagnum*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*Woodwardia virginica*).

# **Fire Regimes:**

Baygall should burn infrequently, perhaps only a few times each century in the deepest baygalls. Although the saturated soils and humid conditions within baygalls typically inhibit fire, droughts may create conditions that allow them to burn catastrophically. These fires not only destroy the canopy, but also may ignite the deep peat layers that can smolder for weeks, or even months.

# Management Needs:

Baygalls occur in saturated areas where acidic organic material has accumulated. They can

be allowed to burn along with the adjacent uplands if conditions permit. Typically, fires burn only into the edges of the baygall community and extinguish naturally if the soil is damp. Caution should be used during periods of drought to minimize the chance of peat fires, which may burn for weeks outside of prescription. Management activities for baygalls on SSF should focus on maintaining the natural hydrology wherever practical. Any further hydrological disturbances are to be avoided. Plowed firebreaks and ditches should be restored, and hydrology should be returned to its natural state where possible.

#### D. <u>Depression Marsh</u>

## **Description:**

Depression marshes are generally circular, shallow, herb-dominated wetlands found in clumps in sand substrate. Depression marshes occur most often within mesic or wet flatwoods. Frequently there are concentric zones of vegetation that respond to the hydroperiod and edaphic conditions within each zone. A common series of vegetation zones in depression marshes is blue maidencane (*Amphicarpum muhlenbergianum*) closest to and grading into the adjacent flatwoods, then peelbark St. John's wort (*Hypericum fasciculatum*) dominates the shallow outer zone followed by an often-extensive area of maidencane (*Panicum hemitomon*), and in the deeper center of depressions bulltongue arrowhead (*Sagittaria lancifolia*) and pickerelweed (*Pontederia cordata*) often are dominant.

#### **Current Conditions:**

The numerous depression marshes at SSF are generally in good condition. Some depressions suffer from woody plant encroachment, especially slash pine (Pinus elliottii) and loblolly pine (Pinus taeda), and somewhat resemble wet flatwoods. The composition of the vegetation varies greatly with location and depth of the depression. A canopy is generally absent but may include an occasional cabbage palm (Sabal palmetto), red maple (Acer rubrum), swamp tupelo (Nyssa sylvatica var. biflora), slash pine, and pond cypress (Taxodium ascendens). The most common shrubs are buttonbush (Cephalanthus occidentalis), peelbark St. John's wort, fourpetal St. John's wort (Hypericum tetrapetalum), dahoon (Ilex cassine), gallberry (Ilex glabra), fetterbush (Lyonia lucida), piedmont staggerbush (Lyonia mariana), sweetbay (Magnolia virginiana), wax myrtle (Myrica cerifera), swamp bay (Persea palustris), and coastalplain willow (Salix caroliniana). Herbs include purple bluestem (Andropogon glomeratus var. glaucopsis), lemon bacopa (Bacopa caroliniana), sawgrass (Cladium jamaicense), fireweed (Erechtites hieraciifolius), dogfennel (Eupatorium capillifolium), skyflower (Hydrolea corymbosa), clustered bushmint (Hyptis alata), Carolina redroot (Lachnanthes caroliana), primrosewillow (Ludwigia sp.), maidencane (Panicum hemitomon), stinking camphorweed (Pluchea foetida), combleaf mermaidweed (Proserpinaca pectinata), fascicled beaksedge (Rhynchospora fascicularis), grassy arrowhead (Sagittaria graminea), common arrowhead (Sagittaria latifolia), lizard's tail (Saururus cernuus), cordgrass (Spartina sp.), broadleaf cattail (Typha latifolia), Virginia chain fern (Woodwardia virginica), and yellow-eyed grass (Xyris sp.).

#### **Fire Regimes:**

Depression marshes require frequent, light intensity fires to maintain a high herbaceous species component and reduce woody encroachment. The natural fire return interval for depression marshes is every 1 to 8 years, primarily during the growing season (April-June)

when water levels are low and fuels in surrounding uplands are dry. Prescribed burns should be implemented more often (1 to 3 years) for depression marshes encroached by woody species to reduce the woody species abundance.

## Management Needs:

Marshes should generally be allowed to burn with the surrounding communities. Ideally, fire should be prescribed at a time when water is low or absent in the marshes. Marshes with substantial shrub cover (either within the marsh or surrounding edges) should be targeted for repeated lightning season fires on a short return interval.

# E. Dome Swamp

## **Description:**

Dome swamps are isolated, shallow, forested wetland basins imbedded typically in a pyrogenic matrix community such as pine flatwoods. Dome swamps have domed profiles resulting from smaller trees growing around the edges and larger trees growing in the interior. Dome swamps have peat soils, which are thickest toward the center of the dome and are generally underlain with acidic soils and then limestone. Like basin swamps, dome swamps often have fire-maintained herbaceous ecotones that are species-diverse and important for rare plants and animals. Dome swamps are distinguished from basin swamps principally by their more circular shape, smaller size, and higher historical fire frequency due to landscape position.

Dome swamps most often have mature canopies dominated by pond cypress (*Taxodium ascendens*) or swamp tupelo (*Nyssa sylvatica* var. *biflora*) with sparse subcanopy and shrub layers. Typical dominant shrubs include myrtle dahoon (*Ilex cassine var. myrtifolia*), gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), and highbush blueberry (*Vaccinium corymbosum*). The herbaceous layer should be sparse to dense and will become denser with greater frequency of fire and the resulting mortality of shrub and woody plant species. Slash pine (*Pinus elliottii*) can be scattered throughout the dome but typically should not be the most dominant species.

The herbaceous ecotones are generally dominated by wiregrass (*Aristida stricta*) and also include blue maidencane (*Amphicarpum muhlenbergianum*), beaksedges (*Rhynchospora* sp.), yellow-eyed grasses (*Xyris* sp.), Carolina redroot (*Lachnanthes caroliana*), netted chain fern (*Woodwardia areolata*), Virginia chain fern (*W. virginica*), tenangle pipewort (*Eriocaulon decangulare*), flattened pipewort (*Eriocaulon compressum*), fox club moss (*Lycopodiella alopecuroides*), sphagnum moss (*Sphagnum* sp.), peelbark St. John's wort (*Hypericum fasciculatum*), and hooded pitcher plant (*Sarracenia minor*).

# **Current Conditions:**

Dome swamp is an infrequent natural community on SSF, although examples are widely scattered throughout. The dome swamps appear to be relatively undisturbed, although past logging of cypress is evident in some domes. The canopy is dominated by pond cypress (*Taxodium ascendens*) along with red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), and slash pine (*Pinus elliottii*). Some examples lack a cypress canopy and are dominated by bays. The subcanopy consists of young cypress, dahoon holly (*Ilex cassine*), sweetgum (*Liquidambar styraciflua*), sweetbay

(*Magnolia virginiana*), swamp bay (*Persea palustris*), swamp laurel oak (*Quercus laurifolia*), cabbage palm (*Sabal palmetto*), and coastalplain willow (*Salix caroliniana*). Shrubs are buttonbush (*Cephalanthus occidentalis*), sandweed (*Hypericum fasciculatum*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), saw palmetto (*Serenoa repens*), and highbush blueberry (*Vaccinium corymbosum*). The groundcover is a mixture of blue maidencane (*Amphicarpum muhlenbergianum*), big carpetgrass (*Axonopus furcatus*), smallfruit beggarticks (*Bidens mitis*), sawgrass (*Cladium jamaicense*), maidencane (*Panicum hemitomon*), green arrow arum (*Peltandra virginica*), pickerelweed (*Pontederia cordata*), lizard's tail (*Saururus cernuus*), pinebarren goldenrod (*Solidago fistulosa*), Virginia chain fern (*Woodwardia virginica*), and yellow-eyed grasses (*Xyris* sp.).

#### **Fire Regimes:**

Fire is essential for the maintenance of dome swamps, limiting hardwood encroachment, particularly by bay species, and peat buildup while encouraging herbaceous growth. The fire frequency is greatest at the periphery of the dome swamp where a normal fire cycle might be as short as 3 to 5 years. The interior of large dome swamps may burn less frequently as a result of standing water or soil saturation.

## Management Needs:

Fires from surrounding communities should be allowed to burn into the swamps to maintain the cypress as the dominant component. Cypress is very tolerant of light surface fires, but muck fires burning into the underlying peat can kill the trees. Fires maintain diverse ecotone and interior herbaceous cover. Unnecessary fire breaks in or around dome swamps should be rehabilitated, if possible, so that fires can carry across them.

# F. Flatwoods Lake

#### **Description:**

Flatwoods lakes are similar to depression marshes but are typically larger, deeper basins that support a greater expanse of open water and a longer hydroperiod. The flatwoods lakes of SSF are typically surrounded by mesic or wet flatwoods. Distinctions between a flatwoods lake and depression marsh are subtle; size and depth of the basin are the principal differences. The perimeter of a flatwoods lake may support either an herbaceous zone or a dense ring of saw palmetto. Open water occupies much of the basin.

#### **Current Conditions:**

Flatwoods lakes are scattered predominantly in the northern portion of SSF. These lakes appear to be in generally good condition but have some woody plant encroachment. The flatwoods lakes are dominated by open water with white waterlily (*Nymphaea odorata*), maidencane (*Panicum hemitomon*), grassy arrowhead (*Sagittaria graminea*), cordgrass (*Spartina* sp.), and yellow-eyed grass (*Xyris* sp.). Slash pine (*Pinus elliottii*) and longleaf pine (*Pinus palustris*) occur along the perimeter.

#### Fire Regimes:

Flatwoods lakes rarely burn entirely because of their long hydroperiod. Fire frequency should coincide with that of the surrounding uplands, typically 3 to 5 years. If prescribed fires in the

surrounding flatwoods are conducted during the early growing season (April to June) when water levels are typically low, woody encroachment in the flatwoods lake will be retarded.

#### Management Needs:

Management activities for flatwoods lake on SSF should focus on restoring any past disturbances to hydrology if practical. Because movement of upland fires into the lake basin is desirable, it is important that the upland-wetland ecotone be maintained. Firebreaks or roads should not surround the lake basin.

# G. <u>Floodplain Marsh</u>

## **Description:**

Floodplain marshes are freshwater, non-forested wetlands that occur along river floodplains. These marshes are directly influenced by river flooding on an annual or semi-annual basis and may also be tidally influenced. Floodplain marshes are typically underlain by sand or a thin to thick organic layer over sand and may be saturated for most of the year.

Trees are generally sparse or absent, although shrubs such as coastalplain willow (*Salix caroliniana*) may form thickets. The herbaceous layer is moderate to dense, with species composition varying by flooding depth and duration. Typical species include graminoids such as maidencane (*Panicum hemitomon*), flag species such as pickerelweed (*Pontederia cordata*) and bulltongue arrowhead (*Sagittaria lancifolia*), and floating aquatics such as yellow pondlily (*Nuphar advena*).

# **Current Conditions:**

Floodplain marsh is restricted to a small area along the eastern side of the Seminole Creek / Black Water Creek floodplain in the main block of SSF. Woody plant encroachment is a problem. An old, elevated logging road and its accompanying ditches cut through the marsh. The vegetation consists mainly of sawgrass (*Cladium jamaicense*) with pockets of coastalplain willow (*Salix caroliniana*). Other species include red maple (*Acer rubrum*), rush (*Juncus* sp.), and cattail (*Typha latifolia*).

# Fire Regimes:

The natural fire return interval in floodplain marshes may vary widely from one situation to the next, but fire has been shown to be a useful tool for improving wildlife habitat and reducing fuel loads. Floodplain marshes may burn as frequently as every 3 years.

# **Management Needs:**

Fire suppression or burning only during winter months when the marshes typically hold water, allows undesirable establishment of shrubs or trees. This may eventually reduce the hydroperiod and lead to succession of the community to baygall or dome swamp. Fire should therefore be prescribed in the surrounding community at a time when water in the marsh is low or absent (commonly late winter to mid-summer), allowing fires to burn through the marsh. Marshes with substantial shrub cover (either within the marsh or surrounding edges) should be targeted for repeated lightning season fires on a short return interval. The road through the marsh should have enough culverts to allow a natural hydrologic regime.

## H. Floodplain Swamp

#### **Description:**

Floodplain swamp is a closed-canopy forest of hydrophytic trees occurring on frequently or permanently flooded hydric soils adjacent to stream and river channels and in depressions and oxbows within floodplains. The canopy is typically closed and dominated by pond cypress (*Taxodium ascendens*) and/or bald cypress (*Taxodium distichum*), water tupelo (*Nyssa aquatica*), and swamp tupelo (*Nyssa biflora*) with occasional Carolina ash (*Fraxinus caroliniana*), and swamp laurel oak (*Quercus laurifolia*). Shrubs and smaller trees such as titi (*Cyrilla racemiflora*), green ash (*Fraxinus pennsylvanica*), Virginia willow (*Itea virginica*), common buttonbush (*Cephalanthus occidentalis*), cabbage palm (*Sabal palmetto*), and dahoon (*Ilex cassine*) may be present. A groundcover of flood tolerant ferns and herbs such as royal fern (*Osmunda regalis* var. *spectabilis*), netted chain fern (*Woodwardia areolata*), swamp dock (*Rumex verticillatus*), lizard's tail (*Saururus cernuus*) may be occasionally present.

## **Current Conditions:**

The floodplain swamp typically has a closed canopy consisting of red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), swamp laurel oak (*Quercus laurifolia*), and pond cypress (*Taxodium ascendens*). The subcanopy and tall shrubs are made up of Carolina ash (*Fraxinus caroliniana*), sweetgum (*Liquidambar styraciflua*), cabbage palm (*Sabal palmetto*), and coastalplain willow (*Salix caroliniana*), while common buttonbush (*Cephalanthus occidentalis*), and southern bayberry (*Morella cerifera*) are common in the shorter shrub layer. Horned beaksedge (*Rhynchospora inundata*) is a common herb.

#### **Fire Regimes:**

Fire is not necessary to maintain floodplain swamp. This community is typically too wet to carry a fire. If floodplain swamps experience drought, fires may occur and cause damage to the understory.

#### **Management Needs:**

Management activities for floodplain swamp on SSF should focus on identifying (and eliminating) occurrences of invasive species, cogongrass (*Imperata cylindrica*) in particular, that may have invaded disturbed areas. Where it can be done safely, prescribed fires should be allowed to burn into floodplain swamp edges to restrict encroaching shrubs. Where possible, eliminate plowed firebreaks and ditches through or around floodplain swamps to restore hydrology to its natural state.

# I. <u>Hydric Hammock</u>

#### **Description:**

Hydric hammock is characterized as a well-developed hardwood and cabbage palm forest with a variable understory often dominated by palms and ferns. These forests develop on poorly drained shelly soils or where limestone is near the surface. Hydric hammocks typically have a closed canopy of mixed deciduous and evergreen hardwood tree species and a ground layer of grasses, sedges, and ferns. The normal hydroperiod is rarely over 60 days per year, although soils may remain saturated for a large portion of the year.

Hydric hammocks have a canopy dominated by a mixture of swamp laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), and cabbage palm (*Sabal palmetto*), with other hardwoods occasional. The subcanopy and tall shrub layers are well-developed and include young canopy species and often red cedar (*Juniperus virginiana*). Short shrubs are usually not dense, often leading to an open, parklike appearance. The common species found in this layer include common persimmon (*Diospyros virginiana*), St. Andrew's cross (*Hypericum hypericoides*), and wax myrtle (*Myrica cerifera*). Herbs form a sparse to moderate cover and may include longleaf woodoats (*Chasmanthium laxum var. sessiliflorum*), sour paspalum (*Paspalum conjugatum*), witchgrasses (*Dichanthelium sp.*), and fireweed (*Erechtites hieraciifolius*). The oaks and palms support a great diversity of epiphytes. Vines are occasional.

## **Current Conditions:**

Hydric hammock typically has abundant cabbage palm (*Sabal palmetto*) in all strata. The closed canopy of mature trees contains a wide variety of species such as red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), swamp laurel oak (*Quercus laurifolia*), and live oak (*Quercus virginiana*). The subcanopy includes loblolly bay (*Gordonia lasianthus*), sweetgum, sweetbay (*Magnolia virginiana*), water oak (*Quercus nigra*), and live oak (*Quercus virginiana*). Shrubs are present in varying densities and include loblolly bay, sweetgum, sweetbay (*Magnolia virginiana*), water oak, and live oak. Herbs found include jack-in-the-pulpit (*Arisaema triphyllum*), woodoats (*Chasmanthium* sp.), false rein orchid (*Habenaria* sp.), cinnamon fern (*Osmunda cinnamomeum*), bracken fern (*Pteridium aquilinum*), lizard's tail (*Saururus cernuus*), and maiden fern (*Thelypteris* sp.). The rare Florida hasteola (*Hasteola robertiorum*) is found in a few locations.

#### **Fire Regimes:**

Hydric hammocks rarely burn. However, prescribed fires should be allowed to burn up to the edge of these communities to discourage shrubby encroachment into the ecotone with pyrogenic communities. Hydric hammocks tolerate occasional fires that burn in from surrounding habitats. Cabbage palm is highly tolerant of ground fires, but these fires may damage red cedar trees.

#### **Management Needs:**

If hydrology has been altered (i.e., ditches/canals), normal hydroperiods should be restored if possible. A lowering of the water table will result in succession to mesic hammock, while more frequent inundation will result in the transition to a more swamp-like habitat. Feral hogs should also be controlled. Many cogon grass patches have been found in the SSF hydric hammocks, and current control efforts must continue and be expanded as needed.

#### J. Mesic Flatwoods

#### **Description:**

Mesic flatwoods are forests consisting of southern pine species, frequently including longleaf pine (*Pinus palustris*) and slash pine (*Pinus elliottii*). Slash pine is present more frequently in transitions to adjacent wetlands or on more calcareous soils. There is little or no subcanopy and tall shrub layer other than pine recruitment. The shrub layer is moderately dense with an average height that does not generally exceed four feet. Typical species include saw palmetto
(Serenoa repens), gallberry (Ilex glabra), tarflower (Bejaria racemosa), coastalplain staggerbush (Lyonia fruticosa), wax myrtle (Myrica cerifera), winged sumac (Rhus copallinum), netted pawpaw (Asimina reticulata), running oak (Quercus elliottii), dwarf live oak (Quercus minima), shiny blueberry (Vaccinium myrsinites), and a diversity of other low shrubs. Herb cover is also moderately dense and dominated by grasses which help to carry frequent fires, especially wiregrass (Aristida stricta). Herbaceous species diversity is high in good quality mesic flatwoods. Vines occur rarely. Community types embedded within mesic flatwoods include dome swamp, basin swamp, depression marshes, wet flatwoods, and hydric hammocks.

### **Current Conditions:**

Currently, mesic flatwoods on SSF may have a canopy of slash pine, longleaf pine, pond pine (Pinus serotina), and/or loblolly pine (Pinus taeda). Subcanopy species include loblolly bay (Gordonia lasianthus), sweetgum (Liquidambar styraciflua), sand pine, pond pine, and water oak (Quercus nigra). Tall shrubs are present and include sweetgum, coastalplain staggerbush (Lyonia fruticosa), fetterbush (Lyonia lucida), southern bayberry (Morella cerifera), sand pine, myrtle oak (*Quercus myrtifolia*), water oak, winged sumac (*Rhus copallinum*), and saw palmetto (Serenoa repens) while shorter-statured shrubs include netted pawpaw (Asimina reticulata), tarflower (Bejaria racemosa), dwarf huckleberry (Gavlussacia dumosa), blue huckleberry (Gaylussacia frondosa var. tomentosa), loblolly bay, roundpod St. John's wort (Hypericum cistifolium), Atlantic St. John's wort (Hypericum tenuifolium), fourpetal St. John's wort (*Hvpericum tetrapetalum*), gallberry (*Ilex glabra*), coastalplain staggerbush, fetterbush, dwarf live oak (Quercus minima), winged sumac, saw palmetto, highbush blueberry (Vaccinium corymbosum), and shiny blueberry (Vaccinium myrsinites). Herbaceous species include purple bluestem (Andropogon glomeratus var. glaucopsis), bluestem (Andropogon sp.), bottlebrush threeawn (Aristida spiciformis), wiregrass (Aristida stricta), hairy chaffhead (Carphephorus paniculatus), witchgrass (Dichanthelium sp.), fireweed (Erechtites hieraciifolius), dogfennel (Eupatorium capillifolium), roundleaf thoroughwort (Eupatorium rotundifolium), Elliott's milkpea (Galactia elliottii), yellow stargrass (Hypoxis sp.), whitehead bogbutton (Lachnocaulon anceps), pinweed (Lechea sp.), Piedmont pinweed (Lechea torreyi), crowngrass (Paspalum sp.), yellow milkwort (Polygala rugelii), coastalplain milkwort (Polygala setacea), bracken fern (Pteridium aquilinum), blackroot (Pterocaulon pycnostachyum), Nuttall's meadowbeauty (Rhexia nuttallii), fascicled beaksedge (Rhvnchospora fascicularis), beaksedge (Rhvnchospora sp.), shortleaf rosegentian (Sabatia brevifolia), nutrush (Scleria sp.), whitetop aster (Sericocarpus tortifolius), yellow hatpins (Syngonanthus flavidulus), and Virginia chain fern (Woodwardia virginica).

### **Fire Regimes:**

Historically, fires ignited by lightning during the early thunderstorm season (April - June) would have burned the mesic flatwoods/wet flatwoods complex. These fires are critical for preserving the structure of the flatwoods, for preventing woody encroachment, and for reducing weedy competition. Frequent, low-intensity fires help maintain a diverse herbaceous layer and provide mineral soils for longleaf pine regeneration. For management purposes, prescribed fires should be applied on a 2 to 4-year interval, primarily in April – June, to keep fuel levels manageable and maintain maximum native biodiversity.

## Management Needs:

Management goals for mesic flatwoods at SSF should focus on frequent prescribed fires. Timing of fires should ideally be during the early lightning season or as close to this period as possible. Roller chopping should be avoided in areas that support wiregrass and other native species. Although chopping may reduce shrub cover in problem areas, it also reduces wiregrass cover and increases weedy species that are less likely to carry a fire.

The use of plowed firebreaks and other practices that disturb the soil should be minimized; existing roads and wetlands should be used for firebreaks whenever possible. New ground disturbances should be avoided to prevent elimination of the natural groundcover and establishment of weedy species. Depth of plowed firebreaks should be minimized to prevent hydrologic alteration within the surrounding community. A number of cogongrass patches have been found, and current control efforts must continue and be expanded as needed.

## K. <u>Mesic Hammock</u>

## **Description:**

Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. Mesic hammock typically has a closed canopy of live oak (*Quercus virginiana*) with cabbage palm (*Sabal palmetto*) generally common in the canopy and subcanopy. Southern magnolia (*Magnolia grandiflora*) and pignut hickory (*Carya glabra*) may be occasional in the subcanopy. The shrubby understory may be dense or open, tall, or short, and is typically composed of a mix of saw palmetto (*Serenoa repens*), American beautyberry (*Callicarpa americana*), American holly (*Ilex opaca*), gallberry (*Ilex glabra*), sparkleberry (*Vaccinium arboreum*), hog plum (*Ximenia americana*), common persimmon (*Diospyros virginiana*), highbush blueberry (*Prunus caroliniana*). The groundcover is often sparse or patchy and includes a variety of herbaceous species.

### **Current Conditions:**

At SSF, this community occurs in the fire shadow of a wetland. It may be an artifact of fire suppression in other natural communities such as mesic flatwoods. The vegetation is typically dominated by live oak (*Quercus virginiana*) over pignut hickory (*Carya glabra*), sweetgum (*Liquidambar styraciflua*), swamp laurel oak (*Quercus laurifolia*), southern magnolia (*Magnolia grandiflora*), and cabbage palm (*Sabal palmetto*). Shrubs include pignut hickory, rusty staggerbush (*Lyonia ferruginea*), cabbage palm, American beautyberry (*Callicarpa americana*), saw palmetto (*Serenoa repens*), and deerberry (*Vaccinium stamineum*). The groundcover may include witchgrass (*Dichanthelium* sp.), coralbean (*Erythrina herbacea*), false rein orchid (*Habenaria* sp.), and bracken fern (*Pteridium aquilinum*).

### **Fire Regimes:**

Fire is infrequent in mesic hammock. In most cases leaf litter and mesic conditions retard fires throughout the year.

### Management Needs:

Management in mesic hammocks should be focused on removal of invasive species such as Caesarweed (*Urena lobata*). Typical prescribed burns in the adjacent flatwoods should naturally extinguish along the hammock edge. Firebreaks should be discouraged to allow a

development of a natural ecotone and to help minimize invasion by weedy or invasive species. Many cogon grass patches have been found here. Current control efforts must continue and be expanded as needed.

# L. Sandhill

## **Description:**

Sandhills occurs on crests and slopes of rolling hills and ridges with steep or gentle topography. Soils are deep, marine-deposited, often yellowish sands that are well-drained and relatively infertile. Sandhill is important for aquifer recharge because the porous sands allow water to percolate rapidly with little runoff and minimal evaporation. The deep, sandy soils and a lack of near surface hardpan or water table contribute to a xeric environment. Sandhills are forests of mature, large longleaf pine trees, typically with a sparse subcanopy of turkey oak (*Quercus laevis*), bluejack oak (*Quercus incana*) and/or sand post oak (*Quercus margaretta*), and a fairly dense groundcover of herbs, particularly wiregrass (*Aristida stricta*). The greatest plant diversity within sandhill is in the herbaceous groundcover. Dominant grasses, in addition to wiregrass, include other three-awns (*Aristida sp.*), pineywoods dropseed (*Sporobolus junceus*), lopsided indiangrass (*Sorghastrum secundum*), several species of bluestems (*Andropogon* sp.), and little bluestem (*Schizachyrium scoparium*). Sandhills are fire-maintained communities that occur on relatively well-drained, deep sands.

## **Current Conditions:**

The sandhill at SSF typically has an open canopy of mature to older mature longleaf pine over abundant turkey oak. Other trees include sand pine (*Pinus clausa*), sand live oak (*Quercus geminata*), and persimmon (*Diospyros virginiana*). Shrubs include sand live oak and myrtle oak (*Quercus myrtifolia*), American beautyberry (*Callicarpa americana*), common persimmon, gopher apple (*Geobalanus oblongifolius*), turkey oak, saw palmetto (*Serenoa repens*), and deerberry (*Vaccinium stamineum*). Herbs include bluestem (*Andropogon sp.*), threeawn (*Aristida sp.*), wiregrass (*Aristida stricta*), whorled milkweed (*Asclepias verticillata*), littleleaf buckbrush (*Ceanothus microphyllus*), Atlantic pigeon-wing (*Clitoria mariana*), flatsedge (*Cyperus sp.*), fireweed (*Erechtites hieraciifolius*), dogtongue wild buckwheat (*Eriogonum tomentosum*), Elliott's milkpea (*Galactia elliottii*), milkpea (*Galactia sp.*), downy milkpea (*Galactia volubilis*), pinweed (*Lechea sp.*), bahiagrass (*Paspalum notatum*), narrowleaf silkgrass (*Pityopsis graminifolia*), blackroot (*Pterocaulon pycnostachyum*), sandyfield beaksedge (*Rhynchospora megalocarpa*), roseling species (*Calisia spp.*), longhorn false reinorchid/Michaux's orchid (*Habenaria quinqueseta*), and queen's delight (*Stillingia sylvatica*).

# **Fire Regimes:**

Sandhill requires growing season fires to maintain open structure. Fire should be applied to this community every 1 to 3 years. Variability in the season, frequency, and intensity of fire is important for preserving species diversity since different species in the community flourish under different fire regimes.

# **Management Needs:**

Frequent prescribed fires are needed to maintain the sandhill. Conduct prescribed fire during the late spring and early summer to increase herbaceous species diversity and reduce

hardwood encroachment. Unnecessary firebreaks can be repaired and abandoned once fuel loads are reduced. Mechanical removal of sand pines followed by a more frequent fire return interval may aid in reducing the encroachment of this species in more heavily invaded areas. Prescribed fires can be allowed to spread into adjacent natural communities such as scrubby flatwoods and depression marshes and not be blocked by firebreaks or roads along ecotones.

Minimize soil disturbance during pine harvesting and planting. This should increase herbaceous species abundance, especially wiregrass, in recently harvested areas. Roller chopping or other mechanical site preparation is not recommended due to the fragility of groundcover vegetation under xeric conditions. Treat and monitor invasive plant species; several cogongrass patches have been found in SSF sandhills, and current control efforts must continue and be expanded as needed. Natalgrass (*Melinis repens*) is a particular problem in some areas (e.g., Warea Tract), and needs to be constantly controlled and eradicated wherever possible.

During all management activities, every effort should be made to minimize any detrimental effects to the gopher tortoise (*Gopherus polyphemus*) population (and its burrows) within this community, as this species is considered a keystone ecosystem component.

## M. Sandhill Upland Lake

### **Description:**

Sandhill Upland Lakes are shallow rounded solution depressions filled with water and occurring in sandy upland communities. The perimeter of a sandhill lake may support an herbaceous zone, but open water usually occupies most of the basin, though may become completely dry during extreme droughts. These lakes typically are without significant surface inflow or outflow, their water being largely derived from lateral ground water seepage and/or from artesian sources. American white waterlily (*Nymphaea odorata*) may be in the center, with maidencane (*Panicum hemitomon*) around the edges. The sandhill upland lakes of SSF are typically surrounded by sandhill or scrub. Sandhill upland lakes are important breeding areas for terrestrial amphibians, including gopher frogs (*Lithobates capito*) and striped newts (*Notopthalmus peristriatus*), as well as many endemic insects. They also serve as important water holes for many mammals and birds inhabiting the surrounding xeric communities. These natural communities frequently function as aquifer recharge areas.

### **Current Conditions:**

Sandhill lake is occasional, mainly in the central and northern part of SSF. The lakes appear to be in good condition with open water with little woody intrusion. Partial recovery of the lakes occurred during the tropical systems of 2017 and 2018. Historic wildfire control lines were tied into some of these depressions, or around their perimeter, causing hydrological alterations or direct disturbance. Several lakes on the Tanner parcel were mined for muck and then stocked with fish.

### **Fire Regimes:**

Sandhill lakes rarely burn entirely because of their long hydroperiod. Burnable vegetation zones may be largely restricted to a narrow band along the shore, composed of hydrophytic grasses and herbs or a dense shrub thicket, depending on fire frequency and water fluctuations. Fire frequency should coincide with that of the surrounding uplands, typically 1 to 3 years,

and if conducted during the early growing season (April to June), woody encroachment in the sandhill lake will be retarded.

## Management Needs:

Management activities for sandhill lake on SSF should focus on restoring any past disturbances to hydrology. Because movement of upland fires into the lake basin is desirable, it is important that the upland-wetland ecotone be maintained. Firebreaks or roads should not surround the lake basin. These areas are susceptible to wetland weeds such as West Indian marsh grass, water hyacinth, torpedo grass, and Chinese tallow. Invasive plant species in flatwood lakes will be mapped and aggressively treated. Prescribed fire in the adjacent communities will be allowed to burn to the lake edges. An evaluation needs to be completed to determine if past hydrological disturbances are creating negative impacts. Rehabilitation of firelines will be done as needed. All activities around sandhill upland lakes will be conducted in compliance with silviculture BMPs.

# N. <u>Scrub</u>

## **Description:**

Scrub is generally found on sandy, acidic, well-drained soils. There may or may not be a canopy of sand pine (*Pinus clausa*). Both the tall and short shrub layers are moderate to dense and dominated by scrub oaks: sand live oak (*Quercus geminata*), Chapman's oak (*Quercus chapmanii*), and myrtle oak (*Quercus myrtifolia*). The overall height is below 6 feet, and patches of bare sand are common. A diversity of other xerophytic shrubs may be present. The herbaceous layer, though sparse, consists primarily of sandyfield beaksedge (*Rhynchospora megalocarpa*). Vines are infrequent.

# **Current Conditions:**

Scrub vegetation at SSF includes a canopy of sand pine and longleaf pine (Pinus palustris) over a subcanopy of Chapman's oak (Quercus chapmanii), sand live oak (Quercus geminata), and myrtle oak (Quercus myrtifolia). Shrubs include rusty staggerbush (Lyonia ferruginea), silk bay (Persea humilis), Chapman's oak, sand live oak, myrtle oak, common persimmon (Diospyros virginiana), blue huckleberry (Gaylussacia frondosa var. tomentosa), gopher apple (Geobalanus oblongifolius), St. Andrew's cross (Hypericum hypericoides), coastalplain staggerbush (Lyonia fruticosa), fetterbush (Lyonia lucida), pricklypear (Opuntia austrina), winged sumac (Rhus copallinum), scrub palmetto (Sabal etonia), saw palmetto (Serenoa repens), tough bully (Sideroxylon tenax), rufus Florida bully (Sideroxylon rufohirtum) shiny blueberry (Vaccinium myrsinites), and deerberry (Vaccinium stamineum). Herbs include bluestem (Andropogon sp.), wiregrass (Aristida stricta), capillary hairsedge (Bulbostylis ciliatifolia), Florida alicia (Chapmannia floridana), Michaux's croton (Croton michauxii), flatsedge (Cyperus sp.), Feay's prairie clover (Dalea feavi), fireweed (Erechtites hieraciifolius), dogfennel (Eupatorium capillifolium), Elliott's milkpea (Galactia elliottii), milkpea (Galactia sp.), downy milkpea (Galactia volubilis), skyblue lupine (Lupinus diffusus), narrowleaf silkgrass (Pityopsis graminifolia), October flower (Polygonella polygama), scrub roseling (Callisia ornata), sandyfield beaksedge (Rhynchospora megalocarpa), and whitetop aster (Sericocarpus tortifolius).

### **Fire Regimes:**

Scrub fire regimes are highly variable, depending on landscape settings. Current scientific research suggests oak-dominated scrub would have naturally burned every 6 to 19 years. More frequent fires maintain optimal shrub heights for scrub-jay habitat. Scrub fires are often high intensity and require careful application.

### Management Needs:

Optimal Florida scrub-jay (FLSJ) habitat consists of low oak shrubs (3' to 10' tall) interspersed with numerous patches of exposed sand. Scrub-jays require bare sandy soil to bury and recover their annual cache of acorns; scrub with less than 10-15% open ground is usually too dense and tall to be useable by scrub-jays (Fitzpatrick et al., 1991). Further, increased scrub density negatively affects their nesting success. Scrub treatments should be done at times and locations such that they do not significantly negatively impact local FLSJs and/or active FLSJ territories. To optimize Florida scrub-jay habitat, the current monitoring and management program will be continued.

Mechanical treatments should be used only where necessary to burn safely or achieve desired conditions. However, under the current SSF scrub conditions, mechanical treatments prior to burning will likely be needed for at least four iterations of burning for most scrub areas before continued maintenance with prescribed fire only can be considered. A mosaic of scrub with various heights is desirable. Caution should be taken to avoid excessive soil disturbance, as it can reduce native groundcover, increase weedy species, and negatively impact gopher tortoise burrows. Areas with dense sand pine should be harvested if commercial volumes exist or otherwise cleared.

### O. <u>Scrubby Flatwoods</u>

### **Description:**

Scrubby flatwoods are a well-drained pine-dominated community intermediate between scrub and mesic flatwoods. This community is characterized by a canopy of scattered, mature pine trees with a sparse shrubby understory and areas of open white sand. The vegetation consists of a combination of scrub and mesic flatwoods species. Scrubby flatwoods have a tree canopy of widely spaced longleaf pine (*Pinus palustris*) and/or slash pine (*Pinus elliottii*) growing over a shrub stratum dominated by scrub species such as sand live oak (*Quercus geminata*), rusty staggerbush (*Lyonia ferruginea*), Chapman's oak (*Quercus chapmanii*), and myrtle oak (*Quercus myrtifolia*) mixed with typical mesic flatwoods species including saw palmetto (*Serenoa repens*), and a diversity of other low mesic shrubs. The herbaceous groundcover is patchy and usually has some wiregrass (*Aristida stricta* var. *beyrichiana*), and a mix of other herbs. Vines are occasional.

### **Current Conditions:**

On SSF, scrubby flatwoods occur throughout the forest as variously sized patches, usually at slightly lower elevations than scrub. The shrub density and height in this natural community is very high because of long-term absence of fire. The canopy is typically scattered longleaf pine, with sand pine and slash pine being less abundant. Loblolly pine (*Pinus taeda*) is infrequently present. The subcanopy is most often sand live oak. The tall shrub layer includes rusty staggerbush (*Lyonia ferruginea*), sand live oak (*Quercus geminata*), and myrtle oak

(Quercus myrtifolia) while the short shrubs include tarflower (Bejaria racemosa), garberia (Garberia heterophylla), gopher apple (Geobalanus oblongifolius), rusty staggerbush (Lyonia ferruginea), coastalplain staggerbush (Lyonia fruticosa), fetterbush (Lyonia lucida), pricklypear (Opuntia austrina), silk bay (Persea borbonia var. humilis), Chapman's oak, sand live oak, myrtle oak, scrub palmetto (Sabal etonia), saw palmetto (Serenoa repens), and shiny blueberry (Vaccinium myrsinites). Herbaceous cover within the scrubby flatwoods is sparse to moderate and includes bluestem (Andropogon sp.), broomsedge bluestem (Andropogon virginicus), wiregrass (Aristida stricta), capillary hairsedge (Bulbostylis ciliatifolia), coastalplain chaffhead (Carphephorus corymbosus), tread softly (Cnidoscolus stimulosus), flatsedge (Cyperus sp.), witchgrass (Dichanthelium sp.), dogfennel (Eupatorium capillifolium), Elliott's milkpea (Galactia elliottii), downy milkpea (Galactia volubilis), Piedmont pinweed (Lechea torreyi), blazing star (Liatris sp.), chaffhead (Carphephorus sp.), crowngrass (Paspalum sp.), narrowleaf silkgrass (Pityopsis graminifolia), bracken fern (Pteridium aquilinum), blackroot (Pterocaulon pycnostachyum), sandyfield beaksedge (Rhynchospora megalocarpa), and goldenrod (Solidago sp.).

### **Fire Regimes:**

Scrubby flatwoods natural fire regime ranges from 5 to 15 years. Sparse groundcover and incombustible scrub oak leaf litter may reduce the occurrence of fires leading to a slightly longer average fire return interval than is the case for mesic flatwoods. Variability in season and frequency of prescribed fires should produce a mosaic of burned and unburned patches desirable for maintaining high biotic diversity in this community.

### Management Needs:

Fire return intervals should be frequent enough to maintain shrub heights (<6 feet) within the range required by the Florida scrub-jay (recommended 5 to 15-year interval). Avoiding additional ground disturbance is important to prevent elimination of the natural groundcover and the establishment of weedy species.

# P. <u>Wet Flatwoods</u>

### **Description:**

Wet flatwoods are characterized as southern pine forests with a canopy of scattered to dense, mature pine trees with a thick shrubby understory and very sparse ground cover, or a firemaintained, sparse understory and dense ground cover of hydrophytic herbs. Wet flatwoods exist on relatively flat, poorly drained land. The soils are generally 0.3 to 1 m (ca. 1 to 3 ft) of acidic sands overlying an organic hardpan or clay layer. The hardpan substantially reduces the percolation of water below and above its surface, and therefore wet flatwoods can be inundated for 1 or more months per year. Wet flatwoods often grade into basin swamps and mesic flatwoods.

The desired future condition of wet flatwoods at SSF is an open-canopy forest of widely spaced, uneven-aged slash pine (*Pinus elliottii*), longleaf pine (*P. palustris*), or pond pine (*P. serotina*). Although the forest structure of wet flatwoods is similar to mesic flatwoods, species composition in wet flatwoods should contain more hydrophytic species. Shrub species that should occupy wet flatwoods at SSF are gallberry (*Ilex glabra*), myrtle dahoon (*I. cassine* var. *myrtifolia*), fetterbush (*Lyonia lucida*), saw palmetto (*Serenoa repens*), loblolly bay

(*Gordonia lasianthus*), and titi (*Cyrilla racemiflora*). As in mesic flatwoods, the herbaceous layer in wet flatwoods should include species that help to maintain community structure by fueling growing-season fires; wiregrass (*Aristida stricta*) should be dominant. Other herbaceous species include Carolina redroot (*Lachnanthes caroliana*), meadowbeauties (*Rhexia* sp.), yellow-eyed grasses (*Xyris* sp.), several species of beak-sedges (*Rhynchospora* sp.), and hooded pitcherplant (*Sarracenia minor*).

## **Current Conditions:**

Wet flatwoods are scattered throughout SSF and mainly border wetlands. Almost all have high fuel loads and abundant hardwood species because of long-term absence of fire. Because the wet flatwoods and mesic flatwoods frequently intergrade, they are difficult to delineate precisely.

Currently at SSF, the canopy consists mainly of slash pine, but loblolly pine (*Pinus taeda*) may also be present. The subcanopy includes loblolly bay (*Gordonia lasianthus*), water oak (*Quercus nigra*), and cabbage palm (*Sabal palmetto*).

Shrub species include loblolly bay (*Gordonia lasianthus*), cabbage palm (*Sabal palmetto*), and saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), fourpetal St. John's wort (*Hypericum tetrapetalum*), blackberry (*Rubus sp.*), and deerberry (*Vaccinium stamineum*).

The herb layer includes woodoats (*Chasmanthium* sp.), witchgrass (*Dichanthelium* sp.), dogfennel (*Eupatorium capillifolium*), slender flattop goldenrod (*Euthamia caroliniana*), cinnamon fern (*Osmunda cinnamomeum*), royal fern (*Osmunda regalis* var. *spectabilis*), maidencane (*Panicum hemitomon*), primrosewillow (*Ludwigia* sp.), meadowbeauty (*Rhexia* sp.), bracken fern (*Pteridium aquilinum*), beaksedge (*Rhynchospora* sp.), and sugarcane plumegrass (*Saccharum giganteum*). Vines include yellow jessamine (*Gelsemium sempervirens*), Virginia creeper (*Parthenocissus quinquefolia*), laurel greenbrier (*Smilax laurifolia*), eastern poison ivy (*Toxicodendron radicans*), and muscadine grape (*Vitis rotundifolia*).

# Fire Regimes:

Historically, the fire return interval in wet flatwoods is 2 to 4 years for grassy wet flatwoods and 5 to 10 years for shrubby wet flatwoods. However, in areas of heavy fire exclusion and/or densely planted slash pine, mechanical vegetation removal and/or a more frequent fire interval may need to be applied for initial restoration.

### Management Needs:

Management goals for the wet flatwoods at SSF should focus on initiating a frequent prescribed fire regime. In heavily hardwood-invaded areas, prescribed fires should be conducted during the natural fire season to reduce hardwood abundance and encourage herbaceous species.

The use of plowed firebreaks and other practices that disturb the soil should be minimized; existing roads and wetlands should be used for firebreaks whenever possible. New ground disturbances should be avoided to prevent elimination of the natural groundcover and to

prevent establishment of weedy species. Depth of necessary plowed firebreaks should be minimized to prevent hydrologic alteration.

Cogongrass, in particular, has been found in the SSF wet flatwoods and current control efforts must continue and be expanded as needed.

# Q. <u>Wet Prairie</u>

# **Description:**

Wet prairie is an herbaceous community found on continuously wet, but not inundated, soils on somewhat flat or gentle slopes between lower lying depression marshes, shrub bogs, or dome swamps and slightly higher wet or mesic flatwoods. Trees and shrubs are absent or very sparse. It is typically dominated by dense wiregrass (*Aristida stricta* var. *beyrichiana*) in the drier portions, along with foxtail club-moss (*Lycopodiella alopecuroides*), cutover muhly (*Muhlenbergia expansa*), yellow butterwort (*Pinguicula lutea*), and savannah meadowbeauty (*Rhexia alifanus*). In the wetter portions, wiregrass may occur with, or be replaced by, species in the sedge family, such as plumed beaksedge (*Rhynchospora plumosa*), featherbristle beaksedge (*R. oligantha*), Baldwin's nutrush (*Scleria baldwinii*), or slenderfruit nutrush (*S. georgiana*), plus longleaved threeawn (*Aristida palustris*). Also common in wetter areas are carnivorous species, such as pitcher plants (*Sarracenia* sp.), sundews (*Drosera* sp.), butterworts (*Pinguicula* sp.), and bladderworts (*Utricularia* sp.). Other characteristic species in this community include toothache grass (*Ctenium aromaticum*), pineland rayless goldenrod (*Bigelowia nudata*), flattened pipewort (*Eriocaulon compressum*), water cowbane (*Oxypolis filifolia*), and coastalplain yellow-eyed grass (*Xyris ambigua*).

The desired future condition has the species composition described above for the undisturbed areas. There should be no trees or tall shrubs. Short shrubs should cover less than 20 percent of the community. Herb cover should be greater than 75 percent, with less than 5 percent weedy cover.

# **Current Conditions:**

Many wet prairies on SSF, except for about 4 acres in narrow strips adjacent to hardwood hammocks, have converted to a community similar to wet flatwoods due to lack of fire and pine establishment.

# **Fire Regimes:**

Historically, the fire return interval in wet prairie is 2 to 3 years. These frequent fires prevent the invasion of weedy shrubs and trees that shade out herbaceous species.

# Management Needs:

As with the flatwoods, management goals for the wet prairies of SSF should focus implementing frequent prescribed fires. Timing of fires ideally should be during the early lightning season or as close to this period as practicable. Prescribed fires should also be applied to disturbed areas (mostly old agriculture areas) to reduce the dense shrub cover and encourage native species recruitment and colonization. Where necessary, appropriate mechanical treatments may be applied. If practical, seeding or planting of wiregrass and other native pyrogenic species, will allow these areas to burn more readily which will help reduce weedy and invasive species. Roller chopping should be avoided in areas that support

wiregrass and other native species. Although chopping may reduce shrub cover in problem areas, it also reduces wiregrass cover and increases weedy species that are less likely to carry a fire and may alter the hydrology of these sensitive communities.

## R. Xeric Hammock

## **Description:**

Xeric hammock is characterized as a scrubby, dense, low canopy forest with little understory, other than saw palmetto (*Serenoa repens*). Xeric hammock is often considered an advanced successional stage of scrub or sandhill. The variation in vegetation structure is predominantly due to the original community from which it developed.

## **Current Conditions:**

In the xeric hammocks at SSF the closed canopy consists primarily of sand live oak (*Quercus geminata*), sand pine (*Pinus clausa*), and loblolly pine (*Pinus taeda*). The tall shrub layer is comprised of rusty staggerbush (*Lyonia ferruginea*), coastalplain staggerbush (*Lyonia fruticosa*), sand live oak, and myrtle oak (*Quercus myrtifolia*) while the short shrubs include silk bay (*Persea borbonia* var. *humilis*), sand pine, sand live oak, myrtle oak, saw palmetto (*Serenoa repens*), and deerberry (*Vaccinium stamineum*). The herbs are generally sparse and include an herbaceous layer that includes bluestem (*Andropogon* sp.), Michaux's croton (*Croton michauxii*), witchgrass (*Dichanthelium* sp.), slender flattop goldenrod (*Euthamia caroliniana*), downy milkpea (*Galactia volubilis*), crowngrass (*Paspalum* sp.), narrowleaf silkgrass (*Pityopsis graminifolia*), October flower (*Polygonella polygama*), bracken fern (*Pteridium aquilinum*), and sandyfield beaksedge (*Rhynchospora megalocarpa*). Epiphytes can be common and include Bartram's air-plant (*Tillandsia bartramii*), and Spanish moss (*Tillandsia usneoides*).

### Fire Regimes:

Xeric hammock is not a fire-dependent natural community. The sparsity of herbs and the relatively incombustible oak litter preclude most fires in xeric hammock. When fire does occur, it is nearly always catastrophic.

### Management Needs:

Xeric hammocks may be left alone or restored to sandhill. Restoration will require the introduction of fire into the hammock, and may require other measures to reduce oak dominance, such as mechanical removal or herbicide treatment.

# S. <u>Managed Landcover Types</u>

Pine plantations and pastures represent vegetative landcover that the FFS manages as integral components of the agency's multi-use management approach. These managed landcover types provide both ecological benefits, such as wildlife habitat and ground and surface water filtration, as well as opportunities for generating revenue that can be used to help offset management costs. Management of plantations and pastures within the state forests is conducted to further ensure compatibility with other management goals and objectives.

## 1. Pine Plantation

### **Description:**

Pine plantations mapped in SSF are located on historic mesic flatwoods, wet flatwoods, and sandhills. Some of the pine plantations match desired future conditions, while others are significantly altered.

## **Current Conditions:**

Pine plantations are areas altered by silvicultural activities. On SSF, most of these are in areas which were previously improved pasture prior to state acquisition but were subsequently planted with either slash pine (*Pinus elliottii*) or longleaf pine (*Pinus palustris*). These plantings have generally been intended to start the process of restoration.

Pine plantation canopy varies widely on SSF, depending on the age of the stand, species planted, the initial survival rate of the planting, subsequent mortality events, initial spacing of the planting, and thinning. Subcanopy species may include younger pine regeneration of the planted species, regeneration from relict pines of the prior species, or even sand pine (Pinus clausa) seedlings from seed drifting in from adjacent stands. Other shrubs include netted pawpaw (Asimina reticulata), American beautyberry (Callicarpa americana), pricklypear (Opuntia austrina), sand live oak (Quercus geminata), and cabbage palm (Sabal palmetto). The herbaceous layer may be sparse to moderate, depending on the history of thinning, burning and/or herbicide treatments. Herbs observed in the pine plantation at SSF include common ragweed (Ambrosia artemisiifolia), purple bluestem (Andropogon glomeratus var. glaucopsis), bluestem (Andropogon sp.), pinebarren frostweed (Crocanthemum corymbosum), Michaux's croton (Croton michauxii), flatsedge (Cyperus sp.), witchgrass (Dichanthelium sp.), fleabane (Erigeron sp.), dogfennel (Eupatorium capillifolium), slender flattop goldenrod (Euthamia caroliniana), Elliott's milkpea (Galactia elliottii), common yellow woodsorrel (Oxalis corniculata), bahiagrass (Paspalum notatum), and crowngrass (Paspalum sp.).

### Fire Regimes:

Refer to the historic community. Historic pyrogenic communities may require more frequent fire in the beginning than is typical for the historic natural community.

### Management Needs:

In historic pine flatwoods, thinning of the pine stand will promote more herbaceous cover in the understory. However, in pine plantations, planting of native species such as wiregrass, as well as frequent prescribed burns, may be necessary in some areas to move the community towards a more natural structure and composition. Most pine plantations should respond well to increased burning. Management activities that create further soil disturbances should be avoided. Many cogongrass patches have been found in SSF pine plantations, and Caesar weed (*Urena lobata*) is often ubiquitous there, so current control efforts must continue and be expanded as needed.

### 2. Improved Pasture

### **Description:**

Improved pasture on SSF was created prior to state acquisition within natural communities

that include wet flatwoods, mesic flatwoods, scrubby flatwoods, scrub, hydric hammock, and wet prairie. Some of this pasture has been planted as pine plantations as a first step in restoration, some has been left fallow and occasionally mowed and/or burned, some has been turned into wildlife plantings, but most has been retained as pasture and is leased to cattle ranchers, providing revenue for the general fund.

### **Current Conditions:**

Most of the improved pasture on SSF is currently leased for grazing. Generally, the pasture is composed of bahia grass (*Paspalum notatum*), with some areas including prickly pear cactus (*Opuntia austrina*), goldenrod (*Solidago* spp.), dog fennel (*Eupatorium capillifolium*), bluestem bunchgrass species (*Andropogon* spp.), and a variety of scattered herbaceous species. Gopher tortoises (*Gopherus polyphemus*) can be common, scarce, or absent entirely, depending on the site. Southeastern pocket gophers (*Geomys pinetis*) are frequently found here. Florida sandhill cranes (*Antigone canadensis pratensis*) and Osceola wild turkeys (*Meleagris gallopavo osceola*) forage in these pastures. Sometimes invasive plant species such as natal grass (*Melinis repens*), cogongrass (*Imperata cylindrica*), hairy indigo (*Indigofera hirsuta*), and/or tropical soda apple (*Solanum viarum*) can be found and are treated aggressively when present.

### **Fire Regimes:**

Burning of pastures is typically done when adjacent upland habitats are burned, but sometimes independently when adjacent habitat is not a pyric community, usually between lease cycles.

### Management Needs:

Mowing and prescribed fire will be conducted regularly to reduce dog fennel and other forbs. The treatment of invasive plant species should remain ongoing.

### T. Other Altered Landcover Types

### **Description:**

Altered landcover types are mapped where the natural community has been overwhelmingly altered as a result of human activity. The altered landcover types described in this section are often not appropriate areas for restoration. If restoration is desired, the target future condition of the altered habitat is dependent on the historic community. Refer to the appropriate community type for a more specific explanation of the desired future condition.

### **Current Conditions:**

Altered landcover types on SSF comprise abandoned field/abandoned pasture, artificial ponds, clearings, developed areas, roads, and utility corridors.

Abandoned field / abandoned pasture (171 acres) – Old fields, fallow pastures, early successional areas formerly grazed or in agriculture without recent activity to maintain the area as pasture or planted field. These areas are often dominated by weedy native (e.g., *Rubus* sp., *Myrica cerifera*) and non-native species (e.g., *Indigofera hirsuta*). Old pastures are generally designated when weedy cover from woody species (*Rubus* sp., *Myrica cerifera*, etc.) is greater than 20 percent.

Artificial pond (15 acres) – water retention ponds, cattle ponds, etc.

Clearing (1,239 acres) – Dove fields, wildlife food plots, recent or historic clearings that have significantly altered the groundcover and/or overstory of the original natural community (old homesites, etc.).

Developed (15 acres) – Check stations, parking lots, buildings, maintained lawns (as part of recreation, business, or residential areas), botanical or ornamental gardens, campgrounds, recreation, industrial, and residential areas.

Road (386 acres) – paved and unpaved.

Successional Hardwood Forest (22 acres) – Closed-canopied forest dominated by fast growing hardwoods such as laurel oak (*Quercus hemisphaerica*) and cabbage palm (*Sabal palmetto*) often with remnant pines. These forests are either invaded natural habitat (i.e., mesic flatwoods, sandhill, upland pine, upland mixed woodland) due to lengthy firesuppression or old fields that have succeeded to forest. The subcanopy and shrub layers of these forests are often dense and dominated by smaller individuals of the canopy species. Successional hardwood forests can contain remnant species of the former natural community such as turkey oak (*Quercus laevis*), saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), and infrequently wiregrass (*Aristida stricta* var. *beyrichiana*). Additionally, species such as beautyberry (*Callicarpa americana*), muscadine (*Vitis rotundifolia*), and sparkleberry (*Vaccinium arboreum*) are common. Restoration of these forests includes mechanical tree removal and reintroduction of fire. Where characteristic herbaceous species (e.g., wiregrass) have been lost, reintroduction via seed or plants may be necessary to restore natural species composition and community function.

Utility corridor (4 acres) – Electric, gas, telephone rights-of-way.

# **Fire Regimes:**

N / A

# Management Needs:

How altered areas should be managed depends on the specific site under consideration. These areas may be useful for placement of support facilities or may be targeted for restoration of the historic natural community. If left alone most of these areas are likely to remain in an altered state. It may not be practical or desirable to restore some of the altered landcover types (e.g., developed land, roads, etc.) to the historic natural community.

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### IX. Glossary of Abbreviations

ARC	Acquisition and Restoration Council
BMP	Best Management Practice
CARL	Conservation and Recreation Lands Acquisition Program
DHR	Division of Historical Resources
DRP	Division of Recreation and Parks
DSO	Direct Support Organization
F.A.C	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
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FDOT	Florida Department of Transportation
FFS	Florida Forest Service
FNAI	Florida Natural Areas Inventory
F.S	Florida Statutes
FWC	Florida Fish and Wildlife Conservation Commission
LTDS	Line Transect Distance Sampling
NRCS	Natural Resources Conservation Service
SJRWMD	St. Johns River Water Management District
SOR	Save Our Rivers
OALE	DACS Office of Agricultural Law Enforcement
OFW	Outstanding Florida Waters
OPS	Other Personal Services Employment
SSF	Seminole State Forest
TIITF	Board of Trustees of the Internal Improvement Trust Fund
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WMA	Wildlife Management Area
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